



GOVERNMENT OF KERALA

ECONOMIC REVIEW 2021

VOLUME 1

MARCH 2022

KERALA STATE PLANNING BOARD





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ECONOMIC REVIEW 2021

State Planning Board, Thiruvananthapuram, Kerala, India

March 2022

Volume One

Economic Review 2021

Kerala State Planning Board, Thiruvananthapuram, Kerala, India

Design & Layout : C-DIT, www.cdit.org

FOREWORD

In Kerala in May 2021, the economic policy of the preceding five years received a historic stamp of approval when the people re-elected, after 44 years, an incumbent government to office in the State. The people reaffirmed their confidence in the Government and ensured continuity in policy.

The preceding five years were unprecedented in many ways. There were extreme weather events: cyclone Ockhi in 2017, and extreme rainfall events followed by floods and mudslides in 2018 and 2019. There was an outbreak of Nipah virus disease in two districts of the State in 2018. There were new stresses on the State economy caused by demonetisation in 2016 and the introduction of GST in 2017. And in Kerala as elsewhere, the crisis associated with the Covid-19 pandemic unsettled the economy as never before.

Despite the multiple challenges that the Government of Kerala had to confront over five years, the State made short-term, medium-term, and long-term structural gains in different spheres of the economy. In the last five years, there have been the most sweeping changes in decades in public schooling, access to health facilities, a new direction and achievement in housing for the poor and homeless, a transformation in physical infrastructure, a renewed thrust to agriculture, industry, information technology and tourism, a deepening of participatory local government, and the enhancement of social protection and gender empowerment.

Kerala has, especially in recent times, topped or been among the top five states in most of the indices or ranking of States on various parameters. Kerala has topped the SDG India Index for three years (2018, 2019 and 2020) consecutively. By the NITI Aayog's Multidimensional Poverty Index, the headcount ratio for Kerala was 0.71 per cent, the lowest among States in India. The India Skills Report 2022 ranks Kerala third among States in terms of the employability of its youth.

Planned economic development is central to these achievements. Kerala is deeply committed to the process of planning and the Government of Kerala is now formulating the fourteenth Five-Year Plan (2022-27).

Though 2021 began with optimism in the context of the development of vaccines and the spread of vaccination against Covid-19 pandemic, economic activity remained more or less subdued. The sector

that was to an extent insulated from the crisis was agriculture. The animal resources sector in particular registered growth. Early in the pandemic, the Government of Kerala recognized the potential of agriculture, fisheries, and animal resources -- working along with industry and harnessing the power of local governments -- to revive and sustain growth in times of crisis. The Subhiksha Keralam programme was begun under the leadership of the Chief Minister in the initial phase of the pandemic.

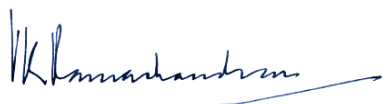
Growth rates would have gone down further if not for the early interventions by the Government to provide fiscal stimuli. In June 2021, a second Rs 20,000 crore economic package was announced; the first package was announced in March 2020 (Kerala was the first state to implement a stimulus package). In addition, a revival package of Rs 5650 crore was announced for small industries. The Government continued to provide free health care to all in public hospitals. Food kits were distributed to all to ensure that no one went hungry. Economic activity was encouraged through 100-day programmes. Employment generation and the creation of livelihoods was a major focus of all government initiatives. In 2021, the Government launched the second phase of Nava Kerala Karma Padhati. Tourism will play a prominent role in post-pandemic revival, and as part of the initial efforts in this sphere, a Caravan Tourism Policy was announced in 2021.

The Government undertook this expenditure within the fiscal constraints set by the Government of India. In the coming years, the fiscal constraints may become more restrictive. The Revenue Deficit Grants recommended by the Fifteenth Finance Commission are to cease after 2023-24. GST compensation may end by June 2022. Further, the borrowing space allowed to States is to be brought back to 3 per cent from 2025-26 onwards. In these circumstances, we need to continue our focus on post-Covid recovery efforts to revive the economy. The task of promoting sustained economic growth in the economy cannot be postponed.

This year's theme chapter is on 25 years of people's planning in Kerala. Kerala is a model State in the sphere of local government. Over the years, local governments have evolved into strong instruments of people's participation and local democracy. Local governments have taken the fruits of development to people and have played an exemplary role in times of crisis. In the next 25 years, local governments must also emerge as engines of growth.

As in previous years, the Economic Review includes information on policies and programmes of Government departments. It discusses the performance of various departments and issues to be addressed in the coming years. Major achievements in sectors have also been highlighted in the relevant sections.

The Review is presented in two volumes. Volume I covers the policies, programmes, and achievements of Government departments and Volume II provides the corresponding datasets. Economic Review 2021 is published in English and Malayalam. A digital version will be uploaded at the State Planning Board website www.spb.kerala.gov.in.



V K Ramachandran
Vice Chairperson
February 1, 2022

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KERALA AT A GLANCE

The economic growth of Kerala, consequent to Covid-19 and containment measures, went into negative territory as in many parts of the country and the world. The growth in Gross State Value Added (at constant prices) as per quick estimates dipped to a low of (-)8.16 per cent in 2020-21 as against 2.19 per cent growth in 2019-20. At current prices, the GSVVA declined by -2.54 per cent in 2020-21 against 5.28 per cent growth in 2019-20. The decline in Gross State Domestic Product growth was even further with a dip of (-)9.20 per cent at constant prices and (-)3.01 per cent at current prices. The corresponding growth in 2019-20 was 2.22 per cent and 4.58 per cent respectively.

As per quick estimates (at current prices) the primary sector recorded a growth of 6.28 per cent while the growth in secondary and tertiary sectors was (-)3.71 per cent and (-)3.64 per cent respectively in 2020-21. Sectors that were badly affected include manufacturing, trade and repair services, hotels and restaurants, construction, road transport, financial services, and public administration. It was mainly the growth propelling sectors of the economy that were badly affected by the pandemic and consequent lockdowns over the last two years.

The Covid-19 pandemic was an added set-back to the State economy which had already been affected by unprecedented floods in 2018 and 2019. The State has been increasingly witnessing impacts of climate change variations. The year 2021 also witnessed period of extreme rainfall events. The pre-monsoon rainfall received in the State from March 1, 2021 to May 31, 2021 was largely in excess with a departure of 111 per cent from the normal. During the North East Monsoon season (October 1 to November 30, 2021), the State received 981mm of rainfall against normal of 456.6mm, a percentage departure of 114 per cent from the normal. Climate change impacts have affected growth patterns and pose a serious threat to sustainable development in the State.

The contraction in growth would have been more but for the economic stimulus packages announced by the Government of Kerala from time to time. The Government announced two economic packages of ₹20,000 crore in March 2020 and June 2021 respectively. Further, in July 2021, a supplementary package of ₹5,650 crore was announced to support small industries. These stimulus packages have helped in stimulating growth at a time when economic activities were severely constrained.

Despite the negative growth in 2020-21, Kerala continues to be a relatively high income State with average income per person in the State being 1.5 times the all-India average as per the per capita GSDP estimates of 2020-21. In terms of poverty, Kerala is the State with the lowest poverty across India, according to NITI Aayog's first Multidimensional Poverty Index report.

As already mentioned, to revive the economy affected by the pandemic and the economic downturn, the State adopted a counter-cyclical fiscal policy and pumped in money into the economy through various stimulus packages. The Government stepped in to offer relief to the most vulnerable sections of the society by providing essential services, goods, and cash. The State had to prioritise recovery and growth within the existing fiscal consolidation framework. Revenue Deficit/GSDP ratio for 2020-21 rose to 2.51 per cent as against 1.76 per cent in 2019-20. As per the Budget estimates of 2021-22,

Revenue Deficit/GSDP ratio is estimated to be 1.93 per cent. Fiscal deficit/GSDP ratio, which was 2.89 per cent in 2019-20 has increased to 4.40 per cent in 2020-21 and is estimated to be 3.5 per cent in 2021-22. It is to be noted that the rise is in the background of enhancement of borrowing limit from 3 to 5 per cent of GSDP for 2020-21 by Government of India.

In 2020-21, the revenue receipts of the State in proportion to GSDP increased marginally to 12.21 per cent from 10.94 per cent in 2019-20. Despite decline in State's Own Tax Revenue and State's Own Non-Tax Revenue by 5.3 per cent and 40 per cent respectively, total receipts of the State increased by 8.2 per cent because of the increase in the central receipts by way of revenue deficit grants and GST compensation. However, it is a matter of concern for Kerala that in the 15th Finance Commission period its inter se share in tax devolution has shrunk to 1.925 per cent from 2.5 per cent during the 14th Finance Commission period causing significant loss to the State's revenue receipts. Capital outlay to GSDP ratio has slightly increased to 1.61 per cent in 2020-21 from 1.03 per cent in 2019-20 and capital expenditure has increased by 11 per cent in 2020-21 as compared to 2019-20.

The disruption in economic activities, as evident, has affected price trends in the economy with all India Consumer Price Index inflation fluctuating between 4.06 per cent and 6.3 per cent during January to September, 2021. The fluctuation in prices in Kerala was reportedly lesser with CPI inflation ranging between 4.04 and 5.85 in the corresponding period. A major part of revival strategy during the Covid-19 pandemic was linked to credit induced growth in the economy. As per State Level Banker's Committee data, there was 8.28 per cent increase in advances disbursed by commercial banks and co-operative banks in the State in 2021 as compared to March 2020. This was higher than the growth of 7.6 per cent recorded in March 2020 over March 2019. However, a matter of concern is the credit deposit ratio in Kerala. The credit deposit ratio of scheduled commercial banks decreased to 61.52 per cent in 2021 from 64.26 per cent in 2020. It is in fact lower than the all India average of 71.47 per cent.

In terms of sector-wise growth, the performance of the agriculture sector in the State showed improvement in 2020-21 compared to 2019-20. According to the data from the Directorate of Economics and Statistics (DES), there was an increase in the share of agriculture and allied sectors in total GSVA (at constant 2011-12 prices) of the State from 8.38 per cent in 2019-20 to 9.44 per cent. The contribution by the crop sector also increased from 4.32 to 4.96 per cent during the period.

The annual growth rate of GSVA (at constant 2011-12 prices) of agriculture and allied activities (including crops, livestock, forestry and logging and fishing and aquaculture) has been fluctuating over the years. The sector recorded a positive growth of 2.11 per cent in 2017-18. As a consequence of floods and consequent damages, the growth rate was negative in 2018-19 and 2019-20. In 2020-21, growth rate of agriculture and allied activities was 3.38 per cent compared to (-)5.09 per cent in 2019-20. The growth in the crop sector was 5.44 per cent compared to (-)5.53 per cent in 2019-20. In 2020-21, livestock and crop sector recorded a positive growth rate at constant prices.

As per the land use data of 2020-21, out of a total geographical area of 38.86 lakh ha, total cultivated area is 25.69 lakh ha (66.10 per cent) and the net area sown is 20.35 lakh ha (52.37 per cent). Land put to non-agricultural use is 11.86 per cent and forest area is 27.83 per cent. The cultivable waste and

current fallow constituted 2.42 per cent and 1.40 per cent respectively. The land use data in 2019-20 was more or less similar.

In the gross cropped area of 25.69 lakh hectares in 2020-21, food crops comprising rice, pulses, tapioca, ragi, small millets, sweet potato and other tubers occupied 11.03 per cent. In 2020-21, food crops except pulses and small millets showed an increasing trend in production. Cash crops cashew, rubber, pepper, coconut, cardamom, tea and coffee constituted 62.3 per cent and rubber, coffee, tea and cardamom was 27.7 per cent of the total cropped area. The production of rice, tapioca and sweet potato recorded an increase of 6.8 per cent, 16.8 and 56.6 per cent respectively. In the case of spices, pepper showed a decline in production, while production of ginger and turmeric showed an increase. In the case of plantation crops, coffee, tea and cardamom have shown an increase in production while rubber has shown a marginal decline in production. As against the previous year, banana production recorded a decline of 0.8 per cent while other plantains recorded an increase of 1.5 per cent. The production of cashew nut increased by 7.5 per cent in 2020-21 as compared to 2019-20.

A major intervention in the field of agriculture in 2021 was the introduction of “Kerala farm fresh *Pazham Pachakkari* - base price” programme to facilitate assured price to farmers. Base price was fixed for 16 items of vegetables and fruits in the State. Farmers were compensated with the difference in price, in the event of fall in market price below the base price.

The total fish production in Kerala was 6.14 lakh tonnes in 2020-21, 3.9 lakh tonnes from marine fisheries and 2.24 lakh tonnes inland fisheries. It was lower than the fish production in 2019-20 (6.8 lakh tonnes). Inland fish production in Kerala has increased gradually during the last four years. It has increased from 1.89 lakh tonnes in 2017-18 to 2.24 lakh tonnes in 2020-21. A major constraint in inland fisheries is the availability of good quality fish seed. To ensure self-sufficiency in fish seed production, new hatcheries were established. A total of 15.02 crore seed production was achieved through department hatcheries in 2020-21.

One of the major interventions in the water resource sector has been the focus on completion of the major irrigation projects of the State - Muvattupuzha, Idamalayar, Karapuzha and Banasuragar. A historic achievement was the commissioning of the Muvattupuzha project in 2020. The efforts to renovate the Pazhassi Irrigation Project, which was started four decades ago are on track and is expected to be completed by 2021-22. As per the assessment of the Directorate of Economics and Statistics the net irrigated area in the State is 3.897 lakh ha and gross irrigated area is 5.215 lakh ha. There is a slight increase in gross irrigated area in 2020-21 as compared to 2019-20 (5.176 lakh ha), though net irrigated area has declined from 4.041 lakh hectare to 3.897 lakh ha. Paddy and Coconut continue to be the major crops benefited during 2020-21 and the irrigated area under both these crops have increased from last year.

Cooperatives play a prominent role in Kerala’s socio-economic development process. Several initiatives have been launched in the 13th Plan by the cooperatives such as branding and marketing of products of co-operative societies, Care Kerala to provide relief and rehabilitation support to flood affected people, disbursement of pension, *vidyatharangini* scheme that provides interest free loans to students to buy mobile phones for online classes, *muthathe mulla* scheme to protect people from the clutches of

money lenders, and deposit mobilisation campaign to attract deposits. Youth co-operatives have been started which are one of its first kinds in the country. As part of the 100 days programme, 30 youth societies were started against the target of 25 set by the Government. The Department of Co-operation also contributed to employment creation as part of the 100 days programme of the Government.

Ensuring food security during all times has been the cornerstone of Government's policy. The Government has successfully completed end to end computerisation of supply chain and inter-state portability of ration cards. As of August 2021, the number of ration card holders in the State is 90.70 lakh. During the pandemic, the Government provided essential items free of cost to all ration card holders. On the eve of Onam in 2021, food kits were distributed to 86.92 lakh families. The Government has started Subhiksha hotels in Alappuzha, Thrissur, Kottayam where lunch is provided at a cost of ₹20 to all. Efforts are being taken to establish Subhiksha hotels in all districts.

As regarding the manufacturing sector, according to quick estimates of Kerala's GSVVA (at constant prices), growth in the sector was (-)8.94 per cent in 2020-21. In the 13th Plan period, the Government has laid emphasis on promotion of MSMEs in the State. In 2020-21, 11,540 new MSME units were started in the State with an investment of Rs1,221.86 crore and provided employment to 44,975 persons. In 2021-22, 5,326 new units employing 21,382 persons were started up to September 30, 2021. Another focus area of the Government has been the Public Sector Units in the State. The Government is in the process of streamlining selection and recruitment of employees in PSUs. The turnover of State PSUs increased by 4.7 per cent in 2020-21 as compared to 2019-20. Within PSUs, a significant development is that the performance of some of the units in the textile sector has improved.

The impact of Covid-19 pandemic on industries was severe. Disruption in supply chain, closure of markets, and loss of working days affected production and sale of most of the industries. Traditional industries were badly hit. In the handloom sector, compared to 2019-20, the total number of looms, total production, value of production, productivity, total turnover, number of weavers, person days of work generated and number of women employed fell drastically in 2020-21. Given the relevance of the industrial sector in growth and employment, the Government provided support to industries in the time of pandemic by introducing the *Vyavasaya Bhadratha* package and *Covid Samashwasa Padbathi*. Despite the pandemic induced uncertainties, the Government continued its efforts to promote traditional industries. For instance, in coir sector, the ninth edition of the international event on coir and natural fibre products, Coir Kerala 2021 was held from February 16 to 21, 2021. With Alappuzha as the nerve centre, the event was held virtually on an online platform. An International Expo with about two-hundred virtual stalls from across the country was arranged. Buyers and sellers meet, seminars, discussions and cultural programmes were also held as part of the event. About 5 lakh viewers and 527 buyers visited the event online. The event garnered orders worth ₹616.73 crore for exhibitors, of which orders for about ₹448.73 crore was for exhibitors from the state and orders for ₹121.00 crore was for exhibitors from outside the state.

Service sector has been one of the mainstays of Kerala's economic growth. Kerala has emerged as a major IT destination in the country with the proactive support from the Government. The major IT projects of the Government, Skill Delivery Project and Kerala Fibre Optic Network are progressing well. KFON project is scheduled to be completed by April 30, 2022. Kerala has created a well-

established system to nurture startups in the State. Even during the pandemic times, there was an increase in the number of startups.

Tourism sector in Kerala continued to be ravaged by the pandemic with the total international footfall in the first six months of 2021 being only 16,000, almost 3 lakh less than the footfall in the first six months of 2020. Domestic tourist arrivals for the corresponding period was 27 lakhs, 10 lakh less than the footfall in the first six months of 2020. Tourism sector has been affected since 2018 with floods and nipah virus in the State. With Covid-19 pandemic, the number of tourists declined drastically in 2020. The total number of foreign tourists in the State in 2020 was 3.4 lakh, 71.36 per cent lower as compared to 11.89 lakh in 2019. Similarly, the number of domestic tourist arrivals to Kerala was 49.8 lakh, 72.86 per cent less than 183.84 lakh in 2019. The number of tourists in the State in 2020 was only around one fourth of their number in 2019 reflecting the gravity of the crisis in the sector. In effect, the total earnings of tourism (foreign and domestic) decreased to ₹11,335 crore in 2020 from ₹45,010 crore in 2019.

Realising the significance of tourism sector in post-pandemic revival, the Government of Kerala announced a Caravan Tourism policy in 2021 promising a safe, customised, and close-to-nature travel experience for visitors. Keravan Kerala is being developed on a PPP mode and consists of two components- Tourism Caravans and Caravan Parks. The Government has also announced two new tourism circuit projects – Biodiversity circuit and Malabar Literacy Circuit. ‘Take a Break’ (TAB) was an innovative programme envisioned by the State Government to establish refreshment facilities and toilet complexes to address the issue of shortage of quality public toilets in the State. As part of the Chief-minister’s 100 days programme, 100 TABs have been completed. Through the project, the state also aims to solve the long pending demand for public sanitation facilities by tourists. This would greatly contribute to the development of tourism industry in the State.

With a decline in growth and economic activity in most of the sectors in the pandemic period, labour markets were affected adversely. According to the Quarterly Bulletin of National Statistical Office, for the quarter ending March 2021, Labour Force Participation Rate in urban areas in Kerala as per Current Weekly Status has come down from 37.2 per cent in January to March 2020 to 35.7 per cent in January to March 2021. In April to June 2020 quarter, when the economy was in a continuous lockdown period, the LFPR was 34.50 per cent. As per the computation of annual Labour Force Participation Rate, the Periodic Labour Force Survey of 2019-20 estimates shows that LFPR in Kerala has increased to 40.5 per cent from 39.5 per cent in 2018-19.

The average wage rate in Kerala for all quarters is higher than that of India both in urban and rural areas. This is one of the main reasons for a significant presence of migrant labourers (called guest workers) in the State. As per a recent study on in-migration, informal employment and urbanisation in Kerala by Dr Jajati Keshari Parida and Dr K Raviraman, the estimated number of other State migrants in Kerala is 31.5 lakhs in 2017-18. These numbers pertain to pre-Covid situation. During the period of lockdown, the Government took all efforts to address the concerns of guest workers regarding their work, food, medicine, travel, vaccination, and other Covid related precautions.

Unemployment has been a serious concern for Kerala. The unemployment rate has increased to 10 per cent in 2019-20 from 9 per cent in 2018-19 as per the estimates of Periodic Labour Force Survey

2019-20. It is much higher than the all India unemployment rate of 4.8 per cent in 2019-20. In addition, more than 17 lakh non-resident keralites have returned to the State in the wake of Covid-19. Around 72 per cent of the return emigrants have lost their jobs. Rehabilitation and reintegration of NRKs is a big challenge. To address the issue of unemployment, the Government has initiated a massive programme, the Kerala Knowledge Economy Mission, to create 20 lakh jobs in the economy within the next five years. Skill Development is crucial to the strategy of job creation. Additional Skills Acquisition Programme has played a key role in transforming the skill development scenario in the State. The India Skills Report 2022 ranks Kerala third in terms of employability after Maharashtra and Uttar Pradesh. In terms of female employability resources, Kerala is ranked fourth. Kerala is also among top 5 states where maximum hiring activity is forecasted in coming years. These developments reflect the outcome of interventions by the Government in developing a strong skill ecosystem in the State.

The Government of Kerala has given prime importance to infrastructure development. In the power sector, the focus is on tapping non-conventional sources of energy. KIIFB has contributed in a major way to spearhead infrastructure growth in the State. As of September 2021, 912 infrastructure projects worth ₹44,323 crore have been approved. In addition, land acquisition for six projects worth ₹20,000 crore has been approved taking the total to ₹64,323 crore. The major share of KIIFB projects are in the roads sector followed by water resources and power. Under the Rebuild Kerala Initiative as on September 30, 2021, administrative sanction has been issued for projects worth ₹7803.95 crore of 12 departments. The major chunk of projects belongs to the roads and bridges sector.

With regard to provision of basic infrastructure, LIFE Mission plays a prominent role. LIFE Mission is a major housing scheme initiated by the Government in 2016. As on November 2, 2021, a total number of 2,76,009 houses have been constructed under this programme. As regards water supply, Kerala has provided 4,04,464 rural household connections under Jal Jeevan Mission, a centrally sponsored programme, where State and Centre put in equal amount of funds.

Kerala has achieved significant progress in ensuring social protection. Over the last five years, welfare pensions have been enhanced from ₹600 per beneficiary in 2016 to ₹1,600 per beneficiary in 2021. As on October 2021, there are 51.35 lakh pensioners in the State, out of which 32 lakh are women beneficiaries. Welfare pensions are also distributed through different Welfare Fund Boards. In 2020-21, ₹951 crore was distributed among 17.2 lakh beneficiaries. To reduce anaemia among women and children, Department of Women and Children has launched an awareness campaign named “Campaign 12” for a period of one year from January 12, 2021.

The State Government is committed to its effort to enhance human development and incomes among the people of the Scheduled Castes and Scheduled Tribes. Two new Model Residential Schools were started in Kozhikode and Kannur districts in 2020-21. In 2020-21, 6,935 study rooms were constructed for the students from families having annual income of less than ₹1.00 lakh in high school and higher secondary classes. 2,307 study rooms were constructed in 2021-22 (as on September 30, 2021). 800 talented tribal students were assisted under the ‘Ayyankali Memorial Talent Search and Development Scheme’. In 2020-21, 1,600 ST youths participated in 6 skill training programmes. Of the completed training programmes, 317 youth were successfully placed in private enterprises. The

Scheduled Tribe Department has initiated an innovative pilot project called *Haritha Resmi* to address nutrition sufficiency in Idukki and Wayanad tribal areas. It has benefitted to 2,500 Scheduled Tribe families in Idukki and Wayanad.

Education and health are two areas where Kerala has a proud legacy. The Government's efforts to strengthen this legacy continue. There is an increase in the enrolment of students in 2021-2022 to 38.68 lakh from 37.58 lakh in 2020-21. The increase is prominent in LP and UP sections. The total number of new students enrolled in Government and Government-aided schools in the last 5 years is 8.91 lakh highlighting a major shift to Government schools. The State Government was successful in ensuring academic continuity at the time of pandemic by launching digital classes via First Bell 2.0 from June 1st.

In the health sector, the Government has given emphasis to the e-health project, which aims to build a database of individual medical records accessible to all medical practitioners. e-health project is completed in 326 hospitals. Kerala is the only state in the country where a base of 2,62,96,323 people has been collected and stored as electronic records.

The Government recognises the importance of waste management and taken several efforts in this sphere. It is estimated that Kerala generates 10,504 tonnes per day (TPD) of solid waste; out of which 3,472 tonnes are generated by Urban Local Governments and 7,032 tonnes by Grama Panchayats. 49 per cent of the waste is generated in households, 36 per cent in institutions and 15 per cent in public places. In 2019-20 and 2020-21, Clean Kerala Company collected e-waste of 173 tonnes and 77 tonnes respectively. During 2021-22, the slogan "My waste is my responsibility" was propagated massively and state-wide arrangements were made to treat it at source.

A major intervention by the State Government has been provision of hassle free public services. Kerala e-Service portal, e-SEVANAM and mobile application called m-SEVANAM are significant developments in this direction. e-SEVANAM, launched as a good governance initiative, has used technology to aggregate almost all online services (G2C and G2B) of Government of Kerala in a single platform. In addition to the consolidation of around 500 services of more than 60 departments in a single platform, all mobile friendly services (about 450 services) are rendered through a uniform mobile application called m-SEVANAM.

Transparency and dissemination of information have been at the core of Government's administration. *Satyameva Jayathe*, a digital media and information literacy campaign, is part of the Chief Minister's 10 point programme. As part of this, four videos were prepared by C-DIT aiming at creating awareness among the general public on the false campaigns being unleashed in the social media. These videos were premiered in VICTERS TV from February 09, 2021 onwards.

Promotion of Arts, culture and sports has always an area of emphasis. It was a historic achievement for India in Tokyo Olympics 2021 where India won 7 medals. Tokyo Olympics was memorable for Kerala also. From Kerala, 9 players participated in the Tokyo Olympics 2021. Out of which, 6 were in track and field. Sri P.R. Sreejesh, member of the Indian hockey team won the bronze medal. He is the 2nd Keralite to win an Olympic medal.

In art and culture, 825 artists were selected from 241 art forms under the Diamond Jubilee Fellowship Scheme. The Diamond Jubilee Fellowship Scheme for Thousand Young Artists is a project to discover the power of Kerala's diverse and rich artistic heritage and present it to the community. The programme envisages selection of young men and women who have certain qualifications in fine arts and proficiency in folk arts and providing them with a platform to train other people. Though this programme, the artists are supported by giving fellowships for a fixed period of time.

The Government also supported the artistes in the time of pandemic. An emergency financial assistance of ₹640 lakh was provided to 32,000 artists and related workers at the rate of ₹1,000 per month for 2 months for those who lost their livelihood due to Covid-19 pandemic. Artists who have been working in the arts sector for 10 consecutive years and have settled permanently in Kerala were selected for financial assistance. ₹290.50 lakh was disbursed from the Chief Minister's Distress Relief Fund at the rate of ₹1,000 per person to 29,050 artists and related workers who had not been able to apply for relief funding through the Department of Culture and Academies and had not received other financial assistance.

Development in all spheres has been taken forward by the State along with the strong involvement of Local Governments. Kerala is celebrating 25 years of people's planning and is a model to others in the sphere of decentralised governance and people's planning. In the 13th Plan period, several initiatives were taken to streamline the planning process and strengthen the delivery of services by Local Governments. Local Governments contributed in several ways at times of crisis. It was in fact their leadership and role that helped the people in surmounting the various crises, be it floods or the pandemic. In the coming years, Local Governments should emerge as engines of growth and stimulate productive forces in the economy to spearhead growth.

To conclude the State Government continued its policy of promoting growth and development in the economy and ensure social protection and welfare despite the constraints imposed by the Covid-19 pandemic. Kerala will build on its strength to move ahead by developing high quality physical and social infrastructure for achieving higher economic growth and a better quality of life for its people.

KERALAS ECONOMIC AND SOCIAL INDICATORS - A QUICK LOOK

Sl. No	Item	Units	1960-61	1970-71	1980-81	1990-91	2000-01	2010-11	2016-17	2017-18	2018-19	2019-20	2020-21
1	Geographical Area	Sq.Km.	38856.7	38864	38863	38863	38863	38863	38863	38863	38863	38863	38863
Administrative Setup													
2	Revenue Divisions	No.						21	21	26	27	27	27
3	Districts	No.	9	10	12	14	14	14	14	14	14	14	14
4	Taluks	No.	55	56	58	61	63	63	75	75	75	77	77
5	Villages	No.		1326	1331	1364	1452	1532	1664	1664	1664	1664	1664
6	Towns	No.	92	88	106	197	159	520	520	520	520	520	520
Population as per Census			1951	1961	1971	1981	1991	2001			2011		
7	Total	(in 000s)	13549	16904	21347	25454	29099	31844			33406		
8	Males	(in 000s)		8362	10588	12609	14289	15469			16027		
9	Females	(in 000s)		8542	10760	12885	14810	16373			17379		
10	Rural	(in 000s)		14351	17880	20682	21618	23574			17471		
11	Urban	(in 000s)		2552	3467	4771	7018	8267			15935		
12	Scheduled Castes	(in 000s)		1422	2002*	2549	2887	3124			3040		
13	Scheduled Tribes	(in 000s)		208	193*	261	321	364			485		
14	Density of Population	No. Per Sq.Km.		435	549	655	749	819			860		
15	Literacy Rate	Percentage		55	60	70	90	90			94		
16	Sex Ratio	Females per 1000 males		1022	1016	1032	1036	1058			1084		
17	Urban Population	Percentage		15	16	19	24	26			48		
GSDP - at constant prices			1960-61	1970-71	1980-81	1990-91	2000-01	2009-10	2016-17	2017-18	2018-19	2019-20(P)	2020-21(Q)
18	GSDP	₹crore	462	1255	3823	12195	63715	180812	485301.54	516189.76	554228.31	566522.70	514399.99
19	Primary Sector (GSVA)	₹crore	241	653	1682	4756	14017	15966	45936.94	47619.23	46114.01	43161.34	44804.72
20	Secondary Sector (GSVA)	₹crore	68	163	841	3171	14017	38249	123289.49	129866.26	130450.39	126923.80	114871.28
21	Tertiary Sector (GSVA)	₹crore	153	439	1300	4268	35680	126597	266144.63	283268.51	303661.64	320680.82	291020.18
22	Percapita Income	₹	276	594	1508	4207	19951	47360	141398	149650	159878	162610.00	146910
Agriculture			1960-61	1970-71	1980-81	1990-91	2000-01	2009-10	2016-17	2017-18	2018-19	2019-20	2020-21
23	Net Area Sown	000 ha.	1923	2171	2180	2247	2206	2079	2015	2040	2033	2026	2035
24	Gross Cropped Area	'000 ha.	2349	2933	2885	3020	3022	2669	2584	2579	2571	2586	2569
25	Gross Irrigated Area	'000 ha.			381	385	460.3	458	497	539.87	515.39	517.64	521.48
26	Gross Irrigated Area to Gross Cropped Area	Percentage			13	13	15	18	19	21	20	20.01	20.3
Gross area under principal crops			1960-61	1970-71	1980-81	1990-91	2000-01	2012-13	2016-17	2017-18	2018-19	2019-20	2020-21
27	Paddy (wetland)	000 ha.	779	875	802	559	347	197	166	189	198	191.05	201.8
28	All Pulses	'000 ha.	44	40	34	23		3	1.74	1.9	2.5	2.26	2.01
29	Sugarcane Harvested Area	'000 ha.	9	8	8	8	3	2		1.05	1.01	0.95	0.92
30	Rubber	'000 ha.	133	188	238	384	474	545	551.05	551	551.2	551.03	550.65
31	Tea	'000 ha.	40	37	36	35	37	30	30.2	30	36.47	35.87	35.87

32	Coconut	'000 ha.	501	719	651	870	926	798	781.5	760.4	760.94	760.77	768.81	
33	Arecanut	'000 ha.	54	86	61	65		102	97.7	94.6	95.73	96.9	96.57	
34	Groundnut	'000 ha.	16	15	9	13		0.7		0.27	0.18	0.12	0.11	
35	Pepper	'000 ha.	100	12	108	169	202	85	85.2	85.1	82.76	83.76	82.12	
36	Cardamom	'000 ha.	29	47	56	67	41	42	39	39.1	38.88	39.69	39.14	
37	Ginger	'000 ha.	12	12	13	14	12	5	5.15	4.37	3.27	2.82	2.7	
Production of Principal Crops			1960-61	1970-71	1980-81	1990-91	2000-01	2012-13	2016-17	2017-18	2018-19	2019-20	2020-21	
38	Rice	'000 tonnes	1068	1298	1272	1087	751	509	436	521.3	578.25	587.1	626.88	
39	All Pulses	'000 tonnes	18	13	22	17		3	1.7	2.04	2.3	2.18	1.92	
40	Sugarcane	'000 tonnes	38	38	48	52	28	17		11.5	10.63	12.08	10.66	
41	Rubber	'000 tonnes	24	88	140	308	560	800	540.4	540.7	492.5	533.5	519.5	
42	Tea	'000 tonnes	39	43	48	63	69	63	61.5	62.23	60.76	59.26	66.85	
43	Coconut	In million nuts	3220	3981	3008	4232	5536	5799	5384	5230	5299	4814	4788	
44	Arecanut	'000 tonnes	8	13	11	13		118	116.8	108.5	99.92	92.75	103.16	
45	Groundnut	'000 tonnes	14	16	8	10	10	9		0.38	0.24	0.15	0.14	
46	Pepper	'000 tonnes	27	25	29	47	61	46	34.06	37.9	36.77	34.54	33.59	
47	Cardamom	'000 tonnes	1	1	3	3		10	17.14	18.3	11.53	10.07	20.57	
48	Ginger	'000 tonnes	11	20	32	46	42	22	20.47	18.9	15.12	11.92	12.09	
Livestock Census			1977	1982	1987	1996	2003	2007		2012		2019	2020	2021
49	Total Livestock	in lakh	53	56	55	56	35	36		38.88		38.36	38.36	38.36
50	Total Poultry	in lakh		152	185	308	139	127		238.45		298.18	298.18	298.18
Forest			1960-61	1970-71	1980-81	1990-91	2000-01	2011-12	2016-17	2017-18	2018-19	2019-20	2020-21	
51	Forest Area	000 ha.	1056	1056	1123	1122	1115	1131	1131	1152	1152	1152	1152	
Factories			1971	1981	1991	2001	2011	2012	2017	2018	2019	2020	2021	
52	Working Factories	No.	3024	9106	13255	18554	19676	20473	22998	23335	24254	24468	24464	
53	Employees	No.	206839	300515	368738	436410	644606	644802	678058	698679	726195	702901	698551	
54	Employees per lakh population	No.	969	1181	1267	1370	1930	1930	2030	2091	2174	2104	2091	
Electricity			1970-71	1980-81	1990-91	2000-01	2009-10	2011-12	2016-17	2017-18	2018-19	2019-20	2020-21	
55	Total Generation	Mu	2126	5242	5491	7656	6495	8351	4380	5474.4	7577.02	5722.81	7057.9	
56	Total Consumption	Mu		2869	5282	10319	12878	16182	20038	21159.19	22361.45	22948.82	22151.59	
57	Industrial Consumption	Mu		2025	2697	3784	4002	4926	5260	5648.31	5820.49	5683.3	5051.64	
58	Agricultural Consumption	Mu		125	288	350	225	286	322	346	337.65	348.48	403.24	
59	Domestic Consumption	Mu		409	1621	4688	5931	7706	10281	10574.8	10864.34	11898.13	12695.8	
Education			1970-71	1980-81	1990-91	2000-01	2009-10	2012-13	2016-17	2017-18	2018-19	2019-20	2020-21	
60	Primary Schools	No.	9437	9605	9682	9714	9828	9737	9861	9852	9841	9833	9858	
61	Enrolment in primary school	'000s	4156	4284	4402	3637	3015	2545	2377	2384	2428	2450	2492	
62	High Schools	No.	1199	1971	2451	2596	2814	2890	3021	3119	3120	3118	3128	
63	Enrolment in high school	'000s		1310	1498	1611	1443	1426	1325	1297	1276	1267	1266	
Health			1970-71	1980-81	1990-91	2000-01	2009-10	2011-12	2016-17#	2017-18#	2018-19#	2019-20#	2020-21#	
64	Hospitals	No.	553	746	1199	1319	1254	1255	1463	1470	1470	1471***	1471***	
65	No. of Beds	No.	21777	32447	38726	38242	37021	37388	56257	56596	56596	57713***	57995***	
Vital statistics (Demographic Status)			1970-71	1980-81	1990-91	2001	2009	2010	2011	2017##	2018##		2020-21##	

66	Birth Rate	per 1000 population	32	26	20	16	15	15	15	14.2	13.9	13.5	
67	Death Rate	per 1000 population	9	6	6	7	7	7	7	6.8	6.9	7.1	
68	Infant Mortality Rate	per 1000 population	61	37	21	11	12	14	13	10	7	6	
Transport			1970-71	1980-81	1990-91	2000-01	2010-11	2011-12	2016-17	2017-18	2018-19	2019-20	2020-21
69	Railway Route Length	Kms.	892	921	988	1148	1257	1257	1257	1257	1257	1257	1745 ###
70	Total Road Length**	Kms.	18037	94145	128403	125835	151652	244373	218942	229349.2	273113.3	229082.02	238773.02
71	Motor Vehicles	No.	86234	195000	648000	2111885	6072019	8048673	11030037	12042691	13334984	14184184	14847163
Local Governments			1990-91	2000-01	2006-07	2007-08	2008-09	2010-11	2016-17	2017-18	2018-19	2019-20	2020-21
72	District Panchayats	No.		14	14	14	14	14	14	14	14	14	14
73	Block Panchayats	No.		152	152	152	152	152	152	152	152	152	152
74	Grama Panchayats	No.	983	990	999	999	999	978	941	941	941	941	941
75	Municipalities	No.	58	53	53	53	53	60	87	87	87	87	87
76	Corporations	No.	3	5	5	5	5	5	6	6	6	6	6

Modern Medicine and Ayush included:

##SRS May 2019, 2020, October 2021

Including route length and running track

*Base year 2011-12

**Excludes LSGD non pucca road

***Including RCC

(P) Provisional estimate

(Q) Quick estimate

ha Hectare

Mu Million Unit

DISTRICTS AN OVERVIEW

Sl. No.	Items	TVM	KLM	PTA	ALP	KTM	IDK	EKM
1	Area (sq Km)	2192	2491	2637	1414	2208	4358	3068
2	Forest Cover (sq. Km)*	1304	1322	1956	80	1104	3151	1366
3	Population 2011 (in Lakh)	33.01	26.35	11.97	21.28	19.75	11.1	32.82
	Rural	15.3	14.48	10.65	9.79	14.09	10.57	10.48
	Male	7.25	6.81	5	4.65	6.93	5.27	5.18
	Female	8.05	7.68	5.66	5.15	7.16	5.3	5.3
	Percentage Decadal Growth (2001-2011)	-28.6	-31.7	-4	-34.2	-14.8	-1.4	-35.7
	Urban	17.72	11.87	1.32	11.48	5.65	0.52	22.34
	Male	8.57	5.66	0.62	5.48	2.76	0.26	11.01
	Female	9.15	6.21	0.71	6	2.91	0.26	11.33
	Percentage Decadal Growth (2001-2011)	62.3	154.8	6.3	84.8	88.6	-9.6	51.3
	Density	1508	1061	452	1504	895	255	1072
	Fishermen Population, in number	164883	123100	2073	167794	24420	691	133387
	SC population as % of Total Population	11.3	12.5	13.7	9.5	7.8	13.1	8.2
	ST population as % of Total Population	0.8	0.4	0.7	0.3	1.1	5.0	0.5
4	Literacy Rate (2011)							
	Male	94.2	95.8	97.7	97.9	97.2	94.8	97.1
	Female	90.9	91.9	96.3	94.8	95.7	89.6	94.3
5	Percentage of Dropouts 2019-20 (latest)							
	Lower Primary	159	68	1	2	69	117	256
	Upper Primary	72	23	1	1	25	31	77
	High School	203	48	2	27	77	157	167
6	GSVA 2020-21 (Quick) (at constant price)							
	GSVA at Basic Prices (₹ in lakh)	4777314	4156843	1335007	3251811	2879484	1497504	5650813
	Share in Percentage							
	Primary	7.01	8.99	21.47	5.72	12.17	31.44	7.19
	Secondary	24.90	25.12	22.04	31.40	20.99	20.02	23.66
	Tertiary	68.08	65.89	56.49	62.88	66.85	48.54	69.15
7	Production of Rice in Kerala (2020-21) in Tonnes	5660	5219	11144	125803	54268	1900	10971
8	Net Area Irrigated (2020-21) in ha	6464.07	4659.54	7224.00	36275.99	16860.50	43881.54	21795.23
9	Number of Commercial Banks (March 2021)	736	402	385	395	522	193	1013

10	CD ratio	66.71	62.54	24.83	45.75	51.68	110.4	80.44
11	No. of Registered SSI/MSME 2020-21	729	745	646	791	544	284	1165
12	Length of PWD Roads ** (km)	2377.04	1924.09	1993.27	1405.4	3310.4	2661.28	2964.49
13	No. of Motor Vehicles	1849460	1102051	622374	1024963	903171	315679	2131332
14	Tourist Arrivals 2020							
	Foreign (in no.)	90550	5141	659	46629	20072	20163	134952
	Domestic (in no.)	861130	137228	48960	207507	139038	503938	1103200

Sl. No.	Items	TSR	PLK	MLP	KKD	WYD	KNR	KSD	TOTAL
1	Area (sq Km)	3032	4480	3550	2344	2131	2966	1992	38863
2	Forest Cover (sq. Km)*	1159	2084	1981	1437	1580	1654	966	21144
3	Population 2011 (in Lakh)	31.21	28.11	41.13	30.86	8.17	25.23	13.07	334.06
	Rural	10.25	21.33	22.96	10.13	7.88	8.82	7.98	174.71
	Male	4.88	10.31	10.95	4.85	3.86	4.26	3.88	84.08
	Female	5.36	11.02	12	5.29	3.99	4.56	4.11	90.63
	Percentage Decadal Growth (2001-2011)	-52	-5.7	-29.8	-43	-4.6	-26.3	-17.7	-25.9
	Urban	20.96	6.77	18.17	20.73	0.32	16.41	5.09	159.35
	Male	9.92	3.28	8.65	9.86	0.15	7.56	2.41	76.19
	Female	11.04	3.49	9.52	10.86	0.16	8.85	2.68	83.16
	Percentage Decadal Growth (2001-2011)	149.7	89.8	410.2	88.2	6.6	35.3	117.8	92.8
	Density	1031	627	1157	1316	384	852	657	860
	Fishermen Population, in number	90306	2534	82044	106613	230	60208	43342	1001625
	SC population as % of Total Population	10.4	14.4	7.5	6.5	4.0	3.3	4.1	9.1
	ST population as % of Total Population	0.3	1.7	0.6	0.5	18.5	1.6	3.7	1.5
4	Literacy Rate (2011)								
	Male	96.98	92.27	95.78	97.57	92.84	97.54	93.93	96.1
	Female	93.85	84.99	91.55	93.16	85.94	93.57	86.13	92.1
5	Percentage of Dropouts 2019-20 (latest)								
	Lower Primary	24	224	156	126	54	59	49	1364
	Upper Primary	15	93	120	65	84	30	52	689
	High School	28	210	218	194	416	89	123	1959

6	GSVA 2020-21 (Quick) (at constant price)								
	GSVA at Basic Prices (₹ in lakh)	4507892	3158861	4406779	3873880	891346	3198448	1483636	45069618
	Share in Percentage								
	Primary	6.94	13.71	9.18	6.86	19.45	7.94	15.42	9.94
	Secondary	24.17	25.99	23.91	29.80	19.85	30.82	27.99	25.49
	Tertiary	68.89	60.30	66.91	63.34	60.70	61.25	56.59	64.57
7	Production of Rice in Kerala (2020-21) in Tonnes	87655	246992	30504	2663	23088	14408	6611	626888
8	Net Area Irrigated (2020-21) in ha	62998.24	80818.04	27859.10	3978.78	13696.29	11143.65	52138.71	389793.68
9	Number of Commercial Banks (March 2021)	759	492	505	467	147	394	227	6637
10	CD ratio	52.68	64.27	52.87	71.01	132.35	49.95	75.49	61.52
11	No. of Registered SSI/MSME 2020-21	1855	1477	1149	903	308	724	220	11540
12	Length of PWD Roads **(km)	1932.34	2101.84	2375.27	1952.22	856.95	2223.16	1444.34	29522.15
13	No. of Motor Vehicles	1504867	1019082	1354684	1384217	247215	935399	452669	14847163
14	Tourist Arrivals 2020								
	Foreign (in no.)	3416	742	4100	5262	4131	2754	2184	340755
	Domestic (in no.)	587599	152152	197629	380559	347625	246400	76007	4988972
<i>Note: *open forest included, **excluded LSGD non pucca roads</i>									

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CHAPTER

1

KERALA ECONOMY

KERALA ECONOMY

1.1 RECENT TRENDS IN MACRO-ECONOMIC AGGREGATES

Global Economic Scenario during the Covid-19 Pandemic

The world economy is still reeling under the impact of Covid-19 pandemic, which brought economic activities to a halt during the second quarter of 2020. Governments around the world introduced physical distancing, lockdown and quarantine measures and restricted a wide range of economic activities to restrict the spread of the virus.

According to the World Economic Situation and Prospects 2021 [a report of United Nations Department of Economic and Social Affairs (UN DESA)], global Gross Domestic Product fell by an estimated 4.3 per cent in 2020. Output in developed economies is estimated to have shrunk by 5.6 per cent in 2020, with growth projected to recover to 4.0 per cent in 2021. The developing countries experienced a relatively less severe contraction, with output shrinking by 2.5 per cent in 2020, owing partly to the delayed outbreak of the pandemic and the generally less restrictive measures taken by Governments to contain its spread. Their economies are projected to grow by 5.7 per cent in 2021. The Least Developed Countries (LDCs) saw their Gross Domestic Product (GDP) shrink by 1.3 per cent in 2020, with growth projected to reach 4.9 per cent in 2021.

The pandemic has affected different countries and population groups differently. In all countries that were affected severely by the

pandemic, specific disadvantaged social and income groups bore the brunt of the health and economic shocks of the crisis. There are, however, significant differences in the size of the shock among developing countries, with Latin America and the Caribbean and the South Asian economies taking the hardest hits. In contrast, the economies in East Asia fared relatively better than all other developing regions, with GDP expanding by one per cent in 2020. On the back of a quick and robust recovery in China, the East Asian economies are forecast to grow by 6.4 per cent in 2021.

The pandemic impact on India has been largely disruptive in terms of economic activity. Almost all sectors have been adversely affected as domestic demand and exports fell sharply (although with some notable exceptions).

Trends in Kerala's Income Levels and Growth

Kerala is a relatively high-income Indian State. According to quick estimates, the per capita GSDP in Kerala was ₹1,46,910 in 2020-21. The corresponding national average (for 2020-21) was ₹99,694. In other words, average income per person in Kerala was approximately 1.5 times the Indian average in 2020-21. Kerala, along with Haryana, Karnataka, Telangana, Tamil Nadu, Maharashtra, Gujarat, and, is among the States with the highest incomes per capita in the country.

Kerala's economy has faced a number of setbacks over the last three years. The State was hit by Cyclone Ockhi in 2017, and by severe floods resulting from extreme rainfall events in 2018 and 2019. The economic crisis in the Gulf countries also adversely affected Kerala economy, with a number of emigrant workers returning to the State and with a slowdown in remittance flows unprecedented. Finally the economic crisis associated with the Covid-19 pandemic also severely disrupted economic activities of Kerala. Restrictions on international travel, strict social distancing norms and ceasing of industrial activity has had a severe impact on almost all sectors particularly sectors like travel, tourism and restaurants, among others.

The growth of GSVA (at constant 2011-12 prices) in Kerala drastically decreased from 2.19 per cent in 2019-20 to (-)8.16 per cent in 2020-21. The slowdown in GSVA growth in Kerala in 2020-21 was because of the adverse impact consequent to the Covid-19 pandemic.

The quick estimate of Gross State Domestic Product (GSDP) at constant (2011-12) prices is ₹5,14,39,999 lakh in 2020-21 as against the provisional estimate of ₹5,66,52,270 lakh in 2019-20, showing a negative growth rate of (-)9.20 per cent in 2020-21 compared to 2.22 per cent growth in 2019-20. At current prices, the GSDP is estimated at ₹7,99,57,111 lakh (quick estimate) in 2020-21 as against the provisional estimate of ₹8,24,37,420 lakh in 2019-20, showing a negative growth rate of (-)3.01 per cent. Details are given in **Table 1.1.1.**

Trends at the National Level

According to data from the Central Statistics Office (CSO), Ministry of Statistics and Programme Implementation (MoSPI), India's Gross National Income (GNI) at 2011-12 prices is estimated at ₹133.84 lakh crore in 2020-21, as against the previous year's estimate of ₹144.27 lakh crore. In terms of growth rates, the Gross National Income has decreased (-)7.2 per cent in 2020-21, compared to 4.2 per cent increase in 2019-20. The Gross

Table 1.1.1 State Domestic Product and Per Capita Income of Kerala

	Income, in ₹ Lakh			Growth Rate, in %	
	2018-19	2019-20 (P)	2020-21 (Q)	2019-20 (P)	2020-21 (Q)
Gross State Domestic Product					
a) At Constant (2011-12) prices	55422831	56652270	51439999	2.22	-9.20
b) At Current prices	78828558	82437420	79957111	4.58	-3.01
Net State Domestic Product					
a) At Constant (2011-12) prices	51078693	52145465	47227225	2.09	-9.43
b) At Current prices	71216110	74222347	71803439	4.22	-3.26
Gross State Value Added (GSVA) at basic prices					
a) At Constant (2011-12) prices	48022604	49076596	45069618	2.19	-8.16
b) At Current prices	69618249	73291499	71428858	5.28	-2.54
Per capita GSDP					
a) At Constant (2011-12) Prices	159878	162610	146910	1.71	-9.66
b) At Current Prices	227397	236621	228353	4.06	-3.49
Per capita NSDP					
a) At Constant (2011-12) Prices	147347	149674	134878	1.58	-9.89
b) At Current Prices	205437	213041	205067	3.70	-3.74

Source: Department of Economics and Statistics
Note: P: Provisional Estimate, Q: Quick Estimate

Value Added (GVA) at basic constant (2011-12) prices for 2020-21 is estimated at ₹124.53 lakh crore, a negative growth of (-)6.2 per cent over the GVA for 2019-20 at ₹132.71 lakh crore. The GDP at constant (2011-12) prices for 2020-21 is estimated at ₹135.12 lakh crore, a negative growth of (-)7.2 per cent over ₹145.69 lakh crore in 2019-20. Details are given in **Table 1.1.2**.

India's GDP at current prices in 2020-21 is estimated at ₹197.45 lakh crore, showing a negative growth rate of (-)3.0 per cent over the estimates of GDP for 2019-20 at ₹203.51 lakh crore. India's GVA at current prices is estimated at ₹179.15 lakh crore in 2020-21, compared to ₹184.61 lakh crore in 2019-20, a decrease of (-)3.0 per cent. The per capita GDP in real terms (at 2011-12 prices) in 2020-21 is estimated at ₹99,694 as against ₹1,08,645 in 2019-20, registering a decrease of (-)8.2 per cent. The per capita GDP at current prices is estimated at ₹1,45,680 in 2020-21 as against ₹1,51,760 for the previous year, showing a negative growth of (-)4.0 per cent.

The details of India's GDP, NDP, GNI and NNI at current and constant (2011-12) prices from 2012-13 to 2020-21 with percentage change

over the previous year are given in **Appendix 1.1.1, 1.1.2, 1.1.3 and 1.1.4**. The sector-wise distribution of GVA at the basic constant (2011-12) prices and current prices with percentage change over the previous year is given in **Appendix 1.1.5 and 1.1.6**.

Covid-19 Pandemic and Stress on Kerala's Economy

The Covid-19 pandemic has inflicted a shock to the economy and severe stress on State finances, with Kerala's economy suffering a contraction in Gross State Domestic Product (GSDP) in 2020-21 in relation to Budget Estimate of 2020-21. The contraction in GSDP could have been more severe but for the economic stimulus of ₹20,000 crore announced at the early stage of the pandemic in March 2020. This stimulus package targeted the most vulnerable and also benefited the entire society and greatly reduced the impact of Covid-19 on GSDP. The various stimulus packages announced by Government of Kerala to address the economic impact of Covid-19 is given in **Box 1.1.1**.

The lockdown also adversely impacted the State finances adversely especially during the first quarter of 2020-21. The Government plans to revive the economy by promoting growth in

Table 1.1.2 Gross National Income, Gross Domestic Product and Per Capita income at 2011-12 prices and Current Prices, all India in ₹ crore

Sl. No	Item	At Constant (2011-12) Prices			At Current Prices		
		2018-19	2019-20	2020-21 (PE)	2018-19	2019-20	2020-21 (PE)
1	Gross Domestic Product (GDP)	1,40,03,316	1,45,69,268 (4.0)	1,35,12,740 (-7.2)	1,88,86,957	2,03,51,013 (7.8)	1,97,45,670 (-3.0)
2	Net Domestic Product (NDP)	1,23,92,839	1,28,22,882 (3.5)	1,18,74,000 (-7.4)	1,69,06,970	1,81,87,414 (7.6)	1,76,46,082 (-3.0)
3	GVA at Basic Prices	1,27,44,203	1,32,71,471 (4.1)	1,24,53,430 (-6.2)	1,71,61,213	1,84,61,343 (7.6)	1,79,15,167 (-3.0)
4	Gross National Income (GNI)	1,38,50,857	1,44,27,632 (4.2)	1,33,84,612 (-7.2)	1,86,84,632	2,01,57,899 (7.9)	1,95,61,348 (-3.0)
5	Net National Income (NNI)	1,22,40,380	1,26,81,246 (3.6)	1,17,45,872 (-7.4)	1,67,04,645	1,79,94,301 (7.7)	1,74,61,759 (-3.0)
6	Per Capita Gross Domestic Product (₹)	1,05,526	1,08,645 (3.0)	99,694 (-8.2)	1,42,328	1,51,760 (6.6)	1,45,680 (-4.0)
7	Per Capita Net Domestic Product (₹)	93,389	95,622 (2.4)	87,631 (-8.3)	1,27,407	1,35,626 (6.4)	1,30,229 (-3.9)

Source: Central Statistics Office.

Note: The figures in parenthesis shows the percentage change over the previous year, PE- Provisional Estimate

tourism, MSME, agriculture to ensure a speedy recovery and generate employment. Capital expenditure will be enhanced and development and welfare measures will continue. Promotion of productive and income bearing services will be given top priority.

Figure 1.1.1 shows the annual rates and growth of GSV and GVA in Kerala and India respectively.

The growth of value added in agriculture and allied sectors in Kerala was negative in 2018-19

and 2019-20. The rates of growth were (-)2.09 per cent and (-)5.09 per cent. In 2020-21, the sector recorded 3.38 per cent growth, showing a significant improvement over previous years.

The growth of value added in the construction sector in Kerala slowed down drastically to (-)10.31 per cent in 2020-21 from (-)1.09 per cent in 2019-20. This was mainly due to lock down in many of the service sectors as well as in financial services in 2020-21.

The manufacturing sector also registered a

Box 1.1.1 Economic packages by Government of Kerala to tackle the impact of Covid-19

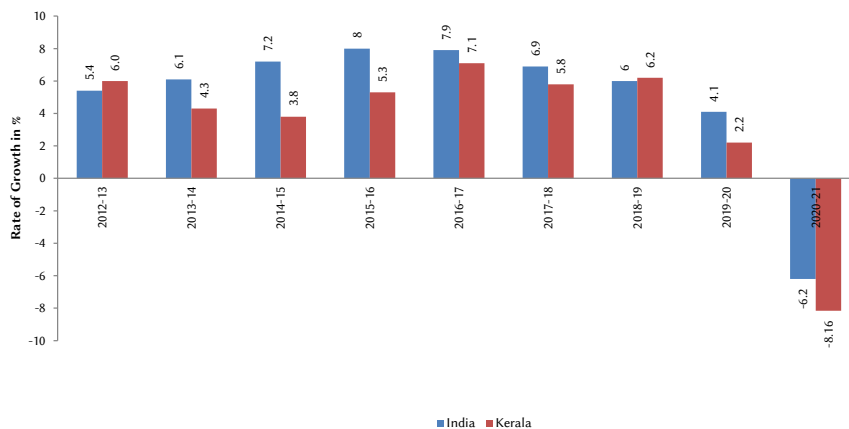
The Government of Kerala announced various stimulus packages to tide over the economic crisis caused by Covid-19 pandemic.

The first economic package was announced in March, 2020 amounting to ₹20,000 crore. Kerala was the first State to announce such a package, much earlier than the economic package announced by Government of India. The package included amount for the payment of seven months welfare pension, ₹500 crore for health packages, ₹2,000 crore for loans through Kudumbasree scheme, ₹2000 crore for village employment assurance schemes, ₹150 crore for providing relief @ ₹1000 for BPL and Anthyodaya families who are not eligible for welfare pensions, ₹14,000 crore for clearing the arrears in various sectors, ₹100 crore for providing free ration to both APL and BPL families and ₹50 crore for provision for subsidised meals @ of ₹20 per meal.

In the wake of second wave, a second economic package of ₹20,000 crore was announced in June 2021 to meet the socio economic and health challenges caused by the pandemic. The package provided ₹2800 crore for health emergencies, ₹8,900 crore for direct disbursement to those who are in crisis due to loss of livelihood, and ₹8,300 crore towards interest subsidy for loans provided for economic rejuvenation.

A supplementary package of ₹5,650 crore was declared in July, 2021 to aid small industries through subsidised loans and interest reliefs for small traders and farmers hit hard by the Covid-19 induced economic crisis.

Figure 1.1.1 Annual Rates of Growth of GSV for Kerala and GVA for India (both at constant 2011-12 prices) in per cent



Source: Department of Economics and Statistics (for Kerala) and National Accounts Statistics (for India)

poor performance with respect to growth of value added. The annual rates of value-added growth were (-)5.28 per cent, (-)5.11 per cent, and (-)8.94 per cent in 2018-19, 2019-20 and 2020-21 respectively.

To sum up, Kerala's GSVA grew at relatively fast rates during the period from 2016-17 to 2018-19 despite the setbacks faced by the State and the palpable signs of recession in the national economy. The sectors that contributed to this fast growth are fishing and aquaculture, manufacturing, trade, hotels and restaurants, social services mainly education and health, public services, and professional services. The turnaround in performance of State public sector units in the chemicals and electrical sector, fresh investments in petroleum refining, and a new impetus to the manufacture of electronic components were some of the highlights of the improved performance of Kerala's industrial sector from 2016-17. However, the Covid-19 pandemic has severely disrupted economic activities in the State pulling down growth rates.

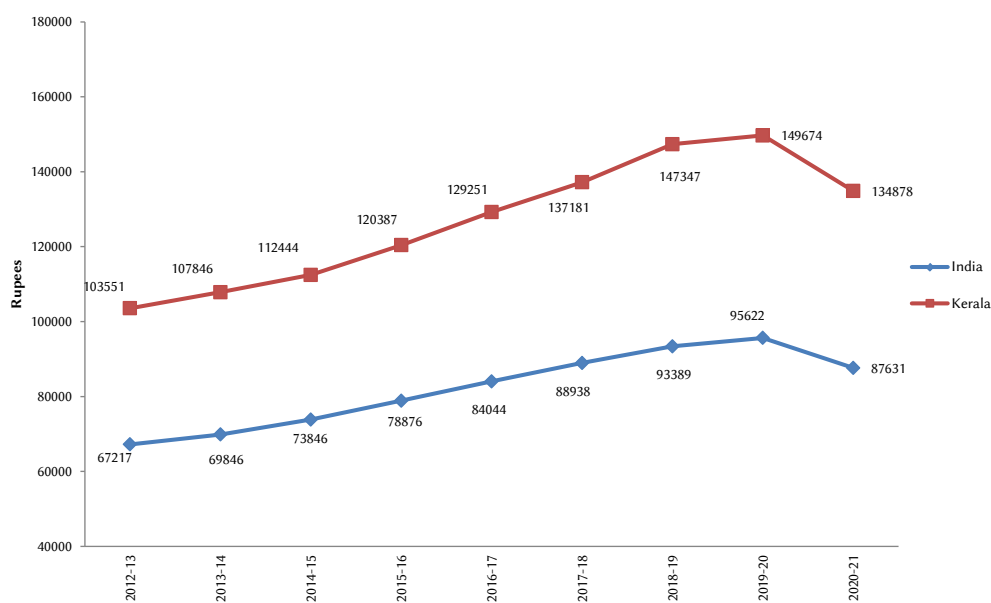
The details of the sectoral distribution of GSVA in the last three years are given in

Appendix 1.1.7 and 1.1.8. GSDP with percentage change over the previous year during the last three years is given in **Appendix 1.1.9.** Details of GSVA, NSVA at constant and current prices during 2011-12 to 2017-18 are given at **Appendix 1.1.10, 1.1.11, 1.1.12, and 1.1.13.**

Per Capita State Income

As per the quick estimates, the per capita GSDP at constant (2011-12) prices in 2020-21 was ₹1,46,910 as against the provisional estimate of ₹1,62,610 in 2019-20, recording a negative growth rate of (-)9.66 per cent in 2020-21. At current prices, the per capita GSDP in 2020-21 was ₹2,28,353 registering a fall in growth rate by (-)3.49 per cent over the previous year's estimate of ₹2,36,621. At constant (2011-12) prices, the quick estimates of per capita NSDP in 2020-21 was ₹1,34,878 as against the provisional estimate of ₹1,49,674 in 2019-20, recording (-)9.89 per cent growth in 2020-21. **Figure 1.1.2** shows that between 2012-13 and 2020-21, the per capita NSDP at constant prices in Kerala was higher than the per capita NSDP at all India level.

Figure 1.1.2 Per capita NSDP and per capita NDP at constant 2011-12, prices in ₹



Source: Central Statistics Office and Department of Economics and Statistics
 Note: NSDP - Net State Domestic Product, NDP - Net Domestic Product

Sector-wise Distribution of Value Added and Employment

The structure of the economy and workforce in Kerala are perceptibly different from the structure of the economy and workforce in the rest of India. Agriculture and allied activities employed 45.84 per cent of India's total workforce even in 2019-20. However, in Kerala, there has been a large-scale withdrawal of workers from agriculture over the years, with the share of the workforce in agriculture and allied activities declining to only 22.15 per cent by 2019-20. The share of agriculture and allied activities in Gross Value Added was 8.4 per cent and 14.83 per cent respectively in Kerala and India. The share of manufacturing in gross value added was only 11.0 per cent in Kerala, compared to 17.10 per cent in India as a whole (Table 1.1.3).

At the same time, the contribution by construction and the services sectors to the economy are higher in Kerala than in the rest of India. In 2019-20, the share of the construction sector to Gross Value Added was 13.4 per cent and 7.80 per cent respectively in Kerala and India. The services sector accounted for 65.3 per cent of the Gross Value Added and 47.29

per cent of the total workforce of Kerala in 2019-20. At the national level, the share of the service sector to Gross Value Added and employment were 55.57 per cent and 30.77 per cent respectively (Table 1.1.3).

District-Wise GSVA

District-wise distribution of GSVA at basic price at current prices shows that Ernakulam district continues to have the highest income of ₹87,98,043 lakh in 2020-21 as against ₹91,30,248 lakh in 2019-20, registering a negative growth rate of (-)3.64 per cent. At constant (2011-12) prices, this amounts to ₹56,50,813 lakh in 2020-21 compared to ₹62,64,401 lakh in 2019-20. The district-wise GSVA details are given in Table 1.1.4.

District-Wise Per Capita Income (GSVA)

The analysis of district-wise per capita income indicates that Ernakulam district continues to stand first with the per capita income of ₹1,63,345 at constant (2011-12) prices in 2020-21 against ₹1,82,086 in 2019-20. The district-wise per capita income with corresponding rank and growth rate is given in Table 1.1.5.

Table 1.1.3. Shares of different sectors in Gross Value Added and Employment, Kerala and India, 2019-20

Sectors	Shares in Gross Value Added		Shares in employment	
	Kerala (GSVA)	India (GVA)	Kerala	India
Agriculture, livestock, forestry and fishing	8.4	14.83	21.89	45.56
Mining and quarrying	0.4	2.43	0.26	0.28
Primary	8.8	17.26	22.15	45.84
Manufacturing	11.1	17.10	10.59	11.15
Electricity, gas, water supply & other utility services	1.3	2.26	0.57	0.61
Construction	13.4	7.80	19.4	11.63
Secondary	25.9	27.16	30.56	23.39
Trade, repair, hotels and restaurants	18.0	15.85	18.2	13.22
Transport, storage, communication & services related to broadcasting	7.7	4.5	8.74	5.62
Financial, real estate & professional services	22.9	21.97	5.15	2.01
Public Administration and other services	16.8	13.25	15.2	9.92
Tertiary	65.3	55.57	47.29	30.77
	100.00	100.00	100.0	100.0

Sources: Department of Economics and Statistics (for GSVA of Kerala) and National Accounts Statistics (for GVA of India) and Periodic Labour Force Survey (PLFS) carried out by India's Central Statistical Office in 2019-20 for data on employment.

Table 1.1.4 District-wise distribution of Gross State Value Added

Sl.No	District Name	Gross State Value Added at Basic Price (₹ in Lakh)					
		At Current Prices			At Constant Prices		
		2019-20 (P)	2020-21 (Q)	Growth Rate (%)	2019-20 (P)	2020-21 (Q)	Growth Rate (%)
1	Thiruvananthapuram	7711739	7526447	-2.40	5170499	4777314	-7.60
2	Kollam	6864859	6664006	-2.93	4512965	4156843	-7.89
3	Pathanamthitta	2166292	2137062	-1.35	1420832	1335007	-6.04
4	Alappuzha	5242550	5113498	-2.46	3545194	3251811	-8.28
5	Kottayam	4536764	4383483	-3.38	3127054	2879484	-7.92
6	Idukki	2554880	2549576	-0.21	1532021	1497504	-2.25
7	Ernakulam	9130248	8798043	-3.64	6264401	5650813	-9.79
8	Thrissur	7413550	7171931	-3.26	4983484	4507892	-9.54
9	Palakkad	5134508	5085384	-0.96	3379961	3158861	-6.54
10	Malappuram	7136657	7082740	-0.76	4750252	4406779	-7.23
11	Kozhikode	6329101	6137437	-3.03	4246912	3873880	-8.78
12	Wayanad	1509349	1473783	-2.36	965978	891346	-7.73
13	Kannur	5142509	4937771	-3.98	3535435	3198448	-9.53
14	Kasaragod	2418492	2367699	-2.10	1641607	1483636	-9.62
	GSPA	73291499	71428858	-2.54	49076596	45069618	-8.16

Source: Department of Economics and Statistics, (P: Provisional Q: Quick)

Table 1.1.5 District-wise per capita Gross State Value Added at basic price, constant prices, 2011-12

Sl. No.	District	2019-20 (P) ₹	Rank	2020-21 (Q) ₹	Rank	Growth Rate (%)
1	Thiruvananthapuram	153905	5	141910	5	-7.79
2	Kollam	168471	2	154879	2	-8.07
3	Pathanamthitta	121735	10	114726	10	-5.76
4	Alappuzha	165373	3	151554	3	-8.36
5	Kottayam	156942	4	144363	4	-8.02
6	Idukki	140289	7	137376	7	-2.08
7	Ernakulam	182086	1	163345	1	-10.29
8	Thrissur	153252	6	137960	6	-9.98
9	Palakkad	113247	13	105090	11	-7.20
10	Malappuram	103752	14	95044	14	-8.39
11	Kozhikode	129714	9	117501	9	-9.42
12	Wayanad	113636	12	104375	13	-8.15
13	Kannur	134725	8	121321	8	-9.95
14	Kasaragod	117081	11	104947	12	-10.36
	State	140865		128716		-8.62

Source: Department of Economics and Statistics

Note: P: Provisional, Q: Quick

Table 1.1.5 shows that Thiruvananthapuram, Kollam, Alappuzha, Kottayam, Idukki, Ernakulam, Thrissur districts had a higher per capita income than the State average in 2020-21. Kasargod, Malappuram, Palakkad, Pathanamthitta, Kozhikode, Kannur and Wayanad districts showed lower per capita income compared to the State average. District-wise and sectoral distribution of GSVA from 2018-19 to 2020-21 at current and constant (2011-12) prices are given in **Appendix 1.1.14, 1.1.15, 1.1.16, 1.1.17, 1.1.18, and 1.1.19.**

INFLATION: RECENT TRENDS

Price Trends

The Covid-19 pandemic and consequent restrictions on economic activities have disrupted the prices of essential commodities across the country. CPI inflation has been highly volatile in the five months of the current financial year – moving within a wide range of 4.2 per cent to 6.3 per cent – averaging 5.5 per cent against the target of 4 per cent set by RBI. In May and June of 2021 Consumer Price Index (CPI) inflation broke the upper limit of 6 per cent. The increase in prices is attributed to the pressures in the supply side factors such as input costs, fuel prices, increased expenses on logistics etc. In its Monetary Policy Committee report on October 2021 RBI projected CPI inflation as 5.1 per cent during 2021-22. The projection of CPI for Q1 (April-June) is 5.2 per cent, Q2 (July-September) is 5.4 per cent, Q3 (October-December) is 4.7 per cent and Q4 (January-March) is 5.3 per cent. In order to reduce prices and keep sufficient demand proactive measures are needed from both fiscal side and monetary side. RBI is continuing with an accommodative monetary policy to stimulate industrial growth and mitigate

the impact of pandemic on the economy. The Monetary Policy Committee in its meeting on October, 2021 consistently maintained historical low interest rate for 8th consequent time from May, 2020 onwards.

In Kerala, inflation based on all India CPI Combined decreased to 2.98 per cent in September 2021 as compared to 3.67 per cent in August 2021. Kerala has lower inflation rate compared with all India level.

Wholesale Price Index (WPI) for Agricultural Commodities

The Wholesale Price Index (WPI) for agricultural commodities in Kerala shows that the index of all crops has marginally increased to 130.99 in 2021(up to June) from 130.09 in 2020 (Base: 2015-16=100). The nominal increase in prices of food and non-food crops (0.69 per cent) is because of the rise in prices of pulses, common crops, oil seeds and beverages. Among the food crops, the prices of cereals, fruits and vegetables and condiments and spices have decreased by 5.93 per cent, 5.99 per cent and 10.82 per cent respectively. On the other hand, the WPI of non-food items has increased by 20.61 per cent from 123.52 in 2020 to 148.97 in 2021(up to June). Of which, the price of oilseeds increased to 195.99 in 2021(up to June) from 157.52 in 2020. The WPI of agriculture commodities in Kerala 2020-2021 on base: 2015-16=100 are given in **Appendix 1.1.20.**

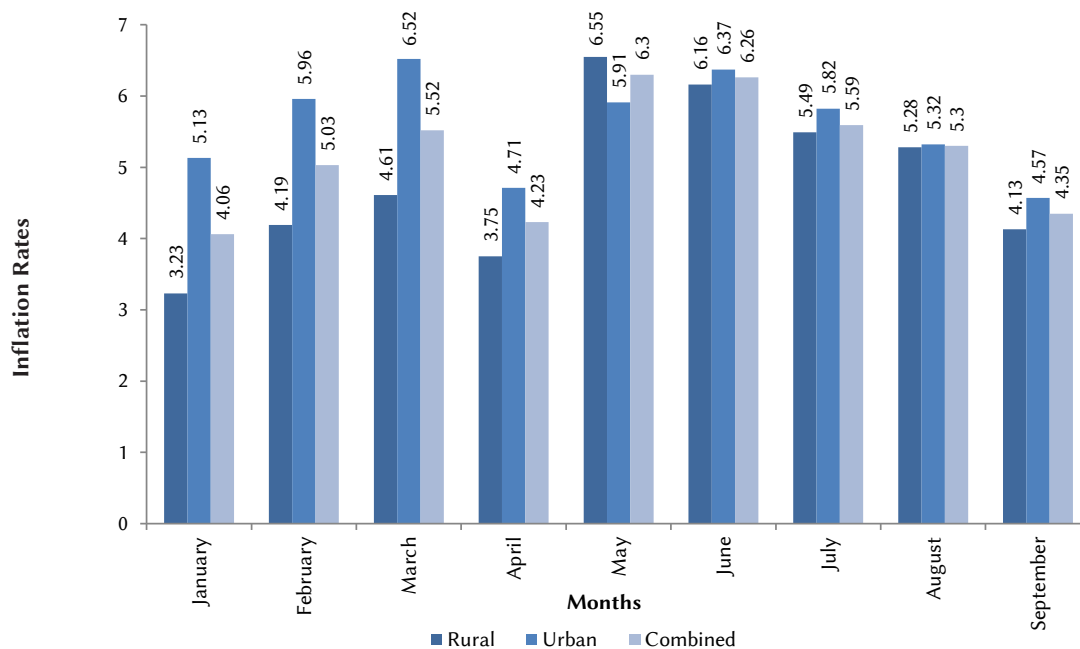
The month-wise WPI of agricultural commodities in Kerala shows that index of food crops has decreased to 127.20 in December 2020 from 144.30 in January 2020 and the index of non-food items increased to 147.21 from 128.17 in the corresponding period. Similarly, in 2021 WPI of all crops further decreased from 131.25

Table 1.1.6 Inflation Rate, All - India & Kerala, based on Consumer Price Index (General), September 2021, over August 2021, in per cent

Consumer Price Index (General)	September 2021			August 2021		
	Rural	Urban	Combined	Rural	Urban	Combined
India	4.13	4.57	4.35	5.28	5.32	5.3
Kerala	2.72	3.45	2.98	3.41	4.09	3.67

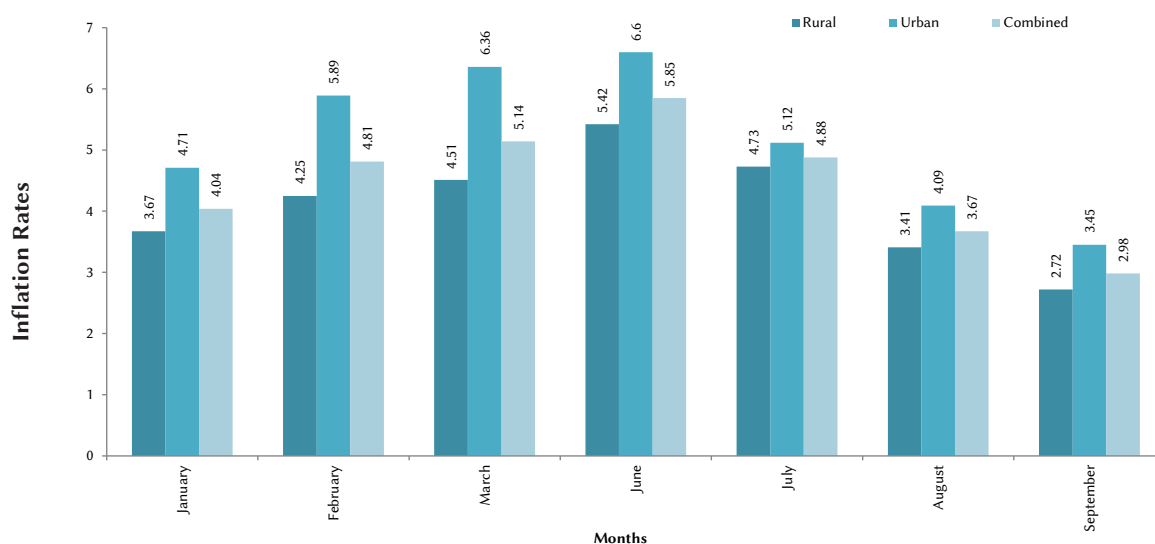
Source: National Statistical Office, Ministry of Statistics & Programme Implementation, GoI

Figure 1.1.3 All-India Inflation Rates Current Series (Base 2012) General index (All Groups), January to September 2021, in per cent



Source: National Statistical Office, Ministry of Statistics and Programme Implementation, GoI.

Figure 1.1.4 Kerala-Inflation Rates Current Series (Base 2012) General index (All Groups) January to September 2021, in per cent



Source: National Statistical Office, Ministry of Statistics and Programme Implementation, GoI.

in January to 126.34 in June 2021. The WPI of food crops declined from 125.69 in January 2021 to 117.89 in June 2021 while that of non-food crops increased from 144.55 to 146.57. The month-wise WPI of Agricultural commodities in Kerala from January 2020 to June 2021 on base 2015-16=100 is given in **Appendix 1.1.21**.

Consumer Price Index (CPI), Kerala

The annual average CPI (Base 2011-12=100) in Kerala was estimated at 167.24 in 2019 which has increased to 174.18 in 2020. The CPI in Kerala up to July 2021 is 180.76. The per cent variation in 2020 over the previous year is 4.15. CPI of selected centres shows that the highest rate of inflation in 2020 was registered in Pathanamthitta (6.25 per cent) followed by Punalur (5.59 per cent) and Alappuzha (5.23 per cent) in 2020. The lowest rate of inflation was registered in Palakkad at 1.92 per cent. The annual average CPI and percentage variation of selected centres are shown in **Appendix 1.1.22**. Monthly retail prices of essential commodities from January 2021 to September 2021 are given in the **Appendix 1.1.23**.

Parity Index

Parity Index estimates the income and expenditure of the farmers from their cultivation. Parity index has been estimated at 56.50 in 2020 less than the index of 58.08 in 2019. In 2020, the index of price paid by the farmers was 16063.42 and the index of prices received by the farmers was 9055.50. It reveals that the farmers are distressed heavily. The major reasons for decline in parity index are the high cost of farm input, exorbitant transportation cost and steep hike in the wages of labourers. The situation further exacerbated during the second wave of Covid-19 pandemic. The yearly average price received and paid by farmers is shown in **Appendix 1.1.24**.

Wages

In Kerala, the average daily wage rate of skilled workers in the agriculture sector has increased year on year. Daily wage rates of carpenters and masons have increased to ₹946.95 and ₹950.52 in 2020-21 from ₹895.58 and ₹903.17 in 2019-20 respectively. The daily wage rate of a carpenter has increased by 5.74 per cent and that of a mason has increased by 5.24 per cent during the above period. The average daily

wage rate of skilled workers in the agriculture sector from 2008-09 to 2020-21 is given in **Appendix 1.1.25**. The average daily wage rate of male unskilled workers in the agricultural sector in 2008-09 was ₹224.40 and that of female unskilled workers was ₹159.02. After thirteen years, the wage rate has changed significantly with the wage of male workers increasing by 230.61 per cent to ₹741.89 in 2020-21. Similarly, the female workers wage rate has also risen by 237.49 per cent and reached ₹536.68. Gap between the wages of male and female and the rate of increase in wages of both male and female are continuously decreasing in every year from 2008-09 onwards. The average daily wage rate of unskilled workers in the agriculture sector from 2008-09 to 2020-21 is given in **Appendix 1.1.26**.

State Interventions

The Government took efforts to provide universal access to food and essential commodities to the people throughout the pandemic period. The State Government provided food kits to all categories of people. Providing essential commodities at subsidised prices through Co-operative institutions, Supply-co, Consumer Fed etc. were the major market interventions from the supply side. By utilizing the strength of LSGIs, Community Kitchens were organised and packed food was distributed to all needy people. Besides, setting up of Janakeeya Hotels also helped to ensure affordable food to all people. Moreover, the State Government offers substantial budgetary support to the Public Distribution System (PDS).

The volatility in global fuel prices and rupee exchange rate could be major factors shaping inflationary expectations in the immediate future. Substantial demand side interventions are beyond the scope of a State Government in the present division of constitutional powers. States can intervene mainly in the supply side subject to their resource constraint. Kerala is one such State which has been making consistent supply-side interventions to control prices of essential commodities.

1.2 DEMOGRAPHIC PROFILE

Population in India

The total population of India as per 2011 Census is 1,21,08,54,977 as against 1,02,86,18,821 as per 2001 Census. As per the 2011 Census figures, there are 62,32,70,258 males and 58,75,84,719 females and the population density in the country is 382 persons per square kilometres. The sex ratio in the country in 2011 is 943 females per thousand males, 949 in rural area and 929 in urban area. The child population in the country during 2011 in the age group 0-6 is 16,45,15,253 and the child sex ratio in the age group 0-6 is 918 females per thousand males.

Population Profile of the State

According to the Census of India 2011, the population of Kerala is 33,406,061, or 2.76 per cent of India's population. Out of the State's total population, 48 per cent population are males and 52 per cent are females (**Figure 1.2.1**). The rural population is 1,74,71,135 and the urban population is 1,59,34,926. The details are given in **Figure 1.2.2**.

Population Growth

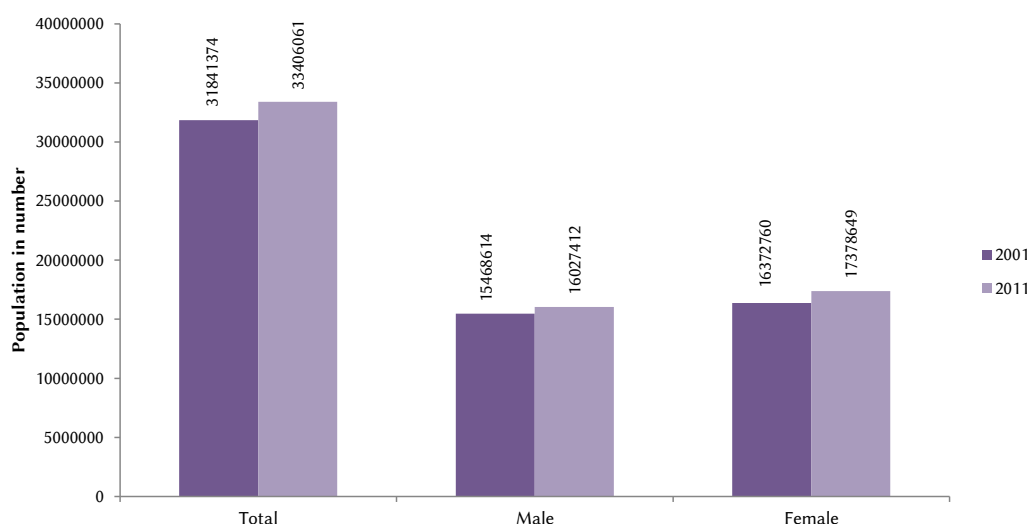
The percentage decadal growth rate of Kerala's population during 2001-2011 was 4.9 percent,

the lowest among the Indian States. Among the Districts of the State, Malappuram has the highest growth rate (13.4 per cent), and Pathanamthitta has the lowest growth rate (-)3.0 per cent. Idukki also has seen a decline in population with a negative growth rate (-)1.8 per cent. The growth rate of population is lower in six southern Districts (Idukki, Kottayam, Alappuzha, Kollam, Pathanamthitta and Thiruvananthapuram) than in other Districts of the State (**Appendix 1.2.1**).

Child Population

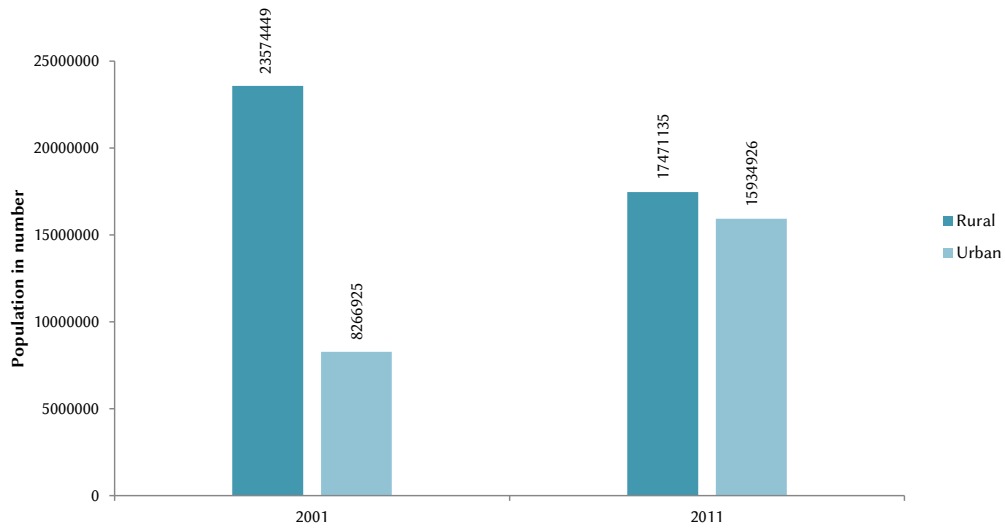
Kerala's total child population (0-6 years) in 2011 is 34,72,955 (10.3 per cent of total population) as against 37,93,146 (11.9 per cent of the total population) as per the 2001 Census data. The 2011 Census data shows an absolute decline in the number of children (0-6 years) in the State. At the all India level, child population as per 2011 census is 13.5 per cent while it was 15.9 per cent as per Census 2001. The child population as a proportion of the total population is below the national average for Tamil Nadu (9.5 per cent), Karnataka (11.2 per cent) and Andhra Pradesh (10.2 per cent).

Figure 1.2.1 Population in Kerala



Source: Census 2001, 2011

Figure 1.2.2 Rural and Urban Population in Kerala

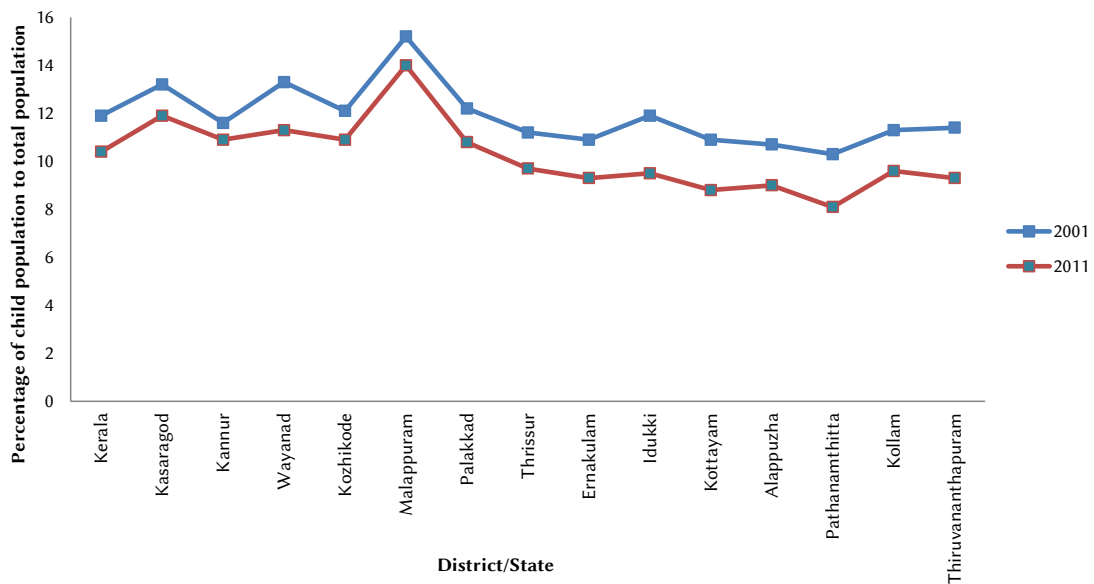


Source: Census 2001, 2011

Figure 1.2.3 presents the District-wise picture of proportion of child population in Kerala as per Census data of 2001 and 2011. In absolute number, Malappuram district has the highest child population (5,74,041) and Wayanad district with a child population of 92,324 the lowest. A decreasing trend in the proportion of child population is seen in all Districts of the

State (**Appendix 1.2.1**). The southern Districts of Kerala witnessed two per cent decline except for Kollam, in which there was a decline of one per cent in the proportion of child population. The northern Districts in Kerala showed one per cent decline in the proportion of child population. Wayanad District was an exception with a decline of two per cent.

Figure 1.2.3 Proportion of child population in Kerala, per cent



Source: Census 2001, 2011

Literacy

Kerala has the highest proportion of literate persons in the population among Indian States. The effective literacy rate is 93.91 per cent. Literacy was 90 per cent at the Census of 2001. In Kerala, 96.02 per cent men and 91.98 per cent of women are literate as against 82.14 per cent of men and 65.46 per cent of women at the all India level. Among Districts, Kottayam tops in literacy with 97.2 per cent followed by Pathanamthitta with 96.5 per cent. Lowest literacy rates are in Wayanad and Palakkad with 89 per cent and 89.3 per cent respectively. Even the lowest literacy rate of Wayanad (89 per cent) is higher than the national average. As compared to 2001, the literacy rate of all the Districts has improved (**Appendix 1.2.1**).

Sex Ratio

Sex ratio means number of female population per thousand of male population. The sex ratio of Kerala according to Census 2011 is 1,084 and has improved by 26 points since 2001. It increased from 1,032 to 1,036 from 1981 to 1991 and to 1,058 in 2001. Kerala is the only State where the sex ratio has historically been above unity. The sex ratio of Tamil Nadu is 996, of Karnataka is 973, of Andhra Pradesh is 993 and at all India level is 943.

Another significant feature of the State is that all districts in Kerala show a positive sex ratio. Among the Districts, Kannur has the highest sex ratio (1,136) followed by Pathanamthitta (1,132). Idukki has the lowest sex ratio (1,006). The sex ratio of Ernakulam is 1,027. All the Districts have sex ratio above 1,000. In 2001, only Wayanad had a ratio below 1,000 (994). The difference between the lowest (Idukki, 1,006) and highest (Kannur, 1,136) is 130 points. Details are given in **Appendix 1.2.2**.

Child Sex Ratio (0-6 Years)

Child sex ratio (number of females per 1000 males in age group 0-6 years) in Kerala is 964 as per the 2011 census. It was 960 in 2001. The child sex ratio in Tamil Nadu is 943, Karnataka 948, Andhra Pradesh 939 and the all India average is 919. Among Districts, Pathanamthitta has the highest child sex ratio (976) followed by Kollam (973) and Kannur (971). Thrissur has the lowest ratio (950). The difference between

the lowest and highest is 26 points. The highest decadal increase is in Kollam (13) followed by Kozhikode (10). The decadal change in other Districts is below 10. Thrissur (-)8, Idukki (-)5 and Alappuzha (-)5 have a negative decadal change in child sex ratio (**Appendix 1.2.2**).

Density of Population

Kerala's density of population as per 2011 census is 860 persons per square kilometre. It is much higher than that of India (382). Thiruvananthapuram is the most densely populated district (1,508) and Idukki is the least densely populated district (255). Density of population has increased in all Districts compared to 2001 except for Pathanamthitta and Idukki. Details are given in **Appendix 1.2.1**.

Age Group Distribution

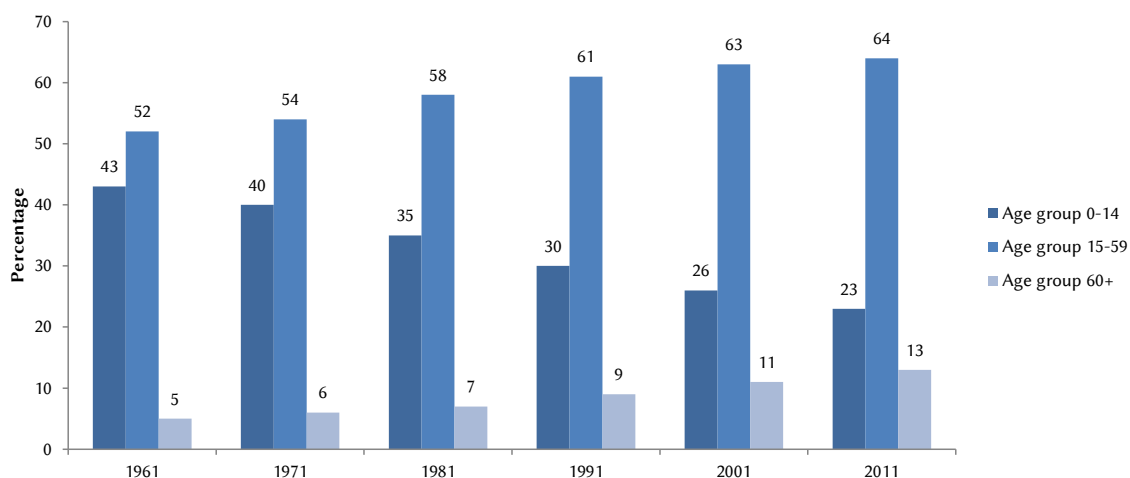
It is interesting to note the demographic transition in Kerala during the last fifty years. It is observed that the proportion of population in the age group of (0-14 years), has declined from 43 per cent in 1961 to 23.4 per cent in 2011. Due to increasing life expectancy and availability of health facilities, the proportion of the population in the old age group (60 years and above) has increased from 5 per cent in 1961 to 12.7 per cent in 2011. At the national level, 29.5 per cent of the population India falls in 0-14 years age group, 62.5 per cent in 15-59 and 8.0 per cent in 60+ age category as per Census 2011, (**Figure 1.2.4**).

If this trend continues, the addition to the working age group of population (15-59) will decrease in the near future, as the proportion of the population in the age group of 0-14 is declining. The increasing proportion of the old age group (60 and above) would place higher social security obligations on the Government.

District-Wise Age Group Distribution

District-wise distribution of population among different age group as per 2011 census is given in **Table 1.2.1**. The State has 63.9 per cent of its population in the working age group of 15-59, 23.4 per cent and 12.7 per cent in 0-14 age and 60 and above age groups respectively. Among Districts, Idukki has the highest per cent of the working population (66 per cent) while Malappuram has the lowest (61.4 per cent). In

Figure 1.2.4 Age group distribution of Kerala 1961-2011, in per cent



Source: Census Data

Table 1.2.1 District-wise distribution of the population in different age groups-2011

District	Numbers in Different Age Group in total District population			% of Different Age Group in total District population		
	0-14	15-59	60+	0-14	15-59	60+
1 Kasaragod	3,42,696	8,35,111	1,29,568	26.2	63.9	9.9
2 Kannur	5,94,411	16,06,593	3,21,999	23.6	63.7	12.8
3 Wayanad	2,12,246	5,26,414	78,760	26.0	64.4	9.6
4 Kozhikode	7,49,692	19,72,762	3,63,839	24.3	63.9	11.8
5 Malappuram	12,41,491	25,26,407	3,45,022	30.2	61.4	8.4
6 Palakkad	6,78,192	17,95,096	3,36,646	24.1	63.9	12.0
7 Thrissur	6,88,592	20,01,050	4,31,558	22.1	64.1	13.8
8 Ernakulam	6,93,215	21,35,689	4,53,484	21.1	65.1	13.8
9 Idukki	2,47,338	7,32,193	1,29,443	22.3	66.0	11.7
10 Kottayam	4,13,849	12,47,065	3,13,637	21.0	63.2	15.9
11 Alappuzha	4,46,279	13,57,100	3,24,410	21.0	63.8	15.2
12 Pathanamtitta	2,32,670	7,50,202	2,14,540	19.4	62.7	17.9
13 Kollam	5,83,023	17,00,534	3,51,818	22.1	64.5	13.3
14 Thiruvananthapuram	7,07,280	21,60,992	4,33,155	21.4	65.5	13.1
Kerala	78,30,974	2,13,47,208	42,27,879	23.4	63.9	12.7

Source: Census 2011

Box 1.2.1 Census 2021

The first Census in India was conducted in 1872 non synchronously and a Census for the entire country was done in 1881 synchronously. Since then Census had been conducted once in every ten years without a break. The last population Census was conducted in 2011. The next decennial census will be the Sixteenth Census.

Census 2021 was notified in Gazette of India on March 28, 2019 by Centre. The Census 2021 should have been conducted in two phases, housing census from April to September 2020 and population enumeration from February 9, 2021, but it did not take place because of the spread of Covid-19 pandemic. The Census 2021 in India moves from pen and paper census to Digital Census. The data will be collected digitally by using mobile phone app. Data will be collected by using school teachers who will double up as enumerators and also have a provision for self-enumeration, recording data directly in to mobile phone. In case of self-enumeration, the individual will fill the required details with the help of relevant codes for each field. After self-enumeration, an identification number will be sent on the registered number provided. The identification number shared to the enumerator will help the official to sync the data automatically. All the activities will be managed and monitored by the census portal.

the age group of 60 and above, Pathanamthitta has the highest per cent (17.9 per cent), while Malappuram has the lowest per cent (8.4 per cent). At the same time, Malappuram has the highest proportion of the population, in the 0-14 group at 30.2 per cent, while Pathanamthitta has the lowest (19.4 per cent).

If the actual number is taken, Malappuram has the highest number both in 0-14 and 15-59 groups (12.4 lakh and 25.2 lakh). While Ernakulam District has the highest number of people in the elderly group of 60 and above. Wayanad has the lowest number in all age groups.

URBANISATION

Urbanisation is regarded as a positive force and an impetus to development. Urbanisation is reckoned as the transformation of a rural area to 'urban' and the growth trend by which human settlements turn 'urban'. In the first Census of 20th century (1901), the State had a population of 6.4 million of which 5.9 million (92.9 per cent) were living in rural areas. The urban population accounted for only half a million, estimated as less than 10 per cent of the total population of the State. Over a period of hundred years, the share of rural population has undergone a steady decline and was 74 per cent of total population in 2001. Significantly, in 2011 Census, the population of the State was almost equally divided between rural and urban

areas. The State has now an urban population of 159 million which accounts for 47.7 per cent of total population against a rural population of 174 million (52.3 per cent). The decadal growth rate of the urban population is 92.72 per cent in 2011. Kerala is the third most urbanised State in India and also reckoned as the fastest urbanising State in the country. The District in which the proportion of urban population to total population is highest is Ernakulam (68.1 per cent).

It is evident that there is a large increase in the number of towns because of the increase in number of Census towns in 2011. A Census town is defined as one area which is not statutorily notified as town but has attained urban characteristics in number of population which exceeds 5,000; density of population is at least 400 persons per sq. km; and a minimum of 75 percentage of male working population is employed outside the agricultural sector. As per Census 2011, there are 461 Census towns and 59 statutory towns in Kerala as against 99 and 60 respectively in Census 2001 which shows a 366 per cent growth in the number of Census towns.

This classification of Census towns has brought down the rural population growth to negative figures. Furthermore, the decadal population growth rate of the towns which existed in both 2001 and 2011 Census is estimated to be 3.90 per cent, lower than that of the State's average of 4.86 per cent decadal population growth rate.

This negates the scope of migration to the towns as an attribute of urban population growth. The growth in urban population is largely due to the increase in Census towns that led to the urban sprawl in the State.

The highest number of towns is in Thrissur District with 135, which accounts for more than 25 per cent of total towns in the State. Around 60 percentage of towns are located in Thrissur, Kannur, Ernakulam and Kozhikode Districts. Urban population has crossed 1 million in 8 Districts. Of these, Ernakulam (68.1 per cent) has got the highest urban population, closely followed by Thrissur, Kozhikode and Malappuram Districts. The total urban population of these four Districts together constitutes more than 50 percentage of urban population in the State. Wayanad and Idukki Districts do not have any Census towns in 2011, except one statutory town each. Wayanad (3.8 per cent) is the District with least urban population in the State. Considering the urban population growth during 2001-2011, the population growth increased in all Districts except Idukki. Malappuram District shows significant increase in urban population growth followed by Kollam, Thrissur and Kasargod. Wayanad has the least growth rate.

In terms of share of rural population to the total population of the State, Malappuram and Palakkad together account for 25 per cent. Along with the above Districts, Kasargod, Kottayam, Pathanamthitta, Kollam, Idukki and Wayanad are the other Districts where rural population outnumber the urban population. In Idukki and Wayanad, rural population exceeds 95 per cent of the population of the Districts.

1.3 INDICATORS OF POVERTY

The COVID-19 pandemic may push more than 100 million people into extreme poverty in 2020. Analysis of these findings in this report suggests that the new poor may differ from those who were poor before the onset of the pandemic in ways that are important for policy. Although a large share of the new poor will be concentrated in countries that are already struggling with high poverty rates, middle-income countries will also be significantly affected. Overall, some 72 million of the projected new poor in the baseline scenario (and 94 million in the downside scenario) will be in middle-income countries – more than three-quarters of the total. In order to reverse this serious setback to development progress and poverty reduction, countries will need to prepare for a different economy post-COVID, by allowing capital, labor, skills, and innovation to move into new businesses and sectors. (Poverty and Shared Prosperity 2020, World Bank)

Therefore, given India's stage of development, India must continue to focus on economic growth to lift the poor out of poverty by expanding the overall pie. Note that this policy focus does not imply that redistributive objectives are unimportant, but that redistribution is only feasible in a developing economy if the size of the economic pie grows. (Economic Survey 2020-21).

The two statements when read together hint at the gravity of the poverty problem at hand necessitating a judicious mix of policy measures focussing on attaining higher economic growth on the one hand and the need for handholding and cushioning support on the other to those vulnerable and poor pushed below the poverty line as a result of the pandemic.

Historically, Kerala has followed a development path quite different from that of other Indian States. In Kerala, factors such as land reforms, spread of education and health care, decentralisation, pension schemes, public distribution system, Kudumbashree programmes, and implementation of the Plan schemes have contributed significantly to reduce the poverty

ratio in rural and urban areas. According to official figures, the absolute poverty ratio in Kerala is 11.3 per cent in 2011-12 and has shown a sharp reduction over the last forty years. The details absolute poverty ratio (GoI, 2014) in Kerala and at all India level from 1973-74 to 2011-12 are given in **Table 1.3.1**.

The incidence of poverty in Kerala was 59.79 per cent in 1973-74 which came down to 11.3 per cent in 2011-12. At the all India level, it was 54.88 per cent in 1973-74 (which was lower compared to Kerala) came down to only 29.5 per cent in 2011-12. Kerala has made substantial improvement in reducing both rural and urban poverty. During the period from 1973-74 to 2011-12, rural and urban poverty ratio in Kerala declined from 59.19 per cent to 7.3 per cent and from 62.74 per cent to 15.3 per cent respectively. However, at the national level poverty ratio declined from 56.44 per cent to 30.9 per cent in rural areas and from 49.01 per cent to 26.4 per cent in urban areas. The challenge before Kerala is to bring it down further and continue the programmes which have made this achievement possible.

Socio-Economic and Caste Census (SECC), 2011, conducted by Government of India (GoI) mainly aimed at ranking households based on their socio - economic status. SECC becomes very crucial for India because it gives a broader and dynamic definition of poverty. SECC estimates a deprivation index based on seven criteria. According to the SECC (2011) data, out of the 76.99 lakh households in Kerala, 63.19 lakh (82.08 per cent) live in rural areas. Of this, 10.32 per cent are SC households and 1.63 per cent are ST households. Out of the total rural households, 19.16 lakh (30.33 per cent) rural households are deprived. The highest deprivation rate is in Palakkad (42.33 per cent) followed by Thiruvananthapuram (38.36 per cent) and Wayanad (36.33 per cent) Districts. And the lowest deprivation rate is in Ernakulam (20.30 per cent), Kottayam (23.02 per cent)

Table 1.3.1 *Proportion of Poor in India and in Kerala, 1973-74 to 2011-12*

Year	Kerala			India		
	Rural	Urban	Total	Rural	Urban	Total
1973-74	59.19	62.74	59.79	56.44	49.01	54.88
1977-78	51.48	55.62	52.22	53.07	45.24	51.32
1983	39.03	45.68	40.42	45.65	40.79	44.48
1987-88	29.10	40.33	31.79	39.09	38.20	38.86
1993-94	25.76	24.55	25.43	37.27	32.36	35.97
1999-00	9.38	20.27	12.72	27.09	23.62	26.10
2004-05	13.2	20.2	15.0	28.3	25.7	27.5
Rangarajan Committee Estimates						
2009-10	9.7	23.7	16.0	39.6	35.1	38.2
2011-12	7.3	15.3	11.3	30.9	26.4	29.5

Source: Planning Commission, GoI, 2014 (Lakdawala Methodology is used from 1973-74 to 2004-05)

and Kannur (24.25 per cent) Districts. Out of the total rural SC and ST households, 57.66 per cent of SC households and 61.68 per cent of ST households are included under the deprived category. District-wise details of the per cent of deprived rural households in Kerala against their total number of rural household across different categories are given in **Appendix 1.3.1**.

While considering the different indicator-wise deprivation rates among the rural households in Kerala, the highest deprivation was recorded in the indicator, 'landless households deriving major part of their income from manual casual labour' (18.86 per cent) followed by 'SC/ST household' (7.11 per cent) and 'female-headed households with no adult male member between age 16 to 59' (3.65 per cent) respectively. The lowest deprivation was reflected in the indicator, 'disabled member and no able-bodied adult member' (0.19 per cent) followed by the indicator 'only one room with kucha walls and kucha roof' (1.43 per cent) and 'no literate adult above 25 years' (1.81 per cent). District-wise details of the per cent of deprived rural households based on the deprivation index are given in **Appendix 1.3.2**.

According to the SECC data, the main breadwinner of the 70.75 per cent of the rural households in Kerala earns less than ₹5,000 per

month, while at all India level, the corresponding share was 74.52 per cent. This ratio was the highest in Wayanad (79.67 per cent), followed by Malappuram (75.55 per cent) and Palakkad (74.38 per cent) Districts. The ratio was the lowest in Ernakulam (64.37 per cent), followed by Kottayam (64.46 per cent) and Pathanamthitta (64.66 per cent) Districts.

In Kerala, 50.61 per cent and 10.26 per cent of the rural households depend on manual casual labour and cultivation as their most important source of household income. At the all India level, the corresponding shares are 51.18 per cent and 30.10 per cent respectively. The largest number of households who depend on manual casual labour is in Malappuram (65.05 per cent) and the lowest number is in Pathanamthitta (31.71 per cent).

Even though Kerala is better off than most other States in India in terms of average poverty estimates, there are still several pockets of deprivation in the State. Poverty in Kerala is mainly concentrated in some social categories and groups such as SCs, STs, fisher-folk, potters and artisans. It points to the need for actions focussed on these groups under different central and State schemes and redesigning livelihood programmes in these areas to reduce poverty in the State. The SC Development Department, ST Development

Box 1.3.1 Kerala –State with Lowest Poverty-as per NITI Ayog’s Multi -Dimensional Poverty Index

Kerala has emerged as the State with the lowest poverty across India, according to NITI Aayog’s first Multidimensional Poverty Index (MPI) report. Kerala (0.71 per cent), Goa (3.76 per cent) Sikkim (3.82 per cent), Tamil Nadu (4.89 per cent) and Punjab (5.59 per cent) have registered the lowest poverty levels in the country and are at the bottom of the index. As per the index, Bihar, Jharkhand and Uttar Pradesh are the poorest states, while Madhya Pradesh (36.65 per cent) has been placed fourth in the index and Meghalaya (32.67 per cent) is at the fifth spot. The unwavering commitment of the State towards social and economic upliftment of the poor is evident from this achievement.

Department and the Fisheries Department are implementing several poverty reduction/ livelihood programmes for uplifting people in these communities. Though the extent of poverty has been reduced, focused action to alleviate deprivation among marginalised sections is the urgent task of the State. To address these, Government has begun the process of finding out the extreme poor with the help of the extreme poverty survey.

Extreme Poverty

The Government of Kerala is firmly resolved to eliminate extreme poverty in the State. The first decision made by the present Government was to announce that an in-depth survey would be conducted to analyse the key distress factors causing absolute poverty and propose measures to overcome the same. The state already has a Kudumbashree programme called *Agathirahitha Keralam* which expanded the Ashraya project to rehabilitate destitute families. There are 1.6 lakh beneficiaries of the programme. The proposed survey will identify all those not covered by the current programme, an estimated 4.5 lakh families at present. Families of those of old age, those experiencing mental or physical disabilities, those who are suffering from debilitating diseases, children who are orphaned, homeless people and families of long-term migrants who are now out of work, etc. will be given priority.

The aim is to identify the needs and problems of each such family and to prepare micro plans to lift them out of absolute poverty, based on successful plans such as the ones prepared for the families of Ulladar community under the PK Kalan scheme in Alappuzha. Trained personnel from Local Governments will be utilised to prepare these plans and livelihood programmes

will be worked out along with existing schemes for housing, nutrition, health, etc.

The task of conducting the survey is entrusted with the Commissionerate of Rural Development. The Government is set to commence a door-to-door survey of impoverished or vulnerable communities. In the ward-based survey being planned, separate lists based on various criteria such as community (SC/ ST), coastal population, persons with physical and mental disabilities, those unable to work and families without the primary breadwinner (either dead or abandoned) would be drawn up.

Identifying the extremely poor and lifting them above poverty line will help a long way in addressing the deprivation of the marginalised as well as vulnerable communities in the State.

1.4 ROLE OF FINANCIAL INSTITUTIONS IN DEVELOPMENT INITIATIVES

Financial institutions play a pivotal role in every economy by channelising the idle savings into efficient investments. The Covid-19 pandemic has disrupted economic activities across the State. In order to revive and sustain growth and to mitigate the impact of Covid-19 on the economy, several schemes were announced by Government to infuse credit in the economy. The success of these schemes depends on a pro-active role by financial institutions.

Spread of Banking – All India and State level

As per RBI Quarterly Statistics, in March 2021, the total number of bank branches all over India is 1,50,207. Uttar Pradesh has the largest number of bank branches (17,666) followed by Maharashtra (13,160) and Tamil Nadu (11,692). Kerala has 6,637 branches, 4.42 per cent of the total bank branches in India. However, as per the State Level Bankers Committee (SLBC) data, the total number of bank branches in Kerala as on March 2021 is 7,610, as it also includes the number of co-operative banks in the State. Of the total number of bank branches, 21.3 per cent branches are in urban area, 66.4 per cent branches are in semi urban area and 12.3 per cent branches are in rural area. As per the RBI data, Kerala has the largest number of bank branches among the semi-urban areas in the country

(**Appendix 1.4.1**). The group-wise branch network in Kerala according to SLBC report is shown in the **Table 1.4.1**.

As per SLBC report, Kerala has a total of 6,319 scheduled commercial bank branches (which includes only public sector commercial banks, regional rural banks and private sector commercial banks) in March 2021 as against 6,353 bank branches in March 2020, which shows a decrease of 34 branches in March 2021. The total number of branches of Kerala Gramin Bank is 634 as on March 2021 which is same as that of previous year. But in case of Small Finance Banks and Co-operative banks, the number of bank branches shows an increase of 61 branches and 7 branches respectively in March 2021.

Deposits

The total deposits in the country at the end of March 2021, increased by 12.3 per cent over the previous year as per RBI data. There is an increase of 11.31 per cent in the total bank deposits in Kerala in March 2021 as compared to March 2020. As on March 2021, the total deposits in the scheduled commercial banks in the country is ₹1,54,39,970 crore where as it was ₹1,37,50,146 crore in March 2020. The share of deposits in scheduled commercial banks in Kerala

Table 1.4.1 Banking Group-wise Branch Network in Kerala, 2021

Sl. No.	Banking Group	Number of Branches			
		Rural	Semi-urban	Urban	Total
1	Public Sector Commercial Banks	138	2359	841	3338
2	Regional Rural Bank - Kerala Gramin Bank	53	542	39	634
3	Private Sector Commercial Banks	145	1633	569	2347
4	Small Finance Banks	147	110	35	292
5	Co-Operative Banks*	449	411	139	999
	Total	932	5055	1623	7610

Source: State Level Bankers Committee Report, Kerala, March 2021

Note: *includes branches under Kerala Bank

to total deposits in the country as on March 2021 is 3.95 per cent. Maharashtra has the highest share of deposits (19.78 per cent) in the country (**Appendix 1.4.2**). The growth rate of aggregate deposits in metropolitan areas is much higher (14.9 per cent) than that of rural areas (6.9 per cent). In Public Sector banks, the aggregate deposits increased by 10.4 per cent; while in Small Finance Banks the aggregate deposits shows a growth rate of 25.6 per cent as per RBI report.

There is an increase of 11 per cent in the total deposits of Kerala compared to previous year as per the SLBC report. The total bank deposits (includes deposits of Commercial Banks, Regional Rural Banks and Small Finance Banks) in Kerala as on March 2021 is ₹6,05,914 crore as against ₹5,44,372 crore in March 2020 as per the SLBC data. The growth of bank deposits in Kerala is shown in **Figure 1.4.1** and **Appendix 1.4.3**.

Domestic deposits and NRI deposits

The total bank deposits comprises ₹3,76,278 crore as domestic deposits (62.1 per cent of total deposits) and ₹2,29,636 crore (37.9 per cent as NRI deposits) in March 2021 whereas it was ₹3,35,674 crore and ₹2,08,698 crore respectively in March 2020. The total domestic deposits in March 2021 is 12 per cent higher than previous year. The total NRI deposits in the banking

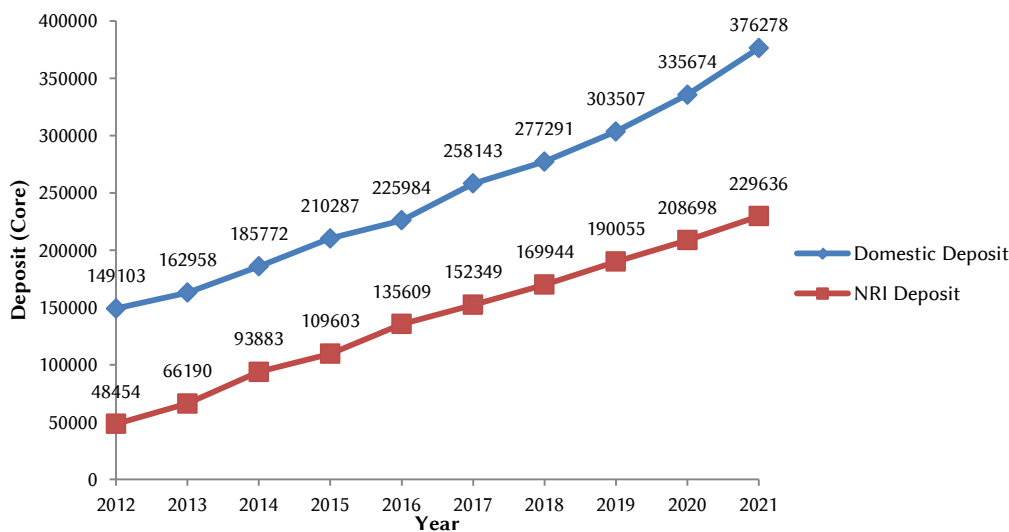
sector in March 2021 show an annual growth rate of more than 10 per cent.

The total NRI deposit in private sector banks is much higher than that of the public sector banks in Kerala. The public sector banks have a total NRI deposit of ₹1,05,234 crore (33 per cent of total deposits in public sector banks) where as the private sector banks have NRI deposits of ₹1,20,778 crore (46 per cent of total deposits in private sector banks). Small Finance Banks have 21 per cent as NRI deposit out of their total deposits as on March 2021. The SFBs received ₹1870.9 crore as NRI deposits in March 2021 which is 43.2 per cent higher compared to previous year (**Appendix 1.4.4**).

Advances

As per Quarterly RBI report, the major State-wise advances financed by scheduled commercial banks are given in **Appendix 1.4.5**. As per SLBC data, in March 2021, ₹4,43,554.33 crore was disbursed as advances in the state by commercial banks and co-operative banks compared to ₹4,09,607.65 crore as advances in March 2020 which is 8.28 per cent higher than previous year advances. All Commercial banks including public sector commercial banks, private sector commercial banks, RRBs and Small Finance Banks (SFB) together disbursed ₹3,92,669.16 crore at the end of March 2021 as

Figure 1.4.1 Growth of bank deposit in Kerala from 2012-2021, in ₹ crore



Source: State Level Bankers Committee Report, March 2021

compared to ₹3,59,274 crore as advances at the end of March 2020. Out of this, the advances of public sector commercial banks, private sector commercial banks, RRBs and Small Finance Banks were ₹2,15,118.05 crore ₹1,54,143.68 crore, ₹18,456.80 crore, and ₹4,950.63 crore respectively. There is an increase of 6 per cent in Priority Sector Advance (PSA) as compared to previous year. Public Sector Commercial Banks disbursed 44.54 per cent and Co-operatives disbursed 20.3 per cent of their advances to primary sectors. Kerala Gramin Bank has a share of 15.46 per cent in primary sector disbursement. Share of primary sector disbursement is shown in **Figure 1.4.2**.

Advances for Agricultural Purpose

Total agricultural advances through commercial banks, RRBs, SFBs and co-operative banks registered a growth of 6.9 percent in March 2021 to ₹95,676 crore from ₹89,500 crore in March 2020. The per cent of agricultural advance to total advances is 22 per cent in March 2021, same as in previous year. Share of agricultural advances of various banks as on March 2021 is shown in **Figure 1.4.3**.

Advances to SCs/STs and Weaker Section

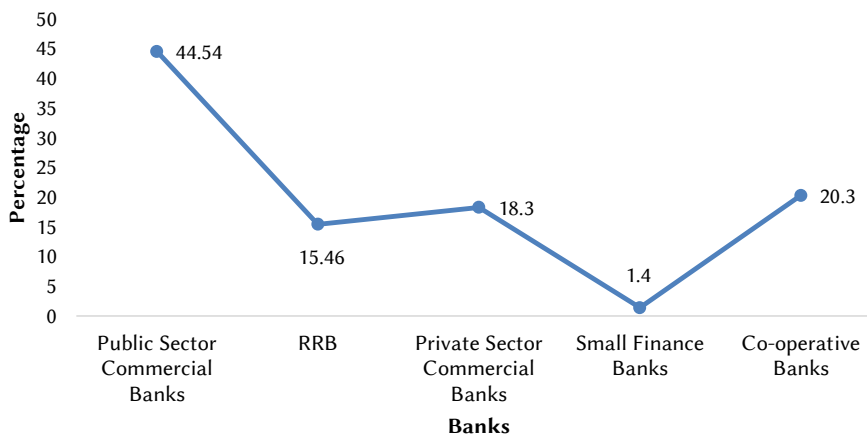
As on March 2021, an amount of ₹5,354.1 crore and ₹1,205.7 crore was disbursed to persons belonging to Scheduled Castes (SC) and Scheduled Tribes (ST) respectively in the

State by various banks as against ₹5147.3 crore and ₹1,204.9 crore in March 2020. There is a 4 per cent increase in the advances provided to the Scheduled Castes and a nominal increase in the advances provided to the Scheduled Tribes compared to the previous year. The SLBC report shows that advances provided to SCs and STs by Public Sector banks decreased by 21.43 per cent among SCs and 12.83 per cent among STs as compared to previous year. Advances provided by Co-operative Banks to SCs shows an increase of 273 per cent compared to previous year but there is a decrease of 45 per cent in advances provided to STs. In March 2021, ₹86,995 crore has been disbursed to weaker sections in the State which is only one per cent increase as compared to March 2020 (₹85,398 crore). The group-wise advances given by banks to SC and ST are given in **Table 1.4.2**.

Housing Loans

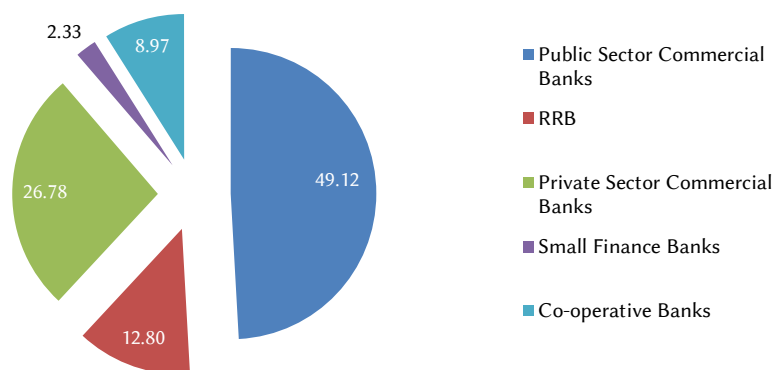
The banks in Kerala including commercial banks and co-operative banks sanctioned ₹39,507 crore to 7,11,356 beneficiaries as housing loan as on March 2021 against ₹37,324 crore to 8,27,096 beneficiaries in March 2020 as per SLBC data. There is an increase of 5.85 per cent in the total housing loan sanctioned but a decrease of 14 per cent in the number of beneficiaries compared to March 2020. Public sector banks disbursed ₹22,138 crore to 3,22,301 beneficiaries, RRBs disbursed ₹3,038 crore to 60,132 beneficiaries,

Figure 1.4.2 Share of primary sector disbursement as on March 2021



Source: SLBC Report, March 2021

Figure 1.4.3 Share of agricultural advances by various banks in Kerala as on March 2021



Source: SLBC Report, March 2021

private sector commercial banks disbursed ₹5,497 crore to 84,253 beneficiaries, small finance banks disbursed ₹110 crore to 10,787 beneficiaries and co-operative banks disbursed ₹8,725 crore to 2,33,883 beneficiaries in 2020-21. The number of beneficiaries of housing loan of co-operative banks shows a decrease of 37.5 per cent compared to previous year. But the amount disbursed by co-operative banks as housing loan increased around 4 per cent. Public sector commercial banks disbursed major share of housing loans (56 per cent) followed by co-operative banks (22 per cent).

Educational Loan

As on March 2021, ₹1,07,40 crore was sanctioned as educational loan for 3,48,594 students in the State. It shows a decrease of 4.6 per cent in the amount sanctioned compared to previous year. The public sector commercial banks disbursed 81 per cent of the total educational loan provided i.e., ₹8,745.61 crore to 2,30,494 students. RRBs disbursed ₹571.37 crore to 19,780 students and private sector commercial banks disbursed ₹1,252.44 crore to 35,277 students. The SFBs disbursed ₹113.40 crore to 61,189 students. Co-operative banks disbursed ₹57.48 crore to 1,854 students in March 2021.

Credit-Deposit Ratio

The quarterly statistics of RBI shows that the Credit-Deposit (CD) ratio of Scheduled Commercial Banks in India decreased from 76 per cent to 71.47 per cent at the end of March 2021. In March 2021, Andhra Pradesh has the

highest CD ratio (128.72). Tamil Nadu (101.51 per cent), Maharashtra (94.83 per cent), and Telangana (90.37 per cent) also have a high CD ratio when compared to other States. In 2020 also, Andhra Pradesh had the highest CD ratio.

As per RBI report, in March 2021 the CD ratio of scheduled commercial banks in Kerala decreased to 61.52 per cent from 64.26 per cent in March 2020 (**Appendix 1.4.6**). The total deposits in scheduled commercial banks in Kerala increased to ₹6,10,519 crore as on March 2021 from ₹5,47,651 crore in March 2020 and total credit also increased to ₹3,75,588 crore as on March 2021 from ₹3,51,908 crore in 2020. As per SLBC data, on including the co-operative banks advances and deposits, the CD ratio of Kerala as on March 2021 is 65 per cent.

The CD ratio of public sector banks in India has decreased to 65.85 per cent as on March 2021 from 70.18 per cent in March 2020. The highest CD Ratio of 136.20 per cent is in Andhra Pradesh. Tamil Nadu (103.05 per cent) and Telangana (95.10 per cent) have the second and third highest CD ratio. The CD ratio of public sector banks in Kerala decreased to 64.74 per cent as on March 2021 from 66.62 per cent in March 2020 (**Appendix 1.4.7**).

District-wise Analysis of Banking Statistics

District-wise analysis of RBI statistics shows that Ernakulam has the highest number of branches of Scheduled Commercial Banks (1,013) followed by Thrissur (759) and Thiruvananthapuram (736). Though the number

Table 1.4.2 Details of SC/ST advances by various banks, Kerala, as on March 2021, in ₹ crore

S.No.	Bank	SC Advances 2021		ST Advances 2021		SC Advances 2020		ST Advances 2020		Percentage increase or decrease in advances to SC in 2021 compared to 2020	Percentage increase or decrease in advances to ST in 2021 compared to 2020
		Number	Amount	Number	Amount	Number	Amount	Number	Amount		
1	Public Sector Commercial Banks	163643	3164.92	34140	706.63	222151	4028.37	43476	810.63	-21.43	-12.83
2	RRB	37264	271.15	20065	146	40149	244.67	20683	126.04	10.82	15.84
3	Private Sector Commercial Banks	252138	693	66701	144.18	59844	340.72	3906	45.35	103.39	217.93
4	Small Finance Banks	152042	374.27	58641	147.07	146062	305.41	50027	108.94	22.55	35.00
5	Co-Operative Banks	35462	850.71	7759	61.82	13532	228.13	8632	114.03	273	-45
	Total banking sector	640549	5354.05	187306	1205.7	481738	5147.3	126724	1204.99	4.02	0.06

Source: State Level Bankers Committee Report, Kerala, March 2021

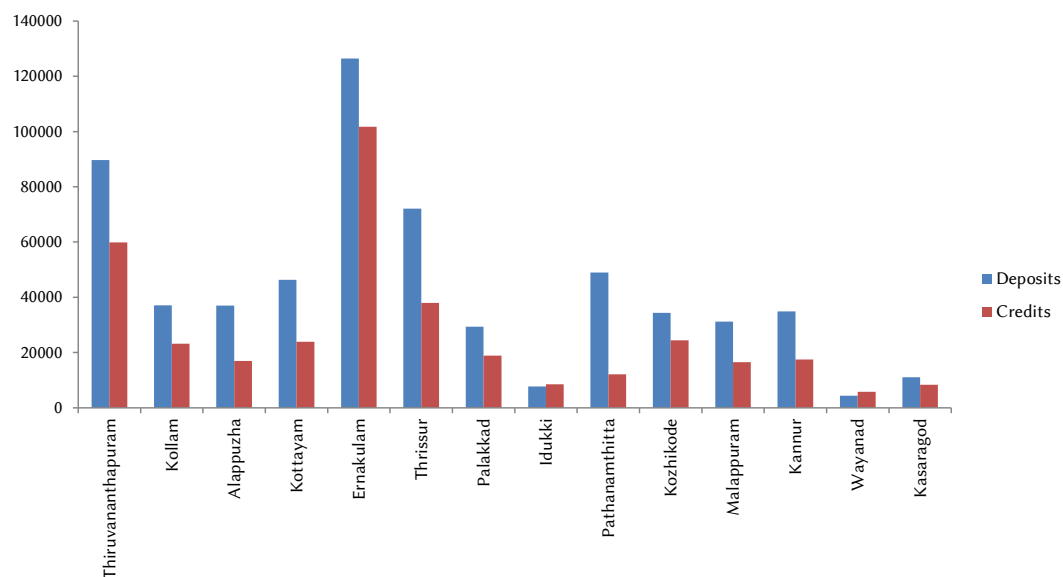
of bank branches in Wayanad increased to 147 in March 2021 from 133 in March 2020, it still has the lowest number of bank branches in the State. (**Appendix 1.4.8**). District-wise distribution of deposits and credit of scheduled commercial banks in Kerala as on March 2021 is shown in **Figure 1.4.3**.

Co-operative Banking Sector in Kerala

Co-operative banks are the backbone of rural financial sector in Kerala. Out of the total bank branches, 13 per cent are in the co-operative sector. There are 999 co-operative bank branches in Kerala as on March 2021. Of the total 999 branches, 449 in rural area, 411 in semi-urban area and 139 in urban area. The number of bank branches in the rural areas decreased from 457 in March 2020 to 449 in March 2021. However in case of semi-urban areas the number of bank branches increased by 49 per cent. In urban areas also the number of branches decreased by 46 per cent.

The total deposits of commercial banks, RRBs, SFBs and co-operative banks as on March 2021 was ₹6,77,127 crore which shows an increase of 11.2 per cent compared to March 2020. The share of co-operatives in the total business is 11 per cent. The total advances from both commercial banks and co-operatives in the State was ₹4,43,554 crore in March 2021, of which, the share of cooperatives is ₹50,885 crore which accounts for 11 per cent of the total advances of commercial and co-operative banks in the State. The total agricultural advances from commercial and co-operative banks in the State as on March 2021 was ₹95,676 crore and the share of co-operatives is ₹8,585 crore (9 per cent). co-operative banks provide 59 per cent of their advances to the priority sector and 4 per cent to the MSME sector. The performance of co-operative sector is shown in **Table 1.4.3**.

Figure 1.4.3 District-wise distribution of deposits and credit of scheduled commercial banks in Kerala as on March 2021



Source: RBI - Quarterly statistics on Deposits and Credit of Scheduled Commercial Banks, March 2021

Table 1.4.3 Performance of Co-operative sector, in Kerala, March 2021, in ₹ crore

S. No.	Parameter	As on March 2021			Share of co-operative to total banking sector (%)
		Co-operative Sector	Commercial Banks+ RRBs+ SFBs	Total banking sector	
1	Branches	999	6611	7610	13
2	Total Deposits	71213	605914	677127	11
3	Total Advances	50885	392669	443554	11
4	Total Business	122098	998583	1120681	11
5	Priority sector advances	29779	190433	220212	14
6	% Priority sector advances	59%	48%	50%
7	Agriculture Advances	8585	87091	95676	9
8	% Agriculture Advances	17%	22%	22%
9	MSME Advances	2170	59971	62141	3
10	% MSME Advances	4%	15%	14%
11	CD Ratio	71.45	64.81%	65.51%

Source: State Level Bankers Committee, Kerala 2021

NON-BANKING FINANCIAL INSTITUTIONS

Kerala State Financial Enterprises (KSFE)

Kerala State Financial Enterprises (KSFE), which was incorporated in 1969, is a fully owned Government Miscellaneous Non-Banking Finance Company (MNBC). The major business segments of KSFE are chitty, loans and advances and deposits. The aggregate monthly turnover as on March 2021 is ₹28,702 crore as compared to ₹23,895 crore as on March 2020. The company has ₹3,225 crore as chitty security deposit as on March 2021 whereas it was ₹3,043 crore as on March 2020. The free deposits of KSFE increased to ₹4,662 crore as on March 2021 from ₹2,122 crore as on March 2020. The company has invested ₹360.31 crore in the KIIFB Bond and ₹670 crore in Kerala Social Security Pension (KSSP) Limited. The business transaction of KSFE in 2020-21 is shown in **Table 1.4.4**.

without providing any additional security. KFC also supported new MSME units with a loan of up to ₹50 lakh. Further details on KFC are covered in the industry section of this Review.

Table 1.4.4 Business transactions of KSFE in 2020-21

Sl. No	Particulars	Amount (₹ crore)
1	Chitty (o/s monthly sala)	2410
2	Advances (o/s)	8112
3	Deposits (o/s)	18180
4	Aggregate monthly turnover as on 31st March 2021	28702
5	Chitty (Yearly sala)	26470
6	Aggregate Turnover	52762

Source: Report from KSFE

Kerala Financial Corporation (KFC)

Kerala Financial Corporation (KFC) incorporated under the State Financial Corporations Act of 1951, contributes towards the economic, industrial and social development of the state by providing financial assistance to the micro, small and medium enterprises in the manufacturing and service sectors. Net profit of KFC had a huge decline from ₹18.4 crore in 2019-20 to ₹6.6 crore in 2020-21. The corporation has introduced Covid Relief Loans for units engaged in manufacturing products or those providing services in mitigating Covid-19. Another loan scheme of KFC provides top up loans for existing customers of KFC

1.5 STATE FINANCES

Kerala has a unique economic model. In order to ensure a welfare state and develop physical infrastructure, Kerala has to maintain an adequate resource base on the one side and rational distribution of resources on the other side. Demonetisation in 2016, problems in implementation of Goods and Service Taxes, the Ockhi Cyclone in 2017, the spread of Nipah virus, outbreak of Corona virus in 2020 and the spread of the pandemic in 2021 has adversely impacted the State's resources and the economy. In spite of economic uncertainty and natural calamities, the State has undertaken all efforts to ensure well-being of the people over stringent fiscal prudence. In reality, these uncertainties have disrupted normal revenue receipts of the State and the pandemic induced fiscal measures pushed up expenditure obligations of the Government. To support the economy and alleviate the damage caused by the economic slowdown and the pandemic (as a counter-cycle fiscal policy), the State had to press the pause button in fiscal consolidation efforts. The Government has stepped into offer relief to the most vulnerable sections of the society by providing essential services, goods and cash. During times of severe economic stress, the State provided some of the most essential services universally to its entire people. In order to support the economy and to minimise the damage caused by the economic slowdown, the State decided to prioritise recovery and growth within the existing fiscal consolidation framework.

Many policies and events beyond the control of the State Government have affected its fiscal health. The implementation of the GST has brought restrictions and limitations on the intervention of states in raising their taxes. Delay in getting the GST compensation has added pressure in managing State finances. There has been a significant decrease in the Central share available to the States in Central Assistance Schemes in recent years as compared to preceding years. The shareable net proceeds entitled to the State of Kerala have been continuously falling. During the 15th Finance Commission period the share of horizontal devolution has shrunk

to 1.925 per cent from 2.5 per cent entitled during the 14th Finance Commission period causing significant loss to the State's revenue receipts. The Central Government collects a large amount of revenue through cess and surcharges and constitutionally the Union Government is not bound to share the revenue from cess and surcharges to the States.

In spite of these constraints, the Government aims to build a modern, high-employment, productive economy. The State has attained top position in its progress towards UN Sustainable Development Goals as measured by NITI Aayog through SDG India Index. This indicates the quality of expenditure set apart for key social services like education and health. The Government's flagship programmes across the Four Missions, namely Haritha Keralam, Livelihood Inclusion and Financial Empowerment (LIFE), Education Rejuvenation Mission and AARDRAM continue to make substantial improvements in the quality of life of the people of the State.

Government of Kerala has also promoted accelerated investment in infrastructure for ensuring sustainable growth in the economy. The major infrastructure initiatives of the Government are Kannur Airport, GAIL Pipeline, Vizhinjam International Container Transhipment Terminal, Integrated Water Transport System Kochi (Water Metro), Kochi Metro Phase-II and KFON (Kerala Fibre Optic Network) scheme. The efforts to stimulate economic growth in the State through Government spending have to be along with efforts to mobilise more State Own Tax Revenue and Non-Tax revenue for fiscal sustainability.

Revenue Deficit for 2020-21 is 2.51 per cent as against 1.76 per cent in 2019-20. As per the Budget estimates of 2021-22, Revenue Deficit is estimated to be 1.93 per cent. Fiscal deficit to GSDP proportion, which was 2.89 per cent in 2019-20 has increased to 4.40 per cent in 2020-21 and estimated to be 3.5 per cent in 2021-22. The present fiscal stress may persist due to the prevalent economic slowdown at national

and global level and the associated expenditure to deal with the pandemic. Spike in the cases of new variant of corona virus and third wave of Covid-19 pose a new menace in the economy. Major deficit indicators of the State for the period from 2011-12 to 2021-22 are shown in **Table 1.5.1**.

Receipts

The State Government's receipts are divided into revenue receipts and capital receipts. The revenue receipts comprise State's own tax and non-tax revenues, share of central tax transfers and grants-in-aid from Government of India, whereas capital receipts mostly consist of debt receipts from internal resources and loans and advances from Government of India, disinvestment receipts, recoveries of loans and advances and net accretions under public account.

Revenue Receipts

The revenue receipts of the State increased from ₹30,990.95 crore in 2010-11 to ₹97,616.83 crore in 2020-21 in nominal terms, recording a CAGR of 12.16 per cent. However, growth rate of revenue receipts showed a declining trend from 18.71 per cent in 2010-11 to 8.19 per cent in 2020-21. In 2020-21 the revenue receipts of the State in proportion to GSDP increased marginally to 12.21 per cent from 10.94 per cent in 2019-20. Despite negative growth of 5.3

per cent in State Own Tax revenue and (-)40 per cent in State Own Non-Tax revenue, total receipts of the State has increased by 8.2 per cent due to the increase in the central receipts in the way of deficit grant and GST compensations. Total revenue receipts of the State in 2020-21 has increased by ₹7,392.16 crore.

The largest component of revenue receipts of the State is State's Own Tax Revenue (SOTR). In 2020-21 contribution from SOTR was ₹47,660.84 crore (48.82 per cent). The contribution of State's Own Non-Tax revenue was ₹7,327.31 crore (7.51 per cent). The share of central taxes and grants was ₹42,628.68 crore (43.67 per cent). Out of the central receipts, share of central taxes was ₹11,560.40 crore and Grants in aid received from the Centre was ₹31,068.28 crore. From the Grant in aid received from the Government of India, an amount of ₹18,048.80 crore was the Finance Commission Award. The source-wise annual growth of revenue receipts of the State is given in **Figure 1.5.1**. Details of revenue receipts of the State are given in the **Appendix 1.5.1**.

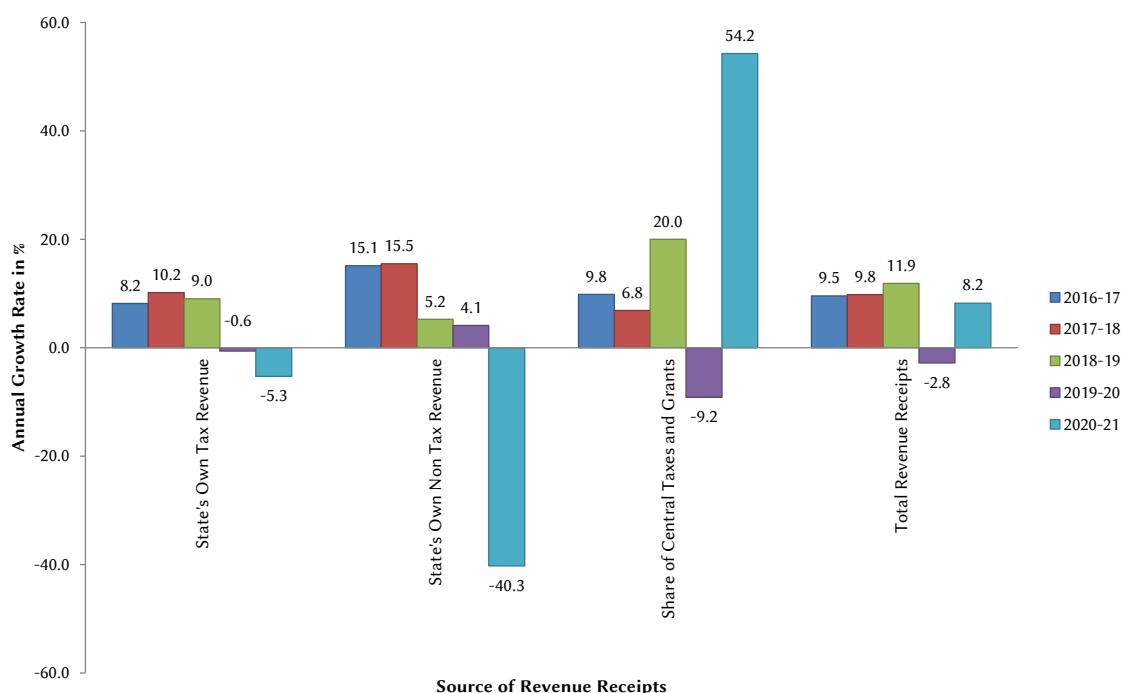
In 2013-14, the proportion of central assistance to the total revenue receipts was 23.6 per cent. The hike in the central share in the total revenue receipts after 2014-15 is attributed to the change in procedure of routing central

Table 1.5.1. Major deficit indicators from 2011-12 to 2021-22, ₹ in crore

Year	Revenue Deficit		Fiscal Deficit		Primary Deficit	
	Amount	% to GSDP	Amount	% to GSDP	Amount	% to GSDP
2011-12	8034.26	2.21	12814.77	3.520	6521.17	1.79
2012-13	9351.45	2.27	15002.47	3.639	7797.66	1.89
2013-14	11308.6	2.43	16944.13	3.644	8678.74	1.87
2014-15	13796	2.69	18641.72	3.637	8872.13	1.73
2015-16	9656.81	1.73	17818.46	3.194	6707.61	1.20
2016-17	15484.59	2.44	26448.35	4.17	14331.85	2.26
2017-18	16928.21	2.41	26837.41	3.83	11717.48	1.67
2018-19	17461.92	2.22	26958.30	3.42	10210.39	1.30
2019-20	14495.25	1.76	23837.48	2.89	4622.78	0.56
2020-21	20063.5	2.51	35203.69	4.40	14228.33	1.78
2021-22 BE	16910.12	1.93	30697.59	3.50	8757.39	1.00

Source: Finance Department, Government of Kerala

Figure.1.5.1 Source-wise annual growth of revenue receipts of the State, in per cent



Source: Finance Department, Government of Kerala

share in centrally sponsored schemes (CSS) through the State Budgets instead of directly to implementing agencies. In 2020-21 the share of central assistance reached its peak at 43.67 per cent and expected to decline to 34.21 per cent in 2021-22. Due to the uncertainty of continuation of GST compensation from June 2022, the Central share to State is likely to be declined in the ensuing years. Kerala, along with many other States is demanding continuation of GST compensation beyond June 2022. The revenue deficit grant received from central government is also likely to end in 2023-24. The trend of State revenue receipts from different sources are given in the **Figure 1.5.2**.

(i) State's Own Tax Revenue

The main sources of SOTR are State Goods and Services Tax, Sales Tax on petroleum and alcoholic liquor for human consumption, Stamps and Registration fees, State Excise Duties, Motor Vehicle Tax and Land Revenue. In 2013-14, SOTR was 65.06 per cent of total revenue. It declined to 48.82 per cent during 2020-21 in

the backdrop of general economic slowdown due to the Covid-19 pandemic and other external and internal factors which influenced the State economy (**Appendix 1.5.2**).

The receipt from SOTR during 2020-21 was ₹47,660.84 crore. State Goods and Services Tax constituted the major share of SOTR. In 2020-21 receipts from State Goods and Services Tax (₹20,028.31 crore) contributed 42.02 per cent of the total SOTR, followed by 37.11 per cent from Sales Tax (₹17,689.17 crore), 7.32 per cent from Stamp duties and registration fees (₹3,489.59 crore), 7.10 per cent from Taxes on Vehicles (₹3,386.28 crore), 4.89 per cent from State Excise Duties (₹2,329.22 crore), and 1.04 per cent from Land Revenue (₹493.35 crore). **Figure 1.5.3** shows the source-wise State own tax revenue in 2020-21.

(ii) State's Own Non-Tax Revenue

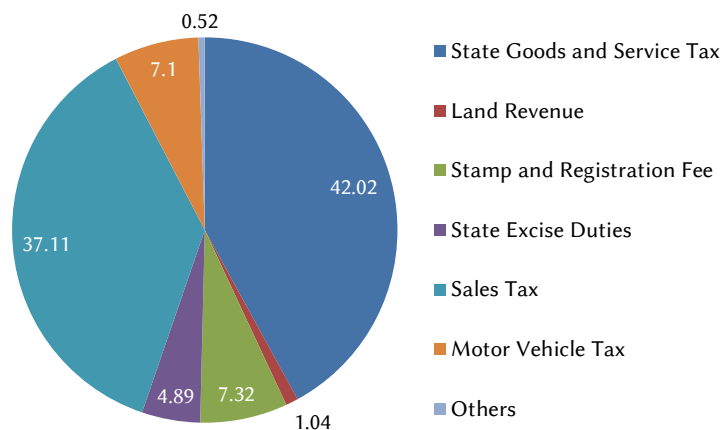
Receipts under State Lotteries are the major source of Non Tax revenue of the State. Other main sources of State's own Non-Tax Revenue (SONTR) are interest receipts and dividends,

Figure 1.5.2 Share of Different Sources in State's Revenue Receipts, in per cent



Source: Finance Department, Government of Kerala

Figure 1.5.3 Source-wise State own tax revenue in 2020-21



Source: Finance Department, Government of Kerala

sale proceeds of forest produces and receipts in the form of fees and fines from various social developmental services. In 2020-21, ₹7,327.31 crore was realized as SONTR recording a negative growth rate of 40.26 per cent when compared to 2019-20 (₹12,265.22 crore).

In 2020-21 receipts from State Lotteries was ₹4,873.01 crore showing a negative growth rate of 51.14 per cent, compared to 2019-20 (₹9,973.66 crore). This was followed by receipts of ₹965.38 crore from Social Developmental Services.

₹246.64 crore from contribution on account of debt services interest and ₹236.61 crore from the sale proceeds of forest produces and ₹1,005.67 crore from other items. Details of State own non-tax revenue are given in the **Appendix 1.5.3**.

(iii) Central Resource Transfers

Two major components of central devolution are share of taxes and grants as recommended by the Finance Commissions and grants disbursed by the Central Government. Within Central Devolution, share of Taxes is to be devolved on the formula recommended by the

Finance Commission (FC) as mandated in Article 280 of the Constitution. The FC also recommends grants-in-aid under Article 275 of the constitution to bridge post tax devolution revenue deficits. Moreover, the FC also devolves sector specific grants. But the 14th FC did away with the sector specific grants except for Local Governments and for disaster response. The tax devolution and revenue deficit grants are the flexible part of Central resource transfer. The other components like central share in CSS are tied grants over which the State has no flexibility in spending.

As per the recommendations of the 15th Finance Commission the share of the States in the net tax proceeds of Union Government is 41 per cent. Kerala was entitled for 2.5 per cent of net sharable union tax proceeds during the 14th FC period. Due to change in the criteria for horizontal devolution, the net proceeds of tax for a single year entitled to the State of Kerala is reduced to 1.925 per cent in the 15th FC. **Figure 1.5.4** shows the trend of net shareable tax proceeds based on different Finance Commissions.

The criteria used by the 13th, 14th, and 15th Commissions to determine each State's share in

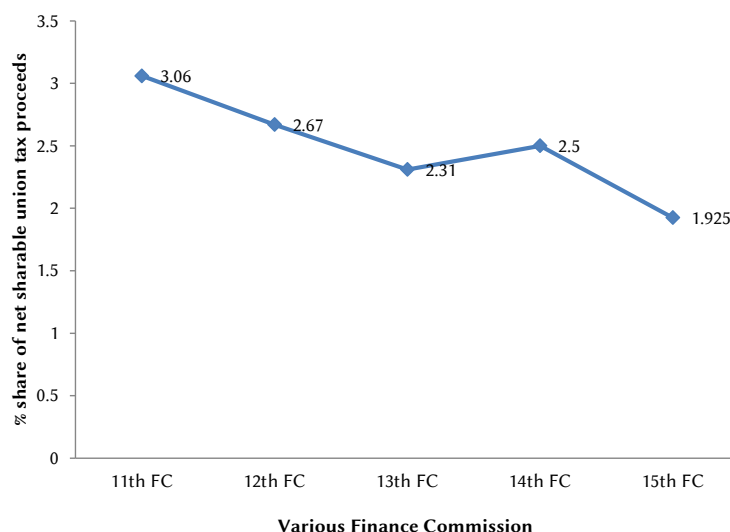
Central taxes, and the weight assigned to each criterion are given in the **Table 1.5.2**.

During 2020-21, total central transfers to the State were ₹42,628.68 crore against ₹27,636.31 crore in 2019-20. During this period share in central taxes was ₹11,560.40 crore which showed a declining rate of 29.51 per cent compared to that in 2019-20 (₹16,401.05 crore). In 2020-21 the State received ₹31,068.28 crore as Grant in aid from the centre which included compensation for loss of revenue arising out of the implementation of the GST of ₹6,721.38 crore. Details of central transfers are given in the **Table 1.5.3**.

Expenditure

Expenditure of state includes three components viz revenue expenditure, capital expenditure and expenditure on loan disbursements. Between 2010-11 and 2020-21, total expenditure increased from ₹38,790.24 crore to ₹1,38,884.49 crore in nominal terms, recording a CAGR of 13.60 per cent. Out of the total expenditure of ₹1,38,884.49 crore in 2020-21, non-Plan and Plan expenditure stood at ₹1,06,594.46 crore (76.75 per cent) and ₹32,290.03 crore (23.25 per cent) respectively. The proportion of Plan expenditure to the total expenditure has

Figure 1.5.4 Trend of net shareable tax proceeds based on different Finance Commissions



Source: Various Finance Commission Reports, GoI

Table 1.5.2. Criteria for horizontal devolution of tax resources by Centre to States in the 13th, 14th, and 15th Finance Commission Reports in per cent

Criteria	13th FC	14th FC	15th FC
Population (1971)	25	17.5	-
Population (2011)	-	10	15
Income distance	47.5	50	45
Area	10	15	15
Forest cover	-	7.5	-
Forest and ecology	-	-	10
Demographic performance	-	-	12.5
Tax and Fiscal effort	-	-	2.5
Fiscal Discipline	17.5	-	-

Source: Various Finance Commission Reports, GoI

Table 1.5.3. Central Transfer, ₹ in crore

Year	Share in central tax and duties		Grant in aid and other receipts from centre for Plan and Non Plan		Total transfer	
	Amount	Annual Growth Rate in %	Amount	Annual Growth Rate	Amount	Annual Growth Rate in %
2012-13	6840.65	14.19	3021.53	-18.54	9862.18	1.68
2013-14	7468.68	9.18	4138.21	36.96	11606.9	17.69
2014-15	7926.29	6.13	7507.99	81.43	15434.3	32.98
2015-16	12690.7	60.11	8921.35	18.82	21612	40.03
2016-17	15225	19.97	8510.35	-4.61	23735.4	9.82
2017-18	16833.1	10.56	8527.84	0.21	25360.9	6.85
2018-19	19038.2	13.10	11389	33.55	30427.1	19.98
2019-20	16401.1	-13.85	11235.3	-1.35	27636.3	-9.17
2021-22	11560.4	-29.51	31068.28	176.52	42628.68	54.25

Source: Finance Department, Government of Kerala

marginally increased by 4.73 per cent over the year 2019-20.

Revenue Expenditure

Revenue expenditure involves both development and non-development expenditure. Development expenditure includes expenditure such as on Education, Health, Agriculture and Animal Husbandry, Industries, Labour and Employment.

Non-development expenditure comprises interest payment, pension payment, debt charges, administrative services and others. Details of revenue expenditure are given in the **Table 1.5.4.**

From 2006-07 onwards, assistance to LSGs is being classified under “Grant in Aid and Contributions”, Developmental Expenditure of the devolutions to LSGs is also reckoned.

Table 1.5.4. Trend in Revenue Expenditure, ₹ in crore

	Total Revenue Expenditure		Development Expenditure		Non Development Expenditure	
	Amount	Annual Growth Rate	Amount	% of total revenue exp.	Amount	% of total revenue exp.
2008-09	28223.85	13.39	15154.3	53.69	13069.6	46.31
2009-10	31132.38	10.31	16908.6	54.31	14223.8	45.69
2010-11	34664.81	11.35	18918.6	54.58	15746.2	45.42
2011-12	46044.62	32.83	25069.8	54.45	20974.8	45.55
2012-13	53488.74	16.17	29889.0	55.88	23599.7	44.12
2013-14	60485.50	13.08	32921.1	54.43	27564.4	45.57
2014-15	71746.43	18.62	39182.2	54.61	32564.2	45.39
2015-16	78689.47	9.68	41762.7	53.07	36926.8	46.93
2016-17	91096.31	15.77	48602.6	53.35	42493.7	46.65
2017-18	99948.35	9.72	52979.5	53.01	46968.8	46.99
2018-19	110316.39	10.37	56788.0	51.48	53528.4	48.52
2019-20	104719.92	-5.07	47550.2	45.41	57169.7	54.59
2020-21	123446.33	17.88	71224.0	57.70	52222.3	42.30
2021-22	147891.18	19.80	79378.3	53.67	68512.9	46.33

Note: From 2006-07 onwards, assistance to LSG is being classified under “Grant in Aid and Contributions”, Developmental Expenditure of the devolutions to LSGs is also reckoned.

The operational and maintenance cost for the completed projects and programmes are also classified under the revenue account. Grants provided by the State to meet salaries and pension liabilities of employees in the Universities and State autonomous bodies and also the pension liabilities of employees of Panchayat Raj Institutions are classified as revenue expenditure. Major portion of revenue expenditure devolved to the LSGIs is utilised for the creation of capital assets at local government level.

Revenue expenditure increased to ₹1,23,446.33 crore during 2020-21 as against ₹1,04,719.92 crore in 2019-20. Of the total revenue expenditure of 2020-21, plan expenditure was ₹17,939.54 crore and non-plan expenditure was ₹1,05,506.79 crore. The ratio of revenue expenditure to GSDP shows an increase of 15.43 per cent in 2020-21 compared to previous year’s 12.70 per cent.

In 2020-21, the share of committed expenditure on revenue expenditure increased compared to

the previous year. Expenditure on committed liabilities on salaries, pension, interest payments, subsidies and devolution to the LSGIs constituted 69.13 per cent of revenue expenditure. In 2020-21 salary expenditure as proportion of total revenue expenditure was 22.46 per cent whereas it was 30.25 per cent in 2019-20. Pension expenditure as per cent of total revenue expenditure was 15.35 per cent in 2020-21 compared to 18.21 per cent in 2019-20. Interest payment as per cent of total revenue expenditure decreased to 16.84 per cent in 2020-21 from 18.35 per cent in 2019-20. Details of Revenue expenditure are given in the **Appendix 1.5.4** and **1.5.5**.

Capital Expenditure

As most of State expenditure on Human Capital is categorised as revenue expenditure, the outlay in capital expenditure has always been small. Still, the Government of Kerala is committed to infrastructural development in the State and has initiated innovative financing models to support major infrastructural projects

for the sustainable development of the State economy. These models have already begun to show positive results by attracting long term investment in capital projects. Details of capital expenditure and total expenditure are given in the **Appendix 1.5.6** and the trend in capital outlay is given in the **Appendix 1.5.7**. The share of government spending on capital projects in various sectors has increased during the recent years. The capital outlay of the State in 2020-21 was ₹12,889.65 crore and in 2019-20 it was ₹8,454.80 crore. Capital outlay - GSDP ratio has slightly increased to 1.61 per cent in 2020-21 from 1.03 per cent in 2019-20. Public Works continued to remain the major segment of capital outlay with 22.35 per cent of the total capital outlay in 2020-21 followed by, Industries and Labour 3.77 per cent, Agriculture and allied activities 3.61 per cent, and Irrigation 2.34 per cent. Trend in capital outlay is given in the **Table 1.5.5**.

Debt Profile

Debt of the State comprises of internal debt, loans and advances from the Central Government, and liabilities on account of Small Savings and Provident Fund Deposits. During the last five years, the State mainly relied on market borrowings and accretions in Small Savings and Provident Fund Deposits to finance its fiscal deficit.

Outstanding debt liabilities of the State at the end of 2020-21 were ₹2,96,900.85 crore. The annual growth rate of debt increased to 14.06 per cent in 2020-21 from 10.47 per cent in 2019-20. The Debt-GSDP ratio in 2019-20 was 31.58 per cent. In 2020-21, it stood at the level of 37.13 per cent. This increase is attributed to the fact that the unprecedented decline in revenue receipts coupled with increase in revenue expenditure required availing of the additional borrowing allowed to the State by Government of India. The ratio of debt in terms of revenue receipts marginally increased to 310.06 per cent in 2020-21 from 288.51 per cent in 2019-20.

The share of internal debt in the total debt liabilities of the State was 62.93 per cent in 2020-21. Outstanding internal debt increased to ₹1,90,474.09 crore in 2020-21 from ₹1,65,960.03 crore in 2019-20. The growth rate of outstanding internal debt in 2020-21 was 14.77 per cent. The liabilities under small savings, Provident Fund etc. come to around 32.12 per cent of the total liabilities. The outstanding liabilities under small savings provident fund etc at the end of 2020-21 were ₹97,219.13 crore compared to ₹85,671.17 crore in 2019-20. The outstanding liabilities under loans and advances from the Centre at the end of 2020-21 were ₹9,207.64 crore. The gross and net retention of debt in 2020-21 was ₹42,355.47 crore and ₹21,551.68 crore respectively.

Table 1.5.5 Trend in Capital Outlay, in ₹ crore

Year	Irrigation	Agriculture and Allied Services	Industries, Labour and Employment	Public Works	Others	Total
2012-13	340.6	192.11	273.95	2142.92	1653.71	4603.29
2013-14	342.39	210.62	342.24	1549.43	1849.65	4294.33
2014-15	270.24	355.9	260.22	1578.94	1789.29	4254.59
2015-16	526.23	473.08	334.94	2924.26	3241.53	7500.04
2016-17	674.83	555.62	516.79	3001.88	5376.83	10125.95
2017-18	544.4877	629.83	548.06	2595.57	4430.92	8748.87
2018-19	271.777	543.95	276.74	2000.48	4337.58	7430.54
2019-20	282.83	340.37	254.01	2435.51	5142.08	8454.8
2020-21	302.14	464.87	486.1	2881.18	8755.36	12889.65
2021-22	532.09	444.95	718.37	1784.71	9116.15	12596.27

Source: Finance Department, Government of Kerala

A higher deficit is inevitable when the economy is undergoing a slowdown. The State has left no stone unturned in its response to the humanitarian and economic crisis. As recovering from the internal and external shocks faced in recent years and rebuilding the State are the most important aims of the Government, it is not easy to reach the fiscal targets stipulated in the FRBM act within a short span of time. However, the State is obliged to undertake a strategic endeavour to mobilise resources at optimum with a view to combating the prevailing economic downturn without impeding the development expenditure of the State.

1.6 PLAN OUTLAY 2021-22

Plans reflect the development approach of the Government and assists in prioritisation of resources to achieve the development vision of the Government. Annual Plans and Five-Year Plans are an integral part of developmental activities of the State. The Government of Kerala has resolved to proceed with the planning process and formulation of Plans when Union Government and most of the Indian States have done away with Five-Year Plans.

Annual Plan 2021-22

In Kerala, State Planning Board plays a pertinent role in the formulation of Five-Year Plans and Annual Plans. Annual Plan 2021-22 was the final year of the 13th Five-Year Plan. At the time of formulation of Annual Plan 2021-22, the State economy was affected severely by the Covid-19 pandemic and the consequent lockdown and other restrictions. Amidst the challenges of resource constraints and increasing commitments to address exigencies, the State Government retained the plan size of 2020-21 for the year 2021-22. In the Annual Plan 2021-22, thrust was given to overcome the crisis created by Covid-19 pandemic and to promote sustainable livelihoods in the economy. The Plan also gave emphasis on promoting agriculture production and ensuring sufficient income for the farmers, generating employment through promoting industrial production, especially MSME units in the State, and reviving the economy to spur growth and production.

The Aggregate Plan outlay of Annual Plan 2021-22 was ₹37,042.91 crore which includes State Plan of ₹27,610 crore and central assistance of ₹9,432.91 crore. A significant feature of the State Plan is the devolution of funds to Local Governments as recommended by the State Finance Commission (SFC). Out of the total state plan outlay of ₹27,610 crore, an amount of ₹7,280 crore (26 per cent of State Plan), was earmarked to LSGIs and the remaining ₹20,330 crore for state sector schemes. Likewise, an

amount of ₹2,708.54 crore was allocated to Schedule Caste Sub Plan (SCSP) and ₹781.36 crore to Tribal Sub Plan (TSP). Besides, ₹4,025.40 crore of the State Plan outlay was exclusively earmarked for girls/women which includes ₹5.00 crore for the Transgender community. In 2021-22, the total allocation of resources intended for benefiting children was ₹1,896.35 crore. The sector-wise outlays earmarked in the Annual Plans 2020-21 and 2021-22 are given in **Table 1.6.1**.

Thirteenth Five-Year Plan

The total budgeted outlay of the 13th Five-Year Plan (2017-2022) was ₹1,41,480 crore. The 13th Plan period was a difficult period as the State had to face severe resource constraints and challenges in form of natural calamities affecting both resource availability for Plans and implementation of schemes. Towards the end of the Plan period, the Covid-19 pandemic and consequent lockdown unsettled the economy further. Hence, there was no significant increase in outlay, as envisaged, towards the end of the Plan period.

Despite all constraints, the Government took efforts to allocate resources for reviving the productive sectors of the economy, streamline expenditure and create sustainable livelihoods, and to rebuild the economy. These efforts were supplemented by initiatives in the sphere of social justice and gender equality.

Devolution to Local Governments as per recommendations of State Finance Commission, Gender Budgeting, allocation to Scheduled Caste Sub-Plan and Tribal Sub-Plan were some of the key highlights of the 13th Plan.

The total Plan outlay and sector-wise outlay of the 13th Five-Year Plan are given in **Table 1.6.2** and **Table 1.6.3**.

Table 1.6.1 Sector-wise Outlay in Annual Plans 2020-21 and 2021-22, ₹ in crore

Sl. No.	Sector/ Sub Sector	2020-21			2021-22			
		State Plan Outlay	Central Assistance	Aggregate Plan	State Plan Outlay	Central Assistance	Aggregate Plan	Per cent increase/ decrease in Aggregate Plan 2021-22 over 2020-21
1	2	3	4	5	6	7	8	9
I	Agriculture and Allied Activities	1463.77	242.08	1705.85	1528.42	287.38	1815.80	6.45
II	Rural Development	1598.50	4146.37	5744.87	1607.72	4358.69	5966.41	3.86
III	Special Area Programmes	243.24	12.00	255.24	245.67	12.00	257.67	0.95
IV	Irrigation and Flood Control	461.51	177.57	639.58	469.69	59.00	528.69	-17.34
V	Energy	1764.57	0.00	1764.57	1150.11	0.00	1150.11	-34.82
VI	Industry and Minerals	859.70	0.00	859.70	1059.70	6.75	1066.45	24.05
VII	Transport	1703.63	0.00	1703.63	1444.25	0.00	1444.25	-15.23
VIII	Science, Technology and Environment	924.84	117.98	1042.82	954.44	55.30	1009.74	-3.17
IX	General Economic Services	1828.38	85.29	1913.67	1343.38	94.38	1437.76	-24.87
X	Social Services	8522.82	4359.04	12881.86	8615.58	4523.41	13138.99	2.00
XI	General Services	81.04	36.00	117.04	81.04	36.00	117.04	0.00
	Total (I To XI)	19452.00	9176.33	28628.33	18500.00	9432.91	27932.91	-2.43
XII	LSGD	7158.00	0.00	7158.00	7280.00	0.00	7280.00	1.70
XIII	RKI	1000.00	0.00	1000.00	1830.00	0.00	1830.00	83.00
	Grand Total	27610.00	9176.33	36786.33	27610.00	9432.91	37042.91	0.70

Source: PLANSPLACE, State Planning Board

Table 1.6.2 Budgeted State Plan Outlay in 13th Five-Year Plan, Kerala ₹ in crore

Year	Budgeted State Plan Outlay
1	2
2017-18	26500.00
2018-19	29150.00
2019-20	30610.00
2020-21	27610.00
2021-22	27610.00
Total	141480.00

Source: Annual Plan Documents

Table 1.6.3 Sector-wise outlay in 13th Five-Year Plan, Kerala, ₹ in crore

Sl No	Sector	Budgeted Outlay	% of Total Plan Outlay
I	Agriculture and allied sectors	8405.24	5.94
II	Rural Development	8650.63	6.11
III	Co-operation	727.79	0.51
IV	Irrigation and flood control	2682.15	1.90
V	Energy	8109.53	5.73
VI	Industry and Minerals	7503.30	5.30
VII	Transport	10129.87	7.16
VIII	Science, Technology & Environment	1238.84	0.88
IX	General Economic Services	12827.15	9.07
X	Social Services	45607.02	32.24
XI	General Services	432.98	0.31
XII	Plan Assistance to Local Bodies	35165.50	24.86
Grand Total		141480.00	100.00

Source: Annual Plan Documents

Box 1.6.1 Kerala Looks Ahead: An International Conference and Consultation

The Government of Kerala organised a three-day online international conference and consultation titled “Kerala Looks Ahead” from February 1 to 3, 2021 to consult frontline national and international experts in certain areas identified as critical to Kerala’s economic future. The Kerala State Planning Board was the main organiser of the conference.

The objective of the conference was to learn from experience and best practices across the world in order to modernise the economy and bring the benefits of new levels of production and income growth and inclusive development to all the people of Kerala.

The three-day online conference had 22 sessions covering nine themes. The nine themes were the following: modernising agriculture, fisheries, and animal resources; information technology; modern skill development; e-governance; modern industrial possibilities; higher education, including academic collaboration; and tourism. There were two special sessions – on local governments and federalism and development financing – to showcase Kerala’s initiatives in the respective spheres. In addition, there was a special industry session, which discussed a roadmap for the future industrial growth in Kerala.

More than 190 speakers from 11 countries and many important multilateral and national organisations participated in the three-day conference. The speakers included two Nobel laureates, Professor Joseph E Stiglitz and Professor Amartya Sen, India’s leading industrialists including Mr Ratan Tata, Mr Azim Premji, Mr Anand Mahindra, Ms Kiran Mazumdar Shaw, Mr MA Yusuf Ali, Mr Kris Gopalakrishnan, Mr B Ravi Pillai, and Mr Azad Moopen, the Chief Scientist of the World Health Organisation, Dr Sowyma Swaminthan. World Food Prize winner, Dr. MV Gupta senior representatives of international IT businesses, senior national and international scholars, scientists, technologists, and other experts. Experts from the Government of India, International Labour Organisation, and other national and international bodies also participated in the conference

The conference was attended by Ministers, Members of Parliament and the Kerala Legislative Assembly, senior officials in government, scientists, technologists, students, teachers, social workers, administrators, political activists and media persons. Other participants in the conference included scholars, academicians, industry bodies, farmers’ organisations, local government representatives, heads of institutions, organisations, and youth

Box 1.6.2 *PLANSPLACE, Online Plan Monitoring System*

PLANSPLACE is the online Plan Monitoring System of the State that facilitates real time monitoring of plan schemes which have been included in the State budget and implemented by various Departments and agencies in the State. It is a web based online management information system built on G2G e-Governance frame work and developed by the Kerala State Planning Board with the technical support of the Kerala University of Digital Sciences, Innovation and Technology, erstwhile Indian Institute of Information Technology and Management – Kerala (IIITM-K). It facilitates the planners and decision makers in the Government to take timely and suitable decisions and make appropriate interventions for the effective implementation of Plan schemes. Moreover, it provides online access to all citizens to the continuously updated database on plan implementation and thus ensures transparency in plan implementation and monitoring

PLANSPLACE helps to capture the relevant details of all plan schemes, its various components, physical and financial progress and generates dynamic and customised reports for various stakeholders. In order to strengthen the District Level Plan Monitoring System, PLANSPLACE has been rolled out to the entire Districts in the State in 2015-16. This enables the implementing officers at District and sub- District levels to directly feed in data into the system which further enhances its accuracy and timeliness.

Over the years, PLANSPLACE has widened its scope of activity and plan proposals of departments are submitted online through this portal. The departments, after deliberations within their organisations, prepare the plan for every forthcoming financial year and submit it to the State Planning Board for further deliberations in connection with the preparation of Annual Plan for the State.

In 2020-21, the PLANSPLACE has been integrated with the 'e-office', the complete software for office file flow mechanism in Government. This enhances the accessibility and usefulness of the system in decision making process. Moreover, the development of a new version of PLANSPLACE has been initiated in 2020-21 to enhance the effectiveness of the software. The data regarding the implementation life cycle of all plan schemes up to the local body level is proposed to be made available for monitoring in the new version. The new version will also include provision for uploading geo tagged images of projects in its different stages of implementation.

In addition to this, it has been decided to integrate PLANSPLACE with the Public Financial Management System (PFMS), Budget 2.0, and Constituency Management App of E-Niyamasabha application. PFMS is a web based online software application developed and implemented by the Controller General of Accounts, Government of India. This would help in tracking funds released under all Plan schemes of Government of India being implemented across the State. The integration of PLANSPLACE with Budget 2.0 will facilitate real time capturing of budget estimates and post-budget data in PLANSPLACE. Integration of PLANSPLACE with Constituency Management App of E-Niyamasabha application will facilitate Legislative Assembly Constituency wise plan monitoring.

In short, PLANSPLACE is not only an effective online monitoring and evaluation tool but also serves as a database for analysis of plan implementation of various departments. New version of PLANSPLACE with additional features will further enhance the effectiveness of this portal.

CHAPTER

2

TWENTY FIVE YEARS OF
DECENTRALISATION IN KERALA

TWENTY FIVE YEARS OF DECENTRALISATION IN KERALA

Kerala's experience of decentralised planning has attracted global attention as an effective method of participatory development. Decentralised Planning was a way of refining the planning process, which had been criticised for being top-down and bureaucratic. The provisions of the 73rd and 74th Constitutional Amendments helped the process of devolving administrative and financial authority to Local Governments. The system of Local Governance in Kerala has been widely appreciated as genuinely participatory, compared to other mechanisms of development planning. This is because of the reach and responsiveness of the system in addressing the basic needs of society.

The **People's Plan Campaign**, which began 25 years ago, marked the culmination of a series of attempts made towards democratic decentralisation after the formation of the State. As Kerala celebrates the silver jubilee of the People's Plan Campaign and enters the Fourteenth Five-Year Plan, it is important to provide an overview of the achievements of decentralisation, the shortcomings of the process, and to suggest measures to improve and modernise the process further.

This chapter traces the evolution of the paradigm of decentralised planning in Kerala and discusses the prospects of making it a driver of socio-economic development in the State.

Evolution of Decentralised Planning

Though the attempts to ensure people's participation in local governance entered a new phase with the launch of participatory planning in the Ninth Five-Year plan, in the wake of 73rd and 74th Constitutional Amendments, Kerala had an impressive track record of democratic decentralisation even before the Ninth Five-Year Plan. Decentralisation was initiated in the late 1950s by the first government of the

State. The Government was, of course, led by E M S Namboodiripad, whose wide conception of decentralisation went far beyond the usual ideas of decentralisation as simple bureaucratic decentralisation or as a process by which local bodies confined themselves to civic functions or to small-scale development functions. E M S Namboodiripad placed the process of decentralisation within the larger political process, a process by which democratic governance would extend from central and state levels to the local level (Isaac 1998). The first Administrative Reforms Committee in the State, which was constituted in 1957 under the chairmanship of E M S Namboodiripad, recommended clear measures for the decentralisation of power and methods of democratisation of the organs of government at various levels in order to ensure the effective participation of local self-governing institutions in development. Nevertheless, the agenda of decentralisation took decades to reach the stage of the People's Campaign.

At the national level, noteworthy initiatives towards democratic decentralisation through Panchayat Raj institutions were the recommendations of various committees, including the Balwantrai Mehta Committee of 1957 and the Ashok Mehta Committee of 1978. In Kerala, a short-lived experiment with the creation of district councils was in 1990-91.

The 73rd and 74th Constitutional Amendments in 1992 had provisions for a three-tier system in rural areas with grama panchayat at the village level, block panchayat at the intermediate level and district panchayat at the district level. Local administration in urban areas would be under municipalities and corporations. The 74th Constitutional Amendment also made it mandatory to set up District Planning Committees (DPC) in each district, with the

role of preparing district-level plans for both rural and urban areas. The Amendments also listed 29 functions of government to be handed down to Panchayati Raj Institutions (PRIs). The Constitutional Amendments mandated that the State enact conformity legislation to integrate the provisions in the respective domestic acts. Accordingly, the Kerala Panchayat Raj Act, 1994 and the Kerala Municipalities Act, 1994 were enacted with exclusive features like devolution of a majority of the functions specified in the amendments to local bodies. The first election to the 3-tier Panchayati Raj system was also held and the PRIs came into existence by the last quarter of 1995. A comprehensive general government order issued in September 1995 placed institutions of major development departments and personnel, both professional and ministerial, under the control of Local Governments. Going by the true spirit of financial devolution to local bodies, the government also devolved plan grant-in-aid (including untied funds) to local self government institutions by notifying the details exclusively as Appendix IV of the 1996-97 budget document.

The process of democratic decentralisation envisaged in Kerala was evaluated in 1996 by a committee on decentralisation of powers (Chaired by Satya Brata Sen) which submitted its reports in December 1997. In line with the Committee's recommendations, comprehensive amendments of the Kerala Panchayati Raj Act of 1994 and Kerala Municipality Act of 1994 were enacted in 1999.

Devolution of administrative and financial powers to Local Governments was accompanied by the People's Plan Programme (*Janakeeyasoothranam*), a massive campaign to draw plans at the grassroots level as part of the formulation of the Ninth Five-Year Plan. As part of this innovative exercise, Local Governments were encouraged to formulate development projects and local plans in order to utilise 35 per cent of the total outlay of the Ninth Five-Year Plan earmarked for Local Governments. The methodology for participatory planning was evolved through extensive consultations among experts, people's representatives, volunteers and common people, in the light of lessons drawn from previous field experiences in local level planning.

The People's Plan Campaign was initiated when E K Nayanar was Chief Minister of Kerala. The

efforts of the State Planning Board were led by its Vice Chairperson I S Gulati and, in particular, by the Member responsible for Local Governments, T M Thomas Isaac and other Members and personnel of the State Planning Board. A special cell was created in the State Planning Board for People's Campaign. The State Planning Board chalked out a programme with six phases of distinct activities to enable participatory planning of local development interventions (Isaac and Franke 2021). In the first phase (August–October 1997), grama sabhas were convened and people at the local level were mobilised to assess local felt needs. In the second phase (October–December 1997), “development seminars” were held in every village panchayat, followed by formation of “task forces” for the preparation of “development projects.” About 12,000 task forces were formed in total or around 12 task forces per village panchayat. Close to 120,000 people participated in these task forces. In the third phase (November 1997–March 1998), “development reports” were prepared according to a format suggested by the State Planning Board, giving details such as the nature of activities envisaged and financial and organisational issues. During the fourth phase (March–June 1998), the Plans of the grassroot tiers were prepared. The fifth phase (April–July 1998) was meant for the preparation of Annual Plans for block and district panchayats by integrating the lower-level plans and developing their own plans complementary to the village panchayat plans. Afterwards, during the sixth phase (May–October 1998), Volunteer Technical Corps (VTC) consisting of volunteers with expertise in selected fields were formed to evaluate the feasibility of projects formulated by Local Governments and suggest modifications. Expert committees at the Block, Municipality and Corporation levels were formed by drawing from VTC members to help the DPC in appraising plans and projects, on the one hand, and rendering technical assistance to local level planning, on the other hand. There were modifications made in subsequent phases of the programme to address emerging issues.

As stated earlier, the paradigm of decentralised planning was regarded as an effective framework to address development problems with people's participation. It was also intended that decentralised planning with people at the centre would accelerate local level development by

harnessing human, natural, and financial resources to strengthen the productive base of the State. This was proposed to be done by creating public assets and managing common property resources through better land and water management, which forms the basis of development in the primary sector. It was anticipated that development administration would become responsive, transparent and efficient as people became involved in planning and implementing various interventions. The system of social security and service delivery were also expected to improve substantially as the process of identification of beneficiaries would be based on real needs through transparent processes.

However, the course of evolution of decentralised planning took a different turn in 2001 with the new government re-christening the “People’s Plan Campaign” the “Kerala Development Programme.” The new Government experimented with the Five-Year planning approach for Local Governments during the Tenth Five-Year Plan Period (2002–07). Some changes notwithstanding, it was observed that the excitement of involving people in the process of planning disappeared during this phase and the process lapsed into routine. During the Eleventh Five-Year Plan Period, the concept of People’s Plan was brought back with a focus on completion of the process of institutionalisation. The Twelfth Five-Year Plan approach envisaged some concrete steps to strengthen the planning process with the use of information technology. The thrust during the Thirteenth Five-Year Plan period was to address second-generation issues confronting the State, with emphasis on local economic development and improved social services.

During the Thirteenth Five-Year Plan period unprecedented natural calamities affected the State. The Covid-19 pandemic inflicted a further blow to the economy. No sooner had the State embarked on recovering from the impact of two consecutive floods than it was hit by the pandemic. The government had to re-prioritise its development expenditure to meet the demands imposed on it by successive crises, and to focus on reconstruction and rehabilitation efforts and subsequently to rebuild livelihoods. The efforts taken by the Government of Kerala were recognised and acclaimed by the Reserve Bank

of India in its Report “State Finance: A Study of Budgets” (RBI 2020).

Kerala took up the task of decentralisation seriously unlike many other States of the country and the process of decentralisation has continued over the years with modifications as time warrants. It has received acclaim within the country as well as globally for successfully transferring power to the third tier of governance thereby enabling public participation in the development process.

Democratic Decentralisation in Kerala: Some Unique Features

A striking feature of democratic decentralisation in Kerala was that it was something of a “big bang” approach. It involved transfer of functions, functionaries, and funds in one go to local self-government institutions. Traditionally, the method is to establish administrative structures first, and introduce standardised processes and new staffing later. Instead, this process was reversed by taking the bold initiative to devolve funds first and put other systems in place later. Given the magnitude of the process, problems in implementing the plans were inevitable. This led the government to carry out complementary reforms to create the conditions for successful financial devolution. This, in turn, necessitated a consultative process to formalise new procedures and systems to address various administrative issues that emerged from time to time.

Given below is a short description of the prominent features of decentralised planning.

First, planning from below was conceived as an opportunity to harness human resources and to employ them to formulate development plans for local bodies. Preparation of a comprehensive plan for a local body was a prerequisite for allocation of grants-in-aid. This was to be preceded by a detailed process of identification of the felt needs of the people, preparation of reports, formulation of projects, etc., all of which involved massive involvement of the people. This warranted the mass participation of elected representatives, voluntary agencies, and ordinary people assembling in grama sabhas and independent experts and volunteers participating in the preparation of reports and formulating projects, and drafting the plan.

Officials worked alongside non-officials. This also facilitated involvement of the marginalised in decision-making as well as application of local knowledge and skills in addressing local development issues.

Secondly, implementation of decentralised planning warranted strong legislative measures to put in place an appropriate legal framework for the new system to work efficiently. The Kerala Panchayati Raj Act and the Kerala Municipality Act, both of which were enacted in 1994, were thoroughly restructured in 1999, incorporating the lessons from experience of the initial years of decentralisation. This provided the strong legal foundation for the local government system in Kerala. As a result, the functional domains of various tiers of Local Governments were clearly demarcated. The roles and responsibilities of various democratic fora like grama sabhas were also defined. The elected heads of the Local Governments were declared as the executive authority and the senior most officials of various departments brought under the control of the Local Governments were declared as *ex-officio* Secretaries for that subject. The Local Governments were given full administrative control including powers of disciplinary action over their own staff as well as staff transferred to them. The Panchayati Raj and Municipality Acts were amended to reduce the powers of direct State Government control over Local Governments. The State Government could cancel resolutions of a Local Government only through a process and in consultation with the Ombudsman or Appellate Tribunal according to the subject matter of the resolution. Similarly, a Local Government could be dissolved directly by the State government, only if it failed to pass the budget or if a majority of members resigned. In all other cases, due process has to be followed by issuing a memo of charges and the Ombudsman has to be consulted before dissolution takes place.

Thirdly, decentralisation was supported by powerful institutions which could exercise their powers to maintain and nurture autonomy in the system. Several institutions were established to encourage and streamline democratic decentralisation. The most important among them were the State Election Commission to conduct local body elections and monitor issues connected with such elections; the State Finance

Commission to decide the distribution of the net proceeds of the taxes, duties, etc. levied by the State between the State and the Local Governments; the State Development Council headed by the Chief Minister as a forum for discussion of policy and operational issues; Ombudsman for Local Governments, a high power institution, manned by a High Court Judge with powers to check malfeasance in Local Governments; and the Appellate Tribunal, a judicial tribunal set up at State headquarters with a District Judge as the authority to consider appeals by citizens against decisions of Local Governments.

Fourthly, the mass campaign for identification of local problems and formulating development plans by involving people, their representatives, government officials, and volunteers was an innovative way of drawing up local plans. The decision to follow a bottom-up method of planning was preceded by grassroots level planning experiments in different parts of the State by organisations such as Kerala Sastra Sahitya Parishad (KSSP), which provided valuable lessons. It was this preparedness based on experience drawn from these field experiments that made the launch of the campaign easy and speedy. It may also be noted that the campaign was initiated along with the appointment of the Sen Committee on decentralisation of powers, which was mandated to look into the processes of decentralisation in detail. The campaign involved all the essential processes required for ensuring participation of people and their representatives at all stages of project planning, implementation, and monitoring. It was conceived as a democratic exercise starting with identification of felt needs/problems at the grama sabha which led to the preparation of development plans for the local body. Project formulation and implementation also involved appraisal of different development sectors, massive training of activists of this campaign, vetting of project proposals submitted by Local Governments by a team of experts, formulation of broad guidelines to ensure focused intervention in important sectors, sectoral ceilings and minimal mandatory allocation to confirm investment in priority sectors. Mainstreaming gender concerns was a constituent part of the decentralisation process.

The State Planning Board played a key role in the process. The Board not only provided the

procedural templates, technical assistance and key oversight functions, and administrative capacity, but also launched a massive training programme of “Key Resource Persons” at the local and district levels that involved over 100,000 people.

Fifthly, devolution of financial resources is an integral part of decentralised planning. Local Governments receive funds in a formula-based, non-discretionary, and equitable way. As stated earlier, in the Ninth Five-Year Plan, it was decided to earmark more than 35 per cent of the State Plan outlay towards projects and programmes to be drawn up by Local Self-Government Institutions. Out of this, Gram Panchayats got a share of about 70 to 85 per cent, and the District and Block Panchayats shared the remaining, more or less equally. Also, 90 per cent of Plan funds were provided untied to Local Governments to prepare and implement their own projects within a certain broad policy framework, stipulating that at least 40 per cent of the funds (10 per cent in urban areas) be invested in productive sectors, that not more than 30 per cent (50 per cent in urban areas) be spent on infrastructure, and that at least 10 per cent be earmarked for gender-sensitive schemes. The broad policy framework has also fixed a ceiling on subsidies in different categories of schemes. The entire Plan grants are fully investible and since the entire Plan grants due to Local Governments are separately budgeted in a document given as Appendix IV of the State Budget, which is passed by the Legislature, the grants remain non-divertible for other purposes by the executive. A flow of funds procedure has been designed from time to time, by which funds flow in three installments. Fiscal decentralisation in the State has helped in improved efficiency, enhanced financial and political accountability, and enhanced effectiveness of government activities.

Since the launch of decentralised planning, an average of 25 per cent of the State’s investible resources has been devolved to Local Governments as development funds. In addition, the State transfers 4 per cent of its own tax revenues as a general-purpose fund and 6.5 per cent of own-tax revenues as a maintenance fund (4 per cent for maintenance of roads and the remaining 2.5 per cent for maintenance of non road assets) every year. At the beginning, the amounts transferred for general purpose and maintenance funds were

3.5 per cent and 5.5 per cent respectively. Out of the maintenance grants, Local Governments have absolute freedom in formulating and implementing projects.

To ensure empowerment and social equity, the Scheduled Caste Sub-Plan (SCSP) and the Tribal Sub-Plan (TSP) were also devolved to Local Governments. The allocation of plan funds to SCSP and TSP from the State Plan outlay is done according to the ratio of population of Scheduled Castes and Scheduled Tribes to total population of the State. (In the State Plan as a whole, the proportion of funds to Scheduled Caste and Scheduled Tribe development exceeds the proportion of people of the Scheduled Castes and Tribes in the population.) Out of the total SCSP and TSP plan outlay, a portion of funds is earmarked to LSGIs for implementation of schemes under decentralised planning. Another unique feature of Kerala’s decentralised planning is the Women Component Plan. There are also plans for special groups (the elderly, children, differently-abled, other vulnerable groups, and those who require palliative care).

Decentralisation and New Development Perspectives

The People’s Plan Campaign (PPC) was a milestone in the realm of democratic decentralisation in the entire country as it played a significant role in fostering local democracy, which involved devolution of functions, funds, and functionaries to Local Governments. It was also the most extensive and efficient decentralisation programme undertaken in India. A number of studies have already established that in institutional terms the campaign had resulted in a significant reorganisation of the State and governance, and that the level and scope of decentralisation surpassed what had been achieved in most (and possibly all) Indian states since the 1992 Constitutional Amendments (Isaac and Franke 2002; Veron 2001; World Bank 2000). The programme of decentralised planning has brought distinct changes to almost all the development sectors transferred to Local Governments.

First, decentralisation provided boundless opportunities for ordinary people to participate in the planning process at the village level through the grama sabha, irrespective of socio-economic

status. The new and democratic approach towards decentralised planning provided opportunities for people to express their concerns and ideas regarding issues related to development. It is to be noted that participation of people was not confined to the initial stages of planning; in fact, the scope of participation was extended to the evaluation of the impact of projects as well.

Secondly, gender concerns assumed particular significance in decentralisation as half of the seats and offices in Local Government institutions have been reserved for women. This proportion was increased from 33.33 per cent to 50 per cent in 2010. In the development reports prepared by the local government institutions through the six-stage people's planning process, a separate chapter on women's issues was made mandatory. This made Local Governments across the State think about ways of improving the status of women. There was a gender component in all training programmes, which was a new feature of training programmes. In addition, there was a Women Component Plan (WCP) by which each Local Government had to assign 10 per cent of their total plan outlay exclusively for women. It has thus become essential to consider the gender implications of development programmes in the process of planning.

Thirdly, since funds for Scheduled Caste and Scheduled Tribe development programmes were allocated mandatorily to Local Governments, people from marginalised and deprived sections of society were actively involved in formulating development programmes. This gave a new realism to identifying and problem-based resolving of needs of the weaker sections of society. This also led to consistent representation of men and women belonging to Scheduled Castes and Scheduled Tribes in all stages of the participation cycle. The decentralisation process helped empower disadvantaged groups.

Fourthly, decentralisation gave local bodies the freedom to design and construct assets in various sectors. The decision to transfer institutions of major development departments to Local Governments meant that permission for sanctions from above were not required and this helped improve performance of these institutions. Technically, there was dual control of the transferred

institutions, by the local body as well as by the concerned Department, but Local Governments could initiate creation of assets by utilising plan funds. Moreover, maintenance of the assets of transferred institutions could also be duly taken up by using the non-road maintenance grants. This provision to create assets at the local level has led to remarkable progress in almost all development sectors. The most important accomplishment has been in respect of rural connectivity, which developed far beyond expectations. Facilities for minor irrigation and drinking water have been enhanced. Rural housing has improved substantially, as evident from the remarkable achievements of the LIFE Mission. Infrastructure for sanitation and other public amenities has also multiplied following the transfer of power to Local Governments.

Fifthly, systems of service delivery by Local Governments have been improved. The range of services include primary health care, child care, primary education, drinking water, sanitation, roads, irrigation facilities, housing for the poor, support for cultivators, income and employment creation for women, Scheduled Castes and Scheduled Tribes. Delivery of mandatory services like civil registration and licences has been computerised and made easier. The e-governance initiative in Local Governments in the wake of decentralisation has led to responsive and transparent processing of applications and decision making. The establishment of the Information Kerala Mission for computerisation of Local Governments in the State helped better service delivery. Strengthening of the social security system in Kerala has been the hallmark of decentralisation in the State. Over the years, the social security system has improved with the network getting extended significantly and more services added for delivery. Local Governments have played a key role in this process.

Sixthly, decentralisation has laid the foundations for economic development interventions at the grassroots level. This has been made possible by concerted efforts to invest in the service sector with focus on poverty reduction, livelihood security, income bearing employment, etc. In this context, the formation of Kudumbashree, the largest network of women collectives in the country, has been a remarkable accomplishment.

Box 2.1 Kudumbashree and its Accomplishments

Kudumbashree, now a word used frequently in public discourse in Kerala, is a network of women's groups. It evolved as an extension of the community mobilisation experiments in Alappuzha and Malappuram districts. In the backdrop of decentralisation experiments taking place in the State, a three-member committee was constituted to devise a strategy for poverty alleviation. Its recommendations led to the formation of the State Poverty Eradication Mission. Kudumbashree membership is open to all adult women, limited to one member per family. It works today as a three-tier system, the three tiers being Neighbourhood Groups (NHG), Area Development Societies (ADS), and Community Development Societies (CDS). Neighbourhood groups form the base tier, each with a membership of 10-20 women members of a locality. The ADSs are federations of NHGs at the ward level, and the CDS, at the panchayat level, is a federations of ADSs and forms the upper tier. The Kudumbashree network, as on September 15, 2021, had 2,94,436 NHGs affiliated to 19,489 ADSs and 1064 CDSs, and a total membership of 45,85,677 women. In 2011, the Ministry of Rural Development (MoRD), Government of India recognised Kudumbashree as the State Rural Livelihoods Mission (SRLM) under the National Rural Livelihoods Mission (NRLM).

Today, the Community Development Society (CDS) has an office provided by the Panchayat Council in every grama panchayat. Occasional difficulties such as delays in payment or inadequate support notwithstanding, the Kudumbashree women have come to show a remarkable degree of leadership, management capability and articulation with respect to issues concerning their work. The emergence of such a relationship between the panchayat and a network of women's associations is perhaps an exceptional feature of the panchayat raj in Kerala.

Kudumbashree has played a significant role in empowering women socially and economically. Of late, some women who were associated with Kudumbashree have assumed political authority in Local Governments and in other capacities.

Seventhly, decentralised planning tried to ensure transparent and efficient administration at the grassroots level. There have been several innovations in this regard. Attempts have also been made to make decision-making and service-delivery processes efficient by means of exclusive management information systems for Local Governments.

As stated earlier, a major outcome in this regard was the establishment of the Information Kerala Mission (IKM), the flagship e-governance programme of the Government of Kerala. Information Kerala Mission was the first of its kind, and paved the way for several e-governance programmes in the State.

IKM is the largest and most comprehensive local body computerisation initiative in the country. Three main applications have been developed by IKM, namely, *Sulekha*, an MIS for monitoring the development plans by Local Governments, *Sevana*, which deals with civil registration and

service delivery, and *Sankhya*, which deals with accounting and finance management. There are also other applications for facilitating property tax collection, status monitoring of work flow, file tracking, payroll and PF accounting of municipal and panchayat employees, documentation of council/committee meetings' agenda, cost estimation of public works, etc. An integrated Management Information System to coordinate all the major functions of the Local Governments is now being developed.

Eighthly, Local Governments under decentralised planning have established better public interfaces to safeguard the right of citizens to information. Some innovative features promoting good governance have been integrated into the local body system to make it more transparent and receptive. In this regard, the Right to Information Act has played a major role by improving the transparency of decision making and letting people know about administrative decisions.

Mandatory publication of Citizen Charters indicating the entitlements of citizens vis-a-vis a Local Government with respect to the quality and standards of various services provided by that Local Government has also contributed substantially to improve transparency. Auditing the functions

of the Local Governments from the perspective of performance by a wing of Performance Audit has been put in place to provide auxiliary as well as concurrent audit focusing on compliance of procedures and processes. Citizen interface was further improved by a code of conduct in local governance.

Ninthly, decentralised planning worked towards bringing together the efforts of many academic,

research, and development institutions to address development issues at the grassroots level. This was apparent in the initial years of decentralisation as several organisations of high esteem participated in the campaign in different ways. Many public institutions, including the Centre for Development Studies, National Centre for Earth Science Studies, Centre for Water Resource Development and Management (CWRDM), Kerala Agricultural University, and Kerala Forest Research Institute,

Box 2.2 *Report of the Committee on Decentralisation of Powers (Sen Committee), 1996*

The Committee on Decentralisation of Powers was set up to recommend measures for the implementation and institutionalisation of the decentralisation process. The committee, chaired by the former Vice Chairperson of the West Bengal State Planning Board, Satya Brata Sen, submitted a four-volume report with detailed recommendations on decentralisation of powers, including deployment of departmental staff. The following were the major recommendations of the Sen Committee report.

- The Committee recommended that people's participation in the decision making be ensured. The participation of the poor in the formulation of plans and utilisation of resources was to be ensured through enabling structures such as neighbourhood groups, ward sabhas, etc.
- The Committee recommended that powers, functions and responsibilities of each local body be demarcated clearly and to ensure that they are free from government control.
- The powers of the State Election Commission were to be strengthened and new institutions, such as the Appellate Tribunal and Ombudsman, were to be created to deal with appeals against decisions of local governments as well as matters of maladministration, nepotism, and corruption.
- The Committee recommended to amend existing legislation so that local governments could take up matters of local economic development and allied projects apart from provision of civic amenities and delivery of services.
- In addition to institutional finance, the Committee recommended that local governments be enabled to raise and mobilise resources locally and innovatively.
- For capacity-building among local government staff and elected representatives, the Committee recommended a rigorous training schedule, with in-house and field components.
- The Committee recommended that line departments should support, guide, and advise the local governments and give professional suggestions to them in matters of plan formulation and implementation.
- To ensure better participation of people in decision making, the Committee recommended that grama sabhas be given clear powers as well as responsibilities, and that the quorum be expanded with frequent meetings and better support systems such as neighbourhood groups.
- With respect to the responsibility of maintaining roads, the Committee recommended that the principle of service areas for village panchayats be followed. With National and State highways and major district roads would continue to be the responsibility of the national and State Governments, district roads (other than major district roads) were to be the responsibility of District panchayats and intra-village roads (that did not come within previous categories) the responsibility of grama panchayats.
- To ensure participatory planning from below, the Committee recommended a five-stage process. In addition to Annual Plan and Five-Year Plans, the committee recommended that panchayats should prepare a Perspective Plan for a 15-year period, with emphasis on spatial and infrastructure development.
- The Committee also recommended that every panchayat clearly outline the standards of services they provided to citizens by means of a Citizen's Charter. In addition to this, the following bodies were to be established: an independent audit commission to audit the accounts of the local governments, right to information for the citizens, a complaint and redressal cell to address the grievances of the public.

Box 2.3 Report of the Committee for Evaluation of Decentralised Planning and Development (M A Oommen Committee), 2009

A committee for the evaluation of decentralised planning and development over ten years was constituted in 2007 by the Government of Kerala with Professor M A Oommen as Chairperson. The committee submitted its report in 2009. The Committee lamented that despite strict guidelines, projects had not come up in the production sector as desired. It recommended that Plan priorities and allocation patterns of local governments had to be revised in favour of greater production. The Committee stated that local governments, gram panchayats in particular, had to explore the scope of diversification of taxes to augment tax and non-tax revenues, and scientifically evaluate the scope of changes in the structure of major taxes such as property tax, profession tax, and entertainment tax.

In the agriculture sector, some of the recommendations of the Committee were active involvement of Krishi Bhavan officials in giving technical advice on improving crop production, inclusion of farming activities in MGNREGS work, provision of wage subsidies to padasekhara samitis to carry out farming activities, conducting farmers' grama sabha for agriculture projects, and agriculture policies appropriate to the local conditions.

Other recommendation of the committee included revitalisation of grama sabhas, improving the technical base of the working groups and technical advisory groups, resource planning, spatial planning, and environmental planning, effective coordination between local governments and line departments whose functional domains fall within the jurisdictions of local governments, and the establishment of a project management system in each Panchayat for plan implementation, where responsibilities are fixed with respect to the outcome, time frame, quality, and asset maintenance.

In the health sector, the committee recommended that the duality of control between the local governments and the parent department be addressed, with clear indication of roles, activities, and responsibilities of each entity.

In matters related to marginalised communities, the committee recommended that focus should be on purposive planning, prioritisation, projectisation, effective utilisation of allocated funds, inclusion of more innovative projects, and special emphasis on the issues of land, livelihood and education.

joined in the efforts. The State Planning Board and Kerala Institute of Local Administration (KILA) played a key role in refining the methodology, studying the course of implementation and the impact of decentralisation processes on various sectors.

Tenthly, measures to improve decentralised planning were taken on the basis of recommendations of various committees appointed from time to time. The recommendations of these Committees help us understand how specific course corrections were made to streamline the process and make decentralisation more effective. The Kerala experiment has now been emulated in many States.

Major Accomplishments of Decentralised Planning

Decentralisation of planning has become central to the implementation of development policies and

the discourse on development in the State. These institutions are firmly embedded in society and no future government can ignore its responsibility with respect to the role of Local Governments in local-level development. Decentralised planning has been crucial to development in multiple sectors.

Decentralisation was responsible for a remarkable improvement in service delivery by the State, and is now a plausible alternative to the privatisation of service delivery that has been proposed in many other States and contexts.

A brief account of the accomplishments of local bodies under the decentralised system in the last 25 years is given below.

Public Health

Kerala has a relatively effective public health system. During the Covid-19 pandemic the public health

system and Local Governments worked closely together, thus making the management of the Covid-19 pandemic in Kerala a matter of national and international recognition. The provisions of decentralised planning that empower Local Governments to earmark funds for improving the facilities of health centres at the village, block, and district levels and *Aardram* mission have yielded remarkable positive results. Kerala has received accolades for being the top ranked State in almost every indicator of public health and health infrastructure. Kerala has consistently improved its health system through concerted efforts. There was a period in the 1990s that was marked by low expenditure on the sector and increased demand for healthcare because of changes in the epidemiological regime. There was an escalation of health costs, and inequities in access to health infrastructure, and increase in the incidence of dengue and TB. There was a positive change in the 2000s; from 2006 to 2011, the share of health in the budget was maintained at 5.1 per cent.

Universalisation of public healthcare services through a wide network of public healthcare interventions, and increased health awareness of the people are the important contributory factors to the health status of people in Kerala. The health sector has also been a model for other States of India in dealing with public health exigencies, as seen in the experience of dealing with the Nipah virus outbreak in 2018 and the Covid-19 pandemic. The response of Kerala to Covid-19 has been commended by the WHO.

The protection and promotion of public health at the local level and the management of primary and secondary institutions are important responsibilities of Local Governments. A substantial budget allocation has been made in recent years to equip the Local Governments to assume these responsibilities. Almost all Local Governments initially gave importance to the construction of buildings for health institutions, which had remained neglected before the decentralisation era.

The Kerala Development Report noted a sharp decline in the incidence of diarrhoea-related diseases between 1996 and 2006. The efforts to provide clean and safe drinking water by Local Governments have reduced the occurrence of waterborne diseases.

Two notable initiatives warrant special mention. The first one is the establishment of Buds Schools for children with disabilities who were hitherto under the sole care of their families. The other initiative is the establishment of palliative care units in primary health centres and a system of palliative care for those who are bedridden in their homes. Volunteers for these two initiatives are usually drawn from the Kudumbashree women's groups.

It was argued that the initiatives of the Local Governments in the healthcare sector were limited to the construction of buildings, provision of other infrastructural facilities, medicines, and prevention of epidemics, while paying less attention to the quality of healthcare services. The Thirteenth Five-Year Plan tried to address this issue by providing the best possible preventive, curative, and palliative care through improved quality of services.

The situation has improved substantially on account of a series of major interventions in this sector. The Aardram Mission was launched in 2016-17 to transform primary healthcare. Under the Mission, Primary Health Centres (PHCs) are being converted to Family Health Centres (FHCs) that are capable of meeting the healthcare needs of all through personalised service packages and to address the preventive, promotive, curative, palliative, and rehabilitative healthcare needs of the local community. Further, with upgradation, the Mission attempted to transform all district hospitals into institutions that provide all basic specialty services and essential multi-specialty services. Cath labs, dialysis centres, and cardiac care units (CCUs) have been set up in district and taluk hospitals with funding from Kerala Infrastructure Investment Fund Board (KIIFB). Patient-friendly and quality care services have been established in the district and taluk Hospitals, as seen at the outpatient wing of medical colleges. The Mission led to an enhancement of personnel with the creation of more than 5289 hospital workers, doubling of plan funds, and earmarking of funds for creating infrastructure for the secondary and tertiary healthcare level institutions. The latest indicators of health published by the NITI Aayog place Kerala first in the list of States in terms of providing better health services to the people.

Public Education

As in other parts of India, in the late eighties and nineties, there was a sharp increase in Kerala in the number of students enrolled in the private sector. The strength of the private sector increased from 1.5 lakh students in 1991 to 3.6 lakhs in the mid-1990s. The succeeding decade also recorded a shift towards enrollment in private schools. This was a period also of a sharp fall in the rate of growth of the school-going population. The sharp decline in enrolment had also threatened the existence of many public and aided schools.

In response to this situation, there was a conscious attempt by the Government to improve the quality of education in public schools. One of the significant steps taken was the revitalisation of public education through phased upgradation. As part of the Nava Kerala Mission, an overall quality based school education developmental programme called the “Public Education Protection Mission” (*Pothuvidyabhyasa Samrakshana Yajnam*) was launched. Its focus has been on raising the quality of school education in the public sector. The most telling proof of the success of this bold intervention was the extraordinary surge in enrolment in government schools over the last few years. This has reversed the previous trend of large scale migration of students to the private sector that continues in other States. The improvement in facilities in government and aided schools has created a new pull factor towards public school education in the State, and has, in the process, made the system of school education more socially inclusive (Kerala Development Report 2021). The Directorate of General Education’s report on additional enrolment in Standards I-X between 2016-17 and 2021-22 shows that more than 8 lakh additional pupils have joined government and aided schools in Kerala between 2017-18 and 2021-22. This impressive transformation has been made possible by the proactive roles played by the State Government, Local Governments, elected representatives, civil society organisations, and the general public.

Investment in school education has increased sharply over the past five years, with a notable change in source and pattern of funding. The major source of investment in school education in the Government sector has shifted from the line department to local bodies. The Local Government

Plan for school education increased from ₹387.95 crore in 2016-17 to 1023.38 in 2021-22 (Kerala Development Report 2021, Table 10.2). Local Governments meet the State share of the centrally sponsored schemes in education such as Sarva Siksha Abhiyan (SSA).

It is noteworthy that this positive trend is accompanied by matchless improvement in infrastructure development and education. Kerala has emerged at the top among the 20 large Indian States with a score of 76.6 out of 100 in the School Education Quality Index. The provisions of decentralised planning have given the Local Governments the freedom and authority to invest in infrastructure development of schools. The Local Governments have invested in school buildings, toilets, drinking water, furniture, teaching aids, and sports facilities. More recently, the huge investment to build state-of-the-art infrastructure for schools has been realised through the Kerala Infrastructure Investment Fund Board (KIIFB). It has also been observed that Local Governments have played a significant role in vitalising parent-teachers’ association, school management committees, and other community initiatives to improve school education. Many Local Governments have also instituted scholarships, and awards to motivate students. The Local Governments also addressed the issue of digital divide among children and took proactive steps in ensuring online education during the pandemic. Several Local Governments have helped the schools conduct innovative programmes like counselling, special coaching programmes for arts, sports, etc.

Provision of free textbooks for children from Classes 1 to 8, additional academic support to kids, disabled-friendly infrastructure in schools, programmes to address learning gaps in children, specific programmes to address the needs of children with physical and intellectual disabilities are some of the activities being implemented. Kerala has received international recognition for its advances in education, particularly in universalising and improving the quality of school education in the State.

Poverty Reduction

In Kerala, poverty reduction has been part of economic policy since the first Ministry, which began the State’s efforts in land reforms, public

distribution, universal education, and other measures. Poverty reduction in the State was helped by the decentralisation process, particularly because several social welfare measures of the government were implemented through Local Governments. The implementation of centrally sponsored schemes was handed over to Panchayati Raj and Nagarapalika institutions. They also had the responsibility to implement other social security schemes. The implementation of various State and centrally sponsored programmes of poverty reduction was further catalysed by the establishment of the State Poverty Eradication Mission (Kudumbashree).

Decentralisation has proved that Local Governments have performed well in providing infrastructure for basic minimum needs including housing, water supply, sanitation and connectivity. The speed and extent of coverage as well as efficiency in implementation in respect of provision of minimum needs has been creditable. It is estimated that around 40 per cent of plan funds directly devolved to local bodies during the Ninth Five-Year Plan (Peoples' Plan campaign period) were utilised to address poverty reduction programmes (although there was no separate provision for an anti-poverty sub-plan). Local Government plans have shown a strong anti-poverty orientation. It was an early finding that Local Governments helped more funds reach families below the poverty line (Economic Review 2001, pp. 199).

According to official figures, the absolute poverty ratio in Kerala was 11.3 per cent in 2011-12, following a sharp reduction over the last forty years. The absolute poverty ratio (GoI 2014) in Kerala declined from 59.9 per cent in 1973-74 to 25.43 per cent in 1993-94, and declined further to 11.3 per cent in 2011-12. The rural poverty head-count ratio came down to 7.3 per cent while urban poverty was 15.3 per cent in 2011-12.

Even though Kerala has performed better than many States of India in terms of incidence of poverty, there are still pockets of deprivation in the State. Poverty in Kerala is mainly concentrated in some social groups including people of the Scheduled Castes and Scheduled Tribes, fish workers, potters, and other artisans. This points to the need for actions focussed on these groups. At

present, village panchayats use Central and State funds through a scheme called Ashraya to provide food grain and other essential commodities, periodic visits by health workers, and shelter and other basic facilities to the destitute. The present government has taken a decision to end extreme poverty in the State. The first step in this process is a survey to identify those in extreme poverty, followed by preparing family-based micro plans for the alleviation of extreme poverty.

Scheduled Castes and Scheduled Tribes

As stated earlier, the Scheduled Castes Sub-Plan (SCP) and the Tribal Sub-Plan (TSP) are the mechanism by which specific attention is paid to the problems of the people of the Scheduled Castes and Scheduled Tribes. Kerala now allocates a higher proportion of plan funds to Scheduled Caste and Scheduled Tribe development than the corresponding proportion of Scheduled Castes and Tribes in the population. The decentralised planning programme plays an important role in the implementation of these programmes.

Infrastructure Development

Roads: Decentralised planning gave a new impetus to local-level infrastructure development, particularly in the construction of rural roads. Local Governments earmarked about 19 per cent of plan funds to renovate or upgrade existing roads or to construct new roads. The total road length has doubled from 1,15,306 km in 1995-96 to 2,00,989 km in 2020-21. Town and country roads have also improved substantially because of high investment in renovation and upgrading. There is also a better distribution of minor roads across the State.

Electrification: An intense drive to electrify the houses in the State has been taken up with the help of Local Governments in the last two decades. Domestic electrification projects had been a regular feature of local plans from 1997 onwards. About two to three per cent of Plan funds have been allocated to the energy sector. Between the Ninth and Thirteenth Five-Year Plans, more than 6,00,000 houses were wired and provided with electricity. Two Local Governments have even established small-scale hydroelectric units, which are being operated successfully. Programmes on non-conventional energy, with a focus on solar energy, have also been implemented.

Housing: One of the most significant achievements of decentralised planning is the improvement in housing. During the Ninth Five-Year Plan, 5.7 lakh houses, out of which 32,000 were for landless families were constructed and about 1.9 lakh houses were renovated. In the Thirteenth Plan period, the implementation of the LIFE programme was a major feature of Government policy (a separate chapter on housing with a section on LIFE is part of this *Economic Review*), which consolidated diverse housing schemes into a single major scheme in the housing sector.

Sanitation and Waste Management

Environmental hygiene in terms of solid and liquid waste disposal, drainage and community sanitation has become a serious problem in Kerala. It is estimated that as much as 10504 tonnes of solid waste is generated per day. There have been serious attempts to address the issue of waste management in a decentralised manner through the *Haritha Keralam Mission*, in which Local Governments have played major leadership roles. Solid and liquid waste management will continue to be the focus of Local Government development policy.

Agriculture and Allied Sectors

It was expected that decentralised planning would help mobilise people and resources to strengthen production in the economy. One aspect of this was to manage common property resources such as land and water through participatory and scientific means. In the primary sector, the aim was to enhance production and productivity of major crops so as to improve food and livelihood security, improve animal husbandry so as to increase production of meat, egg, and milk, and develop fisheries so as to bridge the gap in the demand for fish and enhance income. In order to ensure investment in the productive sector, Local Governments were required to earmark plan assistance to this sector.

The organisational mechanism to support agriculture has expanded substantially over the years. Initiatives by the GoK to prevent reclamation of paddy lands by enacting the Kerala Conversion of Paddy and Wetland Act (2008) envisage involvement of Local Governments in keeping vigil over conversion, identification of land parcels upon claims, field verification and providing sanctions and exemptions.

Many panchayats had taken measures to revive declining rice cultivation through preparation of watershed plans, restoring unused tanks and ponds, deepening canals and strengthening river sides and related activities, supply of seeds and equipment to farmers, forming “labour banks” with training in modern agricultural practices as well as in the handling of modern machinery and equipment. Kudumbashree Joint Liability Groups (JLGs) had also undertaken rice cultivation and horticulture by leasing land from farmers who had withdrawn from agriculture, thus enabling labouring agricultural households to engage in cultivation profitably. The implementation of MGNREGS has given rice cultivation a further boost.

However, in general, decentralisation did not arrest the rapid decline in area and production of food crops. The rapid conversion of cultivable land for non-agriculture purposes is continuing. Agricultural development is severely constrained by lack of coordination among different agencies, which has recently been addressed by *Subhiksha Keralam*, a programme of the GoK aimed to attain self-sufficiency in food crops production.

Industry

Local Governments have made significant contributions to promote micro, small, and medium enterprises in the State. Small-scale industries set up by individuals and women collectives were supported by Local Governments by providing back-end subsidies. Marginalised sections of the society have also been supported by Local Governments to start small-scale enterprises. Traditional rural enterprises were given financial support by means of interest subsidy for purchase of inputs and equipment. Local bodies are taking efforts to establish incubation centres and community facilitation centres for supporting small-scale startups. Several district panchayats have initiated projects for providing space for establishing industrial parks.

In view of the increased emphasis on employment generation, Local Self Government Department has formulated a major initiative to provide employment to five out of every thousand persons in the State. This would lead to massive creation of enterprises in the State, assisted by Local Governments. State level flagship initiatives such “One lakh commercial enterprises” and

“One Local Body One Project” (OLOP) by the Industries Department would also be facilitated by Local Governments.

Tourism

Local Governments have played an important role in promoting tourism, by complementing the initiatives of the State Government in the sector. Tourism has been a significant contributor to local economic development and a major source of revenue of Local Governments. Local Governments have implemented projects for developing basic amenities in tourism destinations and facilitate investment by providing hassle free sanctions, permissions and licences. Many district panchayats have initiated local tourism development projects in association with the tourism department. Local Governments have also started formulating projects on responsible tourism, with focus on local art and culture. Entrepreneurship opportunities in tourism can be further enhanced by imparting skills in tourism related activities, setting up facilitation centres, and organising local people to provide various services to tourists.

Role of Local Bodies in Managing Crises

Local Governments played a crucial role in managing the crises that Kerala faced in 2018 and 2019. The Local Governments were at the forefront in assisting people affected by Ockhi, Nipah outbreak, floods, and the Covid-19 pandemic. The network of Local Governments and their administrative machinery efficiently handled the crisis by organising rescue operations and coordinating relief efforts along with other state level agencies. The Post Disaster Needs and Assessment (PDNA) of the UNDP has acknowledged the role played by Local Governments in recovery and reconstruction by ensuring participation of people through Grama sabhas and other platforms; disseminating information on recovery assistance packages; addressing grievances of the affected population; maintaining transparency and accountability in the use of funds for recovery; and integrating recovery needs in their Annual Plan. Local Governments worked hand in hand with District authorities in coordinating relief distribution and identifying beneficiaries for assistance. During the post-relief phase, Local Governments led the massive exercise of cleaning houses, public places, schools, and hospitals.

Engineers from the Panchayat departments were engaged in assessing the damage and loss to houses and buildings, Panchayat-managed institutions, and other infrastructure.

The frontline role played by Local Governments and their elected representatives during the Covid-19 pandemic has also been widely acclaimed. Some of the noteworthy activities of Local Governments in this period included establishment and management of community kitchens during lockdown, cleaning and disinfection activities, organising and running “break the chain” and social distance campaigns and awareness programmes. They also provided accommodation, food and other essential support to migrant workers. Moreover, local bodies efficiently coordinated quarantine related activities. Major institutional support for establishment and management of Covid First Line Treatment Centres was provided by Local Governments. They purchased medicines and other equipment for hospitals run by Local Governments and distributed free medicines. More importantly, Local Governments led the task of implementing local economic plans to help people who lost jobs. They played an important role in enhancing food production and self-sufficiency in the field of agriculture under the Subhiksha Keralam programme. During the pandemic period, when schools were closed, Local Governments provided connectivity and other support to school children.

Initiatives to Enhance Decentralisation

During the last quarter of a century, the Local Governments in Kerala have registered phenomenal growth in terms of the volume of financial resources handled by them and responsibilities thereof. The First State Finance Commission (SFC-I) estimated the total expenditure of village panchayats, municipalities, and corporations to be at ₹226.92 crore for 1993-94 on the eve of the establishment of the third-tier of government following the 73rd and 74th Constitutional Amendments. This amounted to about 0.8 per cent of the GSDP and 5.2 per cent of the total revenue expenditure for the year. The corresponding number in 2013-14 as estimated by the Comptroller and Auditor General is ₹10,980 crore, that is, 48 times increase compared to 1993-94 in nominal terms. This works out to 2.4 per cent of the GSDP – a gigantic leap forward from the 0.8 per cent in 1993-94.

The expenditure per Gram Panchayat (GP) in 1993-94 was only ₹12.55 lakh, obviously a negligible number. A decade later, the expenditure per GP expanded from ₹1.7 crore in 2004-05 to over ₹8.3 crore in 2013-14. These numbers are indicative of the remarkable progress Kerala has made. For the State as a whole the total GP expenditure works out to ₹1,730 crore or 1.6 per cent of GSDP in 2004-05. This increased to ₹8,098 crore or 1.7 per cent of GSDP in 2013-14. This increase in GP expenditure as a percentage of GSDP has occurred when there was a substantial decline in the total expenditure of the State from 16.7 per cent of GSDP in 2004-05 to 14.3 per cent in 2013-14. It shows beyond doubt that an increasing share of the State Domestic Product is getting channelled into local area development, which is a great accomplishment. No other State in India has made this order of devolution at the grassroots level. A rough estimate based on the Information Kerala Mission data shows that around ₹5 crore worth of projects are annually proposed at the level of the village panchayats. These indicate the great potential of interventions by the Local Governments in development.

However, the reporting system of Local Governments in Kerala has to be strengthened in such a way that the tangible results of investment in each sector are recorded promptly. Local Government budgeting has to be made an integral tool of fiscal management and has to be tied to planning.

Shortfalls and Constraints

Though the paradigm of decentralised planning was intended to formulate creative programmes for economic growth and welfare of the people, long-term planning that takes the resource base of a specific geographical area into account and develops projects to improve production, livelihoods and social security, is yet to materialise. Local Governments in Kerala prepared lakh of projects worth thousands of crore of rupees every year at an estimated per project cost of ₹2.3 lakh. However, mechanisms to ensure result-based management of projects have to be put in place in order to increase the efficiency of implementation of these projects.

Many observers say that decentralised planning processes have become routine, with lower

participation by people in grama sabhas and other platforms. The planning process now encourages the formulation of comprehensive projects that demand the involvement of multiple agencies. These were often avoided because of lack of coordination, procedural difficulties and unnecessary fear of audit objections. Though the framework of decentralised planning offers immense opportunities to bring together various stakeholders, such functions have not always been carried out effectively.

In the next phase, activities of Local Governments in the agricultural sector must move from the supply of inputs, small-scale machinery, subsidy for paddy as well as vegetable cultivation, etc., to comprehensive schemes for watershed management, production, marketing and value chain enhancement. They must include a wide variety of agricultural and horticultural products, and products from dairy, fisheries and animal resource development.

With regard to livelihood security programmes implemented mainly through Kudumbashree, it has been observed that many of the self-help groups formed across Kerala are not able to run viable micro enterprises. The enterprises run by Kudumbashree require adequate backward and forward linkages, technology integration and market linkages, in order to generate higher incomes for women.

Decentralisation and Economic Development: The Way Forward

The process of decentralised planning in Kerala in the last twenty five years shows the strength of decentralised and participatory approach in achieving inclusive development. However, the emerging challenges that Kerala faces demands more focused and proactive involvement of Local Governments in certain spheres of development.

The Fourteenth Five-Year Plan will aim at making Local Governments hubs of economic growth. Local Governments have to work towards promoting economic growth and creating employment opportunities. Local Governments will be encouraged to take up growth-oriented projects in the productive sector. This would require building up synergy among different development agencies and convergence of human

and financial resources at all the tiers of Local Governments. These ventures should be able to engage both low skilled and technically qualified youth of the State, including women.

More specifically, the Local Governments will have to design programmes to enhance production and productivity in agriculture, animal husbandry and fisheries, facilitate establishment of small and medium enterprises, and encourage entrepreneurship. Local Governments will have to play a proactive role in employment creation programmes of the Government. Various skilling programmes have also been envisaged as part of the employment generation initiatives of the Government, for which Local Governments will have to extend whole hearted support. Local Governments in this new milieu would have to facilitate local economic development to enhance livelihood options and income of the weaker sections.

Local Governments will play a key role in eradication of extreme poverty in the State. The Special Plan for the vulnerable groups such as the disabled, elderly, and children will be given focus. Local Governments will have to continue interventions for the development of persons belonging to Scheduled Castes and Scheduled Tribes by improving their living standards, reducing inequality, and bringing them to the mainstream.

Apart from this, Local Governments in Kerala will have to gear up their activities to make the communities resilient to the impact of climate change. The disaster management plans of Local Governments will have to be revisited and updated with more functional components related to drainage management, infrastructure development, and livelihood security. Rapid urbanisation has created several issues, particularly sanitation, that require keen attention by the Local Governments. Land use planning has to be complemented with spatial planning.

As Kerala strives hard to emerge as the most advanced State in the country, in respect of various development parameters, it is the responsibility of the Local Governments to spearhead local economic development and ensure the citizens quality services, with prime emphasis on the

weaker sections of the society. The Fourteenth Five-Year Plan envisages greater contribution by Local Governments in attaining sustainable development and welfare of the people of Kerala.

CHAPTER

3

AGRICULTURE
AND
ALLIED SECTORS

AGRICULTURE AND ALLIED SECTORS

3.1 Agriculture

Agriculture sector plays a strategic role in Kerala's economy. It has also contributed to a structural change in the economy. However, in recent years, the agriculture sector in Kerala has been facing challenges with respect to growth because of risks and uncertainties arising out of variability in climate, fluctuations in commodity prices and constraints in marketing the produce. The Gross State Value Added (GSVA) from agriculture declined from 12.37 per cent in 2013-14 to 9.44 per cent in 2020-21.

The Covid-19 pandemic in 2020-21 affected Kerala's agricultural sector in multiple ways. Fall of demand and disruption of supply chains resulting in major income losses for the farmers, lack of availability of workers especially migrant workers, affecting the functioning of a number of processing units in agriculture, income losses for agricultural institutions in the public sector, and the adverse impact on the export-oriented spices and the plantation crops of the global trade slowdown contributed to losses in the agricultural sector.

Kerala is distinct from other states in terms of its land utilisation and cropping pattern. The increase in share of non-agricultural area and fallow land area observed in the State over the years, calls for enhanced productivity from the available cultivable land through modernised agriculture based on science-based inputs and farming practices ensuring higher farm business incomes and ecological sustainability. Diversification of agriculture is important in order to accomplish the vision of imparting

income security to the farmers of the State. Food processing and value addition industries have the potential to add value to farm output, create alternate employment opportunities, improve exports and strengthen the domestic supply chain, and should be the future strategy in this sector.

Trends in Growth Rate

The all-India growth rate of agriculture and allied sectors has been fluctuating (**Table 3.1.1**). In 2020-21, growth in agriculture, forestry and fishing declined to 3.6 per cent from 4.3 per cent growth in 2019-20.

Table 3.1.1 Growth rate in GVA in agriculture and allied sectors in India, 2013-14 to 2020-21

Year	Growth rate per annum (%)
2013-14	5.6
2014-15	(-)0.2
2015-16	0.6
2016-17	6.8
2017-18	6.6
2018-19	2.6
2019-20	4.3
2020-21	3.6 (P)

Source: National Accounts Statistics, 2021

Note: (P) Provisional

The share of crops, livestock, forestry and fishing sectors in Gross Value Added (GVA) of the country has been declining continuously since 2013-14. However, in 2020-21, as per the provisional estimates of national income, the share has increased to 16.38 per cent (**Table 3.1.2**). When most sectors were under significant stress during the Covid-19 pandemic, the agriculture sector was somewhat insulated. This could be due to the timely exemption of farming activities, uninterrupted harvesting, and smooth flow of commodities during the period.

The performance of the agriculture sector in the State showed an improvement in 2020-21 over 2019-20. According to data from the Directorate of Economics and Statistics (DES), year 2020-21 showed an increase in the share of agriculture and allied sectors in total GVA (at constant 2011-12 prices) of the State. It increased from 8.38 per cent in 2019-20 to 9.44 per cent (**Table 3.1.2**). The contribution by crop sector also increased from 4.32 to 4.96 per cent during the period.

Table 3.1.2 Share of agriculture and allied sectors in GVA/GSVA National and State level, constant prices 2011-12

Year	Share of Agriculture and allied sectors in Total GVA (India) (%)	Share of Agriculture and allied sectors in GSVA (Kerala) (%)
2013-14	17.8	12.37
2014-15	16.5	11.92
2015-16	15.4	10.74
2016-17	15.2	9.96
2017-18	15.1	9.61
2018-19	14.6	9.03
2019-20	14.8	8.38 (P)
2020-21	16.38 (P)	9.44 (Q)

Source: National Accounts Statistics 2021, GoI; Directorate of Economics and Statistics, GoK
Note: (P) Provisional, (Q) Quick

The annual growth rate (GSVA at constant 2011-12 prices) of agriculture and allied activities (including crops, livestock, forestry and logging and fishing and aquaculture) has been fluctuating over the years. An analysis of the growth rate over the last five years shows a positive growth in 2017-18 at 2.11 per cent. From 2018-19, the growth rate was negative. However, in 2020-21, growth rate of agriculture and allied activities increased to 3.38 per cent compared to (-)5.09 per cent in 2019-20. The growth in crop sector was 5.54 per cent compared to (-)5.53 per cent in 2019-20. In 2020-21, livestock and crop sectors recorded a positive growth.

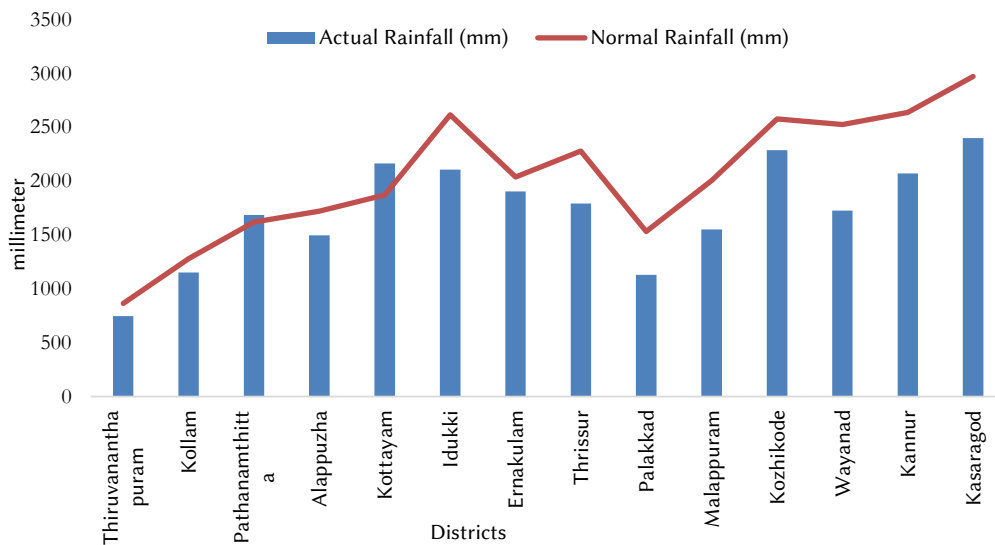
Monsoon 2021

The pre monsoon rainfall received in the State from March 1, 2021 to May 31, 2021 was large excess with a departure of 111 per cent from the normal. The actual rainfall received during the period was 772.7mm. All the 14 districts received large excess rainfall. Pathanamthitta (1,342.6mm) and Kottayam (1,049.5mm) districts received highest rainfall during the period. The per centage departure from normal was highest in Pathanamthitta (171 per cent) followed by Thiruvananthapuram (162 per cent) and Kottayam (142 per cent).

The onset of South West Monsoon in Kerala was on June 3, 2021. The actual rainfall received in Kerala during the South West Monsoon season (June 1 to September 30, 2021) was 1,729.2mm as against the normal rainfall of 2,038.7mm, which was normal with a departure of (-)15 per cent from the normal. Nine districts in the State received normal rainfall during 2021, while five districts viz, Kannur, Wayanad, Thrissur, Palakkad and Malappuram received deficient rainfall. All the southern districts received normal rainfall. Kasaragod district received the highest rainfall (**Figure 3.1.1**).

During the North East Monsoon season 2021 (October 1 to November 30, 2021) the State received 981mm of rainfall against normal rainfall of 456.6mm, which was large excess with a per centage departure of 114 per cent from the normal. All the districts received large excess rainfall. The departure was highest in Pathanamthitta district followed by

Figure 3.1.1 South west monsoon rainfall received from 1st June to 30th September 2021



Source: Indian Meteorological Department

Kasaragod district with a deviation of 193 and 146 per cent respectively (**Figure 3.1.2**). District wise rainfall distribution in the State in 2021 is given as **Appendix 3.1.1**.

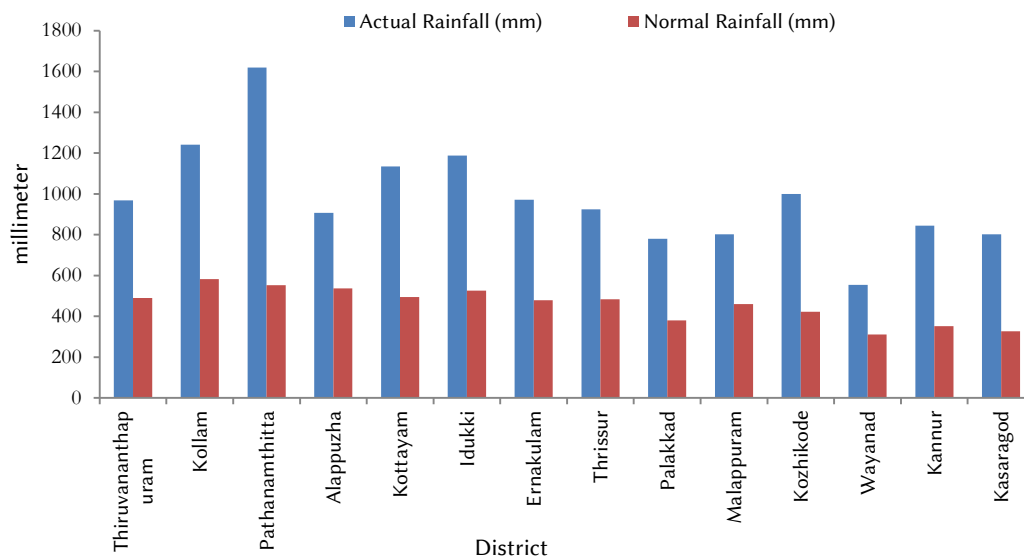
food crops and increase in area under land put to non-agricultural use. Changes in land use and cropping pattern in Kerala pose a challenge not only to food security but also to the ecological sustainability of the State.

Land Use

Kerala has witnessed major changes in its land use pattern over the years. The major change is the shift from cultivation of food crop to non-

As per the land use data of 2020-21, out of a total geographical area of 38.86 lakh ha, total cultivated area is 25.69 lakh ha (66.10 per cent)

Figure 3.1.2 North East Monsoon Rainfall received from 1st October to 30th November 2021



Source: Indian Meteorological Department

and the net area sown is 20.35 lakh ha (52.37 per cent). Land put to non-agricultural use is 11.86 per cent and forest area is 27.83 per cent. The cultivable waste and current fallow constituted 2.42 per cent and 1.40 per cent respectively.

Compared to the land use pattern of 2019-20, the area under fallow lands, both current fallow and fallow other than current fallow has declined by 5.5 per cent and 8.9 per cent respectively. The area under cultivable waste also declined by 5.9 per cent. The cropping intensity decreased from 128 per cent to 126 per cent.

The net area sown increased by 0.45 per cent while the total cropped area declined by 0.68 per cent compared to 2019-20. One of the reasons for the decline in total cropped area could be the decline in the area sown more than once which is 4.7 per cent less than 2019-20. However, there is an increase of 1.1 per cent in the land put to non-agricultural uses and 12.9 per cent increase in land under miscellaneous tree crops. Data on land use pattern for the year 2020-21 is given in **Appendix 3.1.2**. The land use pattern is shown in **Figure 3.1.3**.

The total number of operational holdings in the State has increased from 6,831 thousand in 2010-11 to 7,583 thousand in 2015-16 showing an increase of 11 per cent. The average size of operational holding has declined to 0.18ha in

2015-16 as compared to 0.22 ha in 2010-11. (**Appendix 3.1.3**).

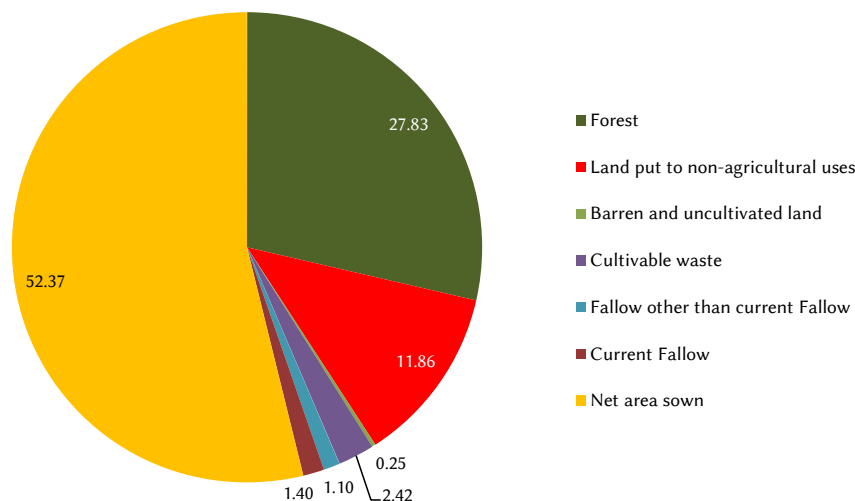
According to the NSS 77th round of Situation Assessment of Agricultural Households 2019, 33.2 per cent of rural households in the State are agricultural households compared to 54 per cent at national level. Within the agricultural households, 34.4 per cent are self-employed in crop production in the State while it is 68.9 per cent in the country.

Cropping Pattern

Data regarding the area, production and productivity of important crops grown in Kerala are shown in **Appendix 3.1.4**.

In the gross cropped area of 25.69 lakh hectares in 2020-21, food crops comprising rice, pulses, tapioca, ragi, small millets, sweet potato and other tubers occupied 11.03 per cent. In 2020-21, food crops except pulses and small millets showed an increasing trend in production. The production of rice, tapioca and sweet potato recorded an increase of 6.8 per cent, 16.8 and 56.6 per cent respectively compared to 2019-20. The area under rice, tapioca and sweet potato has recorded an increase of 5.7, 3.5, 59.3 per cent respectively. In the case of spices, pepper showed a decline in production, while production of ginger and turmeric showed an increase. In the case of plantation crops, coffee, tea and

Figure 3.1.3 Land use pattern of Kerala 2020-21



Source: Directorate of Economics and Statistics

cardamom have shown increase in production while rubber has shown a marginal decline in production. As against the previous year, banana production recorded a decline of 0.8 per cent while other plantains recorded an increase of 1.5 per cent. The production of cashew nut increased by 7.5 per cent.

Coconut contributed to 29.9 per cent of the total cropped area followed by rubber with 21.43 per cent and rice with 7.86 per cent.

Cash crops cashew, rubber, pepper, coconut, cardamom, tea and coffee constituted 62.3 per cent and rubber, coffee, tea and cardamom was 27.7 per cent of the total cropped area.

Crop-Wise Analysis

Rice

China stands first in rice production in the world followed by India and Indonesia in the second and third position as per the Food and Agriculture Organization Statistics of 2019. The fourth Advance Estimate 2020-21, estimated rice production of India at 122.27 million tonnes with an increase of 2.86 per cent over the previous year.

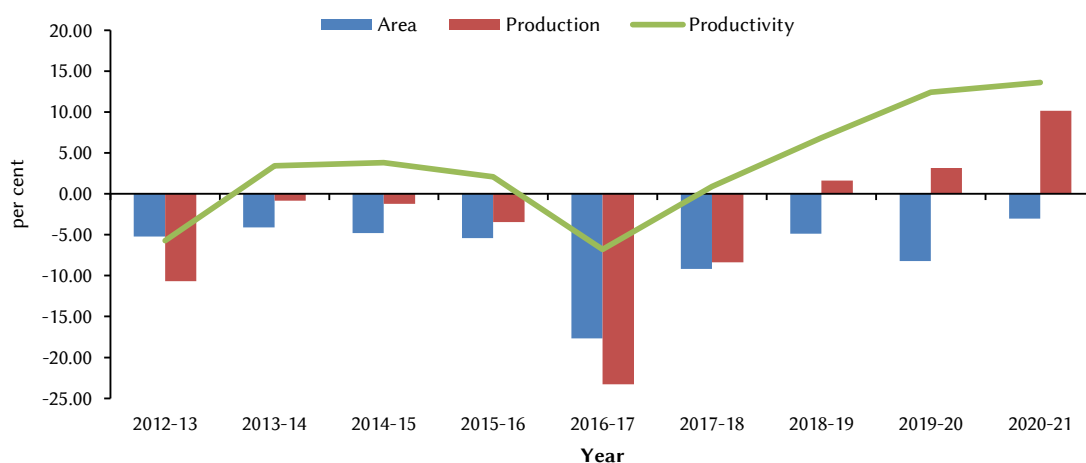
In 2020-21, the area under rice cultivation in the State was 2.02 lakh ha, an increase of 5.7 per cent compared to 2019-20. The production and

productivity of rice increased to 6.27 lakh tonnes and 3,105kg/ha respectively which is an increase of 6.8 per cent and 1.04 per cent over 2019-20.

Rice occupied 7.86 per cent of the total cultivated area in the State in 2020-21. On analyzing the area under cultivation for the last 10 years, the area under paddy cultivation was highest in 2011-12 recording an area of 2.08 lakh ha with a production of 5.69 lakh tonnes. A steady increase in production and productivity is noticed from 2017-18 onwards (**Appendix.3.1.5**). The highest production and productivity was recorded in 2020-21. The trend in rice cultivation over the last ten years in the State with respect to area, production and productivity is depicted in **Figure 3.1.4**.

Season-wise data on the performance of rice reveal that the area under Virippu (autumn), Mundakan (winter) and Puncha (summer) crop has increased in 2020-21 over the previous year. The increase in area, production and productivity was highest in Mundakan season with an increase of 9 per cent 12.8 per cent and 3.5 per cent respectively. The productivity of Puncha was the highest among the three seasons in the year with 3,464kg per ha. However, it was 2 per cent lower than the previous year. The productivity in Virippu and Mundakan seasons were higher than the previous year (**Appendix 3.1.6**).

Figure 3.1.4. Per centage change in area, production and productivity of rice over the years from 2012-13 compared to 2011-12



Source: Directorate of Economics and Statistics

Mundakan crop contributed to 43 per cent of the total paddy cultivated area in 2020-21 with 58 per cent in Thrissur and Palakkad district. Alappuzha and Palakkad district contributed to 75 per cent area under Virippu crop with 60 per cent in Palakkad district. While Puncheda crop was dominant in Alappuzha District, Mundakan and Virippu crop was prominent in Palakkad District (**Appendix 3.1.7**).

Palakkad, Alappuzha, Thrissur and Kottayam accounted for about 78.9 per cent of the total area of rice in the State, their individual shares being 38 per cent, 19.8 per cent, 11.8 per cent and 9.2 per cent respectively. These Districts contributed 82 per cent of the total rice production in the State.

All the districts, except Palakkad and Kozhikode recorded an increase in area under paddy compared to 2019-20.

Palakkad and Alappuzha Districts stood first and second with respect to area and production of rice in the State. But with respect to productivity, Thrissur district came first followed by Malappuram. An increase in production is seen in all the districts except Pathanamthitta, Palakkad and Kozhikode compared to 2019-20. The highest increase in area of 18 per cent was in Kannur district and the highest increase in production of 36.3 per cent was in Kasaragod district. The highest increase in productivity of 11 per cent was in Kollam district followed by Thrissur district (**Appendix 3.1.8**).

In addition to wetland cultivation, upland paddy cultivation was undertaken in an area of 3,175.5ha producing 6,846 tonnes. The productivity of upland rice was 2,156kg per ha. The area under upland rice decreased by 55 per cent compared to 2019-20 (**Appendix 3.1.8**).

The area under high yielding and local varieties are given season wise in **Appendix 3.1.9 and 3.1.10**.

About 96.7 per cent of the paddy area extending to 1.95 lakh ha was cultivated with high yielding varieties and 6,587ha with local varieties.

The intervention to promote paddy cultivation in the State includes assistance to undertake fallow land cultivation, upland cultivation, conversion of single crop to double crop and promotion of specialty rice. Other incentives to paddy farmers include input assistance @ ₹5,500 per ha, paddy production bonus @ ₹1,000 per ha per season and free electricity to paddy farmers. In 2020-21, Royalty @ ₹2,000 per ha was provided as incentive to owners of paddy land for conserving paddy lands

Vegetables

The State has been focusing on vegetable development programmes with the objective of attaining self-sufficiency in vegetable production giving thrust to safe to eat cultivation. As such the vegetable production has gained momentum over the past years. The production which was 7.25 lakh metric tonnes from an area of 52,830 ha in 2016-17 increased to 15.7 lakh metric tonnes from an area of 1.02 lakh hectare during 2020-21. The area and production of vegetable in 2020-21 increased by 5.9 per cent and 5.4 per cent compared to the area and production of 2019-20 which was 96,313 hectare and 14.9 lakh tonnes respectively.

The vegetable development programmes in the State is supported through the State Department of Agriculture Development and Farmers Welfare, Vegetable and Fruit Promotion Council, Kerala (VFPCCK), State Horticulture Mission, Local Self Government Department and Kudumbashree. Promotion of vegetable cultivation through vegetable clusters including urban, staggered and graded clusters, homesteads, institutions, fallow land and micro irrigation and fertigation support paved way for promising vegetable cultivation in the State. Promotion of rain shelter was another intervention that facilitated year round vegetable cultivation.

Availability of good quality seeds which is the prerequisite for successful cultivation was facilitated through the farms and nurseries under the Department of Agriculture and establishment of new nurseries at Corporation/ Municipality/ Panchayats. A quantity of 120 MT vegetable seeds and 30 lakh vegetable seedlings were produced and distributed to farmers in 2020-21. VFPCCK and Kerala Agricultural

University also supplied seeds and seedlings for vegetable cultivation.

Safe to eat vegetable cultivation through good agricultural practices was promoted in the State through the Agriculture Development and Farmers Welfare Department, Vegetable and Fruit Promotion Council, Kerala and State Horticulture Mission. The marketing of organic products was facilitated through 288 ecoshops functioning in the State. Fourteen ecoshops were newly established in 2020-21.

As part of promoting Participatory Guarantee System (PGS) for organic cultivation, 1,859 farmers have been registered under PGS. Organic Green Certificate has been awarded to 208 farmers. In the year 2020-21, 1,025 tonnes of fruits and vegetables were produced by these groups.

Pesticide Residue Analysis

The presence of fruits and vegetables contaminated with pesticides in the markets is a cause of concern in the State. In order to create awareness among the public on the status of pesticide residue in food commodities, samples of vegetables and fruits collected from public markets, farm gate, ecoshops and “Organic” shops in Kerala are analysed for pesticide residues and the results published in public domain (www.kerala.gov.in) periodically. The Pesticide Residue Research and Analytical Laboratory at College of Agriculture, Vellayani is the laboratory under Government of Kerala having ISO 17025 accreditation for testing pesticide residues from food commodities.

In 2020-21, a total of 1,197 samples of various commodities such as vegetables, fruits, spices and other food products collected from various parts of the State were analysed for the presence of pesticide residues, out of which 325 (27.15 per cent) samples were found contaminated with pesticide residues. Out of the 1,020 vegetable samples analyzed, 286 samples (28 per cent) were contaminated. Capsicum, red chilli, green chilli, mint leaves and coriander leaves were the most contaminated. Out of the 150 fruit samples analysed, 34 samples (22.7 per cent) were contaminated, grapes being the most contaminated.

Coconut

Among the coconut growing countries in the world, Indonesia stands first in coconut production followed by Philippines and India in second and third position as reported in the Food and Agriculture Organization Statistics 2019.

Among the 16 States and Union Territories in India, where coconut is grown, the southern States of Tamil Nadu, Kerala, Karnataka and Andhra Pradesh contributed to 89.12 per cent and 90 per cent of the area and production respectively in 2020-21. As per the second advance estimate 2020-21, the area and production of coconut in the country is 2.189 million hectares and 21,207 million nuts respectively. Kerala retained its first position in terms of area and production. In terms of productivity, Maharashtra occupied the first position followed by West Bengal and Tamil Nadu in second and third position respectively.

Although coconut is one of the principal crops, its cultivation in the State has not been encouraging over the years. The area under coconut which has been declining since 2013-14 has marginally increased by 1.06 per cent in 2020-21 compared to 2019-20. However, the production and productivity had declined by 0.54 per cent and 1.58 per cent respectively.

Coconut, cultivated in 7.69 lakh ha occupies 29.9 per cent of the gross cropped area. Comparing the data over the last ten years, decline of 6.3 per cent, 19.4 per cent and 13.9 per cent is observed in the area, production and productivity of coconut respectively compared to 2011-12 (**Appendix 3.1.11**).

The constraints in coconut production sector in the State include predominance of old and senile palms, poor spread of hybrid varieties, poor attention to soil, and high cost of labour including shortage of labour in addition to constraints in value addition sector. There is serious data gap with respect to output per yielding palm, variety wise data, irrigated or unirrigated areas, well managed or poorly managed palm, and age wise distribution necessitating regular and updated data on coconut cultivation.

Coconut development programmes implemented in the State has been directed towards addressing these challenges through major programmes such as Keragramam for the integrated management of coconut gardens on cluster basis and the Coconut Mission for reviving the coconut wealth of Kerala through a campaign of replanting and maintenance, enhancing the productivity and ensuring forward linkages with the agro industry. The major way forward in coconut sector includes replanting, quality planting material production, integrated pest management, integrated nutrient management, value addition, and agro processing.

Considering the need of continuous availability of moisture for sustainable production of coconut, application of smart irrigation systems for coconut plantations need to be given prime importance. Popularization of rapid multiplication techniques, encouraging decentralized nurseries, participatory approach in seedling production by imparting training in surveying and identification, marking and labelling mother palms, seed nut collection, storage and nursery establishment and maintenance would accelerate production of large number of quality seedlings.

The focus on marketing policy needs to be on aggregation at farmer level through Farmer Producer Organizations (FPO) and Cooperatives. The focus of value addition policy should be on growth in processing sector and FPO promotion. Coconut Development Board and NABARD has been instrumental in promoting formation of Farmer Producer Organizations in coconut sector in a three tier framework to improve productivity, promote value addition and marketing so as to enhance profitability of coconut farming.

Considering the significance of agribusiness in employment and income generation, the immense scope for coconut based agribusiness with respect to processing and value addition needs to be explored.

Pepper

World pepper production in 2020 was estimated at 593 thousand tonne compared to 591.9

thousand tonne in 2019 as reported by the International Pepper Community. Even though, Vietnam retained the first position in production with 40 per cent share in 2020, there was a decline of 14.3 per cent compared to 2019.

The advance estimate of Spices Board 2020-21 estimated pepper production in India in 2020-21 as 65 thousand tonnes compared to 61 thousand tonnes in 2019-20, which is an increase of 6.6 per cent. Pepper production has shown an increasing trend since 2019-20. Karnataka occupies the first position in terms of area and production of pepper followed by Kerala.

The price of pepper has been declining since 2017 as the prices declined from ₹529.59 per kg to ₹336.47 per kg in 2020. The decline in pepper prices was largely on account of imports of pepper. However, 16.5 per cent increase in price was observed in the period January to July 2021 compared to corresponding period in the previous year. This could be attributed due to lower imports arising out of logistic issues during the pandemic.

The pepper exports which had increased in 2019-20 declined by 700 tonnes in 2020-21 to 16,300 tonnes. The value realization was ₹544.45 crore, and the unit value realization was ₹334.02 per kg, which is a decrease of ₹29.25 crore and ₹3.45 per kg respectively, compared to 2019-20. The area under pepper in the State was 82,124ha in 2020-21 which is a decrease of 1,640ha compared to 2019-20. The production and productivity declined by 2.7 per cent and 0.7 per cent respectively to 33,591 tonnes and 409 kg per ha in 2020-21 (**Appendix 3.1.4**).

Integrated pepper development and pepper rehabilitation programmes are being promoted for improving pepper production in the State. Adoption of hygienic post-harvest operations, aggregation of farmers as FPOs in value addition and establishing direct market linkage for farmers /FPOs can enhance income from pepper cultivation.

Cashew

The largest producer of raw cashew nuts in the world is Cote d'Ivoire followed by India as per the Food and Agriculture Organization Statistics,

2019. As against 702.8 thousand metric tonnes in 2019-20, the production of raw cashew nuts in the country increased in 2020-21, recording 738.01 thousand metric tonnes. Similarly, the area under cashew has also increased by 3 per cent to 1,158.5 thousand hectare. The area under cashew cultivation in the country has increased by 11.9 per cent in the last five years from 2016-17.

Among the cashew growing States in India, Maharashtra maintained its first position in production contributing a share of 25.77 per cent followed by Andhra Pradesh contributing 16.4 per cent.

As compared to the previous year, an increase in production and productivity by 7.5 per cent and 13 per cent respectively is recorded in the State in 2020-21. However, the area declined by 5 per cent compared to 2019-20 (**Appendix 3.1.12**).

As per the statistics of the Directorate of Cashew nut and Cocoa Development, the cashew kernel exports from India in 2020-21 decreased considerably to 48,575 tonnes from 67,647 tonnes in 2019-20 with a total realized value of ₹2,840.39 crore. India imported 8.31 lakh tonnes of raw cashewnut worth ₹7,331 crore.

Plantation Crops

In view of the potential for export, employment generation and poverty alleviation, plantation crops play a vital role in the national and state economy. Each of the four plantation crops of South India has its distinct characteristics and economic problems.

Kerala has a substantial share in the four plantation crops of rubber, tea, coffee and cardamom. These four crops together occupied 7.11 lakh ha, accounting for 27.7 per cent of the total cropped area in the State (**Appendix 3.1.4**). Kerala's share in the national production of rubber is 72.6 per cent. The per centage share in cardamom, coffee and tea were 91.3 per cent, 20.5 per cent and 5.2 per cent respectively in the year 2020-21 (**Appendix 3.1.13**).

Considering the significant role of plantation in the economy, focus on initiatives to improve

processing and value addition of plantation crops in addition to expanding, replanting and productivity, can enhance the revenue flow from plantations.

Rubber

The world Natural Rubber (NR) production in 2020 was 13.008 million tonnes as against 13.700 million tonnes produced in 2019, registering a decline of 5.1 per cent in production. In 2020, among the main NR producing countries, Thailand recorded the highest production of 4,372,000 tonnes followed by Indonesia and Vietnam. India was the sixth largest producer with a share of 5.5 per cent of world production.

In 2020, world natural rubber consumption decreased by 6.8 per cent to 12.710 million tonnes against 13.640 million tonnes in 2019. India continued its second position in terms of natural rubber consumption, next to China.

As per the Rubber Board data, natural rubber production in the country in 2020-21 was 7.15 lakh tonnes compared to 7.12 lakh tonnes in 2019-20 recording a growth of 0.4 per cent. Out of the 6.93 lakh ha of tappable area under natural rubber only 4.96 lakh ha has contributed to the NR production in 2020-21. The growth in production even in the midst of Covid-19 pandemic can be attributed to measures taken by Rubber Board to increase production and productivity, favourable climate, supply of inputs, especially rain guarding materials through Board promoted companies, continuation of Rubber Production Incentive Scheme (RPIS), relatively higher price of rubber, promoting self-tapping so as to reduce the cost involved, Tappers Intensive Skill Development Programme (TISP) and timely intervention by the Board in controlling diseases.

The country consumed 1,096,410 tonnes of NR in 2020-21, 3.3 per cent less than the quantity of 1,134,120 tonnes consumed in 2019-20. The import of natural rubber in 2020-21, declined by 10.2 per cent to 4.10 lakh tonnes compared to 4.57 lakh tonnes in 2019-20 (**Appendix 3.1.14**).

Annual average price for domestic RSS 4 grade rubber for the year 2020-21 was ₹14,185 per

100kg compared to ₹13,522 per 100kg in 2019-20 (**Appendix 3.1.15 and 3.1.16**).

Rubber occupies the second largest area in the State next to Coconut with 21.43 per cent of the gross cropped area. In Kerala, the area and production of rubber decreased by 0.06 and 2.62 per cent respectively in 2020-21 compared to 2019-20. The rubber production was 5.195 lakh tonnes from an area of 5.5 lakh hectares (**Appendix 3.1.13**).

Coffee

The International Coffee Organization estimated the global coffee production in 2020-21 as 169.6 million bags (of 60 kilo bag) with 0.8 million bag increase over 2019-20. Brazil stands first in coffee production with a share of 37.4 per cent of the global production followed by Vietnam with 17.4 per cent. India is in seventh position with 3.4 per cent share.

Domestic coffee production in 2020-21 was 334 thousand tonnes with Arabica production of 99 thousand tonnes (29.6 per cent) and Robusta at 235 thousand tonnes (70.4 per cent). This represents an overall increase in total production as well as within the break-up of Arabica and Robusta production by 34.7 thousand tonne, 8.6 thousand tonne and 26.1 thousand tonne respectively compared to 2019-20.

The export performance of the Indian coffee sector in 2020-21 saw a dip in the quantum exported (-4.9 per cent), but there was an increase in value realization by 4.9 per cent and unit value by 10.2 per cent compared to 2019-20. The export performance in terms of quantity exported decreased by 15.9 thousand tonnes to 310.7 thousand tonnes. Total value realization increased by ₹252.72 crore to ₹5,452.13 crore and the unit value realization increased by ₹16.25 per kg to ₹175.47 per kg.

With respect to Kerala, the production of coffee increased from 65,459 metric tonnes in 2019-20 to 68,545 metric tonnes in 2020-21. The area planted under coffee was maintained at 85,880ha in 2020-21. The productivity of the crop in Kerala was 798 kg per ha (**Appendix 3.1.13**). Among the coffee producing States in the country, Kerala stands second in coffee production next to Karnataka.

Focus on productivity improvement of existing coffee plantations by systematic planting and adequate irrigation facilities can facilitate increase of coffee production in the State. Encouraging coffee growers to access high value specialty markets through production of eco certified coffees would help to realize higher returns. Value addition through improved technologies, formation of FPOs and direct market access to coffee growers through e platforms would help the coffee sector, both in terms of production as well as marketing.

Tea

The world tea production in 2020 shows an increase of 1.75 per cent despite the Covid-19 pandemic affecting the tea growing regions. As per the International Tea Committee data, China ranks first in tea production contributing to 47.6 per cent of the total world production of 6,269 million kg in 2020. The growth in production is attributed to increase in area, usage of improved planting materials, employing advanced technology and adopting integrated package of practices for tea cultivation.

India is the second largest producer of tea. The performance of tea production sector in the country over the last ten years had shown a substantial increase till 2019-20. The lockdown measures due to Covid-19 pandemic resulted in decline in production in 2020-21. As per the Statistics of Tea Board the domestic tea production in 2020-21 was 1,283.03 million kg which is lesser by 77.78 million kg of 2019-20 (**Appendix 3.1.17**). As against the previous year, the South Indian tea production showed an increase, while North Indian production was lower.

The export of tea in 2020-21 was 202 million kg which was lower by 39.34 million kg compared to 2019-20 while the unit value increased from ₹226.11 per kg in 2019-20 to ₹258.99 per kg. The total realization of tea export in 2020-21 was ₹5231.69 crore which is lower by 4.1 per cent over 2019-20. The first three months of 2021 showed decline in total quantity exported by 6.9 million kg. However, there was an increase in value and unit value realization.

Kerala accounted for 5.2 per cent of the total domestic production of tea in the country in 2020-21. Both, the production and productivity of tea in the State increased by 12.8 per cent to 66.85 million kg and 1,864kg/ha respectively compared to 2019-20 (**Appendix 3.1.13**).

The import of tea in India has recorded an increase of 51 per cent since 2015-16 which is a matter of concern. With the domestic tea sector facing a setback due to increasing cost of production from high input cost and high wage rate, it is necessary to regulate the import of tea in the country.

Cardamom

India is the second largest producer of cardamom in the world and is a significant player in international trade due to the unique aroma and flavour of Indian cardamom. As per the advance estimate of Spices Board 2020-21, cardamom production in India in 2020-21 is estimated at 22.520 thousand tonnes. This is double the production compared to 2019-20.

The price of cardamom which had increased to a record high of ₹2,908.50 per kg in 2019-20 witnessed a sharp decline to ₹1,513.02 per kg in 2020-21.

The export of cardamom for 2020-21 is estimated at 6.50 thousand tonnes, which is an increase of 4.65 thousand tonnes over the previous year. The value realization was higher by ₹681.38 crore at ₹1,106.75 crore, but the unit value declined to ₹1,702.69 per kg compared to 2019-20.

Kerala holds the major share in cardamom production contributing to 91.3 per cent of the total production. The production of cardamom in the State has doubled in 2020-21 compared to 2019-20 recording 20,570 metric tonnes (**Appendix 3.1.13**).

Consumption of Fertilizers and Pesticides

Consumption of pesticides in 2020-21 was 492.89 metric tonnes with 224.53 metric tonnes of chemical pesticides and 268.37 metric tonnes of bio-pesticides. An overall 59 per cent decrease in consumption of pesticides, in terms of both chemical and bio-pesticides is observed compared to 2018-19. The usage of chemical and bio-pesticide decreased by 56 per cent and 60 per cent respectively compared to 2018-19. Vegetables and banana which were the highest pesticide consuming crops in 2018-19, recorded a drastic reduction in pesticide usage by 77 per cent and 67 per cent respectively in 2020-21 (**Table 3.1.3**).

The consumption of nitrogenous fertilizers increased in 2020-21 compared to the previous two years with 34kg/ha contributing to 43 per cent of the total nitrogen, phosphorus and potassium fertilizers. The consumption of phosphorus and potassium was 16kg/ha and 29kg/ha respectively together contributing 57 per cent of total consumption in 2020-21. The consumption of nitrogenous, phosphatic and potassium fertilizers has increased in 2020-21 compared to 2019-20 (**Appendix 3.1.18**).

Table 3.1.3 Commodity and crop-wise consumption of indigenous pesticides, chemical and bio, 2018-19 to 2020-21 MT, technical grade

Commodity	Chemical Pesticides			Biopesticides			Total		
	2018-19	2019-20	2020-21	2018-19	2019-20	2020-21	2018-19	2019-20	2020-21
Cereals Paddy	66.24	72.32	52.85	94.86	85.64	62.88	161.09	157.96	115.73
Vegetables	137.58	40.00	34.14	201.99	57.01	42.79	339.57	97.01	76.94
Spices	48.71	32.47	22.05	79.71	45.00	31.19	128.42	77.46	53.25
Coconut	113.06	78.05	52.89	116.49	81.7	63.66	229.54	159.75	116.55
Arecanut	15.80	17.2	12.35	21.75	19.73	19.89	37.55	36.94	32.24
Banana	135.91	50.97	50.24	161.97	54.72	47.94	297.88	105.69	98.19
Total	517.3	291.01	224.53	676.76	343.8	268.37	1194.06	634.81	492.89

Source: Department of Agriculture Development and Farmers Welfare, Kerala

Collective Farming Through Kudumbashree

Collective farming was launched by Kudumbashree by organising women to take up leased land farming. Collective farming helps to provide economic empowerment to women while helping local governments in moving towards food security. Cultivation of fallow farm land are undertaken on informal lease by Joint Liability Groups (JLGs) along the lines of the group concept promoted by the National Bank for Agriculture and Rural Development (NABARD) with the support of panchayats and the Kudumbashree community network.

An area of 29,249 ha was cultivated in 2020-21 covering paddy, vegetables, banana tubers and other crops. The area brought under cultivation of paddy was 4,809 ha, vegetables 7,085 ha, tubers 7,076 ha and banana 9,134 ha. Other crops were cultivated in 1,142 ha. On comparing with the area covered in 2019-20, the area taken up under all the crops except vegetables and tubers through collective farming has declined. Details of area covered in 2020-21 are given in **Appendix 3.1.19**.

Soil Health Card

Considering the importance of soil health in augmenting crop production and significance of soil test based nutrient application for judicious application of fertilizers, the Central Soil Health Card Scheme under National Mission for Sustainable Agriculture (NMSA) is implemented in the State by Department of Agriculture and Department of Soil Survey and Soil Conservation. During the period 2015-16 to 2018-19, 26.19 lakh soil health cards were distributed in the first cycle and second cycle of the programme.

In the third cycle of the programme, in 2019-20, a pilot project “Development of model villages” was undertaken, where soil samples are collected from individual farmer holding for analysis. Under this project, one village per block found deficient in soil nutrients during cycle I and II was selected for holding based soil testing. Accordingly 80,045 Soil Health Cards have been distributed during the period 2019-21 in the State.

Agricultural Marketing

There are 1,884 notified markets functioning in the State under the Department of Agriculture Development and Farmers Welfare, Vegetable and Fruit Promotion Council and HortiCorp. This include weekly markets, ecoshops, wholesale markets and cluster markets. Besides this, 602 new weekly markets and 100 wayside urban markets operated directly by the Department of Agriculture helped the farmers to market their produce without involvement of middlemen.

The 290 *Swasraya Karshaka Samithies* established under VFPCCK throughout the State, facilitated marketing of fruits and vegetables thereby ensuring fair price to the farmers. A quantity of 1.16 lakh metric tons of fruits and vegetables worth ₹215.99 crore were traded through these SKS in 2020-21. Other market interventions by VFPCCK include establishment of 150 vegetable retail markets during onam season and 250 collection centres for procuring vegetables at the minimum support price fixed by Government. The market network for fresh fruits and vegetables of Kerala in the brand name *Thalir* established by VFPCCK was extended to 38 ecoshop outlets as part of promotion of organic products. The State Horticulture Mission in 2020-21 provided assistance for establishment of two rural markets.

The markets functioning under Local Governments also facilitated trade of agricultural produce. Separate market authorities are formed for each market and have prescribed procedures for trading as regards method of sale, handling, market charges, weighing, payment to seller, grading, and packing. The other institutions involved in agricultural marketing include Kerafed, Marketfed, Kerala Agro Industries Corporation, Plantation Corporation of Kerala, Oil Palm India Limited, Rubbermark and the Commodity Boards viz. Spices board, Tea board, Coffee board and Coconut Development Board.

“Kerala farm fresh *Pazham Pachakkari* - base price” programme was introduced in 2021-22 to facilitate assured price to farmers. Base price was fixed for 16 items of vegetables and fruits in the State. Farmers were compensated with the difference in price, in the event of fall in market

price below the base price. An amount of ₹3.021 crore was disbursed to 2,712 farmers.

The fragmented marketed surplus and the inadequate marketing facilities in the State can be considered as the major constraints in the present agricultural marketing system depriving remunerative price to the farmers. Establishment of new markets with the involvement of Local Government institutions and Cooperatives, creation of facilities for aggregation of outputs and expansion of the agriculture market infrastructure utilizing credit facilities from National Bank for Agriculture and Rural development, commercial banks, Kerala Bank and Primary Cooperative Agriculture and Rural Development Banks can strengthen the agricultural marketing system in the State. Moreover, the fragmented market network has to be streamlined through a State level legislation. Promotion of Farmer Producer Organizations at local levels would not only facilitate aggregation of products but also help in development of a robust supply chain. The existing market information and market intelligence system needs to be strengthened to keep abreast with the market developments at national and international level.

Post-harvest Management and Value Addition

Considering the importance of minimizing post-harvest losses and value addition of produce in increasing farmer's income, thrust was given for establishment of pack houses, cold storage facilities, development of micro, small and medium value addition units and agribusiness ventures in 2020-21. The formation of primary processing centres in 7 districts, three integrated pack houses (Malappuram, Kozhikode and Wayanad) and four refer vans (Ernakulam, Kozhikode and Malappuram) were assisted through State Horticulture Mission in 2020-21. Besides this, VFPCCK also supported establishment of Primary Processing Centers (PPC) in 7 districts and Vegetable and Fruit Processing and Marketing Centre (VFPMC) at Kakkanad, Kochi in the current year.

Small Farmers Agribusiness Consortium (SFAC), under the Department of Agriculture and Farmers Welfare, Government of Kerala is

the organization providing necessary linkages for establishment and running of successful agribusiness for the benefit of farmers and entrepreneurs.

In 2020-21, SFAC, Kerala provided assistance to 8 new Micro Small Medium enterprises (MSME) units consisting of 2 micro, 3 small and 3 medium units. Forty value addition units promoted since 2017-18 are successfully functioning in the State in addition to these 8 units.

Considering the importance of FPOs in promoting activities in agriculture and allied sectors, the State Government focused on providing favourable environment for creation of new FPOs by providing necessary technical and managerial skills along with marketing infrastructure facilities. The Kerala Farmer Producer Organisations (FPO) Policy, 2020 was formed in May 2020 and operational guidelines of FPOs in Kerala were approved.

At present there are 137 registered FPOs funded by National Bank for Agricultural and Rural Development (NABARD) and 29 registered Coconut Producer Companies funded by Coconut Development Board functioning in the State. Further, 50 FPOs funded by Government of Kerala, 9 FPOs under Central SFAC, 14 FPOs each under NCDC and NABARD and 5 FPOs under National Agricultural Cooperative Marketing Federation of India Ltd (NAFED) are being formed in the State.

The agribusiness promoting agencies selected from experienced and reputed national and international agencies by SFAC, Kerala hand holds the formation of 50 FPOs in the State on Zonal basis in 5 zones across the state with 10 FPO's in each zone. Under this 13 new FPO's were selected and remaining 37 are in the final stages of selection. The selected FPOs include promotion of millets in tribal areas of Attapady in Palakkad and Athirapally in Thrissur, Kaippad rice promotion in Kannur district, Tirur betel farmers of Malappuram, Vazhakulam Pineapple farmers in Ernakulam and three Agricultural and Processed Food Products Export Development Authority (APEDA) linked

export promotion FPOs facilitated by VFPCCK. The state level consultative committee and the district level monitoring committee constituted with Agriculture Production Commissioner and District Collector respectively as chairman looks into the proper implementation and monitoring of FPOs in the State.

Facilitating sufficient incubators, promoting technology protocol for ready to use packaging for micro level entrepreneurs, disseminating knowledge and experience in e-commerce and online marketing, quality standardization of products, common infrastructure for cold storage and community processing centre can strengthen agribusiness ventures in the State.

Mechanisation

Shortage of agricultural labour force, identified as one of the major constraint in agriculture in the State necessitates rapid mechanisation of agricultural operations. Investments have been made through the Agriculture Department and the various agencies to create infrastructure and trained manpower for adequate and timely mechanisation support to farmers. The scheme for the establishment of block level Agro Service Centres (ASC), panchayat level Karshika Karma Senas (KKS) and Custom Hiring Centres (CHC) are initiatives for providing mechanisation support and other agricultural services to farmers. Lack of a definite business plan, lack of coordination between units, improper and inadequate training to the members and improper maintenance of agro machinery procured were the major drawbacks.

Kerala State Agricultural Mechanisation Mission was constituted as an apex body in the State in 2018 to ensure proper coordination and monitoring of the activities of ASC, KKS, CHC and similar services providers like, Kerala Agromachinery Corporation (KAMCO) and Kerala Agro Industries Corporation Ltd.(KAICO). Accordingly, a Manual on Constitution and functioning of ASC and KKS was prepared for streamlining the functioning of these units. As per the report of the Mission, out of the 99 ASC and 368 KKS established in the State, 95 ASCs and 194 KKS are provided with agro machinery. Farm machinery inventory survey conducted by the mission reported

availability of 4,633 number of farm machineries in different categories. The Karshika Karma Senas are equipped with 2,514 and Agro Service Centres with 2,119 agro machineries. The manpower strength of Agro Service Centre and *Karshika Karma Sena* is 1,070 and 4,577 respectively. The number of women working in ASC and KKS are 608 and 2,334 respectively. Under the Mission, training on service and maintenance of agromachinery was imparted to 456 service providers of ASC and KKS and 58 mechanics of the Agricultural Engineering Wing of the Department. 1,502 machineries were repaired and made operational in 4 phases from 2017-18. Business plan worth ₹339.62 crore with a net profit of ₹93 crore was prepared for 94 ASC and 293 KKS. The Mission has also prepared an inventory of new machinery suited to specific locations which are mostly manually operated homestead farming friendly agro machinery.

Another major accomplishment in mechanisation was the establishment of Agro machinery Care Centre at District Agricultural Farm, Koothali to facilitate restoration of cultivation in fallow wetlands of Malabar region as part of Rebuild Kerala Initiative Project. The ASC and KKS produced and supplied 11.44 lakh seedlings consisting of mango, jack fruit, *muringa*, curry leaf, *nendran* banana, *njalipoovan* and passion fruit in 2020-21.

Major Achievements of Department of Agriculture Development and Farmers Welfare 2020-21

During the 13th Five Year Plan period, the total budgeted outlay for crop husbandry, marketing and Wayanad package in the first four years under State Plan was ₹2,772.02 crore. The budgeted outlay for 2021-22 is ₹619.45 crore.

The programmes implemented by the Department focused on attaining self-sufficiency in food crop production by providing assistance for expansion and sustenance of crops like rice, vegetables, pulses, tubers, millets, sugarcane, sesamum, coconut, fruit crops and spices. Programmes promoting safe to eat food through Good Agricultural Practises and nutritional security was also given importance. Market development and value addition were the other thrust areas during the year in addition

to farmer welfare programmes. The major achievements of the Department in 2020-21 are as follows.

- For rice development, assistance was given for sustaining rice cultivation in 50,474.45 ha through group farming.
- Royalty to the owners of cultivable paddy land @ ₹2,000 per ha was introduced in 2020-21, for conserving the cultivable paddy lands. An amount of ₹7.62 crore was disbursed to 88,036 farmers.
- In 2020-21 paddy production bonus was provided to 1,32,400 ha in grama panchayat, 4,400ha in block panchayat and 50ha in Corporation.
- Under Coconut Development, assistance was provided for establishment of 15 new Keragramams covering 8 districts and 55 and 77 number of existing ones were given second year and third year assistance for integrated coconut management.
- As part of the rehabilitation and rejuvenation of coconut palm campaign under Coconut Mission, 6,06,967 West Coast Tall, 29,217 dwarf and 1,20,986 hybrid seedlings were distributed for planting @75 seedlings/ward.
- For vegetable development, homestead cultivation was promoted by distributing 67.42 lakh seed kits and 201.92 lakh seedlings to households including school students with majority beneficiaries being women. Rain shelter cultivation was set up in 1,22,522sq.m. Besides, assistance was provided for establishment of 25 micro irrigation units.
- Under the fruit development package launched in 2020-21 as a ten year programme, 1.36 crore planting materials of fruits were distributed.
- For pepper development, 8 decentralized nurseries were supported for quality planting material production. Area under pepper was expanded to 1,015ha in Idukki district.
- As part of planting material production, 120 metric tonnes of vegetable seeds, 30 lakh vegetable seedlings, 6 lakh tissue culture banana plantlets, 23.346 lakh fruit plants and 3,945 packets of mushroom spawn were produced and distributed.
- Integrated Farming System models were promoted in 14,463 units.
- Block Level Agricultural Knowledge Centres aimed at disseminating scientific

agricultural practices and advanced agriculture technologies to farmers were established in 152 blocks of the State with the Assistant Director of Agriculture as convenor and scientists from Kerala Agricultural University as the nodal officer.

- New online software “SMART” facilitated the disbursement of crop loss claims due to natural calamity and also settlement of crop insurance claims through direct benefit transfer.
- Biofertilizer and Organic manure Quality Control Laboratory (BOQCL) was established at Pattambi in Palakkad to ensure quality control of organic inputs
- Rubber Production Incentive of ₹2,800 lakh was provided to ensure minimum support price to rubber farmers in case of price fall.
- The Farmer Welfare Fund Board was established in 2020 to implement the pension schemes and welfare programmes of the Agriculture Development and Farmers’ Welfare Department
- Farmers who attained 60 years and above were provided Karshaka pension @ ₹1,600 per month and an amount of ₹564.7 crore was disbursed to eligible farmers in 2020-21.

Subhiksha Keralam

The Subhiksha Keralam programme launched in 2020-21 with the objective of attaining food security by enhancing area, production and productivity of food crops was a major initiative of the State to combat the shortage of food supplies during the Covid-19 pandemic. The activities under this programme included bringing the arable fallow land under cultivation mainly to paddy, vegetables, fruit crops, tubers, pulses and millets. Popularization of Integrated Farming Systems, rain shelter cultivation and facilitating credit facilities to farmers were the other programmes taken up under the initiative. Under this programme, 9,070ha, 4,527ha, 3,381 ha, 4,908ha, 636ha and 325ha of fallow land was brought under cultivation of paddy, vegetables, fruit plants, tuber crops, pulses and millets respectively. It is estimated that around 1,49,163 persons got work through fallow land cultivation. Cattle rearing, poultry rearing, goat rearing, bee keeping and mushroom cultivation activities were integrated in 14,463 Integrated Farming System units supported through the programme.

Key Initiatives of the Department of Agriculture Development and Farmers Welfare 2021-22

In 2021-22, activities of the Agriculture Development and Farmers' Welfare focus on crop husbandry, marketing, value addition, extension services and Farmer Welfare schemes. Efficient resource management, climate resilient practices, technology-driven development are given due importance in implementing agricultural programmes. The crop production programmes in addition to crop specific schemes also concentrates on promoting scientific and Good Agricultural Practices. With the objective of providing income security to farmers, industry-based development of agriculture sector through value addition are also supported. Agricultural credit facilities, crop insurance coverage, market intervention for price stabilization and farmer pension are the other farmer friendly programmes supported by the State.

Food crop production schemes include development of rice, vegetables, pulses, tubers, fruits and location specific crops like millets, sugarcane and sesamum. Holistic development of coconut sector through *Keragramams* and Coconut Mission activities, production and distribution of quality planting materials, comprehensive fallow land cultivation with people's participation, modernisation of laboratories, institutional mechanism for marketing, strengthening extension activities, Agricultural Technology Management Agency (ATMA) plus model of extension, rejuvenation of spices, quality control of agricultural inputs and outputs and effective programs for soil and root health management, crop health management covering pests and disease surveillance, crop insurance, strengthening of Agro Service Centres (ASCs) and *Karshika Karma Senas* for improved service delivery and revival package for pepper in Wayanad are the other programmes. Fruit development package, development of agriculture sector in Kuttanad, Arecanut package for promoting arecanut cultivation and strengthening of IT infrastructure of the department is being continued.

The key initiative of the Department of Agriculture in 2021-22 is the introduction of the scheme "Kerala Farm Fresh-*Pazham Pachakkari*

Base Price" to provide financial support to farmers for 16 items of fruits and vegetables in the event of decline in prices below the base price fixed.

Crop Insurance Schemes

Agriculture is heavily dependent on the weather and is greatly affected by the uncertainties in the sector. In Kerala, majority of the agricultural producers are small farmers. The uncertainty in weather makes agriculture a highly risky venture. Thus the uncertainty of crop yields is one of the basic risks that every farmer has to face. As crop production is affected by the vagaries of nature and damages occur due to droughts, floods, attack of pests and diseases, crop insurance play a vital role in sustaining farmer's income. Major agricultural crops namely coconut, banana, rubber, black pepper, arecanut, cardamom, cashew, pineapple, coffee, ginger, tea, tapioca, turmeric, cocoa, groundnut, sesamum, vegetables, nutmeg, clove, betel leaf, pulses, tuber crops, sugarcane, tobacco, paddy, mango and millets are covered. The scheme covers losses caused by natural calamities such as drought, flood, landslide, earthquake, sea erosion, storm, hurricane, and lightning, wild life menace and forest fire.

In 2020-21, under the restructured crop insurance scheme, an amount of ₹6,957.25 lakh was disbursed benefitting 45,134 farmers.

Under Restructured Weather Based Crop Insurance Scheme (RWBCIS), in Kharif 2020 season, 27,950 farmers were insured. Claims worth ₹62.06 crore have been settled with respect to 25285 farmers. The crops notified were paddy, arecanut, pepper, ginger, sugarcane, turmeric, cardamom, pineapple, banana and nutmeg in Kharif season and paddy, banana, cashew, mango, sugarcane, pineapple potato, cabbage, carrot, garlic, french bean, yard long bean, snake gourd and bitter gourd in Rabi season. Millets, tomato, cocoa, ashgourd, pumpkin, cucumber, bhindi and chilli were the crops notified in Kharif 2020. Consequent to the floods new add on covers were notified under RWBCIS viz. inundation (for all crops), landslide (for all crops) and heavy wind cover (for banana, cardamom, nutmeg, arecanut). Automatic Weather Stations are installed in 134 locations linking panchayats

facilitating settlement of claims for adverse weather on the basis of weather data of respective weather stations.

A new scheme “Weather Based Crop Insurance scheme (WBCIS) for Cardamom” is jointly implemented by Spices Board & Agricultural Insurance Company from 2021-2022 for the whole year with additional cover in case of excess or unseasonal rainfall. The sum insured under this is of ₹1,20,000 per hectare which is higher than ₹45,000 per hectare under RWBCIS and 75 per cent of premium subsidy is borne by the Spices Board.

Pradhan Mantri Fasal Bima Yojana (PMFBY), which provides a comprehensive risk solution at the lowest uniform premium across the country for farmers completed five years of implementation in January 2021. Paddy, banana, tapioca and plantain were the crops notified under Prime Ministers Fasal Bima Yojana (PMFBY) in the State. Under this scheme 13,985 farmers were insured and ₹8.26 crore paid as claims for 4,827 farmers for paddy crop alone in Kharif 2020 season.

Vegetable and Fruit Promotion Council, Kerala (VFPCCK)

Vegetable and Fruit Promotion Council, Kerala (VFPCCK) was formed in 2001, to support commercial fruit and vegetable growers in Kerala in various farm operations from seed to marketing. The major activities of the Council are technology support to farmers, participatory technology trials, formation of self-help groups (SHGs), promotion of Participatory Guarantee System (PGS) for organic certification, campaigns/ training/ capacity building programmes, production of quality seeds and planting materials, participatory credit support, group marketing and programmes for the promotion of vegetable cultivation in urban areas.

In 2020-21, VFPCCK has inducted 3,232 new farmers and formed 127 new SHGs (Self Help Group) thereby increasing the farmers to 2,09,030 and SHG's to 10,189. The production of quality seeds and planting materials was carried out through the Seed Processing Plant at Alathur, Hitech Plug nursery at Nadukkara, Ernakulam and Krishi Business Kendras at

Ernakulam, Thiruvananthapuram and Kasargod. VFPCCK produced 82.34 metric tonnes of seeds and 49.91 lakh vegetable and fruit seedlings in 2020-21 (upto August 2021) for distribution to farmers under the various programmes. Farmers including lease land farmers were provided credit facility and ₹74.95 crore was disbursed under Kissan Credit Card (KCC) at affordable interest rate to 7,080 farmers in 2020-21.

VFPCCK, the designated State nodal agency for agri export policy, developed the sea shipment protocol of *Nendran* banana in collaboration with the National Research Centre for Banana (NRCB), Trichy and ventured into export in 2020-21. The success of the shipment paved way for 10 export consignments consisting of *Nendran* banana, njalipoovan, and vegetables like snakegourd, ivygourd, cucumber, ashgourd and pumpkin to Kuwait, Dubai, Singapore and London. About 42 metric tonnes of fruits and vegetables were exported. VFPCCK took lead in formation of clusters in Thiruvananthapuram, Wayanad and Thrissur for promoting banana export with the guidance of Agricultural and Processed Food Products Export Development Authority (APEDA).

The second wave of Covid-19 pandemic affected trade in the vegetable and fruit markets of VFPCCK. Quantity traded and value of trade decreased by 11.8 per cent and 52.5 per cent respectively in May 2021 compared to May 2019. Vegetable trade was the most affected in terms of quantity as well as value. The market picked up in June 2021 though there was not much improvement in the value of trade compared to 2019.

State Horticulture Mission (SHM)

The SHM was formed in 2005 to implement the programme of the National Horticulture Mission, a centrally sponsored scheme. National Horticulture Mission has been restructured as the Mission for Integrated Development of Horticulture from 2014-15 onwards. It also implements programmes under the PMKSY-Micro Irrigation component (Pradhan Mantri Krishi Sinchayee Yojana) Paramparagat Krishi Vikas Yojana (PKVY) and Rashtriya Krishi Vikas Yojana (RKVY).

The main objective of the mission is a holistic development of the horticulture sector covering fruits like mango, banana, tissue culture banana, pineapple and strawberry, vegetables, spices like pepper, ginger, turmeric and nutmeg, flowers, medicinal plants, mushroom, cashew, cocoa, aromatic and plantation crops. The main stakeholders of the programme are farmers, farmer collectives, self-help groups, registered societies, private entrepreneurs, non-governmental organizations, research institutes and Krishi Vigyan Kendras.

The important programmes under the mission include production and productivity improvement, post-harvest management and marketing. Considering the significance of post-harvest management, establishment of wholesale and retail markets, processing units, sorting and grading units, mobile pre-cooling units, integrated pack houses, retail outlets and reefer containers are also supported. As part of water resource creation, eight community water structures were created and water harvesting structures provided for 336 individuals during the last four years. Cultivation of orchid, anthurium, carnation, gerbera and rose was promoted in 1.48ha under protected cultivation. Loose flowers and cut flowers were promoted in 331ha under open cultivation.

Under PMKSY-Per drop more crop -Micro irrigation component, in 2020-21 assistance was provided for drip irrigation and sprinkler irrigation in 157.88ha and 140.09ha respectively utilizing ₹38.59 lakh.

Assistance for 500 Mushroom cultivation units and establishment of 8 jaggery production units in Idukki were provided under RKVY in 2020-21.

As part of promotion of medicinal plants, State Horticulture Mission implemented the National AYUSH Mission activities through establishment of model nursery for medicinal plants in public sector.

The innovative concept of nutritional garden in every household (*Ella Veettilum Oru Poshakathottam*) was launched in 2020-21 under the project "Household food security

and livelihood support through vegetables and mushroom based nutritional garden" and 25,000 households were supported under this programme in association with the Vegetable and Fruit Promotion Council, Kerala.

Rebuild Kerala Initiative.

The State established Rebuild Kerala Initiative (RKI) after the floods of 2018 to develop a green and resilient Kerala. Thirteen projects and three studies were sanctioned to Department of Agriculture Development and Farmers Welfare to be implemented through Kerala Land Development Corporation, Kerala State Agricultural Mechanisation Mission, Vegetable and Fruit Promotion Council Kerala, Kerala Agricultural University and Kerala Agro Industries Corporation. Two projects and two studies have been completed.

Establishment of Agromachinery Care Centre at District Agricultural Farm, Koothali to facilitate restoration of cultivation in fallow wetlands of Malabar region and establishment of Primary Processing Centers (PPC) in 7 districts and Vegetable and Fruit Processing and Marketing Centre (VFPMC) at Kakkannad, Cochin reported by KSAMM and VFPC are the major achievements under RKI. The establishment of Centre of excellence for vegetables and flowers in Wayanad in collaboration with Government of Netherlands sanctioned under RKI with the objectives of promoting the cultivation of vegetables and flowers and fetching higher income to the farmers was initiated in 2020-21.

Watershed Development Initiatives

Watershed based development programmes are being implemented in the State to achieve sustainable development through natural resource conservation, poverty reduction, and better livelihoods and improved bio-physical and socio economic environment. The Department of Soil Survey and Soil Conservation has been implementing infrastructure development projects in soil and water conservation sector on watershed basis with funding from NABARD under RIDF projects since 1995-96. In 2020-21, projects were undertaken in 135 watersheds protecting an area of 10,061ha. So far, areas of 1.30 lakh ha have been covered in 463 watersheds under the programme.

From 2019-20, soil and water conservation activities on micro watershed basis was initiated in Taliparamba and Kattakada constituencies under the scheme 'Development of Micro watersheds'. An area of 137.92ha and 271.16ha has been treated in Taliparamba and Kattakada respectively during the period 2019-20 to 2021-22.

'Samrudhi' the legislative assembly constituency development programme for Taliparamba was started in 2020-21, with the purpose of promoting rural livelihood micro-enterprises in 7 grama panchayats and 2 municipalities. The scheme is expected to be completed in 2024-25.

Other details of the sector are given in **Appendices 3.1.20, 3.1.21, 3.1.22, 3.1.23, and 3.1.24.**

Agriculture Research and Education

Kerala Agricultural University, the premier agricultural institute in the State, functions with focus on synergizing multi-disciplinary education and strengthening problem-specific research relevant to the state and help building innovative extension systems for sustainable management of natural resources, sustainable agricultural production and overall improvement of rural livelihoods. Its institutional network comprises seven colleges, six Regional Agricultural Research Stations, 17 Research Stations and four Instructional Farms across the State, besides the thirty one ICAR supported All India Coordinated Research Projects/ All India Network Project implemented at various Colleges/ research stations. They play a significant role in innovations and technology development for sustainable growth of agriculture including entrepreneurship and agribusiness.

Assessment of climate change impacts on agricultural sector, social vulnerability and mitigation and adaptation strategies to manage the impacts, development of stress tolerant varieties through breeding, biotechnological applications and conservation and utilization of traditional varieties, conservation of natural resources (crop varieties, soil and water, flora and fauna) were the major focus areas of research interventions during the 13th five

year Plan. The research projects were also oriented towards improving the efficiency of labour through ergonomically designed farm machinery, minimizing use of chemicals in farming ensuring the sustainable performance of the sector, eco-friendly methods of management of pest and diseases and technologies to sustain soil health and use of modern techniques in agriculture like precision farming and high tech agriculture. Thus, the projects were intended to cover the major research gaps in Kerala agriculture and come up with results that help to boost the agriculture sector in a sustainable manner. Moreover, there was equal emphasis on developing quality seeds and planting materials and enhancing seed testing facilities.

Major Achievements

- Morphological characterization completed in 35 rice germplasm accessions using 23 SSR markers for identification of rice genotypes with tolerance to salinity and drought
- Developed Liquid PGPR Mix -I formulation and field trials are progressing at Krishi Vigyan Kendra, Kottayam and Kollam and Onattukara Regional Agricultural Research Station, Kayamkulam.
- Seed Bank with facility to conserve about 50,000 seed collections for a period of 30 years was established under the Seed Bank Project launched for promoting protection, conservation, availability and spread of local land races and traditional varieties.
- Supplied 8,41,262 fruit planting materials and 2,62,316 coconut seedlings for distribution under the fruit development package and Coconut Mission programme implemented by the Department of Agriculture Development and Farmers Welfare
- An amount of ₹2,792.78 lakh was generated as revenue through seeds, planting material and biocontrol agent production
- Released 12 new high yielding crop varieties viz: 2 for Rice, 5 for Vegetables, one spice variety and 3 varieties of other crops.
- Received Plant Genome Conservation National Awards
- Instrumental in the functioning of the Block Level Agricultural Knowledge Centres (AKC) in 152 blocks to disseminate scientific agricultural practises and demonstrate latest technologies to farmers.

- Farm advisory and diagnostic services were offered through Multi-Disciplinary Diagnostic Team (MDDT) visits and farmer interface Mukhamukham. Twenty one field visits were conducted during the year.
- Developed five eco-friendly formulations from medicinal plants against pseudo stem weevil in Nendran and two plants extract repellent of giant African snails.
- Government lab certification was obtained for the two mosquito repellent night creams developed from underexploited medicinal and aromatic plants.
- Battery operated four line paired row planting machine was fabricated and a tiller attached roto-spader developed.
- Obtained Patent for KAU “Weed Viper” Design and Harvesting Machine used in Pokkali Cultivation
- Developed mechanized grain conveyor for rice processing and refined the motorized power climber for coconut.
- Launched the multi-nutrient, nutribar to address malnutrition in young and adolescent children in the state under the Sambushta Keralam project.

The complete lock down and subsequent partial lockdowns imposed during the second wave of Covid-19 pandemic has inflicted short term and long term losses to the institution by way of direct and indirect damages. The total loss including losses in terms of sales, production, disruption of activities and labour incurred during the period May to June 2021 is estimated at ₹2.55 crore. Ensuring availability of seeds and farm inputs, promotion of nutrigardens through women empowerment and online advance booking for processing of home-grown fruits and vegetables to prevent post-harvest losses were some of the interventions made by the University during the lockdown period.

Finance to Agriculture

Agricultural finance is important for the agro – socio – economic development of the country both at macro and micro level. It is important for ensuring food security, job creation, and overall economic growth. There is a huge demand for investment capital and sustainable financial

services in rural areas. Credit is critical to agricultural finance, as it provides critical support to backward and forward linkages in agriculture and allied sectors.

Kerala agriculture is distinct from rest of the country in terms of resource endowments, land use and cropping pattern, scale of farming as well as socio-economic factors. Majority of the farmers in the State are small farmers and production takes place in marginal and small holdings. In a state like Kerala, collectivisation of agriculture produce assumes greater importance. The financial institutions play a greater role in providing credit to the entire supply chain in agriculture and allied activities.

The financial institutions in the state provide long term, medium term and short term loans to primary sector. In Kerala, agriculture advances has increased significantly during the past few years constituting 5.64 per cent of the total agricultural advances in the country, as on March 31, 2021. As per the State Focus Paper of NABARD for 2021-22, Kerala has an excellent banking network, with the total number of bank branches placed at 7,610 as on March 2021 which includes 6,611 commercial banks, RRB and Small Finance Banks and 999 branches in the Cooperative Banking Sector.

The Cooperative Banks and Primary Agriculture Credit Societies (PACS) have played a greater role in furthering financial inclusion in the State. The 13th Five-Year Plan document indicates that “the development of co-operative credit institutions was the key to the historical weakening of usury in rural areas of the State”. As the Report of the Committee on the impact of demonetisation appointed by the State Planning Board observes, “Cooperation and primary cooperatives are Kerala’s strength, a rich legacy of our freedom movement. People’s confidence in these institutions is part of Kerala’s historical heritage.” Today, these institutions form the backbone of much of rural economic activity in the State. Recently, the 13 central banks (the District Central Cooperative Banks; DCCBs) were merged with the Apex bank (the Kerala State Cooperative Bank) to form the new Kerala Bank. Unlike in the advanced economies where the cooperative movement was largely apolitical and

outside the sphere of government influence, the cooperative sector in Kerala experienced an active role of the government in their development and functioning. In fact, most of the cooperatives in Kerala have a government shareholding in its paid-up capital with the levels differing widely across regions and sectors. At the local level, the credit cooperatives have a good network through 169 offices of KSCARDB and 1,647 Primary Agriculture Cooperative Societies (PACS) as on March 31, 2020. The details of Kerala Bank are given separately in chapter of this Review.

The Credit Deposit ratio of State, year on year, has come down marginally from 66 per cent to 65 per cent as on March 2021. Non Performing Assets in agriculture and allied sectors was 2.9 per cent of total agriculture advances. The balance outstanding under Kisan Credit Card(KCC) was ₹26,365.37 crore as on March 31, 2021. The cumulative disbursement during the year 2020-21 under KCC by all agencies, was ₹13,721.86 crore in respect of 8.82 lakh cards issued.

There has been considerable increase in agriculture credit flow from ₹54,270.01 crore during 2016-17 to ₹73,034.04 crore in 2019-20. Out of the total agriculture credit disbursed

in 2019-20, ₹33,511.5 crore was disbursed by Public Sector Commercial banks, ₹12,476.5 crore by Regional Rural Banks (RRB), ₹11,267.97 crore by Co-operative banks and ₹15,777.9 crore by Private Sector commercial banks and other small finance banks. It shows that commercial banks continue to play a predominant role in the advance of credit in agriculture and allied activities (**Table 3.1.4**).

The achievement in crop loan lending has improved to 105 per cent, whereas the same was only 98 per cent of the target fixed for 2018-19. The cooperatives share has been lagging behind, in lending to agriculture, achieving only 55 percent of the crop loans against lending target in 2019-20, thereby dragging down the overall performance of lending under crop loans.

The achievement in agricultural term loan was 97 percent of the target fixed for 2019-20 as against 140 percent achievement in 2018-19. It is a concern to note that cooperatives lagged behind in lending to agriculture, achieving only 74 percent of the lending target of term loans in 2019-20. However, over the past ten years, the priority sector lending shows an increasing trend (**Figure 3.1.5**).

Box 3.1.1 Kerala Bank

The decision of the state's cooperative sector to amalgamate the District Cooperative Banks has been historic. The State which has a long history of cooperative- led rural growth has ushered in a transformative paradigm shift through formation of Kerala Bank. The present Chief Minister Shri. Pinarayi Vijayan has played a pivotal role in conceiving and leading the idea of a large cooperative bank through amalgamation to enable credit led growth in the State. The amalgamated Kerala State Cooperative Bank, known as Kerala Bank came into being on November 29, 2019. This is the second largest bank in terms of business and number of branches in Kerala. The total business of the bank is over Rs. 1 lakh crore as of now. With 769 branches, 7 Regional Offices and 13 credit processing centres the bank has successfully rolled out priority sector lending products for agriculture, MSME, retail and housing segments. The bank passes on the refinance assistance received at low interest rates from institutions like NABARD through primary agricultural cooperative societies and branches of the bank to the common farmers and small entrepreneurs. The Kerala Bank can transform into a priority bank of Kerala Government to provide loans to the beneficiaries of approved schemes of department like agriculture, small scale industries, fisheries, animal husbandry, dairy industry, Kudumbasree (Self Help Groups) etc. The Kerala Bank is striving to provide world Class Banking and IT experience to the villagers, farmers and the unorganised sector. The Bank has formulated and implemented schemes for effective implementation of financial inclusion for all sectors of the State. The Kerala Bank has the vision to reach to all marginalized sections of the people and to become a universal bank.

Table 3.1.4 Credit flow to agriculture sector in 2019-20, ₹ in crore

Sl No.	Agency Name	Crop Loan			Term Loan			Total Agricultural loan		
		Target	Achiev	% Ach	Target	Achiev	% Ach	Target	Achiev	% Ach
1	Pub. Sector Commercial Banks	18291.96	24044.71	131	10513.9	9466.81	90	28805.86	33511.52	116
2	Regional Rural Banks	6840.57	10405.89	152	2253.45	2070.67	92	9094.02	12476.56	137
3	Cooperative Banks	13098.20	7147.48	55	5578.96	4120.49	74	18677.17	11267.97	60
4	Pvt Sector Commercial Banks	7987.66	7098.81	89	6472.55	7306.16	113	14460.21	14404.97	99
5	Small Finance Banks	190.55	46.14	24	308.79	1326.87	430	499.34	1373.01	275
		46408.94	48743.03	105	25127.65	24291	97	71536.6	73034.03	102

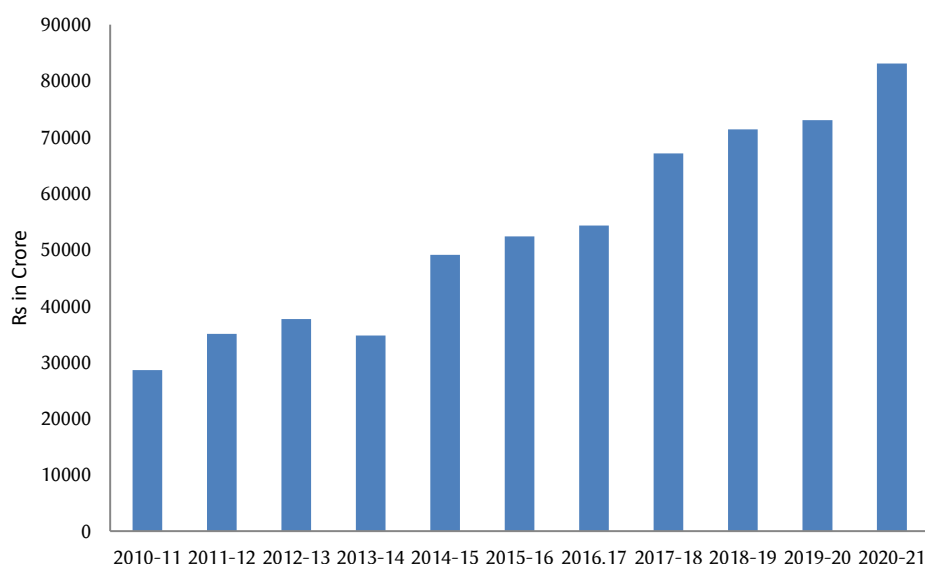
Source: State Focus paper 2021-22

Investment Credit

As regards the breakup of total agriculture credit to production and investment credit, it can be seen that the share of investment credit has increased to 37 per cent of the total credit in 2020-21, from 20 per cent in 2015-16. However the share of long term credit has slightly decreased from 38 per cent of total Ground Level Credit to agriculture in 2018-19 to 33 per cent in 2019-20. Longterm credit increased to 37 per cent in 2020-21. (Figure 3.1.6).

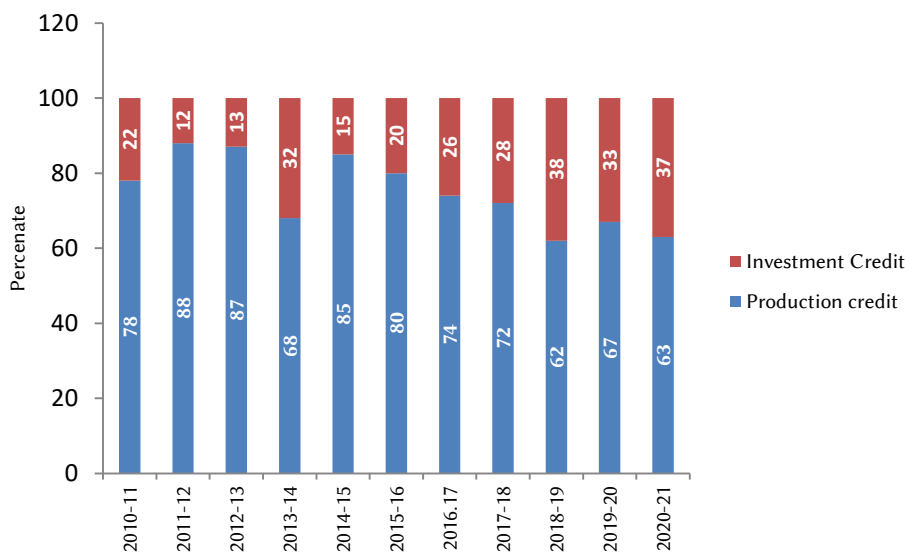
It is noted that there is a significant change in proportion of investment credit in the last few years. In 2010-11, production (short term) credit and investment (long term) credit constituted 78 per cent and 22 per cent of the total Ground Level Credit (GLC) flow to agriculture, while in 2020-21 the proportion of production and investment credit changed to 63 per cent and 37 per cent respectively. Short term credit was issued at a Compound Annual Growth Rate (CAGR) of 13 per cent and long term credit at a CAGR of 20 per cent. Increasing share of investment credit is particularly important because it helps

Figure 3.1.5 Agriculture advances in Kerala from 2010-11 to 2020-21



Source: State Focus paper 2021-22

Figure 3.1.6 Share of Production and Investment Credit in Total agriculture Credit in Kerala



Source: State Focus Paper 2021-22

in creation of assets in agriculture, which is essential for improving agricultural productivity in the long run. It needs to be ensured that the importance of investment credit continues to increase in the long run, for sustained increase in income from agriculture and enhancing the production and productivity in tune with the requirement of the population.

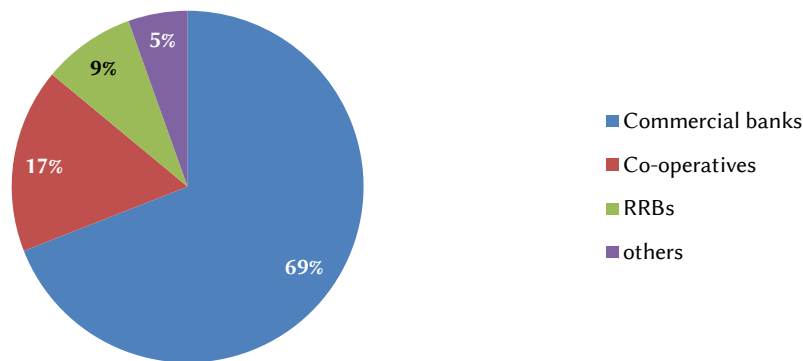
In 2020-21, ₹83,102 crore was disbursed as agricultural credit in the State, out of which ₹52,180 crore is production credit and ₹30,922 crore is investment credit. Break up of production and investment credit is provided in **Appendix 3.1.25** and sector wise agriculture

credit flow in **Appendix 3.1.26**. Banks need to ensure that agricultural term credit is dispensed to facilitate capital formation in agricultural sector. Agency wise and sector wise GLC flow is shown in **Appendix 3.1.27**.

Agency wise Disbursement of Investment Credit to Agriculture

The agency wise disbursement of investment credit to agriculture in Kerala during 2019-20 is indicated in **Figure 3.1.7**. In 2019-20, ₹24,291 crore was disbursed as investment credit in the State, of which Commercial banks provided ₹16,772.98 crore, Co-operative banks ₹4,120.49 crore and RRBs

Figure 3.1.7 Agency wise disbursement of investment credit to agriculture, 2019-20



Source: State Focus Paper 2021-22

₹2,070.67 crore. The share of Commercial banks stood at 69 per cent of total long term credit, whereas the share of cooperatives was only 17 per cent. The share of RRBs and Small Finance Banks in LT credit was 9 per cent and 5 per cent respectively.

Kisan Credit Card (KCC)

The KCC scheme was introduced in 1998-99 as a step to ensure adequate and timely credit to the farmers from the banking sector. As per the reports available with State Focus Paper (NABARD), 8.82 lakh Kisan Credit Cards (KCCs) with an amount of ₹13,721.8 crore has been issued during the 2020-21 in the State. The issues of KCC through various agencies are shown in **(Appendix 3.1.28)**. The revised KCC norms provided for inclusion of incidental requirements of the farmers and their consumption expenses. Banks are expected to leverage their CBS platforms to provide value added services to farmers like Automated Teller Machines, anywhere banking and debit cards. The banks can use the Rupay network for issue of smart cards or debit cards with KCC so that farmers are able to obtain all the services at convenience. KCC has been made mandatory for availing the benefit of interest subvention on short-term loans (ISS) disbursed from April 2020. Aadhar has been made mandatory for availing the benefit of ISS. An estimated number of around three crore Kisan Credit Cards are with Co-operative sector (Rural Co-op Banks and PACS), hence it is important to support Co-operative sector for conversion of Kisan Credit Cards into Rupay Cards. It is estimated that around 8 lakh KCC accounts are with Kerala Gramin Bank and DCBs. A total of 3.75 lakh Rupay Kisan Credit Card have been issued by KGB and District Co-operative Banks as on March 31, 2020. NABARD has provided a cumulative financial support worth of ₹61.66 lakh to the DCBs and RRB in Kerala for the issuance of EMV Rupay cards.

Long Term Rural Credit Fund (LTRCF) by NABARD

NABARD extends support to the States in the form of loan/refinance and also as grant support. Loan/refinance is extended for augmenting ground level credit flow to agriculture and allied sectors and for the creation of rural

infrastructure. Financial assistance in the form of grant is extended for various developmental activities ranging from fostering innovation in farm sector to promotion of Farmers Producer Organisations, promotion of off farm activities, skill development, support for financial inclusion and digitalizing banking transactions, creation of livelihood opportunities through Self Help Group/Joint Liability Group and capacity enhancement through training and marketing support for such groups.

Investment credit induces technological up gradation resulting in increased production, productivity and incremental income to farmers and entrepreneurs. NABARD provides Long Term and Medium Term Refinance to banks for providing adequate credit for taking up investment activities by farmers and rural artisans etc. Government of India has set up a “Long Term Rural Credit Fund” with NABARD for providing long term refinance support for investment credit in agriculture activities exclusively for Cooperative Banks and Regional Rural Banks (RRBs) at a concessional rate of interest. All State Cooperative Banks, State Co-operative Agriculture Rural Development Banks (SCARDBs) and RRBs are eligible to avail refinance facilities from NABARD, subject to the satisfaction of eligibility criteria. To ensure unhindered flow of credit from banks to farmers to carry out agricultural operations smoothly, RBI has made available a Special Liquidity Facility to NABARD for providing front ended liquidity support to RRBs, Cooperative Banks and Micro Finance Institutions. NABARD has provided an amount of ₹2000 crore to Kerala State Co-operative Banks and ₹1000 crore to Kerala Gramin Bank during 2020-21. This is in addition to the Long term refinance at reduced interest rates for agriculture under LTRCF to Cooperative Banks and RRBs. The agency-wise disbursement of re-finance assistance by NABARD is shown in **Appendix 3.1.29**.

In 2020-21, NABARD Kerala regional office extended support to the tune of ₹13,161.61 crore to the State in the form of loan/refinance and also as grant support. Short term refinance accounted for 72 per cent of the total refinance disbursed in 2020-21 whereas long term refinance accounted for 28 per cent.

Assistance from NABARD

NABARD has been facilitating smooth flow of credit in rural areas and enabled all-round development of rural areas through its credit, promotional and developmental interventions. NABARD is also providing refinance to production as well as for long term investment purposes in agriculture and allied sectors at concessional rate of interest to State Cooperative Banks (SCBs) and Regional Rural Banks (RRBs) by way of sanction of credit limits.

Besides Rural Infrastructure Development Fund, which supports States efforts in creation of infrastructure for agriculture development, a dedicated Long Term Irrigation Fund (LTIF) is also created by NABARD for funding and fast tracking the implementation of incomplete major and medium irrigation projects. NABARD Infrastructure Development Assistance (NIDA) is a line of credit support for funding rural infrastructure projects. NIDA is available for State Governments and other State-owned Organizations, such as Corporations. In 2019-20, under NIDA, ₹41.38 crore was sanctioned and ₹8.27 crore has been released towards participatory and sustainable development of 9 watershed projects in 9 local self-government institutions in Taliparamba, Kannur district. During 2020-21 under NIDA ₹800 crore has been released to KIIFB for the free internet service project K-FON.

Agriculture Infrastructure Fund (AIF) of Rs1.0 lakh crore announced by Government of India under Covid package envisages creation of farm-gate infrastructure for farmers, Primary Agricultural Cooperative Credit Societies, Farmers' Producer Organisations (FPOs), agriculture entrepreneurs, start-ups, etc. In addition, Central Sector schemes viz, Micro Food Enterprises (MFE) Fund, Pradhan Mantri Matsya Sampada Yojana, Animal Husbandry Infrastructure Development Fund are available, that facilitate creation of agriculture infrastructure. In tune with the above schemes, NABARD has come out with a special refinance scheme under AIF for providing concessional refinance to Primary Agricultural Cooperative Societies for converting them into Multi Service Centres. Under this scheme, refinance is sanctioned to Kerala Bank at 3 per cent which

in turn finances PACS at 4 per cent. In order to ensure a smooth flow of implementation of AIF in the State, the State Government has signed an agreement with NABCONS for setting up of a Project Management Unit in Kerala.

Infrastructure is the lifeline of an economy and without proper infrastructure; rural prosperity will only remain a distant dream. RIDF, has for years, served as NABARD's major intervention in improving the state of rural infrastructure. Under RIDF, NABARD has extended loan support to 2,104 irrigation and flood protection projects in the State, till December 2020. These projects have a total financial outlay of ₹2,765.17 crore involving RIDF loan amount of ₹2,560.42 crore. On completion, these projects would benefit an area of about 3.33 lakh hectare. An amount of ₹393.24 crore has been sanctioned up to March 2020 for 503 watershed projects under RIDF. Against the sanction, 337 projects have been completed and 166 projects are ongoing. Drinking Water project under Kerala Water Authority (KWA) has been sanctioned to a total sum of ₹1,308.67 crore under RIDF for implementing 179 schemes up to March 2020. Currently, 82 schemes are ongoing and 97 schemes have been completed. Under RIDF, a total amount of ₹935 crore has been sanctioned for 197 projects under rural health sector up to March 2020. Against the same, 106 projects have been completed and 91 are currently on going. Under RIDF 1,634 rural road projects involving a total loan of ₹2,247 crore have been sanctioned up to March 31, 2020. Out of which, 1,181 projects have been completed and 453 projects are currently on going. The tranche wise sanction and disbursement under RIDF are shown in **Appendix 3.1.30.**

The interventions of NABARD have generated employment, facilitated income generation and helped in improving the state of agriculture and allied sectors, and social sectors. These interventions are expected to further the cause of rural development and promote sustainable development across sectors.

The banking system has been working closely with the State Government to ensure availability of timely and adequate credit to the needy

farmers without any hassles. There is an increasing need to invest in agriculture because of a drastic rise in global population and changing preferences of growing middle class in emerging markets towards high value agricultural products. Despite the increase in the credit flow, one of the major issues is the outreach of adequate credit to the needy in time. In addition climate change risks also increases the need for higher investments in agriculture sector.

3.2 Cooperatives in Kerala

The cooperative sector can play a significant role in the development of an economy. In Kerala, the huge network of cooperatives has a wide reach in rural areas. The place of cooperatives in the Indian economy is vital and its functions spread over almost all sectors of the economy, including credit, procurement, production, construction, marketing, agricultural processing, consumer market, traditional industries, and infrastructure development. In the new competitive and deregulated financial environment, cooperative institutions have re-oriented their policies by drawing up prospective strategies to become globally competitive.

Recognizing the role of cooperatives as a medium of equitable economic development, the Government of India constituted a new Ministry for Co-operation in July 2021 with a vision of "Sahkar se Samriddhi" (Prosperity through Cooperation) to strengthen the cooperatives at the grassroots and streamline processes for "ease of doing business" and promote the development of Multi-State Cooperatives (MSCS).

Prior to the formation of Kerala State, cooperative societies were formed on the basis of different cooperative laws that existed in the erstwhile Cochin, Travancore and Malabar. After the integration of Travancore and Cochin States in 1951, the Travancore-Cochin Cooperative Societies Act came into force. Later, after the formation of Kerala State, a uniform law, the Kerala Cooperative Societies Act, was enacted in 1969. Thereafter, the Government of Kerala passed the Kerala Cooperative (Amendment) Act 1999, which came into force in 2000.

The cooperative system in Kerala is one of the most vibrant in the country. Cooperative societies in the State have played a vital role in the economic upliftment of the people particularly the weaker and marginalized people in rural areas. The State has an extensive network of cooperatives engaged in various activities, including agricultural credit, the

public distribution system, the distribution of agricultural commodities, health, education including professional education, housing, agro processing and development of Schedule Caste and Scheduled Tribe, women's development and fisheries. The movement has made tremendous progress in all spheres of the lives of the people.

In Kerala, cooperative societies are classified according to the area/nature of work and the authorities/functions undertaken by them. At present, there are 16,112 cooperative societies in Kerala, functioning under the administrative control of Registrar of Cooperative Societies. Of them 12,265 are working satisfactorily. Among them, the majority are consumer cooperatives (3,819), followed by credit cooperatives (3,382), and women's cooperatives (956). In addition, there are marketing, housing, processing, health, and Schedule Caste and Scheduled Tribe cooperatives. Details of the various types of cooperative societies and their physical achievements in 2021 are given in **Appendices 3.2.1 and 3.2.2.**

Credit Cooperatives

The Government has initiated several measures to bring about a structural change in the cooperative agricultural credit sector in the State. The Government has taken a policy decision to convert the credit structure of the State into two tier structure. The short term and medium term structure consists of Kerala Bank and Malappuram District Cooperative Bank (DCB) and 1,644 Primary Agriculture Cooperative Society (PACS) including Farmers Service Cooperative Society (FSCS) at the bottom level. As of March 2021, 3,743 credit cooperative societies are registered, of which 3,382 cooperative societies are working and remaining are either dormant or in loss. Selected indicators and credit operations of PACS are given in **Appendix 3.2.3 and Appendix 3.2.4.**

Kerala Bank

The Kerala Bank plays a vital role in mobilizing working capital to the agriculture sector and entrepreneurs. The newly formed Kerala bank

has 770 branches with membership coverage of 1,568. This includes Government and 1,567 societies as 'A' class members. Total share capital contribution of the Bank is ₹2,045.2 crore, which includes the share of Government, Societies, and individuals. It has a deposit of ₹66,731.6 crore, which includes the deposits of societies, individuals and institutions. The Bank has a Reserve and Owned fund of ₹741.8 crore and ₹2,863.63 crore respectively. Borrowings of the Bank are ₹7,901.9 crore, which included the borrowings from NABARD, Government, Commercial Banks and long term deposits. Total loan outstanding of the Bank is ₹39,664.9 crore. These figures show the financial stability of the Kerala Bank. The Kerala Bank supported various Central Govt/State Govt/NABARD sponsored schemes to overcome the impact of Covid-19 in the rural areas. Being a bank from cooperative segment, vast majority of customers are from the rural and unorganized sectors. Therefore the loan recovery in the Bank was adversely affected by the Covid-19 and moratorium on loan was extended. The detailed financial particulars of the Kerala Bank for the financial year 2020-21, are given in **Appendix 3.2.5.**

Kerala State Cooperative Agriculture Rural Development Bank (KSCARD)

Kerala State Cooperative Agriculture Rural Development Bank (KSCARD) is the pioneer in long term lending, advancing credit for agricultural and allied activities, non-farm sector activities and for rural housing through the affiliated Primary Cooperative Agriculture Rural Development Bank (PCARD). The motto of the bank is comprehensive rural development through credit. The Bank has only limited resources of its own for carrying out lending business and depends mainly on refinance provided by NABARD. KSCARD Bank channelizes it to the ultimate borrowers through the network of PCARDBs and their branches located in each taluk. The lion share of KSCARDB borrowers, nearly 80 percent belong to the small and marginal farmer category. The prime objective of the bank is the social and financial upliftment of the rural folk at the grass root level. KSCARDB supports the population in the lower income strata who cannot approach other financial institutions for their credit needs. The membership strength of the bank is more

than 12.5 lakh reaching out to about 13 percent of the State's rural households.

The total loan outstanding of KSCARD bank as on March 2021 is ₹7,652.7 crore. The loan disbursement in 2020-21 is ₹2,673.8 crore of which ₹1,309 crore (which include farm sector term loan of ₹1,108.5 crore and gold loan-farm sector of ₹200.5 crore) is towards agricultural sector, Major portion of the loan is utilised for asset creation. The loan disbursement to agriculture sector in 2020-21 was 48.95 percent of the total loan disbursement. In the previous years, it was 35.8 percent and 33.2 percent respectively. Classification of long term loans issued by KSCARDB is given in **Appendix 3.2.6.**

Consumer Cooperatives

Consumer cooperatives play an important role in providing consumer goods, medicines and stationary items at subsidized rates to the consumers and prevent them from exploitation by private retailers. As on March 2021, 4,632 consumer cooperative societies are registered in the State, of which 3,819 cooperative societies are working. Consumer Cooperative sector in the State comprises of the Kerala State Cooperative Consumer Federation (Consumerfed) at the State level, wholesale cooperative stores at district level and 4,612 primary consumer societies/stores at the grassroots level. The district wholesale stores and primary stores cater to the needs of consumers through their own outlets, super markets and department stores. Consumerfed is also engaged in retail business through their super markets.

Kerala State Cooperative Consumers Federation Ltd (Consumerfed) was established in 1965 as an apex body of consumer wholesale cooperatives in Kerala. It has a network of retail outlets viz. 'Triveni' supermarkets, located across the State. Consumerfed is obviously vested with market intervention responsibilities especially during the festival seasons. Consumerfed has broadened its retail business portfolio by bringing in medicinal and surgical items through its Neethi Medical Scheme. Further it also operates through 39 Foreign Liquor/Beer outlets across the State for beverages business. Besides, Consumerfed owns the notebook manufacturing unit

at Kunnamkulam, the Neethi Gas Plant at Palakkad and the Triveni Institute of Pharmacy (TIP) at Thrissur.

There are 179 Triveni units and 45 Mobile Triveni Units across the State. The total sales volume in Triveni units in 2019-20 was ₹355.6 crore and in 2020-21 it was ₹306.2 crore. In 2020-21, the Federation achieved total subsidy sales of ₹59.9 crore by conducting 2,900 festival markets. About 2000 festival markets were also organised during Onam in 2021 with an aggregate subsidy sales of ₹42.0 crore. Consumerfed made history in this segment under the Triveni brand. In order to survive in this competitive business environment, the Triveni outlets as well as godowns need to be modernized to a great extent.

Consumerfed owns 36 foreign liquor shops and three beer shops in Kerala. Liquor sales contribute to the major share of business of the Federation. The sales turnover reached ₹1,790.0 crore in 2018-19, ₹1,821.6 crore in 2019-2020 and ₹1,084 crore in 2020-21. In 2021-22 (up to August 2021), the sales turn over from foreign liquor was ₹351.9 crore. There was a huge drop in the sales from beverages division due to lock down and strict regulations for containment of Covid-19 pandemic. Further the Beverages Corporation also increased their wholesaler margin on sales to Consumerfed from 8 percent to 13 percent in 2020-21. Consumerfed owns 12 medical warehouses and 78 medical stores across Kerala, that supply medicines at reasonable rates through consumer medical stores as well as shops run by cooperatives. In 2020-21, Neethi Medical scheme sale was ₹189.8 crore. Consumerfed owns a gas plant at Moongilmada, Palakkad through which domestic gas named “Neethi Gas” is filled and distributed in Kerala. The total sale was ₹94 lakh in 2020-21 and from April 2021 to August 2021, the sales was ₹60.90 lakh. Consumerfed has made a tie up with IOCL for the sale of “Chottu gas” cylinders throughout Triveni outlets from April 2021. During Covid-19 pandemic, Consumerfed had been in the forefront for the supply of quality provisions and household items to the general public through Triveni outlets at lowest prices.

Vanitha Cooperatives

The cooperative movement has made a significant contribution to women's empowerment. The Kerala Women Cooperative Federation Ltd (Vanithafed), is an apex federation of Primary Women Cooperative Societies. As on March 2021, 1238 Women Cooperative Societies are functioning, of which 956 societies are working, 248 are dormant and 34 are under liquidation. The main objective of the Federation is to provide integrated credit and services to the beneficiaries through its member societies in an effective manner for improving the social and economic condition of the women in the State. In 2020-21, ₹153.0 lakh was sanctioned to 11 Women's Cooperative Societies and Vanithafed for implementation of special job creation projects and revival of Women Cooperative Societies. An amount of ₹87.0 lakh has been sanctioned as working capital grant to 27 societies and ₹33.3 lakh as share capital assistance to 23 societies.

Housing Cooperative Societies

In Kerala, Housing Cooperative Societies function in a two tier structure. As on March 2021 there are 396 Housing Cooperative Societies, of which 294 societies are working, 80 societies are dormant and 22 societies are under liquidation. The Kerala State Cooperative Housing Federation Ltd (HOUSEFED) is the apex body of the Housing Cooperatives. State Government and Primary Housing Cooperative societies are its members. In 2020-21, an amount of ₹50.0 lakh has been sanctioned as share capital assistance to 30 Primary Housing Cooperative Societies.

SC/ST Cooperative Societies

Scheduled Caste/Scheduled Tribe Cooperatives are organized and established for the socio economic development of the Scheduled Caste and Scheduled Tribes in the State. The development of SC/ST cooperatives in the State is essential to uplift the poor families of SC/ST categories. There are 833 Scheduled Caste/Scheduled Tribe cooperative societies, of which 425 are working in 2021. The revival of SC/ST Cooperatives is vital to create new job opportunities and livelihood for SC/ST families. An apex institution of primary SC/ST cooperatives known as Kerala State Federation

of Scheduled Caste and Scheduled Tribe Cooperative is also functioning in the State for the promotion of SC/ST.

Marketing Cooperatives

Marketing sector is spearheaded by the apex institution of primary marketing societies known as Kerala State Cooperative Marketing Federation (Marketfed), and the apex body of primary rubber marketing societies known as Kerala State Cooperative Rubber Marketing Federation (Rubber Mark). In 2020-21, 613 primary marketing and processing societies were registered, of which 236 are working in the State.

Health Cooperatives

As on March 2021, 199 Hospital and Dispensaries Cooperative Societies are registered, of which 98 societies are working. An apex body of Health Cooperatives named Hospitalfed is functioning in the State with Ernakulam as its headquarters.

Miscellaneous Cooperatives

There are 4,435 registered miscellaneous cooperative societies, of which 3,033 were working in 2020-21. Miscellaneous cooperatives include labour contract, transport, rubber plantation, poultry, joint farming, collective farming societies and tourism societies.

Education, Research and Training

The Cooperative Academy of Professional Education (CAPE) was formed to establish educational institutions in various professional fields to provide facilities for education and training. The CAPE is promoted by the Co-operation Department and it is an autonomous society under Government of Kerala. Under CAPE, nine engineering colleges, one MBA college and a finishing school at Punnapra are functioning, giving opportunity to around 12,000 students to pursue higher studies. In 2020-21, ₹12.5 crore was given as subsidy to CAPE for professional education and providing infrastructure facilities of institutions under CAPE.

State Co-Operative Union

The State Cooperative Union is a statutory body established under Section 89 of the Kerala Cooperative Societies Act for teaching

cooperative principles and practices and to organize training programmes. There are 13 cooperative training colleges, 10 training centres and six extension centres functioning for conducting higher diploma in co-operation (HDC) and junior diploma in co-operation (JDC) courses. Grant-in-aid for member education programme and for running SC/ST centres are provided by the Government as assistance to the training centres.

Innovative Initiatives and Model Schemes in 2020-21

Branding and marketing of cooperative products: There are several cooperative societies in Kerala which produce a variety of consumer goods, both food and non-food products. Few societies have developed their own brands and were able to capture a good market share. But many societies with low finances and production are not able to market their products due to lack of brand visibility. In order to enhance the brand visibility and increase the sales of products the Department of Co-operation has formulated a new project for branding and marketing of cooperative products.

The project aims to build an integrated branding and market network to deliver quality products to the customers, to enter into the national and international markets, to set up outlets in key locations and to create online markets. As part of the project, 13 coopmart outlets have already been set up in 13 districts and 334 products manufactured by 74 cooperative societies in Kerala are included in the website of the Registrar of Cooperative Societies. The brand name “*coopkerala*” and the outlet trade name “*coopmart*” have been registered under the Trademarks Act. An 11-member Managing Committee has been constituted to issue “*coopkerala*” certification marks to cooperative products, which satisfies the stipulated standards and criteria fixed by the Cooperative Department.

Palakkad Paddy Procurement Processing and Marketing Cooperative Society Ltd (PAPCOS): As a solution to the problems faced by the paddy farmers in Palakkad district, the Cooperative Department has set up a cooperative society in the district for procuring paddy as soon as it is harvested and making the payment at the time of procurement itself. The Society has decided

to start a modern rice mill in the district with storage facility. The major objective of the Society is to procure, to process and market rice, including broken rice, bran, rice powder and husk. This will enable the farmers to avoid distress sale to intermediary sellers. The present paid-up share capital of the society is ₹13.7 crore. The society has a membership of 36 Primary Agricultural Cooperative Societies (PACS) in the Palakkad district.

Formation of a State wide paddy society and setting up of modern rice mills at Kuttanad and Upper Kuttanad: The Kerala Paddy Procurement Processing and Marketing Cooperative Society (KAPCOS) was registered in 2021 with an authorized share capital of 310.0 crore. The objective of the society is to address the procurement and marketing issues faced by the paddy farmers. The KAPCOS will procure paddy at a fair price from the farmers, process it and market it through Government, semi-Government, cooperative and private marketing institutions, online marketers and own marketing centers. Except Palakkad, all districts will be part of the new cooperative society, which will be headquartered in Kottayam District. Rice mills will be established in Kuttanad and Upper Kuttanad.

KSRTC Pension: In 2020-21, ₹760.0 crore has been disbursed to the retired employees of KSRTC as pension. For this, a consortium of PACS was formed by the Cooperative Department with Kerala State Cooperative Bank as leader. An amount of ₹792.0 crore was refunded to the respective PACS by the Government along with 10 percent interest.

Youth Cooperative Societies: This is the first cooperative sector initiative in the country for the youth. As part of the 100 days programme, the Government had announced to start 25 youth societies; however 30 societies started functioning. The societies emphasise entrepreneurship rather than credit activity and has members of age group between 18 and 45 years. The societies cover a wide range of sectors including information technology, agriculture, waste management, trade, manufacturing and marketing, cinema, eco-tourism, catering services and organic farming. Youth cooperative societies

are an innovative venture by the Government for the youth.

Uralungal Labour Contract Cooperative Society Ltd No.10957: ULCCS has functioning since 1925. The society was formed with the main objective of societal upliftment by creating job opportunities among the weaker sections of the society. More than thirteen thousand workers directly depend on the society for their livelihood and more than thirty five lakhs men-days are generated under the society every year. The Society undertakes civil construction work in Infrastructure development in Kerala and is one of the most preferred organisations for development of roads, bridges and allied infrastructure. The Society has completed more than 7,500 major projects in Kerala and projects worth more than ₹4,555.68 crore are in various stages of completion. ULCCS has diversified its initiatives to IT Parks with the name as ULCYBER PARK, on completion of this projects will create 10,000 employment opportunities. Other highlights of ULCCS include Art and Craft village at Iringal and Thiruvananthapuram for the development of arts and crafts, Indian Institute of Infrastructure and Construction at Kollam to improve skill and education. The society also has its own Building Materials and Testing Labs, Stone Crusher units, Brick manufacturing unit, most modern machineries and construction equipment's. The annual turnover and Net profit of ULCCS in 2020-21 was ₹1,012.4 crore and ₹1.02 crore respectively. The United Nations (UN) has selected ULCCS as the model cooperative society in India and is making a documentary on ULCCS to broadcast the success story of the society in the world. ULCCS is the only primary cooperative society having International Cooperative Alliance membership in India.

CARE Kerala: In the wake of the devastating flood of 2018, the Cooperative Department formulated a project, Cooperative Alliance to Rebuild Kerala (CARE Kerala) to provide relief and rehabilitation to the flood affected people. Three schemes are included in the project; CARE Home, CARE Loan, and CARE Grace.

In CARE Home scheme, houses are being constructed to the flood affected people

who possess suitable land. This scheme is implemented with the co-operation and support of cooperative institutions. The amounts required for the construction of the houses were collected from various cooperative institutions in the State. Department had collected ₹52.7 crore from the societies and the same had been credited to CMDRF. The Government released an equal amount of fund so deposited from CMDRF to Registrar of Cooperative Societies to undertake the implementation of CARE Home project. In addition to this ₹35 crore from Member Relief Fund was also utilised for this scheme.

Under this scheme, each house will be built at a cost of rupees five lakhs, which is the amount permissible to the beneficiaries from State Disaster Response Fund (SDRF). In addition to the sanctioned amount, beneficiaries can utilise their own fund to construct the house. Voluntary contributions (cash/kind) from cooperatives and public are also accepted for this purpose. As on July 4, 2020, there were 2,000 houses were constructed under the Care Home Scheme. By August 2021, 71 more houses had been completed and constructions of 20 houses are in progress.

The Cooperative Department has now started the implementation of the second phase of CARE Home project. In the second phase, it is decided to construct 14 collective dwellings (flat) for the landless and homeless people. On July 16, 2020, the Chief Minister inaugurated the second phase at Pazhayannoor Grama Panchayat, Thrissur District. The construction of collective dwellings (flat) in Thrissur district is in final stage. In other districts, the project implementation is in initial stage.

100 Days Programme - Creation of 10,000 Job Opportunities: The Hon'ble Chief Minister launched a programme to generate 75,000 employment opportunities in 100 days. Creation of 10,000 direct and indirect job opportunities in 100 days was the goal fixed for the Department of Co-operation in the 100 days action plan. Through the scheme, the Department created 425 permanent jobs and 20,153 temporary job opportunities through primary cooperative societies, Apex Federations and other cooperatives.

Navakeraleeyam Kudishika Nivaranam (One Time Settlement Scheme): In order to reduce the NPA of cooperatives, the Cooperative Department announced one time settlement scheme called 'Navakeraleeyam Kudishika Nivaranam'. All cooperative societies and banks under the Registrar of Cooperative Societies were included in this scheme and an interest incentive was offered to the borrowers. Under this scheme, only simple interest were charged on outstanding loan amounts. Those who were suffering from serious health issues such as cancer, heart disease and kidney disease and those who were affected by flood and loss of employment due to lockdown were entitled to get maximum incentives in this scheme.

Distribution of Social Security Pension: For the smooth distribution of social security pension in the State, consortium of cooperative societies comprising of primary agricultural cooperative societies, employees cooperative societies, and other primary cooperative societies were formed. The consortium named 'The Kerala Social Security Pension Limited' is constituted at the government level under the Companies Act. The consortium raises funds from these cooperative societies at an interest rate of 9 per cent. Welfare pension (agricultural workers pension, old age pension, disability pension, unmarried mother's pension and widow's pension) has been disbursed directly to the deserving persons through the cooperative societies. Pension was distributed effectively even during challenging circumstances at the time of floods and the pandemic. As of March 2021, the social security pension up to 30th phase was distributed through the cooperative societies and ₹339.4 crore was distributed as social security pension.

Co-op Mart Veg Fresh Outlets through PACS for Procurement and Distribution of Fruits and Vegetables: With the objective of achieving self-sufficiency in vegetable production and ensuring food security, Government announced guidelines for starting 'co-opmart veg fresh outlets' under the name of Kerala farm fresh fruit and vegetables. The aim of this project is to deliver safe and local vegetables as per the requirements of the consumers. Collection and distribution of required fruits and vegetables

have been started with the help of agriculture department. The objective of the scheme is to strengthen the marketing system and ensure price stability, while the farmer gets better price. There are 217 outlets operating across the State. The joint registrars have been directed to start 400 more outlets as part of the government's 100-day action plan.

Vidyatharangini Scheme: Through this scheme, the cooperative societies have provided interest free loans to eligible students to buy mobile phones for the online classes. Eligible students were given loan up to ₹10,000. Within two years the beneficiaries had to refund the amount in equal instalments. Repayment after the prescribed period was permitted with payment of interest. An interest rate of 8 per cent will be charged for the outstanding amount. The project was completed in July 2021 and ₹77.9 crore was distributed to 80,265 students.

Muttathey Mulla Scheme: The objective of the scheme is to protect the common people from the clutches of private money lenders. The project is implemented through Kudumbasree units. Through this scheme up to August 2021, Kudumbasree unit has disbursed ₹1,272.8 crore to the members.

Deposit Mobilization Campaign: In 2021, the Cooperative Department conducted the 41st deposit mobilisation campaign to attract depositors including youth. The campaign was successful and the sector mobilized ₹8,440.0 crore, against a target of ₹6,000.0 crore. The total outstanding deposit of the societies/banks as on March 2021 was 2,46,326.9 crore, an increase of ₹31,845.3 crore as compared to previous year's outstanding deposit of ₹2,14,481.6 crore. These campaigns have been consistently successful in attracting deposits more than the targeted amount **Appendix 3.2.7.**

National Cooperative Development Co-operation (NCDC)

NCDC has been providing assistance to cooperatives directly or through State Government for expanding and strengthening their businesses and infrastructure creation in credit/marketing/rural infrastructure/service sectors like healthcare, education and tourism.

NCDC, a statutory organization under the Ministry of Agriculture and Farmers Welfare, Government of India was established in 1963 for economic development through cooperative societies. The major objective of the organisation is to promote, strengthen and develop the farmer's cooperatives for increasing production and productivity and instituting post-harvest facilities. Its main focus is on programmes of agricultural marketing and supply of inputs, processing, storage, cold chain and marketing of agriculture produce and supply of seeds, fertilizer and other agricultural inputs. In the non-farm sector, the organization's endeavour is to equip cooperatives with facilities to promote income generating activities, with special focus on sectors such as dairy livestock, handlooms, sericulture, poultry and fisheries.

NCDC has disbursed a cumulative financial assistance of ₹8,604.95 crore for various cooperative development projects in Kerala as on March 2021. Of this, ₹2,147.7 crore is through State Government and ₹6,457.3 crore is via direct funding. ₹1,918.9 crore is long term loan and ₹81.4 crore is subsidy. The amount given as working capital is ₹6,604.7 crore. Details of NCDC assistance is shown in **Appendix 3.2.8.** Sanctions and release of NCDC funds to Kerala are shown in **Appendix 3.2.9.** Year wise release of loans and interest rates shown in **Appendix 3.2.10.**

NCDC Assisted Programmes.

Integrated Co-Operative Development Project (ICDP): Integrated Co-Operative Development Project (ICDP) is a unique scheme assisted by NCDC for comprehensive and integrated development of selected district through cooperative network. The ICDP was introduced by NCDC in the 7th Five year plan for the overall development of selected districts through cooperative efforts in the sphere of agriculture and allied sectors. The other objectives of the scheme are to develop PACS as viable multipurpose societies by increasing value and range of business, strengthening the existing cooperative structure by providing vertical and horizontal linkage, revamping the agricultural and credit sector to cater to the needs of small and marginal farmers and weaker sections. Human Resources Development (HRD)

initiative to restore the principle of cooperative movement is another objective of the scheme.

The first ICDP project in Kerala was implemented in 1987-1988 in Wayanad District. The first phase of ICDP scheme was successfully implemented in all districts. The second phase of ICDP Wayanad district was completed in March 2013. Currently phase two of ICDP is implemented in three districts, Idukki, Palakkad and Thrissur. ₹43.2 crore has been released to Idukki DCB for phase-II and ₹46.5 crore has been released to Palakkad DCB for the implementation of projects in the second phase. An amount of ₹30.4 crore has been released to Thrissur District Cooperative Bank for the implementation of the projects in the second phase. In 2020-21, NCDC has sanctioned an amount of ₹40 crore for modernization and expansion of the stone crusher unit of Ualungal Labour Contract Cooperative Society.

Table 3.2.1 District wise disbursement of agricultural loans, ₹ in crore

Sl No	District Cooperative Bank	Total
1	Thiruvananthapuram	337.0
2	Kollam	296.7
3	Pathanamthitta	183.0
4	Alappuzha	334.2
5	Kottayam	197.3
6	Idukki	494.1
7	Ernakulam	338.5
8	Thrissur	291.0
9	Palakkad	235.6
10	Malappuram	0.00
11	Kozhikode	197.3
12	Wynad	178.8
13	Kannur	414.0
14	Kasargode	203.0
	Total	3700.5

Source: Registrar of Cooperatives, GOK

National Bank for Agriculture and Rural Development (NABARD)

NABARD has sanctioned ₹2,035.00 crore as Short-Term Sessional Agricultural Operations

ST (SAO) refinance to Kerala State Cooperative Bank in 2020-21. The same along with the portion of the Kerala State Cooperative Bank was disbursed through the district offices as agricultural loan (**Table 3.2.1**).

Special Liquidity Facility (SLF): In the wake of Covid-19 pandemic, NABARD has made available a Special Liquidity Facility for providing front ended liquidity support with a view to ensure unhindered flow of credit from the banks to carry out their agricultural operations. ₹1,670 crore has been sanctioned to the Kerala State Cooperative Bank in 2020-21 as financial assistance to the beneficiaries through member PACS in the State. The sanctioned amount has been fully utilized by KSCB.

Loan will be sanctioned for short term agricultural production and agro-related (for livestock, dairy, fisheries, poultry, paddy, vegetable cultivation units) and for micro, small and medium enterprises for working capital requirements. Amount will be disbursed through all primary agricultural credit cooperative societies having no default in loan repayment. Priority will be given to the “Subhiksha Keralam” project. Working capital can be made available to retailers, traders and farmers in the form of cash credit or monthly repayable loans over a period of one year. The maximum loan amount that can be sanctioned to individuals under this scheme is ₹2 lakh. The loan will be disbursed at an interest rate of 6.40 percent per year.

Measures taken by Cooperative Sector during Second Wave of Covid-19

- 10 Neethi Stores were started within a day in the Kerala Karnataka border with the cooperation of Consumer fed.
- About 848 cooperative societies participated in the Subhiksha Keralam Project, a joint programme of four departments. For this project about 3,189.5 acre of land was utilized and 1,838 model farms were created. About 4,3979 job opportunities were created through this programme. A total amount of ₹239.5 crore was released as loan for this programme.
- 231 Coop Mart vegetable fresh outlets were started all over Kerala.
- Supported 74 flood affected Cooperative

Societies by providing financial assistance of ₹483.7 lakh.

- As part of the Covid-19 financial package, ₹1,000 was distributed to persons, who were BPL/ AAY Card holders and did not receive any financial assistance from Government Institutions.

Way Forward

Cooperative based economic development is of relevance in a globalised world. Cooperatives is have a significant presence in multiple areas of socio-economic activity, particularly in agricultural credit, public distribution system, distribution of agricultural commodities, marketing, agro-processing, consumer activities, public health, education, housing, insurance, infrastructure development, Schedule Caste and Scheduled Tribe development, women's empowerment, services, textiles, handloom, coir, dairy and industries. The cooperative sector has a big role to play in bridging the urban-rural divide and creating opportunities for income generation. The State need to infuse professionalism in the cooperative sector and transform the sector so that it keeps pace with the changes taking place in technological and regulatory environments. This sector has the power to enable society to ensure equitable socio-economic development.

Financial re-structuring of cooperatives without addressing the root causes of their weaknesses would fail to create a sustained revival of the system. Suitable amendments in existing laws are required. The formation of Kerala Bank is a clear indication of commitment to professionalisation and technology infusion. In order to complete the process, base entities also have to be professionalized.

The decline in agricultural loans, weak linkage with local self-government institutions, mounting Non-Performing Assets (NPA) and slow progress of the modernization process are some of the problems that still persist in the sector. Absence of unified software is a hindrance to the provision of technology-based banking services to customers. Another issue is the creation of the capacity to deal with NRI deposits and foreign exchange transactions by cooperative institutions.

There is an absence of youth in the cooperative sector. The involvement of youth in this sector can bring a significant transformation in it. There is a need to initiate and coordinate efforts to transform this sector, to pave the way for additional investment from diverse sources, including private equity. The cooperatives can also engage in funding new enterprises, especially start-ups. Cooperatives through technology adoption and professionalization can help in employment creation in the economy.

3.3 Livestock

Livestock sector is an important subsector of agriculture and plays a prominent role in the socio-economic development of the country. The sector plays a significant role in generating employment in rural areas, particularly among landless, small, and marginal farmers and women, besides providing nutritious food to millions of people.

Contribution to the National and State Economy

About 20.5 million people in India depend upon livestock for their livelihood. The sector contributes 16 per cent of the income of small farm households as against an average of 14 per cent for all rural households and provides livelihoods to two-thirds of the rural community. It also provides employment to about 8.8 per cent of the population in India. The percentage of area used for all types of livestock farming in India was 1.69 per cent. As per the estimates of National Accounts Statistics (NAS) 2020, the contribution of livestock in total agriculture and allied sector GVA (at constant prices) has increased from 28.63 per cent in 2018-19 to 29.35 per cent (2019-20). The contribution of the livestock sector was 4.35 per cent of total GVA in 2019-20.

Rural women play a significant role in animal rearing and are involved in operations such as, feeding, breeding, management, and health care. The livestock sector has emerged as one which generates employment and income security to women through micro enterprises. Women constitute 71 per cent of the labour force in livestock farming. In dairying, 75 million women are engaged as against 15 million men, while in the case of small ruminants, the sharing of work with men is almost equal. The need for technology upgradation and skill enhancement through capacity building programmes are felt across the sector.

India's livestock sector is one of the largest in the world. As per the 20th Livestock Census (2019), the total livestock population in the country is 535.78 million showing an increase of 4.6 per

cent over Livestock Census 2012. It includes 302.79 million bovine population (cattle, buffalo, mithun and yak), an increase of 0.93 per cent over the previous census. The total number of cattle in the country is 192.49 million in 2019, showing an increase of 0.8 per cent over the previous census.

In Kerala, the livestock sector is prominent and is one of the fastest growing sectors in the rural economy. The share of livestock in Gross State Value Added (GSVA) at constant prices from agriculture sector shows an increase from 27.8 per cent in 2019-20 to 28.21 per cent in 2020-21. Its share in total GSVA of the State has also increased by 2.66 per cent in 2020-21.

As per the 20th Livestock Census, the livestock population in the State was 38.36 lakh. The reason for decline is the reduction in the population of other animals, especially domestic dogs, rabbits, donkeys, and elephants (which form the major share) by 14.69 per cent. The poultry population is 298.18 lakh, which accounts for 3.5 per cent of total poultry population in the country. The sector registered 25 per cent increase over the previous census. The growth rate of poultry population in Kerala is higher than the growth rate recorded at the national level (16.81 per cent).

Trends in GSVA and Value of Output (VOO)

While considering the data on the GSVA in the livestock sector, the overall growth pattern in the last decade shows that there was period of growth between 2011-12 and 2014-15, and then a decline. In real terms, there was an absolute decline in the GSVA by ₹20,388 crore between 2014-15 and 2018-19. There was a moderate pickup of growth in the first year of the 13th Five Year Plan, but the heavy floods of 2018 and 2019 resulted in a sharp fall of GSVA in 2018-19 and 2019-20.

As per the data on value of output (VOO) released by the Central Statistics Office (CSO), there was a period of growth till 2015-16,

followed by a sharp fall in 2016-17 (the last year of the 12th Five Year Plan). However, there was a pickup in 2017-18. While the livestock sector grew point-to-point between 2011-12 and 2018-19, the slowdown after 2014-15 is a matter of concern and needs urgent attention.

Major Department and Agencies under Animal Husbandry Sector

- Animal Husbandry Directorate
- Kerala Feeds Limited (KFL)
- Kerala Livestock Development Board (KLDB)
- Meat Products of India (MPI)
- Kerala State Poultry Development Corporation (KSPDC)
- Kerala Co-operative Milk Marketing Federation Ltd (MILMA)
- Kerala Veterinary and Animal Science University (KVASU)

Financial performance of the Department and agencies coming under the purview of animal husbandry sector is shown in **Table 3.3.1**.

An outlay of ₹1,517.84 crore was provided for animal husbandry sector during the 13th Five

Year Plan as against the outlay of ₹1,355.96 crore for the 12th Five Year Plan. There is a 11.94 per cent hike in the 13th plan outlay over the 12th Five Year Plan. For dairy development, an outlay of ₹506.23 crore was provided during the 13th Five Year Plan as against the outlay of ₹324.15 crore for the 12th Five Year Plan. There is a 56.17 per cent increase in the 13th plan outlay over the 12th Five Year Plan. During the 13th Five Year Plan an amount of ₹918.85 crore was expended under Animal Husbandry sector and an amount of ₹450.78 crore under Dairy Development sector as on October 31, 2021.

Major Livestock Products in Kerala

Milk, meat and egg are the major livestock products in the State. The production of these three livestock products during 2013-14 to 2020-21 is shown in **Figure 3.3.1**.

Milk production

India continues to be the largest milk producing country with 20.17 per cent share in total milk production in the world in 2019-20. At the national level, the milk production has increased from 18.78 crore tonnes in 2018-19

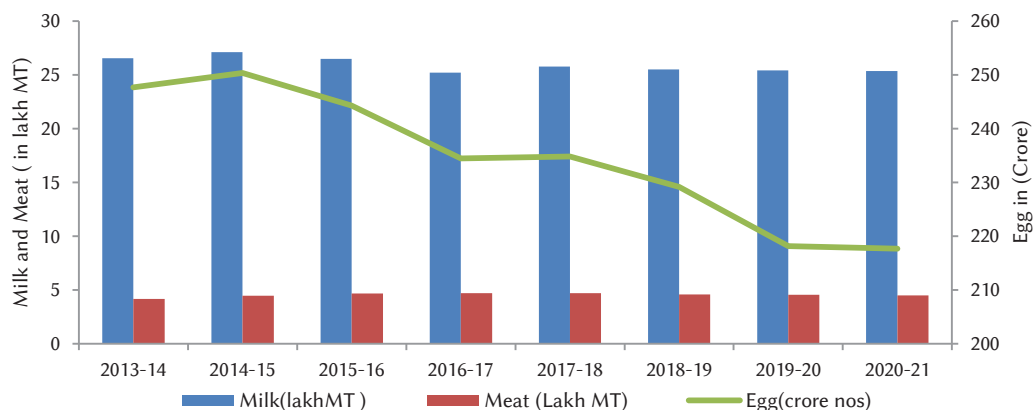
Table 3.3.1 Department /agency wise outlay and expenditure in 13th Five Year Plan ₹ in crore

Dept/PSUs	Annual Plan 2017-18			Annual Plan 2018-19			Annual Plan 2019-20			Annual Plan 2020-21			Annual Plan 2021-22	
	Outlay	Expd	%	Outlay	Expd	%	Outlay	Expd	%	Outlay	Expd	%	Outlay	Expd*
Animal Husbandry Dept	185.28	151.36	82	190.36	155.56	82	181.93	115.74	64	155.70	166.91	107.2	157.50	40.11
KLD Board	20.83	20.83	100	21.41	21.41	100	23.82	10.0	42	21.50	21.50	100	21.50	7.16
Kerala Feeds Limited (KFL)	7.00	5.01	72	7.85	1.99	25	6.01	0.0	0	11.00	8.90	80.8	5.00	1.32
Meat Products of India (MPI)	9.17	1.88	20.5	12.00	2.8	24	12.00	1.5	12.5	9.63	7.70	80	15.63	3.52
Kerala State Poultry Development Corporation (KSPDC)	17.57	7.57	43.1	17.67	3.00	17	8.20	5.74	70	7.50	4.39	58.5	7.50	3.11
KCMMF (MILMA)	7.43	7.43	100	7.74	7.74	100	7.74	7.74	100	7.50	7.50	100	7.50	0.00
KVASU	61.00	42.25	92	78.00	15.00	30	75.00	15.00	20	58.00	33.77	58.2	74.37	13.42
Total	308.28	236.33	77	335.03	207.50	62	314.70	155.72	49.5	270.83	250.66	92.6	289.00	68.64

Source: State Planning Board

Note: *Expenditure as on October 31st, 2021

Figure 3.3.1 Production of milk, egg and meat from 2013-14 to 2020-21



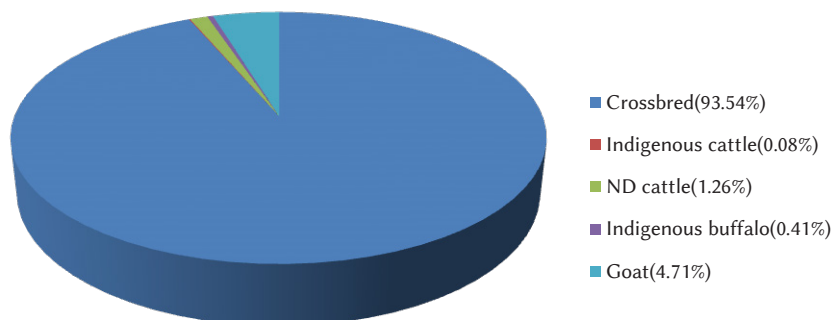
Source: Animal Husbandry Department, GoK 2021

to 19.84 crore tonnes in 2019-20 registering a growth of 5.64 per cent, sustaining the trend over the past three decades. The highest five milk producing States are Uttar Pradesh (16.06 per cent), Rajasthan (12.89 per cent), Madhya Pradesh (8.62 per cent), Gujarat (7.71 per cent), and Andhra Pradesh (7.69 per cent), which together contributes 52.96 per cent of total milk production in the country. Kerala ranks 14th position among the major milk producing states in India. The per capita availability of milk has been increasing in India over the years and is 406 gram per day in 2019-20. The highest per capita availability is in Punjab (1,221 gram per day) followed by Haryana (1,115 gram per day). The species wise milk production shows that nearly 35 per cent of total milk production is contributed by indigenous buffaloes followed by 28 per cent by cross bred cattle. The indigenous cattle contribute 10 per cent of the total milk

production. Goat milk shares a contribution of 2.95 per cent in the total milk production across the country.

The total requirement of milk in Kerala in 2020-21 was 33.37 lakh MT, but the supply was only 25.34 lakh MT resulting in a deficiency of 8.03 lakh MT milk. This necessitated an import of 2.51 lakh MT. Out of 25.34 lakh MT of milk produced in the State, major share was produced by cross bred cows (93.54 per cent). Indigenous cows produced only 0.319 lakh MT of milk (1.26 per cent). The production of milk from goat was 1.19 lakh MT (4.71 per cent). The rest was contributed by non-descript cattle, indigenous buffalo and non-descript buffalo. Details of species wise milk production in Kerala in 2020-21 is provided in **Figure 3.3.2**.

Figure 3.3.2 Species wise milk production in Kerala in 2020-21



Source: Animal Husbandry Department, GoK 2021

Even though the herd sizes are low, productivity of cattle in Kerala is higher than the national average. The average milk yield per animal in India for exotic or crossbred animal is 7.9 kg and for indigenous or non – descript animals is 3 kg per day. The corresponding figures for Kerala are 10.2 kg per day and 3 kg per day respectively. The productivity of 10.2 kg per day in Kerala for exotic/crossbred animals was the second highest among the Indian states after Punjab (13.4 kg per day). This advantage for Kerala was due to the high percentage of exotic/crossbred animals in the population compared to other states. As per Livestock Census 2019, about 94 per cent of cattle in Kerala are either exotic or crossbred and only 6 per cent are indigenous or non-descript breeds. In India, on the other hand, only 26 per cent of the cattle are exotic or crossbred and the remaining 74 per cent are indigenous or non-descript breeds.

Egg Production

Poultry production in India has taken a quantum leap in the last four decades, emerging from an unscientific farming practice to commercial production system with state-of-the-art technological interventions. Total egg production in India has increased from 10,380 crore in 2018-19 to 11,438 crore in 2019-20, registering a growth of 10.2 per cent. There has been a steady increase in per capita availability of eggs since 2000-01. It has increased to 86 eggs per annum in 2019-20 but the per capita consumption was around 81 eggs per annum. The largest producer of eggs is Andhra Pradesh, which produces 19.17 per cent of total egg production in the country closely followed by Tamil Nadu (17.5 per cent) and Telangana (12.94 per cent). Other states that contributed major share of the country's egg production include West Bengal (8.51), Haryana (5.78) and Kerala (1.91). The highest per capita availability of egg is in Andhra Pradesh (420 eggs per annum) followed by Telangana (398), Tamil Nadu (265), Haryana (231), Punjab (189), Karnataka (101) and West Bengal (100), which are significantly higher than the national average (86). The improved fowl breeds contribute 88.03 per cent of the production of eggs, 10.89 per cent is from indigenous fowls. The indigenous duck and improved duck breeds contribute 0.86 per

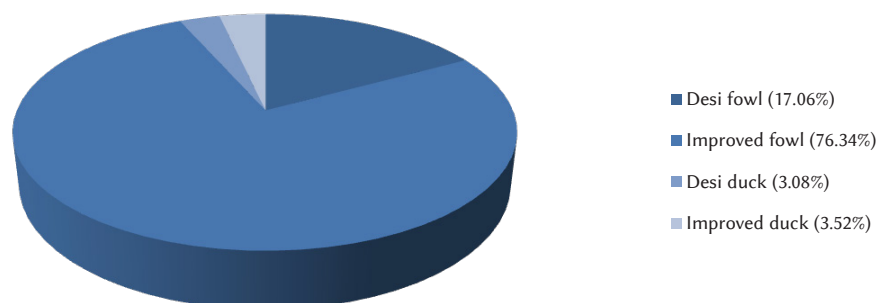
cent and 0.21 per cent respectively with respect to total egg production.

Kerala ranks 13th among States of India in egg production. The production of egg in Kerala has witnessed drastic changes during the 13th Five Year Plan period. The total egg production in the State was at 235 crore eggs in the year 2017-18, and it declined to 229 crore in 2018-19. In 2019-20, the total egg production was 218.12 crore eggs while in 2020-21, the total eggs produced in the State further declined to 217.68 crore. The per capita availability of eggs was 62 eggs and per capita consumption in 2020-21 was 128 eggs per annum. The total egg produced in the State was 217.68 crore eggs, but the requirement was 533.91 crore eggs. The deficiency of 316.23 crore eggs necessitated an import of 234.92 crore.

About 76.34 per cent of the total eggs produced in the State are from improved fowl and around 17.06 per cent are from desi fowl. The contribution of desi duck and improved duck to the total egg production of the State is 3.08 per cent and 3.52 per cent respectively. Around 99.75 per cent of eggs produced in the State come from backyard poultry. Commercial poultry contributes very small share (0.25 per cent), warranting emphasis on backyard poultry in future. For backyard poultry, the average yield per year for desi fowls and desi ducks are 144 eggs and 161 eggs per year. With regard to improved fowls, and improved ducks the average yield is 221 eggs and 168 eggs per year. The details of species-wise poultry production in Kerala is shown in **Figure 3.3.3**.

Currently the State imports approximately 2.35 crore eggs per day from other States. It is estimated that about ₹800 to ₹1,000 crore is the amount of revenue flowing to other states due to these imports. This situation has to be reversed. It is also estimated that an average of one million broiler birds per day are being slaughtered in Kerala to meet the domestic chicken demand. But the broiler industry continues to be under the clutches of large scale producers headquartered in the neighbouring states. At present, only 0.1 per cent of the broiler poultry market share is handled by the Government and Public Sector Undertakings including the co-operative sector.

Figure 3.3.3 Species wise poultry production in Kerala 2020-21



Source: Animal Husbandry Department, GoK 2021

Meat Production

Meat production has witnessed a steady increase since 2007-08 in the country. The total meat production in India increased from 77 lakh tonnes in 2017-18 to 81 lakh tonnes in 2018-19 and 86 lakh tonnes in 2019-20. The largest producer of meat in the country is Uttar Pradesh producing 15.1 per cent of the total meat followed by Maharashtra (13.26 per cent), West Bengal (10.5 per cent), Andhra Pradesh (9.89 per cent) Telangana (9.86 per cent) and Kerala (5.26 per cent), which together contribute 57 per cent of total meat production in the country. Species wise meat contribution shows that nearly 50 per cent of meat production in the country is contributed by poultry. Maharashtra, Tamil Nadu and West Bengal are the largest producers of poultry meat in the country. Buffaloes and goats contribute 19 per cent and 14 per cent respectively to the total meat production in India. During the 13th Five Year Plan, meat production in Kerala was 4.69 lakh MT during 2016-17 to 2017-18. It declined to 4.57 lakh MT in 2018-19 and 4.55 lakh MT in 2019-20. Kerala is the 8th largest meat producing State in the country contributing 5.6 per cent of meat produced in India. Kerala produces only about 10 per cent of its domestic requirement. But this is with regard to animals of the State slaughtered in the State. Considering the animals transported from outside the State and slaughtered in the State, Kerala produces about 73 to 75 per cent of its domestic requirement.

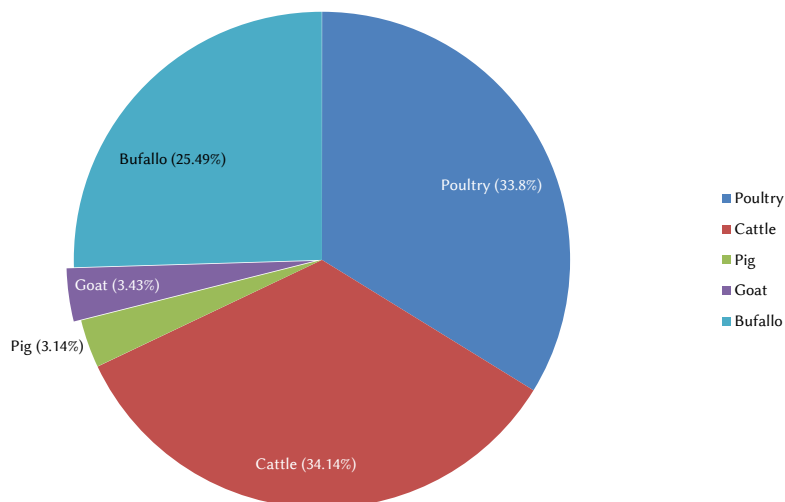
The total requirement of meat in Kerala was 4.94 lakh MT but the supply was only 4.48 lakh MT resulting in a deficiency of 0.46 lakh MT meat that necessitated an import of 0.14

lakh MT processed meat in 2020-21. Domestic demand for meat has been growing at a faster rate. In this context, it is essential to expand the “Kerala Chicken” scheme over the next five years. A scheme to encourage growing of male calves should also be thought of in this regard. Species wise meat production in Kerala is shown in **Figure 3.3.4**.

The real potential of the meat sector in Kerala has not been fully tapped. The requirement of meat especially, beef in Kerala is met from animals brought for slaughter from outside the State, i.e., from Andhra Pradesh, Karnataka and Tamil Nadu. Animals are slaughtered in unclean surroundings, by butchers with little expertise in hygienic meat production and probably on road sides. Meat stalls are also open stalls with carcasses are hung in full view of the public in unhygienic settings. Waste and effluent management is practically non-existent. Biogas plants have been installed in a few units for waste management, but they are dysfunctional due to lack of maintenance and skilled supervision. The entire chain of operations is a breach of public health, with serious consequences for animal welfare, food safety, occupational health, and environmental hygiene.

For the meat sector to be more vibrant, profitable and provider of safe meat, it is necessary that a perceptible shift from unorganised to organised sector takes place. This necessitates a strategic plan to modernise the meat production sector towards the production of clean and wholesome meat based on a Clean, Green and Ethical (GGE) farming and production system.

Figure 3.3.4 Species wise meat production in Kerala 2020-21



Source: Animal Husbandry Department, GoK 2021

For the production of safe and wholesome meat, it is absolutely essential to establish modern scientific infrastructure for slaughter operations, promote value addition and strengthen human resource development to have trained human resources in the sector. Such scientific infrastructure would eliminate environmental pollution, prevent the spread of infectious and zoonotic diseases and generate economic returns from byproducts and waste.

Milk Marketing

Kerala is one of the States, which gives highest price for milk to the farmers in the country. Kerala Co-operative Milk Marketing Federation (KCMMF), the apex body of the three tier dairy co-operatives, implements the Operation Flood Programme in the State. The sale of milk by Kerala Co-operative Milk Marketing Federation (MILMA) shows a decrease in the review period. In 2020-21, a total of 7,118.99 lakh litres of milk was procured by the dairy co-operative societies in the State, of which 4,865.73 lakh litres were sent to the dairies and 2,224.51 lakh litres were marketed locally by the societies. The average milk procured per day by Anand Pattern Co-operative Societies (APCOS) in 2020-21 was 1,367.67 MT against the previous year average of 1,415.075 MT. The procurement/day/society in 2020-21 increased to 536 litres from 510 litres in 2019-20. The procurement and sale of milk by

Kerala Co-operative Milk Marketing Federation (KCMMF) was 4,191.81 lakh litres and 4,312.25 lakh litres respectively in 2021-22. Except in Ernakulam, Palakkad, Kozhikode, Kasaragod and Wayanad, sales of milk exceeded procurement. The shortfall between milk procurement and sales was met by arranging milk mostly from State Milk Federations of Karnataka, Tamil Nadu and purchase of skimmed milk powder. Details on procurement and sale of milk by different dairies of KCMMF, performance of KCMMF and milk procured by APCOS are shown in **Appendices 3.3.1, 3.3.2 and 3.3.3**. The price revision and price spread of milk from 2010 onwards is given in **Appendices 3.3.4 and 3.3.5** respectively.

It is essential to undertake a study of the existing marketing and supply chains in the milk, meat and egg sectors of the State, and initiate measures to remove bottlenecks from the producer to the consumer. The use of modern IT infrastructure to develop marketing network of milk, meat and eggs in the State needs to be encouraged. This includes linking up of all dairy cooperatives in the State under single inter-connected software.

Feed and Fodder Base

To support the development of livestock sector, special focus has been given to fodder and feed production considering the wide gap in the

availability of the critical inputs. The Dairy Development Department is the nodal agency for fodder development activities in the State. Under the scheme, production and conservation of fodder in farmer fields and dairy co-operatives, commercial and massive fodder production in barren lands and wastelands has been initiated. The lands which are fertile yet remain underutilized under the ownership of progressive farmers, other individuals, LSGDs and PSUs are selected and intensive fodder cultivation activities are taken up. In 2020-21, fodder cultivation was taken up in 2,363 ha of land and 345 lakh fodder root slips/stem cuttings were supplied. Besides, assistance was provided to farmers for Azolla cultivation, mechanization of fodder cultivation and also for harvesting and irrigation facilities. The total production of cattle feed in 2020-21 was 3.26 lakh metric tonnes as against 3.61 lakh metric tonnes in 2019-20. The details of production of feed and fodder are shown in **Appendices 3.3.6, 3.3.7 and 3.3.8** respectively.

Presently, there are 5,741 fodder plots in the State, of which, 4,362 plots (76 per cent) are between one acre and 2.5 acre in area. There are 952 plots (17 per cent) of area between 2.5 acre and 5 acre. There are only 427 plots (7 per cent) of area more than 5 acre. The area under fodder farms in Kerala is shown in **Table 3.3.2**.

Table 3.3.2 Area under fodder farms, Kerala 2014-15 to 2020-21

Year	Area under Hybrid Napier (ha)
2015-16	2665
2016-17	2050
2017-18	2250
2018-19	2750
2019-20	2865
2020-21	2363

Source: Dairy Development Directorate

As the table indicates, there was a decline in the area cultivated with fodder over the past few years. Kerala cultivates just over 2,000ha of fodder, which produces only 46 per cent of the fodder requirements. It is estimated that fodder cultivation would be required in at least 13,000ha, if Kerala is to meet the roughage production target. Subsidy to the

tune of ₹2,000 per ha is provided currently for fodder cultivation, but it has not helped. Kerala may need to promote commercial cultivation of fodder on large scale if it needs to meet its demand in the next decade. Suitable contract farming models should be explored to promote fodder cultivation.

Kerala urgently needs a fodder and feed plan for its livestock sector. About 15,000 acres of land has to be identified to cultivate fodder in the State over the next two years and domestic capacity of production need to be expanded. PSUs viz, Kerala Feeds Ltd and MILMA Feeds have to be encouraged and supported to expand their production footprint in the State.

Breeding Support

Breeding is one of the important tools to facilitate production potential and bring about progressive genetic improvement in production on a long term basis in animals. The objective of Kerala Livestock Development Board (KLDB) is to develop a breed of dairy cattle suitable for the prevailing dairy environment of the State. The main functions of the Board are production of breeding inputs, research and development and training.

KLDB has three bull stations, four bull mother farms and one each of indigenous cattle, goat and pig farms. It has seven regional semen banks, one each catering for two districts. The bulls used for semen production are screened for infectious and genetic diseases as per Minimum Standard Protocols advocated by GoI for production of frozen semen production. All the three semen stations under KLDB has been ISO 9001:2015 certified and has Hazard Analysis and Critical Control Point (HACCP) certification with biosecurity measures in force. KLDB has initiated production and supply of goat semen to the state livestock holders through Animal Husbandry Department. The Board also undertakes supply of breeding stock of pigs to Government agencies inside and outside state and breeding and fattening stock to the pig farmers in the State.

The semen production increased in 2020-21 to 34.86 lakh doses from 21.18 lakh doses in 2019-20. During the period, distribution of frozen semen inside the State increased to 16.06 lakh

doses in the current year from 13.98 lakh doses in the previous year. The distribution outside the State also increased to 7.62 lakh doses from 4.74 lakh doses. Details of production and distribution of Frozen Semen in Kerala are shown in **Appendix 3.3.9**. The number of artificial insemination (AI) centres in the State in 2020-21 was 2,515. The number of inseminations done was 11.63 lakh and calving recorded was 2.61 lakh. The average number of inseminations needed for producing one calf is four. The details of artificial inseminations conducted and recording calving are shown in **Appendix 3.3.10**. Major activities of KLDB are given in **Appendix 3.3.11**. KLDB has developed a new software application for herd book registration electronically in association with Digital University (IIITMK), so that the data could be synched with similar applications of Animal Husbandry department and Dairy Development department. The Board undertakes Kudumbasree linked forage programmes and establishment of fodder demonstration units and conservation and dissemination of indigenous cattle germplasm. It has taken up genetic upgradation of cattle through field performance recording programme and assisting selection of bulls through genomic selection.

In livestock sector, due to the continued focus on exotic germplasm based cross breeding, the number of indigenous breeds with better adaptability, disease-resistance and feed efficiency ratio is declining. Hence it is essential to conserve and improve the productivity of Indian indigenous breeds. The Department should focus on complete or total artificial insemination coverage along with the application of advanced cutting-edge reproductive technology developments.

Cross breeding of cattle with exotic breeds was introduced in Kerala in 1956. The cross bred cattle which formed 67.3 per cent of the total cattle population in 1996 increased to 95 per cent in 2019. The 20th Livestock census shows an increase in the number of indigenous cattle in Kerala by 7.38 per cent as compared to previous Census (2012). This increase is to be attributed to the efforts of the implementing agencies in the livestock sector through development and conservation of indigenous breeds with

the support of both the Central and State Governments.

Animal Husbandry Department

Livestock plays an important role in the livelihoods of rural households and much of the State Government's economic development efforts have focused on the livestock sector. The Government has created an elaborate administrative and research infrastructure to promote the sector. The Department of Animal Husbandry in Kerala spearheads developmental activities related to this sub-sector. The major activities of the Department are veterinary services, animal healthcare, disease eradication, development of cattle, goat, pig and poultry, control of zoonotic diseases, conducting and coordinating extension activities and training programmes for farmers and veterinarians, and production of biologicals.

The main objectives of the Department are to strengthen the livestock population of the State in terms of both quantity and quality. To achieve the aim of increasing milk and meat production, cattle development programmes have been imparted in the State. Among them the most important is crossbreeding activities. Besides, the department has programmes for goat rearing, buffalo rearing, pig and rabbit breeding, and poultry development etc. It imparts training to farmers on scientific management of production units to enhance production. Also training is provided to women to prepare themselves to take up domestic units of livestock and poultry of manageable size to supplement family income. Various trainings offered by the Department include dairy farming, goat farming, duck farming, pig farming, broiler production, layer management, backyard poultry production, quail farming, and chick sexing. The Department is also conducting Integrated Sample Survey for estimation of production of major livestock products viz, milk, egg and meat annually and Quinquennial Livestock Census.

Special Livestock Breeding Programme (SLBP)

The calf rearing programme by subsidising cattle feed for rearing cattle up to 32 months along with health cover and insurance has been under implementation since 1976. In 2006-07, the scheme was extended to buffalo calves also as

a measure to curtail the drastic reduction in the buffalo population. No buffalo calves have been enrolled since 2014-15. The number of new calves enrolled under the programme in 2020-21 was 42,410 as against 35,131 in 2019-20. Year wise details of calves enrolled under Special Livestock Breeding Programme from 2010-11 onwards are shown in **Appendix 3.3.12**.

Animal Health Care

Animal Husbandry Department provides veterinary care mainly through 14 District Veterinary Centres, 48 Veterinary Polyclinics, 210 Veterinary Hospitals, 896 Veterinary Dispensaries, 38 regional Animal Husbandry Centres, 1,359 Veterinary Sub Centres, 9 Mobile Veterinary Hospitals/Dispensaries, 10 Mobile Farm Aid Units, 4 Mobile veterinary Dispensary and one Motor Boat Veterinary Hospital. Effective and timely action was taken by the Animal Husbandry Department in liaison with respective administrations and Local Governments to eradicate contagious diseases. Mass campaign vaccination programmes such as foot and mouth disease control programme, rabies free Kerala vaccination programme and Assistance to States for Control of Animal Diseases (ASCAD), and poultry vaccinations are being conducted regularly. Details of outbreaks, attacks and death of major

contagious diseases of animals in Kerala for the period from 2014-15 to 2020-21 are given in **Appendix 3.3.13**.

Centrally Sponsored/Central Sector Schemes in Animal Husbandry Sector

The details of centrally sponsored programmes implemented by the Department and Central releases and expenditure in the Animal Husbandry sector during the 13th Five Year Plan are detailed in the **Table 3.3.3**.

Emergency Veterinary Service During Night Hours

The service of a veterinary doctor was available only in the day time and it was difficult to get the veterinary service during odd hours of the day. Hence, a project was formulated to provide expert veterinary care at block level from 6 pm to 6 am. The service of a registered veterinary practitioner is provided on contract basis. The unit is functioning under the direct supervision of one identified veterinary institution of the block area. Medicines are made available to them. Emergency night veterinary service was established in 105 selected blocks of the State up to 2019-20 and extended to all the 152 blocks and 3 Corporations and one Municipality in 2021-22.

Table 3.3.3 Details of Central release and expenditure during the 13th Five Year Plan ₹ in crore

Schemes	2017-18		2018-19		2019-20		2020-21		2021-22	
	Release	Expenditure	Release	Expenditure	Release	Expenditure	Release	Expenditure	Release	Expenditure
Livestock Health and Disease Control (60% CSS)	5.16	5.16	7.50	7.08	1.06	0.21	0.00	0.00	4.64	0.00
National Livestock Mission (60% CSS)	3.65	2.24	5.55	3.89	10.00	2.44	6.63	0.57	0.00	0.00
Animal Husbandry Statistics & Sample Survey (50% CSS)	1.07	1.00	1.09	1.03	0.93	0.91	1.09	0.84	0.25	0.25
Livestock Census (100% CSS)	1.45	0.01	1.43	1.41	1.67	0.25	6.64	5.64	1.00	1.00
Total	11.33	8.41	15.57	13.41	13.66	3.81	14.36	7.05	5.89	1.25

Source: Animal Husbandry Directorate, GoK 2021

Gosamrudhi – Comprehensive Livestock Insurance Scheme

A Comprehensive Livestock Insurance Scheme ‘Gosamrudhi’ was introduced in 2017-18. The objective of the programme is management of risk and uncertainties by providing protection mechanism to the farmers against any eventual loss of their animals due to death or permanent total disability resulting in total loss of production or infertility through insurance coverage. The maximum insured value of animal is ₹65,000. The premium rate is around 3 per cent of the cost of the animal and the subsidy rate towards premium is 50 per cent and 70 per cent for SCs/STs. One time insurance of an animal up to a maximum period of three years will be provided. The United Insurance Company was selected for implementing the scheme. Under the scheme, 29,770 cows were insured during 2020-21.

Production of Vaccine in Institute of Animal Health and Veterinary Biologicals, Palode

The Institute of Animal Health and Veterinary Biologicals, Palode is the sole agency engaged in the production and distribution of animal vaccine in Kerala. The production details of vaccines manufactured in the Institute are given in **Appendix 3.3.14**. In 2020-21, the production of poultry vaccine was 217.02 lakh doses and livestock vaccine was 5.42 lakh doses. Production of poultry vaccine increased by 83.5 per cent and livestock vaccine by 185.3 per cent compared to the previous year. Number of vaccinations done in 2020-21 was 12.76 lakh for livestock and 71.22 lakh for poultry. In comparison to previous year, vaccination for cattle increased by 53 per cent and poultry decreased by 9 per cent respectively. Anti- Rabies vaccinations done on dogs increased from 1.72 lakh in 2019-20 to 1.8 lakh in 2020-21. Details are provided in **Appendix 3.3.15**.

Bhumika – GIS based mapping as a tool for Animal Resource Management System

Animal Husbandry Department has developed GIS based mapping of farmers “Bhumika” to build a geospatial data base of farmers engaged in animal husbandry activities for effective management and monitoring of health, breeding, production, risk and disaster management, and

human resource management. The institutions coming under the purview of the Department has been brought under the geo mapping system. It has been estimated that about 25 lakh households are involved in animal husbandry activities in the State. The Department could cover 5.3 lakh farmers involved in cattle/buffalo rearing till 2021. ‘Bhumika’ was developed in association with Digital University formerly known as Indian Institute of Information Technology, Kerala (IIITMK) through which the geographical location of farmers can be captured. The app is available in Google Play store for download.

The data collection was done at farmers’ doorstep by the field level livestock inspectors of Animal Husbandry Department and verified by local veterinary officers. A web portal was also developed simultaneously for analysing and generating different types of reports using the available data. An Animal Resource Management Portal (ARMS) is also concurrently managed by the Department, which has been integrated with the GIS Portal. The geospatial data base provides a method to represent disease information on live maps on real time basis and helps in disease control and surveillance activities. The tool was effectively utilized for disease surveillance during Nipah outbreak and also for immediate containment vaccination during outbreak of diseases such as foot and mouth diseases for effective control.

Rebuild Kerala Initiative

As part of Rebuild Kerala Initiative (RKI), an amount of ₹2.2 crore sanctioned to establish two mobile tele-veterinary units at Ernakulam and Kannur districts. The units have advanced diagnostic aids such as portable X-ray unit, portable ultrasound scanner, surgical equipments and animal lifting device. The project was completed by the implementing agency, Centre for Development of Advanced Computing (C-DAC). An amount of ₹13.28 crore has been sanctioned for 12 more mobile tele-veterinary units, which will be established soon.

‘Kerala Chicken’ is a Rebuild Kerala initiative (RKI) of the State at a project cost of ₹63.10 crore intended to supply safe broiler chicken at reasonable price to the consumers and to develop

a viable livelihood vocation to the farmers. The project envisages to establish 2600 broiler rearing farms and 240 Kerala chicken sales outlets across the State and also to establish breeder farms, rendering plants for waste management, processing plants, reefer vans, testing facility for meat quality analysis under various stakeholders viz., Animal Husbandry Department, Kudumbasree, Kerala State Poultry Development Corporation (KSPDC), Meat Products of India (MPI), Brahmagiri Development Society (BDS), Kerala Veterinary and Animal Sciences University (KVASU) and Local Self Government Department (LSGD).

An amount of ₹6.29 crore has been sanctioned as mobilization advance towards implementation of Kerala Chicken Project, of which an amount of ₹85.88 lakh was released to stakeholders viz., MPI (₹40.00 lakh) for rendering plant, KSPDC (₹31.50 lakh) for the construction of 2 shed for broiler feeder farm at Kudappanakunnu, and BDS (₹4.38 lakh) for purchase of Reefer van for sales.

Subhiksha Keralam

Under the 'Subhiksha Keralam' project, ₹56.09 crore was utilized for livelihood support schemes of the Animal Husbandry Department in 2020-21. It includes cattle rearing, heifer rearing, assistance for establishing hygienic cattle shed, cattle feed subsidy programme, scientific calf rearing, assistance for fodder cultivation, goat rearing, backyard poultry rearing, duck rearing, piggery, and mechanisation support for dairy farmers.

Animal Husbandry Infrastructure Investment Fund (AHIDF)

As part of the Atma Nirbhar Bharat Abhiyan Stimulus Package, ₹15,000 crore Animal Husbandry Infrastructure Investment Fund (AHIDF) has been set up in the country. The AHIDF will incentivise investments by individual entrepreneurs, private companies including MSME, Farmer Producers Organisations (FPOs) and Section 8 Companies to the dairy processing and value addition infrastructure, meat processing and value addition infrastructure and Animal Feed Plant.

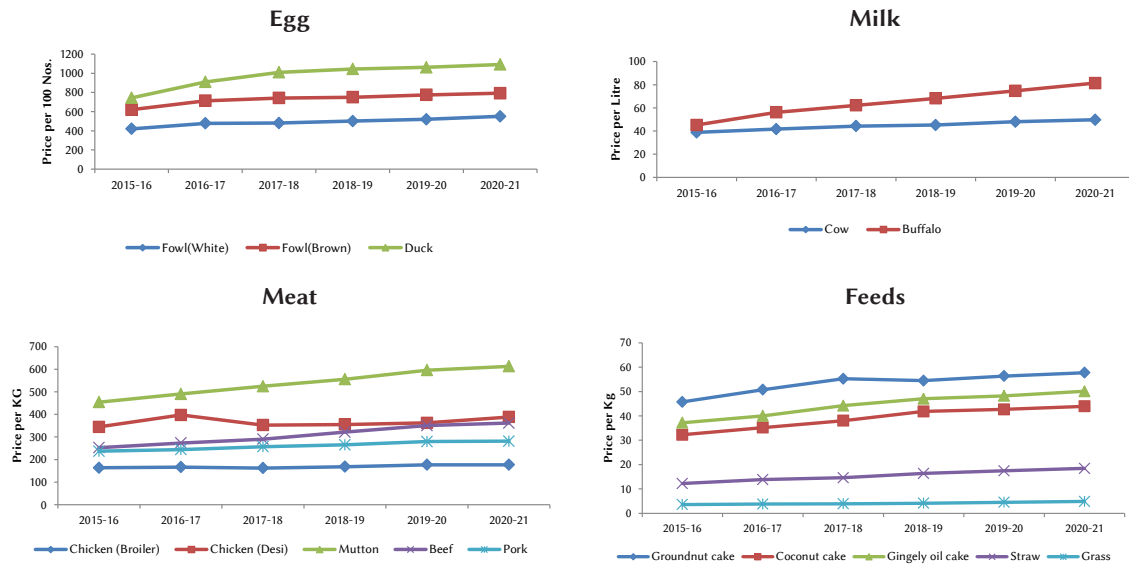
Government of India will provide 3 per cent interest subvention to eligible beneficiaries. There will be a 2 year moratorium period of the principal loan amount and 6 years repayment period thereafter. The interest subvention would be released to banks every year by the Government based on entitlement claimed. The GoI would also set up a Credit Guarantee Fund of ₹750 crore to be managed by NABARD. Credit guarantee would be provided to those sanctioned projects which are covered under MSME defined ceilings. Guarantee coverage would be up to 25 per cent of credit facility of borrowers. To ease out the application process, an online portal has been developed by SIDBI through which applicants can apply online to avail loans under this scheme.

Kerala Veterinary and Animal Science University (KVASU)

The Kerala Veterinary and Animal Science University has been established in the State with headquarters at Pookode, Wayanad for the development of education, research and extension in the animal husbandry and dairy development sectors. The veterinary and animal science faculty has been delinked from the Kerala Agricultural University for the establishment of the new University. The college of Veterinary and Animal Sciences at Mannuthy and Pookode in Wayanad, and College of Dairy Science and Technology at Mannuthy are the educational institutions of the University. The research stations and farms involved in animal husbandry research and support would be part of the university. The major objective of the institution is to promote livestock economy of the State by fostering quality professionals in the areas of veterinary, animal husbandry and dairy development and assist in the implementation of research outcomes in field conditions.

Kerala Veterinary and Animal Science University is implementing the project "Establishment of referral analytical and diagnostic laboratory for supporting livestock farming and diagnosis of zoonotic diseases with RIDF (NABARD) assistance in the Mannuthy campus of the University. The project includes 30 labs and BSL-3 standalone facility. The University has developed an inactivated vaccine against the control of the new duck disease 'Riemerellosis'.

Figure 3.3.5 Trend in average prices of livestock products from 2014-15 to 2020-21



Source: Animal Husbandry Department GoK, 2021

which is superior in terms of results obtained from the challenge study, antibody titre, cell mediated immune response and gene expression analysis, than the subunit one recommended for use in the field conditions.

Prices

Average price of important inputs and products of livestock sector for the last six years is presented in **Appendix 3.3.16**. All the products recorded an increase in prices during the period. The price of chicken broiler increased by 1.6 per cent and that of chicken (desi) by 7.26 per cent compared to the previous year. The average price of mutton increased by 2.82 per cent and beef by 3.14 per cent. Compared to 2019-20, the price of fowl-white egg increased by 5.77 per cent, brown egg by 2.19 per cent and duck egg by 2.82 per cent in 2020-21. The price of cow milk increased by 3.49 per cent and buffalo milk by 8.98 per cent in the same period.

On the input side, in 2020-21, the price of straw increased by 5.55 per cent and grass by 7.96 per cent. Compared to the previous year, the price of ground nut cake increased by 2.41 per cent, coconut cake by 3 per cent and gingerly oil cake by 3.88 per cent in 2020-21. The increase in the price of inputs is a serious threat to dairy farming and hence the possibility of indigenous source of feeds is to be explored. The trend in average

prices of livestock products from 2015-16 to 2020-21 is shown in the **Figure 3.3.5**.

Physical Achievements

- Compared to last two censuses (showing a trend of declining population), 20th Livestock Census shows one per cent increase in livestock population, 9 per cent increase in goat population and 25 per cent increase in poultry population.
- Two new Livestock Management Training Centres were established at Wagamon and at Sulthanbetheri.
- Emergency veterinary service during night hours at block level service provided in all 152 blocks of the State and 3 Corporations and one Municipality.
- Under the Comprehensive Livestock Development Programme, 'Gosamrudhi' 29,770 livestock were insured.
- Enrolled 42,410 new calves under 'Govardhini' and 'SLBP' schemes. A total of 2, 60,685 calves were benefitted.
- In the department farms 56.95 lakh eggs, and 32.82 lakh chicks produced.
- Established 147 commercial goatery units and 749 backyard goat rearing units and 500 goat artificial insemination centres established in association with KLDB.
- 1,250 nos of male calf fattening units were established and 999 medium scale goat rearing units were established under the National

Livestock Mission Programme (NLM).

- An amount of ₹1.786 crore was disbursed to those farmers as compensation, whose animals are not covered under insurance

The livestock sector has emerged as a vital sector for ensuring a more inclusive and sustainable agriculture system. Animal husbandry and dairying has undergone transformation over the years from traditional to modern skill-intensive technology. Artificial insemination, disease and pest management, diversification of milk and meat products are all skill intensive. In dairying, from normal milking to automated milking and feed management, health and disease control need skill improvement and capacity building.

To attain sustainable growth, it is essential to introduce yield-enhancing and waste-minimizing technologies in the sector. While animal nutrition is crucial to maintain and enhance the livestock productivity, vaccination and health care infrastructure and services are equally important. The health, quarantine and hygienic services assume even greater importance in view of the disease outbreaks and for rearing high yielding exotic breeds.

The extension services in livestock sector are very poor and require strengthening. Around 75 per cent of cattle population is concentrated in rain fed areas where the access to feed, fodder and drinking water is becoming increasingly scarce. The fodder base is not strong due to problems in pasture management and shrinking of common properties.

Major challenge of animal husbandry sector is low productivity of milch animals. Breed improvement, better feed and nutrition, animal health and better herd composition are important measures for increasing livestock productivity. While preserving diverse genetic resources, shortage of feed and fodder, effective control of animal diseases and dissemination of technology, skills and quality services to farmers for improving productivity, need to be addressed on priority basis. Productivity across various livestock species is a major issue especially in case of dairy animals. Therefore it is essential to strengthen the existing breeding farms of

small ruminants for ensuring availability of good breeding stock at field level to support the scientific rearing with high quality feed and fodder and other inputs. Genetic improvement of livestock and conservation of indigenous germplasm adaptable to adverse climatic conditions may also give boost to animal husbandry.

Lack of access to organised markets and meagre profits distract farmers from investing into improved technologies and quality inputs. Informal market intermediaries often exploit the producers. Activity specific Farmer Producer Organizations may be formed on the lines of milk cooperatives for acting aggregators and to participate in modern electronic marketing infrastructure.

Comprehensive entrepreneurship development programmes are essential to tackle the critical production and skill gaps in the livestock sector. Entrepreneurship, innovation, skill development and capacity building have to emerge as potential areas of focus in veterinary extension. Promotion of livestock, dairy and poultry entrepreneurship programmes are helpful to returnee Non Resident Keralites (NRKs), unemployed youth and women established commercial livestock ventures in a post covid era.

Low technology adoption, failure to tap value chain potentials, limited contract farming operations are some of the other challenges in the livestock sector. Use of sexed semen for rapid improvement of dairy animal productivity, value chain approach and contract farming system may be adopted for small ruminant and pig farming for ensuring faster growth of the sector.

Climate change has become a major threat and impacting livestock productivity and also food security of most vulnerable rural population. Climate Smart Livestock farming must be on the top of the agenda for future initiatives on livestock development.

Dairy Development

The dairy sector is a major sector of Indian economy which provides employment to millions of rural population and contributes to

the income of the rural households. Among the livestock products, milk consists of highest share, accounting for 67.2 per cent of the livestock sector in the economy. The sector plays an important role in achieving food security, reduces poverty, and generates gainful employment opportunities especially to women. According to the FAO 2018 report, more than 500 million poor people depend on livestock, and most of them are small and marginal farmers. As per International Dairy Federation Bulletin 2020, 160 million children around the world receive benefits from milk through school feeding programmes.

The dairy sector plays a vital role in achieving Sustainable Development Goals – especially SDG-1, SDG-3, SDG-5, SDG-8 and SDG-10 and thereby plays a significant role in transforming lives of agrarian sector.

India continues to be the largest producer of milk in the world. Our country has the largest bovine population in the world and it contributed 22 per cent of global milk production in 2020. During the early 1970's, milk production of India was just one-third that of the US and one-eighth of Europe. At present India's milk production is double that of the US and 25 per cent more than that of Europe. Between 1991 and 2020, the per capita availability of milk increased from 178 (gm/day) to 406 (gm/day). Milk production in India increased from 55.6 million metric tonnes to 198.44 million metric tonnes, which is around 22 per cent of world milk production. The milk production in India is growing at 5.69 per cent compounded annual growth rate (CAGR) over the last 20 years, meanwhile world's milk production grew by around two per cent only. The International Farm Comparison Network, Dairy Report 2018, reveals that 10 States in India produce 81 per cent of milk, and the rest of the States and Union Territories produce remaining 19 per cent. Similarly, only nine states have achieved per capita availability of milk at par with the national level.

Dairy co-operatives play a pivotal role to achieve self-sufficiency in milk and dairy products in India. Anand Milk Union Limited (AMUL), a pioneer and successful case of dairy

co-operative has changed the lives of poverty stricken farmers through the Operation Flood Programme (OFP), which is one of the world's largest rural development programme. AMUL with its innovative strategy has helped dairy co-operatives to come together and make India the world's largest producer of milk. The reason for the success of AMUL pattern is its strategy to give benefits both to the farmers and customers viz, farmers in the terms of fair price for their milk and for customers its high quality milk and milk products. The middleman's profit in the earlier system got absorbed into development projects for primary producer or lower cost for the consumer.

The total production of milk in India is 198.4 million tonnes in 2019-20. Of this, about 48 per cent of milk is either consumed at the producer level or sold to non-producers in the rural area. The balance 52 per cent of the milk is the marketable surplus available for sale to consumers in urban areas. Out of marketable surplus it is estimated that about 40 per cent of the milk sold is handled by the organized sector (i.e. 20 per cent each by Co-operative & Private Dairies) and the remaining 60 per cent by the unorganised sector.

Based on various parameters viz, urbanisation, demand of milk and milk products, productivity of milch animals, NITI Aayog estimates that (NITI Aayog - Working Group 2018 report), milk production in India will increase to around 330 million tonnes, and milk supply will exceed milk demand by 38 million tonnes in 2032-33. As per the National Action Plan on Dairy Development Vision 2022 report, it is envisioned to increase milk procurement and processing through setting up of village level dairy infrastructure. Under this plan, organised milk handling is to be increased to 41 per cent by 2022 and to 50 per cent by 2023-24. Milk procurement by co-operatives will increase from 10 per cent in 2020 to 20 per cent in 2023, and milk procurement by the private sector will be increased from 10 per cent to 30 per cent in the same period.

Considering the potential of the livestock sector, Government of India has announced

a financial package for dairy, especially the creation of Animal Husbandry Infrastructure Development Fund (AHIDF), a stimulus package for incentivizing investments in the areas of (i) the dairy processing and value addition infrastructure, (ii) meat processing and value addition infrastructure and (iii) Animal Feed Plant with a total budget allocation of ₹15,000 crore. The fund is to be channelized through the National Dairy Development Board (NDDB). Beneficiaries of the package are the Farmer Producer Organizations (FPOs), Micro Small and Medium Enterprises (MSMEs), Section 8 Companies, Private Companies and individual entrepreneurs. Under this package, minimum 10 per cent margin money contribution to be done by the beneficiaries and 90 per cent would be the loan component to be made available by the scheduled banks. On timely repayment, government also gives 3 per cent interest subvention to eligible beneficiaries. There will be two years moratorium period for the principal loan amount and six years repayment period thereafter.

Indian dairy co-operatives and private players could create additional milk processing capacity of 4.5 – 4.8 crore liter per day in the next decade. India's milk processing capacity is to be enhanced from the current 12 crore liter per day to around 17 crore liter per day. It is estimated that one lakh liters of milk is procured and distributed to organised players, around 6,000 people get employment annually, and the AHIDF has the potential to create around 30 lakh job opportunities. Extension of Kisan Credit Card (KCC) scheme to dairy farmers also ensures cash flow and meets the working capital requirement of small farmers. During the lockdown, dairy co-operatives have procured 15-40 per cent milk than usual. The excess milk procured was converted to skimmed milk powder (SMP) and white butter. The new interest subvention of 2 per cent annually for dairy co-operatives and 2 per cent for timely payment of loans could unlock ₹5,000 crore worth of additional liquidity, benefiting two crore farmers.

The government needs to devise a suitable dairy development policy for enhancing milk production in potential districts of the states. Therefore dairy promotion among small and

landless farmers is necessary to increase the availability of milk and it will also help to reduce nutrition related problems in milk deficit regions of the country.

Dairy Development in Kerala

Kerala has a separate Department of Dairy Development, which functions as the nodal agency for rural dairy extension, fodder resource development and rural milk marketing in the State. The Department with the aid of State Government and Central Government funds have implemented various schemes in the State with the objectives of attains self-sufficiency in milk production, increasing in fodder production, reducing production cost, strengthening of Dairy Co-operatives, ensuring availability of safe and quality milk to the consumers, ensuring fair margin to producers and socio-economic benefits to dairy farmers. The objective of Department is comprehensive and sustainable development of the sector along with well-being of dairy farmers, consumers and other stakeholders. It also acts as the nodal agency for fodder development in the State. The department has 162 dairy extension service units, 14 quality control units, a state dairy lab (NABL accredited) for testing milk and milk products and cattle feed, three Regional Dairy Labs, 14 Mobile Quality Control Units, six Dairy Training Centres and a State fodder farm. There are 3,635 Dairy Co-operative societies (including APCOS and non APCOS) and 3.91 lakh registered farmers (2.5 lakh men and 1.41 lakh women) and around 26.7 per cent of the milk produced in the State is collected by dairy co-operatives. Financial Performance of Dairy Sector is during the 13th five year plan provided in **Table 3.3.4**.

Table 3.3.4 Financial performance of Dairy sector during the 13th Five Year Plan ₹ in lakh

Year	Outlay	Expenditure	Percent
2017-18	9775.00	12863.40	131.59
2018-19	10753.00	11399.55	106
2019-20	10853.00	7598.52	70.01
2020-21	9621.00	9409.45	97.8
2021-22	9621.00	3806.88*	39.57
Total	50623.00	50891.92	100.53

Source: State Planning Board

Note: *as on October 31, 2021

Physical Achievements in 2020-21

In 2020-21, the Dairy Co-operative Societies (DCS) produced 7.12 lakh MT milk (19.5 lakh liter per day). The 'ksheera gramam' project implemented by the Department aims to transform the grama panchayats as self-sufficient in milk production. The components of the project are herd induction, modernisation/automation of dairy farms, construction of new scientific cattle sheds, renovation of existing cattle sheds, installation of milking machines, measures for minimising environmental stress to milch animals and providing cattle feed supplements at subsidized rates. Ksheera Gramam project was implemented in 25 selected panchayats in the State and around 2,475 number of milch animals and 400 number of quality heifers has been inducted through this programme.

Cows of Kerala are one of the high yielding animals of India (productivity of 10.22 litre/day). Average productivity of Indian breed of cattle is 3.85 liter/day and crossbred cattle is 7.85 liter/day. A cost effective feeding practice for productive crossbred animal can be achieved by reducing the dependence on external input and increasing the internal input system through fodder production at farmers level for nutrient availability and by assisting them in adopting fodder cultivation in their own lands. This necessitated focussed attention to develop feed resources by improving availability of green fodder. Kerala produces only 60 per cent of roughages required for the cattle. Massive fodder cultivation was implemented in 100 ha of barren land in selected panchayats and 60 beneficiaries were selected under the programme. Ten women self-help groups with linkage to dairy co-operatives were assisted for fodder cultivation and marketing and another 53 groups were assisted for distribution of subsidized fodder. Irrigation assistance was extended to 60 farmers for fodder cultivation and another 60 were benefitted for modernisation and mechanization of fodder cultivation, cutting and marketing of fodder. Assistance was provided for maize cultivation in 212 ha of land and azolla cultivation to 3,500 units and two fodder cum azolla nursery were established during the period. As a special package to flood prone areas financial assistance was given to the construction of two elevated and community cattle sheds at Kuttanad. Through

various dairy friendly programmes, the milk collection through DCS has reached a record high of 21.37 lakh liter per day during December 2020.

Rebuild Kerala Initiative

The Malabar Milk Union proposes to establish Fodder Hubs in Wayanad, Malappuram and Palakkad districts with a total outlay ₹630.00 lakh under RKI. Foundation works have started at Mananthavadi in Wayanad for the civil infrastructure. Landscaping is going on at Nilambur in Malappuram district. The process of purchase of machineries like forklifts is under progress. The Milk Union received ₹300.00 lakh as first instalment, which is fully utilised through a subsidy of ₹180.00 lakh as feed transport support to the dairy farmers at ₹3.00 per kg of the material for 2000 MTs of roughage per district. Balance amount was used as advance to the contractors for civil infrastructure in Wayanad and Malappuram districts.

Subiksha Keralam

Under the "Subiksha Keralam Project", ₹51.07 crore was allocated for implementation of Dairy Department schemes including induction of milch animals and heifers, fodder cultivation, milk incentive, subsidised cattle feed bags, and cattle shed construction/ renovation, farm mechanisation, insurance and revolving fund.

Under the Flood Rehabilitation Programme, ₹44 crore during the period 2018-2020 was utilised by the Department. Around 19,930 farmers were assisted in 2018-19 and 28,170 farmers in 2019-20. An amount of ₹11.83 crore was utilised to distribute cattle feed at subsidised rates to farmers who were otherwise suffering due to Covid-19 pandemic crisis. Around 2 lakh farmers benefited out of this programme. In addition to the same, ₹35.24 crore was extended as cattle feed subsidy to dairy farmers of the State.

Kerala's dependence on imported milk is declining. In 2016-17, about 9 lakh liters of milk was imported in the State every day. By 2019-20, Kerala was able to reduce the dependence on milk imports to about 3.2 lakh liter per day. Other indirect indicators of milk production also show promising outcomes during the 13th plan period.

In 2015-16, Milma used to import at least 6 to 7 lakh liter of milk per day from outside Kerala. In 2020, Milma was importing only 88,000 liter of milk per day. Further, Milma exports about 58,000 liters per day to powder factories outside the State. If we deduct export from imports, Milma's deficit declines to just 30,000 liters per day. The fall in Milma's reliance on imported milk indicates a possible rise in domestic milk production.

Surplus Milk and Product Diversification

One major lesson learnt from the Covid-19 pandemic in the animal husbandry sector in Kerala is the need to attain a greater degree of self-sufficiency in handling animal produce. The pandemic has also reminded Kerala that the State is close to attaining self-sufficiency in milk. Therefore, it is essential to develop the production of value added commodities from milk such as cheese and yogurt. This necessitated the setting up of advanced product diversification facilities in the existing dairy plants. The quality of raw milk at farm level is of great concern. The cold chain maintenance from farm to fork has to be ensured. The milk procured at the farm level has to be cooled in a short span of time to reduce the bacterial load. This needs more financial support to ensure cold chain maintenance. At present, there are only 442 Bulk Milk Chilling Centres (BMCC) in the State, with a capacity of 17.7 lakh liter per day. This needs to be increased to suit the milk procurement capacity of the dairy cooperatives.

Kissan Credit Card (KCC) Campaign

Consequent upon Budget announcement on inclusion of livestock sector in Kisan Credit Card in February 2020, Dairy Development Department was assigned as the nodal agency for leading the campaign for distribution of Kisan Credit Card to dairy farmers in the State. There are 1.96 lakh active farmers in the dairy sector, of which 21,410 farmers possess KCC prior to the campaign. Around 1.26 lakh farmers have already filled the KCC forms and 1.21 lakh forms submitted to the banks. KCC credit sanctioned for 52,707 farmers and an amount of ₹334.78 crore sanctioned by banks as total credit. The credit under KCC is being extended to dairy farmers for meeting the recurring expenditure involved in dairy farming. Credit at

nominal interest rate is offered to dairy farmers for purchase of feeds and fodder, dairy farm equipments, construction of scientific cattle sheds to counter environmental stress, repair and maintenance of existing cattle shed, insurance, and meeting veterinary aid.

Lack of awareness of scientific dairy farming, deficiency in adoption of innovation technology, scarcity of scientifically cultivated fodder farms, inadequate training in modern cattle management, shortage of skilled labour force and deficiency in information technology and transfer of technology are the main constraints affecting the progress of the dairy sector in Kerala. Nutrition efficient feeding practice, mineral mapping of fodder and feed, Government support for mechanisation to cut down labour cost and, strengthening of the quality infrastructure facilities are essential for productivity enhancement in the dairy sector.

Kerala needs an appropriate fodder plan to raise fodder production. Promotion of commercial fodder production with an assured market through cooperative societies and linking fodder cultivation with MGNREGS is essential. Fodder cultivation in waste lands should be encouraged through Kudumbasree units or Self-help Groups or entrepreneurs. Government should focus on a feed and fodder policy concurrent with the breeding policy in the State. Dairy farmers should have access to cattle with high genetic potential and good quality fodder and mechanisation for accelerated development of the dairy sector.

Modernisation and automation of the dairy sector necessitated the intervention of the youth by extending credit facilities at cheap rates. The advantage of exposure to overseas markets of the State can be explored through exporting quality dairy products. Private sector interference needs to be increased and essential policies to be formulated for increasing investment through credit facilities.

It is necessary to undertake a study of the marketing and supply chains in the dairy sectors of the State, and initiate measures to remove bottlenecks from the producer to the consumer. The use of modern information technology

along with developing the marketing network of milk, meat and egg in the State should be encouraged. This includes the linking up of all dairy cooperatives in the State under single inter-connected software. It is essential to tap the potential of rural entrepreneurship and popularise the establishment of larger commercially run dairy farms. A policy level intervention is necessary to converge three factors: high yielding cows, fodder or feed availability and marketing facilities. Processing needs to be strengthened and measures to be adopted to give benefits to both the farmers and consumers, viz, farmers in terms of fair price and consumers high quality milk and milk products. It is essential to equip the co-operative dairy sector to compete with free trade policies and other milk federations including AMUL is the way forward to attain self-sufficiency in milk production.

3.4 Fisheries Development

The fisheries sector in Kerala plays a significant role in terms of ensuring food security and nutrition, income generation and in promoting sustainable economic growth.

India is the second largest fish producing country in the world and accounts for 7.58 per cent of global production. Fish production in India reached an all-time high of 14.16 million metric tonnes in 2019-20. The sector contributes 1.24 per cent to GVA in the economy and 7.28 per cent to GVA from the agricultural sector. The export of marine products was 12.9 lakh metric tonnes with a value of ₹46,662 crore in 2019-20. Several initiatives of the Central Government, such as Blue Revolution and Pradhan Mantri Matsya Sampada Yojana (PMMSY), have sought to tap the potential of the sector.

In Kerala, the share of fisheries sector in the total GSVA (at constant prices) in 2020-21 constitutes 0.82 per cent and accounts for 0.72 per cent of GSDP. Fisheries and Aquaculture contributes 8.71 per cent of the Gross State Value Added (GSVA) at constant prices 2020-21 (Quick estimates) from the agriculture and allied sectors. Details regarding the contribution of fisheries sector in GSVA are in **Appendix 3.4.1**.

Growth Trends

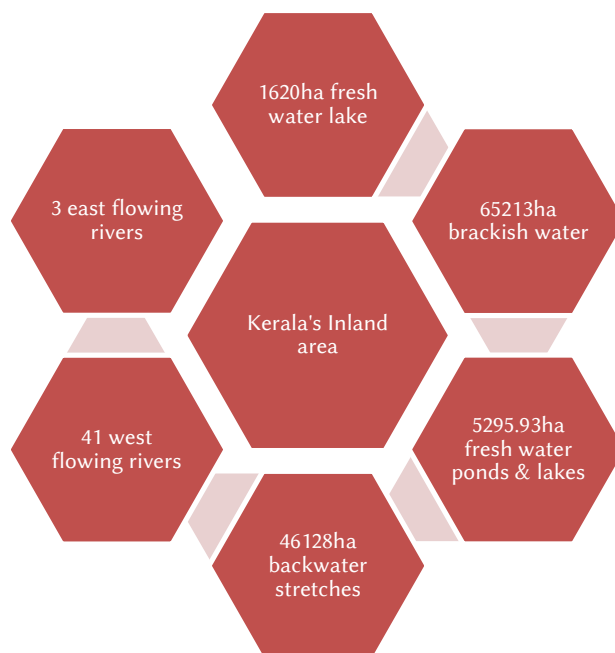
Marine fish landings of India in 2019-20 was 3.73 million tonnes. Among the states Gujarat was the highest contributor followed by Tamil Nadu and Andhra Pradesh. Kerala occupies fourth position with a production of 4.75 lakh tonnes. The high value species among the fish catches are still few and prominent among them are seer fish, prawns, ribbon fish and mackerel. Due to climate change and anthropogenic activities such as juvenile fishing, overfishing, unscientific fishing, the catch of marine fisheries shows a declining trend in the last decade. But the timely amendment of the Kerala Marine Fishing Regulation Act (KMFR), introduction of KMFR rule and its strict enforcement led to an increase of 26 per cent in marine capture in

2018-19. The marine fish production in the State in 2020-21 however shows a decline. This may be because of poor climatic conditions and rough weather at sea. The loss of man-days due to Covid-19 pandemic also aggravated the situation. Species wise marine fish landings in Kerala from 2017-18 to 2020-21 is shown in **Appendix 3.4.2**.

As per Kerala Development Report 2021, the total fish consumption in the State is approximately 9.12 lakh tonnes per annum or about 2000-2500 tonnes per day. The total fish production in Kerala in 2020-21 was 6.14 lakh tonnes. About 3 to 4 lakh tonnes was imported from other states or countries. According to a study conducted by Central Marine Fisheries Research Institute (CMFRI), the demand-supply gap for fish will further widen in Kerala. At the same time Kerala with its vast aquatic resources in brackish water, sea water and fresh water has immense potential for developing inland aquaculture. A glance of Kerala's inland area is shown in **Figure 3.4.1**.

Inland fish production in Kerala has increased gradually during the last four years. The State has made conscious effort in enhancing the inland fish production through projects like 'Subhikshakeralam'. Species wise inland fish production in Kerala from 2017-18 to 2020-21 are shown in **Appendix 3.4.3**. The species that have high potential in Kerala include tilapia, murrel, basa, anabas, carp, giant freshwater prawn, penaeus vannamei, penaeus monodon, Asian sea bass, pompano, cobia, mullets, crab and mussel. A major constraint however is the availability of good quality fish seed. The seed demand in Kerala for the implementation of the aquaculture programme, Jankeeya Matsya Krishi, of the Fisheries Department is estimated to be 12 crore fresh water fish seed. To ensure self-sufficiency in fish seed production, new hatcheries were established. The seed production from department hatcheries has increased from 2 crore to 5 crore. A total of 15.02 crore seed production was achieved through department

Figure 3.4.1 A glance of Kerala's inland area



Source: Kerala Development Report-2021

hatcheries in 2020-21. To control unauthorised seed suppliers, a Fish Seed Act has been enacted by the Government in 2014.

The systems and technology used in aquaculture has developed rapidly from very simple facilities (e.g. family ponds for domestic consumption) to high technology systems (e.g. intensive closed systems for export production). Much of the technology used in aquaculture is relatively simple, often based on small modifications that improve the growth and survival rates of the target species. Some of the advanced technologies used in aquaculture are shown in **Box 3.4.1**.

Trend in Production

Marine fisheries throughout the world is passing through a critical phase due to the present rate of biodiversity loss, Covid-19 pandemic and exploitative fishing practices. Though the marine fish production in India showed a declining trend in 2019-20, the inland fish production in India registered a steady growth rate from 2016-17 to 2019-20. The difference in the composition of total fish production in India and Kerala is shown in **Figure 3.4.2**. District wise fish production in Kerala is given in **Appendix 3.4.5**.

Kerala has made vital contributions to export of marine products in the country. In 2020-21, export of marine products from Kerala was 1, 44,700 tonnes valued at ₹5,039.89 crore. It accounts for 12.59 per cent in terms of quantity and 11.53 per cent in terms of value of the marine products export from India. Details are provided in **Appendix 3.4.6**.

Achievements during 13th Plan period

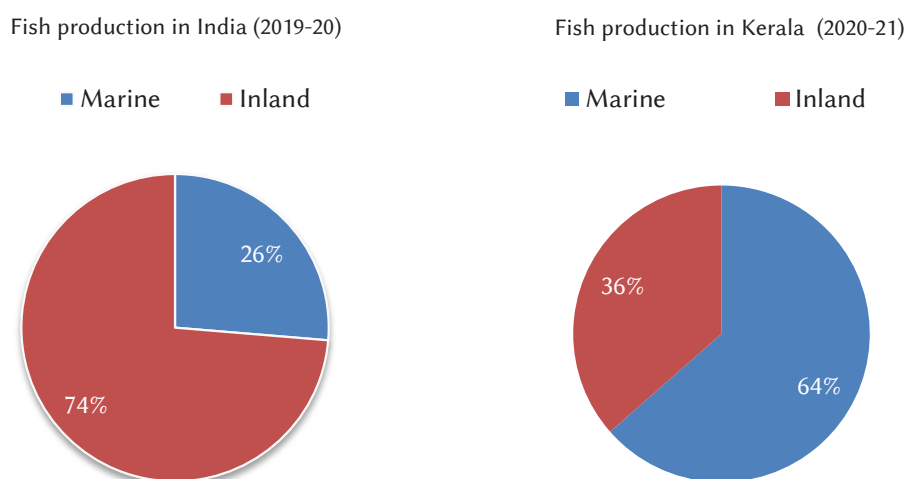
In the 13th Plan period, the Government's effort in the marine fisheries sector was to improve livelihood security among the fish worker population, provide better amenities such as sanitation, health care, drinking water, electricity, and library facilities in the coastal regions, and reduce mortality at sea. The Plan schemes of State Government under fisheries development; inland fisheries development; extension, training and service delivery; modernisation of markets and value addition; social security to fishworker; development of Fishing Harbours and management; scheme for the Fisheries University; and coastal area development.

Box 3.4.1 Advanced technologies in aquaculture

- **Biofloc Technology (BFT)** is a technique for improving the quality of water in aquaculture by balancing carbon and nitrogen in the livestock system. BFT not only treats waste but also helps nutrition to aquatic animals. Since it is viable technology Government of Kerala is promoting BFT wherever possible.
- **Recirculating Aquaculture System (RAS).** In order to maintain water quality, efficient filtration systems need to be installed to ensure the optimum growth of fish. A Recirculating Aquaculture System ensures that water flows back to the culture system after filtration (mechanical, biological or chemical filtration) so that the water quality is maintained throughout the culture. Although this is an energy intensive and expensive mode of aquaculture, it is used in urban areas where the water area available for aquaculture is limited.
- **Aquaponics** is a synergic system between fish and plants in which both grow together in one integrated system. In an aquaponics system, water flows from a fish tank into a biofilter where bacteria break down the fish waste into an organic nutrient solution. The plants then absorb the nutrients from the water before it is re-circulated to the fish tank. This is also a dynamic and energy-intensive system and needs utmost care in implementation.

Source: Kerala Development Report-2021

Figure 3.4.2 Fish production in India and Kerala – Share of Marine and Inland fishing



Source: Handbook of Fisheries Statistics- Department of Animal Husbandry Dairying and Fisheries, Government of India (2020) and Department of Fisheries, Government of Kerala (2020)

Some of the major Achievements in this regard are as follows

- A major achievement was the completion of the construction of long-pending infrastructure projects, such as fishing harbours at Muthalappozhi, Chellanam, Chetuva, Tanur, Thalai, Vellayil, Koyilandy, and Manjeswaram. These projects were completed and commissioned.
- Harbour Management Societies and Fisheries

Management Councils were constituted with the participation of managements, fisheries representatives, people's representatives, and fisheries experts.

- A total of 1,600 coastal roads were constructed between 2017 and 2021, spending ₹704.1 crore. More than 65 fish markets were constructed at a cost of ₹193.5 crore. About 200 fibre-reinforced plastic (FRP) vessels were provided to fish workers as part of the Blue Revolution scheme.

- The Sagara mobile app was introduced to record the departure and return of fishing vessels at sea. The Kerala Marine Fisheries Control Act and Rules (KMFCAR) of 1980 were comprehensively revised in 2017.
- An ambitious project titled “Suchitwa Sagaram” (Clean Sea), a sanitation campaign was launched to reduce plastic waste build up in the sea by prohibiting and removing all forms of plastic from the sea. Suchitwa Sagaram was implemented in Neendakara in Kollam in collaboration with the Society for Assistance to Fisherwomen (SAF), Local Governments (LGs) and the Suchitwa Mission. This project was noted and hailed by the United Nations. About 38.4 tonnes of discarded nets, plastic ropes, and other plastic items have so far been removed by fish workers from the sea.
- The Government commissioned fully equipped marine ambulances for three zones: Vizhinjam in Thiruvananthapuram, Vypin in Ernakulam, and Beypore in Kozhikode to reduce sea mortality.
- To promote alternative livelihood activities, more than 2,500 micro-enterprises were established along the coast.

To attain self-sufficiency in fish seed production six new hatcheries were established in Neyyar, Peechi, West Kallada, Kulathupuzha, Thalipuzha and Karapuzha.

Livelihood and Social Security

The fisherfolk population in Kerala is estimated to be around 10.50 lakh including 2.4 lakh inland fish workers. They reside in 222 marine fishing villages and 113 inland fishing villages of the State. The district wise details of fisherfolk are given in **Appendix 3.4.7** The number of active fish workers registered with Kerala Fishermen Welfare Fund Board in the State in 2020 is 2,40,211. Active fish workers are those fish workers who are engaged in fishing for their livelihood and are registered with the Kerala Fishermen’s Welfare Fund Board. In 2020, the number of allied workers in fisheries in Kerala is 84,531. The number of allied workers is highest in Alappuzha, followed by Kollam and Ernakulam. Allied workers are those engaged in fishery related activities for livelihood and are registered with Kerala Fishermen’s Welfare Fund Board (KFWFB). In addition to this, 64,228

pensioners are registered with KFWFB as on October 2021.

Government of Kerala implements various schemes to ensure social security and livelihood of fishworkers. Apart from the Fisheries Department, KFWFB and Matsyafed also implement social security and livelihood support schemes. The schemes include those for housing, insurance and pension apart from those which enable fishworkers to earn livelihood on a continuous basis. 2.43 lakh fishworkers and 85,543 allied workers benefitted from the Group Accident Insurance Scheme. A total of 1.58 lakh fishworkers and 21,743 allied fishworkers were provided support under the ‘Saving cum Relief Scheme’. Details of these schemes implemented by the Fisheries Department and KFWFB are provided in **Appendix 3.4.8 and 3.4.9** respectively.

In order to reduce mortality at sea, the Government commissioned marine ambulances for three zones, Vizhinjam in Thiruvananthapuram, Vypin in Ernakulam, and Beypore in Kozhikode. The marine ambulances were equipped with all modern facilities required for emergency medical aid for 10 persons at a time. Further, coastal hospitals were constructed in the health sector. The implementation of KMFR ACT has reduced the mortality rate. The number of fishworkers who lost their life has drastically declined from 79 in 2017-18 to 22 in 2020-21. The fishing fleet of Kerala comprises of 6231 mechanised vessels, 31,664 motorised vessels and 2,806 non-motorised traditional vessels. Around 924 fishing crafts in 2020-21 has been insured.

Women play a critical role in every link of the value chain in small-scale fisheries, particularly in processing and marketing of fish and other fishery products.

The fisherwomen play an important role in the terms of their involvement in fish related activities such as fish vending, fish drying, prawn peeling, sorting, grading, packing and net making. About 46.35 per cent of women are involved in marine fishing activities and 49 per cent of them are involved in inland fishing

activities. The gender disaggregated employment statistics is depicted in **Figure 3.4.3**.

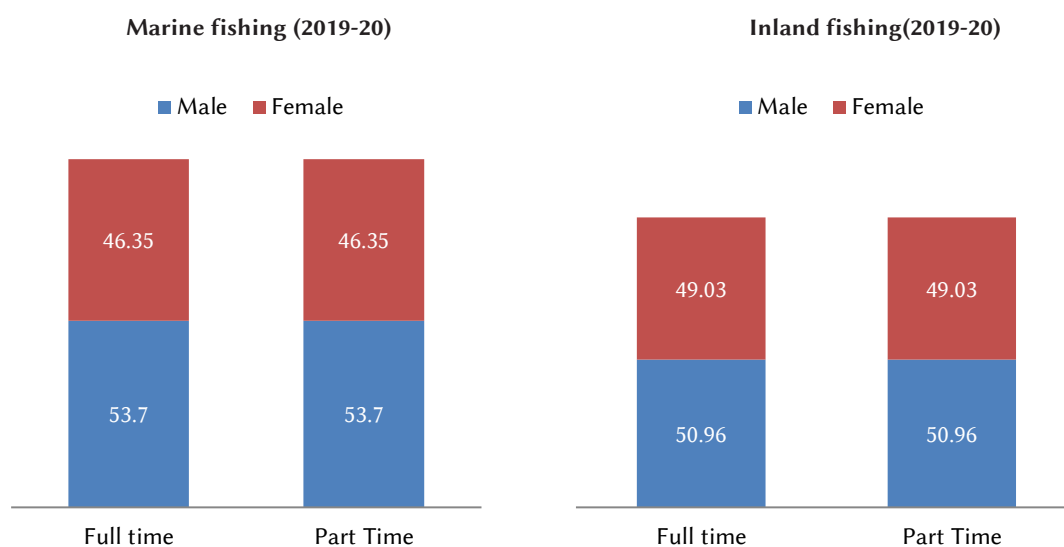
To promote gender mainstreaming, Society for Assistance to Fisherwomen (SAF) has tried to augment the entrepreneurial competency among fisherwomen by encouraging microenterprises by utilising local resources. SAF has formed small activity based groups of fisherwomen and extended financial, technological and managerial support to set up small enterprises suitable for the local area. Assistance was given to 398 fisherwomen beneficiaries (138 groups) to start micro-enterprises. An Apparel Park consortium was established at Kundara in Kollam by setting up of 12 microenterprise units covering 48 fisherwomen beneficiaries. In 2020-21, 242 Theeramythri activity groups have been assisted with interest free working capital. Capacity building training was provided to 3,121 beneficiaries. Support was provided to 80 groups for technology improvement in their units. The achievement of various programmes implemented by SAF is given in **Appendix 3.4.10**.

Matsyafed is an apex federation of 658 primary level fishworkers development welfare co-operative societies, of which 337 are in marine sector, 199 are in inland sector and 122

are women co-operative societies. The total membership in these societies is more than 4.73 lakh. The authorized share capital of the Federation is ₹150.00 crore. Matsyafed has organized self-help groups (SHGs) within the fishing community and has developed the habit of savings. By providing micro finance and interest free loans, Matsyafed has made an impact in the area of micro credit. In 2020-21, ₹49.8 crore was distributed to 15,450 beneficiaries as micro finance support to SHGs. In 2020-21, interest free loans to the tune of ₹14.73 crore was given to 7,719 women fish vendors. Matsyafed's "Anthipacha" sources fish directly from fisherfolk and transports to spots in and around the city in an insulated van. There are six units which deliver fresh and chemical-free fish. The achievement of various programmes implemented by Matsyafed is given in **Appendix 3.4.11**.

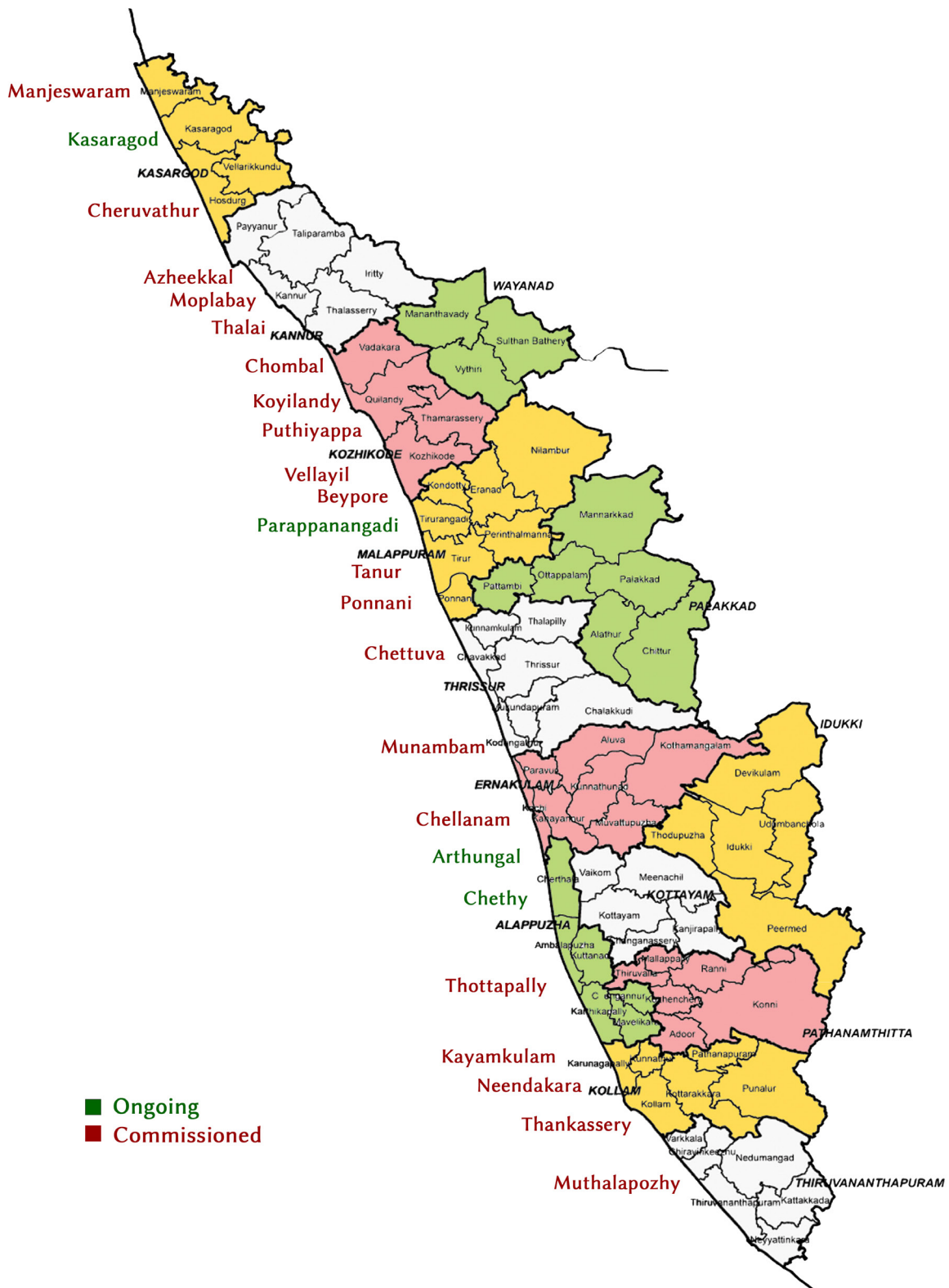
The fish vending women play a significant role in the supply chain activities. An exclusive transportation facility 'Samudra' was initiated for fish vending women as a joint venture by the Fisheries Department and KSRTC. It provides free logistic support to the fish vending women of Thiruvananthapuram district.

Figure 3.4.3 The Gender disaggregated employment statistics of Kerala - marine and inland fishing



Source: Department of Animal Husbandry Dairying and Fisheries, Government of India (2020) and Department of Fisheries

Figure 3.4.4 Fishing Harbours in Kerala – location and status



Source: Harbour Engineering Department

Infrastructure

A remarkable achievement was the completion of the construction of long pending infrastructure projects, such as fishing harbours. Under marine infrastructure the work of 21 fishing harbours are completed and the works of another 4 harbours are progressing.

Muthalappozhy Fishing Harbour Project was commissioned in June 2020. Koyilandi and Majeshwaram Fishing Harbours were commissioned in October 2021. The completed fishing harbours are Vizhinjam, Muthalappozhy, Thankassery, Neendakara, Kayamkulam, Thottappally, Chellanam (I and II), Munambam, Chettuva, Ponnani, Beypore, Thanur, Puthiyappa, Koyilandi, Vellayil, Chombal, Thalai, Moplabay Azheekal, Kasargod, Manjeshwaram and Cheruvathoor. The on-going fishing harbour works are in Chethi, Arthungal (II) and Parappanangadi. The location of Fishing Harbours in Kerala and their status are provided in **Figure 3.4.4**.

In 2020-21, plan support was extended for construction of fishing harbours in Vizhinjam, Muthalappozhy, Koyilandi, Chettuva, Cheruvathur and Thalai fishing harbours and support was provided for management of fishing harbours. The progress of ongoing fishing harbours is shown in **Appendix 3.4.12**. Total earnings from fishing harbours and fish landing centres in 2020-21 was ₹4.36 crore. Highest earnings has been from Kayamkulam harbour followed by Neendakara fishing harbour. Together, Neendakara, Kayamkulam and Puthiyappa contributed about 55 per cent of the total earnings from fishing harbours and fish landing centres in Kerala. The details of earnings from fishing harbours are given in **Appendix 3.4.13**.

Apart from the construction of new fishing harbours, NABARD funds have been used for works like modernisation of existing fishing harbours, construction of fish landing centres, roads, bridges, locker rooms and walkways. In RIDF XXIII, four projects amounting to ₹25.4 crore was sanctioned for additional infrastructure development of Vellayil fishing harbour, Chellanam fishing harbour, Thangassery fishing harbour and Puthiyappa fishing harbour. An

amount of ₹27.00 crore has been allotted to the Department in 2020-21 and an additional authorization of ₹18.07 crore was also received in 2020-21. An amount of ₹45.07 crore has been expended during 2020-21.

Living up to its stated motto of “Innovate, Transform and Excel”, the Kerala State Coastal Area Development Corporation (KSCADC) has brought tangible improvements in the fisheries sector by creating infrastructural amenities like roads, markets and houses for the fisherfolk. In 2020-21, shore protection works worth ₹96.77 crore, construction of fishing harbour at Parappanangadi worth ₹112.21 crore and at Chethy worth ₹97.43 crore were sanctioned by KIIFB. In 2020-21, the major ongoing projects initiated by KSCADC includes the construction of fish landing centres at Rathickal, Chillakal and Chengannur. Installation of artificial reef off the coast of Veli Fishing village and establishment of Nile Tilapia Hatchery in Kollam and Palakkad district are the other major ongoing works in 2020-21. KIIFB assistance worth ₹46.0 crore is sanctioned for the construction of fish markets. The commercial activities of the company include marketing of various solar dried value-added fish products branded as '*Drish Kerala*'.

Key Initiatives in 2020-21

- Subhikshakeralam project implemented in collaboration with LGs has helped in increasing the inland fish production. Fish farming has been undertaken in 8,165 ponds. In addition 2001 Biofloc fish farms, 4,195 homestead farms, 255 pearl spot fish farms and 432 cage farms were also established in 2020-21.
- Punargaeham project was implemented for the rehabilitation of fishermen families residing within 50m High Tide Line (HTL). The project is implemented in three phases. The first phase target to rehabilitate 8,487 families and the remaining phases 5,099 each.
- Biofloc farming and Recirculatory aquaculture systems (RAS) were implemented under Pradhan Mantri Matsya Sampada Yojana (PMMSY). During the period, 235 RAS were implemented and cage farming was undertaken in 4 reservoirs (Banarasagar, Karapuzha, Peruvannamuzhi and Kakki).
- Artificial reef was established in the coast of Poovar and Puthyathura fishing villages.

- Fisheries stations were established at Alappuzha, Thrissur and Kannur.
- The State Government constituted an eight-member expert committee for preparing a new draft fisheries policy for the State. The committee is tasked with revisiting the existing fisheries policy and drafting a new document considering emerging challenges and latest developments in the sector with the aim of hastening the socio-economic development of the fishing community.
- KUFOS as a centre of excellence organised about 20 entrepreneurial training programmes in 2020-21.

Measures Taken During Covid-19 Pandemic

Fish and fish products are highly dependent on international trade, which suffered quite early during Covid-19 pandemic from the restrictions and closures of global markets. At the same time fresh fish and shellfish supply chains were also severely impacted by the closure of the food service sectors. The processing sector also faced closures due to reduced consumer demand. This has had a significant impact, especially on women, who form the majority of the workforce in the post-harvest sector. With the imposition of the lockdown, all fishing harbours and fish landing centres in the State were closed down. Mechanised fishing boats were not allowed to operate and fish auctions were prohibited. However, the traditional way of fishing was permitted. Traditional fishworkers were allowed to go out to fish but were asked not to auction their products, as social distancing measures were difficult to implement. Instead, purchase and sales of marine fish were conducted at a price fixed by the Government. The Harbour Management Societies were entrusted to fix the prices of different fish. In the fishing harbours and landing centres, a token system was introduced to avoid crowds. A mobile application was also developed for the online marketing of fish. The Government issued orders exempting aquaculture activities, fish farms and hatcheries and movement of feed, seed, and aquaculture essentials from lockdown restrictions. SAF made an important intervention by providing financial assistance in the form of long term loans at low rate of interest. During the period 359 micro enterprises were assisted with term loan of ₹5 crore from Kerala Bank.

Fisheries sector has a significant role in the socio-economic development of Kerala. Fish and fish products have a crucial role in nutrition and global food security, as they represent a valuable source of nutrients and micronutrients of fundamental importance for diversified and healthy diets. The rapid growth of aquaculture should be enhanced to provide additional employment and to improve the standard of living of the farmers. The State can focus both on domestic marketing and exports of ornamental fish as there is great potential for the production and export of koi carp, particularly to Japan. The sustainable management of fish resources and wellbeing of the fishworker community is a necessity to attain the food and nutritional security and to improve the economic and social well-being of fishworkers community in Kerala. Responsible fishing practices can be adopted for the conservation and utilization of both inland and marine fisheries.

3.5 Water Resources

Scientific and sustainable management of water resources is of critical importance in ensuring water security and socio-economic development for future generations. The United Nations World Water Development Report 2021 (UN WWDR 2021) entitled “Valuing Water” highlights the need for improved water resource management practices through measuring the value of water and incorporating it into public policy and decision-making processes. Issues of conservation and management of water resources in the State are of vital importance in the future, considering the vulnerabilities of the State to flooding and landslides.

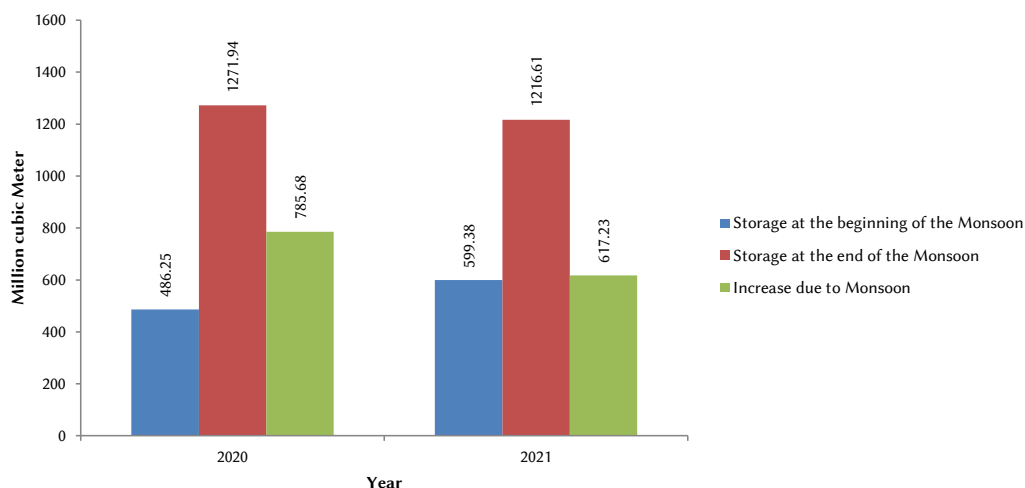
According to a recent analysis by the World Meteorological Organisation, water-related hazards dominate the list of disasters in terms of both human and economic loss over the last several years. Water, weather, and climate-related hazards are increasing in frequency and intensity as a result of climate change. The increasing demand for water adds further pressure to the situation. Water stress, water-related hazards and water quality issues pose increasing challenges to Kerala. During the 13th FYP period, there was a shift of focus in the State from large and medium irrigation schemes to minor irrigation projects

in the irrigation and water management sectors. The scientific management of water resources plays a crucial role in the State, particularly in the contest of its increasing population, rapid urbanisation, industrialisation, and surge in ground water exploitation.

Storage Position of the Reservoirs

The total storage capacity of sixteen dams under Irrigation Department is 1,556.08 Million Cubic Metre (MCUM). Bathymetric studies on selected reservoirs reveal sedimentation level of 28 to 30 per cent, mainly from run off sediments, clay and silt. Excessive sedimentation reduces reservoir viability and accelerates flood risk since Full Reservoir Level (FRL) will be achieved at an accelerated rate. **Appendix 3.5.1** shows the dam storage status (pre and post monsoon) for the period 2019 to 2021. Data for these years cover the period from June 1st to September 30th. The storage level at the end of the monsoon were marked at 1,271.95 MCUM and 1216.61 MCUM for 2020 and 2021 respectively. The storage level post monsoon increased by 785.68 MCUM in 2020 whereas in 2021 it increased by 617.23 MCUM. A comparison on the storage position of reservoirs pre and post monsoon stages is shown in **Figure 3.5.1**.

Figure 3.5.1 Storage position of the reservoirs under Irrigation Department, Kerala 2020 to 2021 in MCUM



Source: Irrigation Design and Research Board, Kerala

Major and Medium Irrigation Projects

Irrigation schemes with ayacut area greater than 10,000 ha are classified as Major Irrigation schemes and those schemes which serve ayacut area between 2,000 ha to 10,000 ha come under Medium Irrigation. The four on-going major irrigation projects in Kerala - Muvattupuzha, Idamalayar, Karapuzha and Banasurasagar – were started in the 1970s and 1980s. However, their construction is still continuing with time and cost overruns. The status of implementation of the four Major and Medium irrigation projects is given in **Table 3.5.1** and **Appendix 3.5.2**.

Achievements of the Four Major and Medium Irrigation Projects

Muvattupuzha Valley, Idamalayar, Karapuzha and Banasurasagar are the four Major and Medium Irrigation Projects that continued during the 13th Five Year Plan. Out of the four projects, Muvattupuzha Valley Irrigation Project was commissioned during the 13th Five Year Plan period. The progress achieved by these irrigation projects during the 13th FYP are detailed in the following sections.

Muvattupuzha Valley Irrigation Project (MVIP)

The Muvattupuzha Valley irrigation project envisages the utilisation of tailrace discharge from Moolamattom powerhouse of the Idukki hydroelectric project and the dependable runoff from the catchments of Thodupuzha river. Muvattupuzha Valley Irrigation project was commissioned on July 10, 2020 by completing the works of Main Canal, Branch Canals and Distributories except Edayar distributory and few

reaches of Karikode Distributory. This Irrigation Project, started with an initial estimate cost of ₹20.86 crore, has Right Bank Main Canal (RBMC-28.339 km) and Left Bank Main Canal (LBMC-37.1 km). The branches of RBMC and LBMC have a total length of 57.154 km, while the distributaries have a total length of 213 km.

Progress of the project during the 13th Five Year Plan Period

- Completion of aqueduct at the railway crossing portion in Ezhuthonippadam, (between Ch.18,238m and 18,261m) created 796 ha, out of which 11ha was benefitted through Ettumanoor branch canal and 785 ha through Kurumulloor distributory
- Anicad East (Nadukkara) minor distributory (1620 m)length was completed and an ayacut of 196 Ha achieved during this year.
- With the completion of Madakkathanam Minor Distributory Painkulam aqueduct, an ayacut of 561 Ha was achieved during this year.
- With the completion of the lift of Koothattukulam distributory 450ha has been achieved during 2020-21. Koothattukulam lift was completed on May 28, 2020 and achieved an ayacut of 1,080 ha.
- Karikode 1st reach (0-1210m) provided an ayacut of 250ha.
- The envisaged ayacut of MVIP was 35,619ha (Gross) and 18,173ha (Net). As on date of commissioning, the total ayacut achieved from this project is 33,905 ha (Gross) and 17,342ha (Net). The cumulative expenditure incurred for the project as on March 31, 2021 is ₹1,100.88 crore.

Table 3.5.1 Status of implementation of the four major and medium irrigation projects in Kerala

Sl. No	Name of Project	Districts Covered	Year of Commencement	Targeted Gross area (in ha)
1	Muvattupuzha Valley irrigation project	Ernakulam, Idukki	1974	35619
2	Idamalayar irrigation Project	Ernakulam, Idukki, Thrissur	1981	29036
3	Karapuzha Irrigation Project	Wayanad	1978	8721
4	Banasurasagar Irrigation Project	Wayanad	1979	3825

Source: Technical committee report on major and medium irrigation projects, KSPB

Project Benefits

Main crops irrigated include paddy (3,364 ha), banana (2,126 ha), pulses (930 ha), tapioca (448 ha), ginger (14 ha), pineapple (790 ha), coconut (6,354 ha), arecanut (548 ha), rubber (3,868 ha), pepper (281 ha), vegetable (1,765 ha), coffee (16 ha), nutmeg (78 ha), turmeric (35 ha), cocoa (40 ha), miscellaneous trees (380 ha) and tubers (520 ha). This project also helps in desalination of low level paddy fields in Kottayam district and benefits the drinking water supply schemes of Idukki, Ernakulam and Kottayam districts. It helps in enhancing the ground water levels of nearby wells. Hindustan News Print Factory is one the beneficiary of the project. It also helps in the generation of hydel power of 10.5 MW.

Idamalar Irrigation Project (IIP)

Idamalar irrigation project, which commenced in 1981 with an estimated cost of ₹17.85 crore, aims at irrigating 14,394 ha of cultivable lands in Periyar and Chalakudy basins. Main canal works were completed for the full length of 32.278 km. The length of the Low level Canal is limited to 15 kilometers, wherein there were two bottlenecks – MC road crossing and railway crossing.

Some of the notable achievements of the project during the 13th FYP :

- In 2020-21, Push Through construction was carried out for clearing the bottleneck at the MC road crossing portion in the Low Level Canal, the first of its kind in the history of Irrigation Department. This helped in augmenting drinking water and providing agricultural benefits to Nedumbassery panchayat. An additional ayacut of 1,035 ha was achieved subsequent to the push through construction.
- 99.5 per cent of Low Level Canal (LLC) has been completed. The construction of balance 74 m of the proposed low level canal includes a railway crossing work. Completion of MC road crossing and the above said stretch of the canal facilitated water distribution upto Ch.12540m, thereby meeting the drinking water and agriculture needs of Nedumbassery Panchayat.
- The land acquisition process for the Kanjoor Thekkumbhagom branch canal is in progress. SIA study for 1.333 KM has been completed.
- The construction of flush escape at the tail end of Low Level Canal at Ch14,623 is pending due

to delay in land acquisition.

- DPR for inter basin transfer of water from Periyar basin to Chalakudy basin by means of link canal has been submitted to Government.
- An ayacut of 128 Ha and 396 Ha has been achieved from Manappatuchira and from completion of link canal respectively
- The financial expenditure upto March 2021 is ₹507.99 crore and the gross physical achievement is 4,195 Ha.

Karapuzha Irrigation Project (KIP)

Karapuzha Irrigation Project, a medium irrigation project in Kabini sub basin of Cauvery river, was awarded 2.80 TMC of Cauvery water. The project was approved by Planning Commission in 1978 for ₹7.60 crore and was partially commissioned on June 20, 2010. The project has a Right Bank Main Canal (RBMC) with a length of 8,805 m and Left Bank Canal (LBMC) with a length of 16,740 m.

Achievements During 13th FYP

A major setback to the Karapuzha Irrigation Project occurred due to Canal breach during floods in 2018 at Ch:4,800m of Left Bank Main Canal reducing the ayacut area of LBMC from 245.17ha to 71.29ha. The rectification work of this major breach at Ch:4,800m is in progress and is proposed to be completed by November 2021. After completing these works the entire LBMC up to tail end ie; up to Ch:16,740m can be made functional for irrigating a total ayacut of 245.17 ha. During the floods in 2019, Canal Breach occurred at Ch:1,800m of Kariambady Branch Canal which off takes from the tail end of the Right Bank Main Canal. The design of the structure has to be revised as this breached Canal was passing over an embankment of about 8m height and soil exploration work has been arranged in this reach. Land required for the construction of Ponginithody, Arimula, Vallipetta, Cheekkallura and Manivayal distributaries off-taking from the Right Bank Canal system are in the possession of the department and works in these reaches are proposed in 2021-22. This will provide irrigation to an additional ayacut of 459ha.

Banasurasagar Irrigation Project (BSP)

Banasurasagar Irrigation project, in the Karamanthodu basin, envisages to irrigate an area

of 2,800ha (net) agriculture land for the second and third crops in two taluks of Wayanad district. It consists of a main canal having a length of 2.73km and two branch canals - Padinjarathara (9.030km) and Venniyode (5.390km).

Achievements in the 13th Five Year Plan

- Diversion Chamber completed between Padinjarathara and Venniyode branch Canal
- 15 per cent of the work of Venniyode Branch Canal (Ch:20m to Ch:570m) completed and 35 per cent of Ch:4,325m to Ch:4,620m work completed.
- Kappumkunnu distributary Ch:3,005m to Ch:3,205m work completed.
- Venniyode Branch Canal Ch: 570m to 1715 m work is under progress. 18 per cent of the work completed.
- Kappumkunnu distributary Ch:1,480m to 1,565m work is under progress. 40 per cent of the work completed.
- In 2019-20 Re investigation of distributaries, reformation of inspection road near diversion chamber works were completed.
- 95 per cent of the Investigation works of distributaries completed

Flood Management Programmes in Kuttanad

Major flood management works in Kuttanad include strengthening and raising the outer bunds of padasekharams and allied works such as construction of motor thara, shed, sluice, and pipe and box culvert. Notable achievements could be attained in flood control activities through Government of India approved schemes KEL I, KEL II, KEL III and KEL IV thereby protecting 574.83ha, 3,262.91ha, 2,818ha and 5,834ha respectively.

Achievements in the 13th Five Year Plan

1. Flood Management Programme (FMP)-Mitigation of flood in Kuttanad region-Phase-1 (Group 2-5, 7-8,10-19), 231 padasekharams in kottayam, Alappuzha Districts. The scheme includes flood management works of 231 padasekharams in Kottayam and Alappuzha districts. By completing the outer bunds of 46 padasekharams, it could be possible to conduct second paddy cultivation and agriculture in these padasekharams, and thereby increasing agricultural production.

The major achievements include the following. Protected area - 2,818 Ha

- Total length of completed bund -128.636 Km
- Total No. of Motor thara /shed constructed- 61 Nos
- Total No. of Sluices Completed -68 Nos
- Total No. of Box / pipe culverts constructed -36 No

2. Mitigation of flood in Onattukara region comprising of 12 Watersheds in Kerala. The major achievements include the following.

- Total area protected- 5834ha
- Total length of bunds completed- 33.2km
- Total No of motorthara/shed constructed-1no
- Total No of culverts constructed- 11nos
- Total No of foot bridge constructed- 17 nos
- Total No of Vented cross bar (VCB)- 3 no

3. Mitigation of flooding 397 padasekharams of Kuttanad Taluk and 14 padasekharams of Veeyapuram Panchayat. By completing this scheme it is possible to do paddy cultivation twice in a year in all the above padasekharams. The major achievements include the following.

- Total area protected - 3871.75 Ha
- Total length of bunds completed -177.64 Km
- Total No of motorthara /shed constructed - 166 no
- Total No of Sluices Completed - 29 nos
- Total No of Box/Pipe culvert constructed- 24 no
- Total No of Thoombu - 587 nos

4. Reconstruction of bund at Puthenarayiram Padasekharam in D block: This Padasekharam in Pulinkunnu Grama Panchayath of Kuttanad Taluk, having an area of 211 ha, experienced a breach in the western bund during 2015 and 2016 because of high tides. Latest technology of precast pile and slab was adopted at the breached portion. Three layers of precast piles were driven in to the ground and connected by Tie Beams. Precast slabs were inserted in between precast piles and the bund was made by filling kayal clay in between piles. To reinforce this, 120 metre long new bund and extra berm was constructed using three rows of coconut piles. Kayal clay was used to fill the berm along the inside and outside of the breached portion. In 2020-21, 42 new works were taken up , which includes

construction of outer bund for a length of 47.09 KM and desilting of thodes for a length of 50.84 KM. Out of the 42 works 23 were completed.

5. *Modernisation of Thanneermukkom Barrage:* Thanner mukkam barrage, a Salt water barrier structure located at Thanner mukkam, is built at the narrow region of Vembanad lake. Construction of bridge was (3rd phase-middle portion) completed with 28 stainless steel shutters and allied lifting mechanisms and opened for traffic on July 31, 2018. Radial gates and hydraulic system of 46 feet lock (14M) had 62 old shutters in the 1st and 2nd phase were replaced with stainless steel shutters. The work related to the hoisting mechanism of these shutters are completed, Renovation of 20 feet and 30 feet locks has been completed. After the completion of modernisation of Thanner mukkam barrage, the flood water can easily drain out towards the estuaries.

6. *Improving the efficiency of Thottapally Spillway:* Thottapally spillway was constructed to expel the flood water to sea from Kuttanad areas. The actual design capacity of Thottapally spillway is 1800 cubic metre per second, but it got reduced to 600 cubic metre per second because of the reduced width of estuary from 380m to 150m. This reduction in the width of estuary was because of the formation of sand bars and casuarina plantation. The reduced width at the mouth, having decreased the efficiency of draining out flood waters in to sea, became a crucial factor for the floods in 2018. Therefore, to reinstate the width of 360m at the estuary mouth, 2,42,831.25 cubic meter of sand and obstructions were completely removed before July 23, 2020.

Kerala Water Resources Information System (Kerala-WRIS)

Kerala-WRIS, is a web enabled platform wherein data related to water and its allied sectors are integrated, has been developed utilising funds under the Rebuild Kerala initiative (RKI). Kerala-WRIS acts as a single authoritative digital platform with specific modules such as weather, water Availability, water demand, water budgeting and auditing and the software development of all these modules have been completed.

Flood Forecasting and Early Warning System (FFEWS)

Development of a system for coordinated operation of reservoirs integrated with flood forecasting and early warning system for Periyar river basin is progressing under National Hydrology Project (NHP). First Deliverable, viz 'Submission of inception Report' has been completed and second Deliverable, viz. 'Report on Optimized RTDAS Network' has been received and its evaluation is progressing.

Establishing a Real Time Data Acquisition System (RTDAS):

Establishing of RTDAS progressing under NHP comprises of real time stations, such as 99 Tipping Bucket Rain Gauges (TBRGs), 56 Radar Level Sensors (RLSs) and 13 Automatic Weather Stations (AWSs). The contract value of the project is ₹12.50 crore. Installation of 91 Tipping Bucket Rain Gauges, 43 Radar Level Sensors and 12 Automatic Weather Stations has been completed.

Irrigation Status

As per the assessment of the Directorate of Economics and Statistics the net irrigated area in the State is 3.897 lakh ha and gross irrigated area is 5.215 lakh ha. The details of net irrigated area (source wise and district wise) during 2020-21 are shown in **Appendices 3.5.3 and 3.5.4**. The net irrigated area shows a decreasing trend from 4.043 lakh ha (2018-19) to 3.897 lakh ha in (2020-21). But, the gross irrigated area showed a marginal increase from 5.153 lakh ha (2018-19) to 5.215 lakh ha (2020-21). Details of gross irrigated area and the crops benefitted are shown in **Appendices 3.5.5 and 3.5.6**.

Paddy and Coconut continued to be the major crops benefitted during 2020-21 and the irrigated area under both these crops have increased from last year. The gross irrigated area under paddy increased from 1.50 lakh ha (2019-20) to 1.59 lakh ha (20-21) and the gross irrigated area of coconut marginally improved from 1.585 lakh ha (19-20) to 1.588 lakh ha (20-21). During 2020-21, the area under banana cultivation as well as the irrigated area showed an increasing trend. The irrigated area of banana increased from 0.448 lakh ha (18-19) to 0.524 lakh ha (2020-21).Vegetables had a nominal

fall in their irrigated area from 0.312 lakh ha (19-20) to 0.288 lakh ha (20-21). There is a small change in the percentage of gross irrigated area to gross cropped area (20 per cent) in 2019-20 to 20.3 per cent in 2020-21. Net irrigated area to net sworn area also shows a declining trend from 20 per cent in 2018-19 to 19.5 per cent in 2020-21. The district wise irrigated data shows that Palakkad ranks top in gross irrigated area followed by Thrissur and Kasaragod.

Renovation of Pazhassi Irrigation Project

The efforts to renovate the Pazhassi Irrigation Project, which was started four decades ago to lead Kannur district to agricultural prosperity, are on track and is expected to be completed by 2021-22. It has been 13 years since water was released through the main canal of the Pazhassi Irrigation Project. Due to floods in 2012, 2018 and 2019, natural calamities and lack of proper maintenance, the water supply through the Pazhassi Irrigation Project has been disrupted since 2008 and the canal network has been in disarray. Extreme levels of flood caused damages in two places (0/300km and 1/300km) in the main canal, causing severe damage to the structure of the barrage during the 2012 floods. During the major floods in 2019, Che: 12/325km of the main canal, the under tunnel, the 110m long canal and 11.52km of the main canal collapsed. A separate allocation was made in the State Budget from 2018-19 onwards for the rehabilitation of Pazhassi Irrigation Project and restoration work was started.

95 per cent renovation work on the first five and a half kilometres of the main canal from the dam is completed. The canal was renovated by strengthening and concreting the edges. The 1.4 km long tunnel from 2km to 3.4km of the main canal was also cleared of soil and set up to allow water to flow. The renovation project involves the completion of a five-kilometre main canal to drain water. The current target is to make irrigation possible through the Mahe Branch Canal by December 2023 and other branches will continue to receive water in subsequent years. Pazhassi is the largest irrigation project in the Kanoor district and it is the source of 12 fresh water supply schemes. With the successful completion of the renovation project, 11,525ha of agricultural land in Iritti,

Thalassery, Kannur and Taliparamba taluks of Kannur district can be made irrigated. The target is to supply water through a 46km main canal to Mahe in two years.

Minor Irrigation

Irrigation projects are usually classified into major, medium, and minor based on the extent of area benefitted and their cost. Schemes having a cultivable command area up to 2000 ha are treated as minor irrigation schemes. Out of these, schemes having an ayacut area below 50ha are classified as minor irrigation class II and schemes having ayacut area of 50 ha or more as minor irrigation class I schemes. Minor irrigation schemes play an important role in Kerala, where the average farm size is small and land labour ratio is low.

MI Schemes during 13th FYP

One of the key emphases of 13th FYP was increased focus on Minor Irrigation to expand the ayacut benefitted through MI structures. With a view to enhance irrigation efficiency and to accelerate crop productivity, micro irrigation techniques were adopted during the period. Water Resource Department has initiated measures for implementing community micro irrigation projects across the State. Despite all these, the ayacut benefitted through MI structures show a fluctuating trend during the first four years of 13th FYP – from 8,006.64 ha in 2017-18 the ayacut declined drastically to 3,388.05 ha in 2018-19. The succeeding years recorded 4,474.86 ha (2019-20) and 3,164.81 ha (2020-21). For the current year (2021-22), till the month of August, 1,499.69 ha could be achieved. Details of physical achievements of minor Irrigation schemes from 2017-18 to 2020-21 is given in **Appendix 3.5.7**.

NABARD has been providing loan assistance under Rural Infrastructure Development Fund (RIDF) through Phase-I to XXV since 1995-96. RIDF I to XVIII have been closed and the works under RIDF XIX TO XXVI are in progress. Under various tranches, 1,349 projects have been completed. Details are given in **Appendix 3.5.8**.

De-siltation of Sediments Accumulated in Reservoirs and other Structures

Kerala has 16 major reservoirs under irrigation department with a total storage capacity of 1,556.08 MCUM. These reservoirs on select bathymetric studies show excessive sedimentation, which reduces viability and accelerates flood risk. This brought about the need to de-silt the reservoirs adopting a process which assures dam safety, financial prosperity, accountability and environmental integrity.

As a pilot initiative, the Government issued standard operating procedures for de siltation of reservoirs through turnkey and work contract methods with respect to the Mangalam and Chulliyar reservoirs. The de-siltation of Mangalam Dam is currently under progress. Out of the total estimated quantity of sediments to be removed 2.95 MCUM, a quantity of 0.134 MCUM has been removed as on August 31, 2021 (4.53 per cent completed). Sanction was also accorded for desilting 6 irrigation structures viz. Chenganamkunnu Regulator, Manjummal Regulator, Purappallikkavu Regulator, Velliyaamkallu Regulator cum Bridge, Pookkottumana Regulator cum Bridge and Cheruthuruthi Checkdam. Out of which, de-siltation of Manjummal Regulator is completed and the other works are under progress.

Micro Irrigation Schemes

As a part of improving water resource use efficiency and sustainability of farming, the Department introduced Micro Irrigation Schemes in 2020-21. As per the studies conducted by National Centre for Agriculture Economics and Policy Research, New Delhi (NCAP), the micro irrigation potential area of Kerala is 2.70 lakh ha. The State aims to

implement micro Irrigation schemes spread over 60,000 ha in the next five years. The various micro irrigation schemes are jointly identified with the help of departments such as Agriculture Department, Ground water Department and Kerala State Remote sensing and Environment Centre (KSREC). Moreover steps have been taken for formulating a state micro irrigation policy in association with various stakeholders and agencies.

Water Conservation under Haritha Keralam

The Haritha Keralam mission intends to integrate all the stake holders in the water sector and to implement various schemes and projects in an integrated Watershed approach for natural resource management. This shall be achieved through renovation and cleaning of existing water sources thereby ensuring clean and safe water for drinking and irrigation purposes. The scheme is implemented in 2 phases. The first phase includes the renovation of ponds. In the second phase, it is proposed to rejuvenate and renovate various water resources such as rivers, backwaters, lagoons, linking of large ponds to irrigation canals, prevention of seepage loss in irrigation canals etc. Details of works under Haritha Keralam are shown in **Table 3.5.2**.

Ground Water Development

Sustainable development of groundwater resources require scientific ground water conservation and recharge systems. These recharge schemes are being implemented as a long term measure to overcome the drought situation in the State. The project components include roof top rain water harvesting for ground water recharge through dug wells, recharge pits, bore wells, subsurface dykes and small check dams. Ground water recharge through roof top rain water harvesting is done in public buildings

Table 3.5.2 Status of the master plan/watershed under Harithakeralam

Type of Local Body	Total number of plan to be prepared	Completed	Approved by GP/BP/ Urban Local Bodies	Balance
Grama panchayath	941	914	914	27
Block Panchayath	152	124	105	18
Municipality	87	85	82	2
Corporation	6	4		2

Source: Department of Water Resources, GoK

and government schools. Details of physical achievement under ground water development schemes are given in **Appendix 3.5.9**. Details on the total annual ground water recharge, net annual ground water availability and stages of ground water development in our State is given in **Appendix 3.5.10**.

Formation of River Basin Plans

The report of the working group for irrigation and water management constituted for the 13th Five Year Plan highlighted the need for formulation of river basin management plans. The works include demarcation of rivers, taking longitudinal and cross section of rivers based on needs, river protection works, assessing carrying capacity and works related to pollution abatement in rivers. 3 works were completed in 2020-21 namely Survey on Chandragiri River of Kasargode District using Smart Station, up gradation of existing survey instrument Leica GS14 to Leica GS 18T and flood investigation for the preparation of flood mitigation plans for Poonoor puzha in Kozhikode.

The irrigation sector during 13th Five Year Plan period envisaged the following (i) shift the focus from Major and Medium Irrigation to Minor Irrigation projects (ii) Special focus on the modernization of canals and the expansion of irrigation in acutely water deficient areas (iii) Drought management involving short term, medium term and long term steps and (iv) Completion of ongoing irrigation projects in the State in a time bound manner. Outlay and expenditure details of the sector during the first four years of 13th Five Year Plan is shown in **Appendix 3.5.11**.

3.6 Forestry and Wildlife

According to per the Global Forest Resources Assessment Report 2020 of FAO, the world has a total forest area of 4.06 billion hectares, 31 percent of the total land area. This area is equivalent to 0.52 ha per person. The world has lost 178 million ha of forest since 1990. The rate of net forest loss decreased substantially over the period 1990–2020 because a reduction in deforestation in some countries and expansion in forest area in other countries through afforestation and the natural expansion of forests. Plantation forests cover about 131 million ha, which is three per cent of the global forest area.

The Global Forests Goals Report 2021 is the first evaluation of the implementation of the United Nations Strategic Plan for Forests 2030. Adopted four years ago, the Plan is a blueprint for forests and people. It recommends six Global Forest Goals.

Forests provide clean air and fresh water and help to avert desertification. They are home to 80 per cent of all known terrestrial species, and they regulate our climate, absorbing one-third of global greenhouse gas emissions. The United Nations Strategic Plan for Forests 2017-2030 was created in order to promote sustainable forest management and enhance the contribution of forests and trees to the 2030 Agenda for Sustainable Development. The Plan recognizes that in order to create a world in which forests can provide economic, social, environmental, and cultural benefits for present and future generations, we will, first and foremost, need more forests. Accordingly, the first Global Forest Goal provides for increasing forest area by three per cent by 2030.

Every year, seven million hectares of natural forests are converted to other land-uses, including large-scale commercial agriculture. Although the global rate of deforestation has slowed over the past decade, we continue to lose forests in the tropics – largely due to human and natural causes. An estimated 1.6 billion people, or 25 per cent of the global population, rely on forests for their subsistence needs, livelihoods, employment,

and income. Of the extreme poor in rural areas, 40 per cent live in forest and savannah areas, and approximately 20 per cent of the global population, especially women, children, landless farmers, and other vulnerable segments of society look to forests to meet their food and income needs.

During the Covid-19 pandemic, forests have been a lifeline for the millions of forest dwellers who have turned to them for their most essential subsistence needs. According to the United Nations Forest Goals Report 2021, during the pandemic the forest sector provided mankind with essential health products – from masks to cleaning supplies and ethanol for sanitizers. Pandemic-driven health and socio-economic outcomes have increased pressure on forests. In this period of vulnerability, many indigenous peoples and local communities, as well as returning migrants and urban workers, have retreated into forests to seek food, fuel, shelter, and protection from the risks of Covid-19. As more and more vulnerable people have turned to forest products and forest resources as a coping mechanism, these ecosystems are beginning to show signs of stress. Several regions now find the stability and viability of their forest sectors in jeopardy.

As we look forward to building resilience and reducing the risk of future pandemics, forests have a critical role to play. Investing in forests is investing in our future. The wellbeing of people is ultimately linked to the wellbeing of forests.

The impacts of the pandemic are coupled with the escalating impacts of climate change and a biodiversity crisis – global emergencies with serious implications for forest ecosystems. Among its many findings, the "Global Assessment Report on Biodiversity and Ecosystem Services" of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) reports that one million species are at risk of extinction and that 100 million hectares of tropical forest were lost from 1980 to 2000. At the same time, climate change jeopardises the resilience of forest ecosystems and their ability to

support ecosystem services worldwide. Though forests offer nature-based solutions to overcome these concurrent global challenges, they have also never been more at risk.

Forest Cover

As per Forest Survey of India, the country's forest cover includes all patches of land with a tree canopy density of more than 10 per cent and more than one hectare in area, irrespective of land use, ownership and species of trees. The National Forest Policy in India, since 1952 has set a goal of bringing one-third area of the country under forest cover. India aims at maintaining a minimum of 33 per cent of country's geographical area under forest and tree cover. Forest Survey of India has presented the assessment of country's forest resources in the 'India State of Forest Report 2019'. As per the report, total forest cover of the country is 7.12 lakh sq km which is 21.67 per cent of the geographical area of the country. The tree cover of the country is estimated as 95,027 sq km which is 2.89 per cent of the geographical area. The total forest and tree cover of the country is 8.07 lakh sq km, which is 24.56 per cent of the geographical area of the country. The assessment in the Report shows an increase of 5,188 sq km (0.65 per cent) of forest and tree cover at the national level over the previous assessment of 2017. Among all the states in India, Kerala stood at third position in terms of increase in forest cover with an increase of 823 sq km, behind Karnataka and Andhra Pradesh between 2017 and 2019. Kerala forests stood among the top five states for species richness of trees (238 species), shrubs (158 species), and plants (477 species).

Even though the land area of Kerala is only 1.2 percent of India, the forest cover is 2.30 per cent of the national average. Forests in Kerala fall in two biogeographic provinces, Western Ghats and the Western Coast, and are rich in biodiversity and vital for environmental protection and considered to be a repository of rare and endangered flora and fauna.

The importance of forests and trees in the well-being of people in Kerala is well recognized. Historically forest management gave priority to production of timber and other products and to generate revenue to Government. There

is widespread realization of the importance of environmental functions of forests in making Kerala a livable place. Impacts of climate change including increasing frequency of extreme climatic events like floods and unprecedented drought point towards the need for increased emphasis on the un-quantified, yet critical environmental functions of forests.

The recorded area of the forest in the State is 11,521.9 sq km or about 29.65 per cent of the State's geographical area (38,863 sq. km). However, the actual forest area including those outside the reserved forests is much more. As per the 2019 assessment of the Forest Survey of India (FSI), the total area under forests including plantations is 21,144 sq km, which is 54.4 per cent of the State's geographical area. However, the extent of very dense forests is only 1,935 sq km or just about 9.2 per cent of the forest cover and the extent of moderately dense forests is 9,508 sq km accounting for 45 per cent of the total forest cover. On the other hand, open forests account for 9,701 sq km or 45.88 per cent of the forest cover. District-wise forest cover details are as provided in **Appendix 3.6.1**. Among the districts in the State, Idukki has 3,151 sq km of forest land followed by Palakkad with 2,084 sq km and Pathanamthitta (1,956 sq km). While considering forest area as a percentage to geographical area, Pathanamthitta and Wayanad districts have 74 per cent each of forest area followed by Idukki (72 per cent).

Trees outside forests cover very diverse land uses including agricultural plantation crops, home gardens, farm forestry, sacred groves, urban green spaces; a significant share of which is in private lands. The home gardens have become an important source of wood and other products. Home gardens along-with rubber plantations have become the most important source of wood supply in the State, which is estimated to account for 82 per cent of wood supply (46.6 percent of wood supply is accounted by rubber estates and 35.3 percent by home gardens). Forests account for only 1.6 percent of the State's wood supply. Several factors have negatively impacted the supply of wood from sources outside the forests. Home gardens are undergoing major changes on account of fragmentation and the

rapid growth of the real estate sector, resulting in removal of trees, thus undermining long term wood supplies. However with appropriate interventions – especially removing the policy and legal disincentives for growing trees – there is enormous scope for increasing wood supply from home gardens.

Rapid changes in the social and economic conditions and the increasing vulnerabilities caused by climate change necessitated to discard the “business-as-usual” approach to managing forests and tree resources in the State. The precarious situation regarding water supply is becoming worse due to climate change related events, which warrants that stable supply of clean water becomes the most important function of forestry in the State. Hence ‘Water for a Thirsty Kerala’ had emerged as the core theme of forest management. The 13th Five Year Plan envisions management of the forests primarily for their public goods functions such as water security, biodiversity conservation, livelihoods of local communities and other social objectives. In 2021-22, the sector focused on major themes such as increasing water security, minimizing human animal conflict, securing the lives and livelihoods of forest dependent communities and keeping forests as a safeguard against climate change.

Management of Natural Forests

Natural forests in Kerala are being managed mainly for sustaining the life support systems and biodiversity conservation through programmes like protection from encroachments, poaching and tree felling, protection from biotic interference and fire, river bank protection, enhanced involvement of tribal’s in forest management, rehabilitation of degraded forest areas and protection of fragile eco-systems, and participatory forest management. Major activities undertaken during 2020-21 include survey of forest boundaries, forest protection and regeneration of denuded forests. Boundary demarcation was carried out by construction of cairns and kayyalas (dwarf walls) along the boundary of the forests. Degraded forest areas were rehabilitated by planting in gaps with the local species. Protection of the forests from fire was carried out mainly by undertaking fire lines and engaging fire protection watchers.

In 2020-21, 2,362 km of fire lines were created and maintained for fire protection. Fire protection works were also done through Vana Samrakhana Samithis (VSS)/Eco-development Committees (EDC)/Department. In 2020-21, number of fire watchers/mazdoor increased considerably. In addition to improvement of degraded forests in general, special protection of unique ecosystems like shola forests, sandalwood areas, wetlands, mangroves, sacred groves and other fragile ecosystems were also carried out.

Improving Productivity of Plantations

The Department has around 1,50,000 hectares (13 per cent of total forest area) of forest plantations of various species of which Teak covers an area of approximately 77,000 hectares (51 per cent of total plantation area). The low productivity of Teak plantations in the State is mainly due to low investment on plantation management (outdated cultural practices and low wage rate, deficiency in seed collection) in the initial years (first 10 years) of plantation establishment. The productivity in second rotation of felled teak plantations is also low. Scientific methods for enhancing the quality of soil are to be adopted to ensure better yields in second rotation areas.

In 2020-21, around 112 hectares of hardwood species was planted in new areas and maintenance was done in 314.3 hectares. Forest plantation management needs to be rationalised so that areas with high potential productivity will be subjected to intensive management ensuring that soil conditions and productivity are improved. Taking advantage of the long history of teak plantation management, a system of improving productivity through application of scientific management practices, is to be adopted. Species wise area under forest plantation is provided in **Appendix 3.6.2**. Area under forest plantations decreased marginally by 1.2 per cent from 156.3 thousand hectares in 2019-20 to 154.5 thousand hectares in 2020-21.

Management of Human-Wildlife Interface

Human-Wildlife interface is a complicated issue and the Department is taking various steps to tackle the problem effectively. Attacks by elephants are the main cause of damage to lives and crops of the people living in the fringe areas

of forest. Other wild animals like tiger, leopard, pig, and peacock are also involved in human-wildlife conflicts. A number of reasons have been attributed to the present state of affairs. The growing pressure of increasing human population, habitat loss and fragmentation and change in cropping pattern adopted by farmers, climatic change, increase in wildlife are the main causes. A comprehensive strategy to significantly reduce the issues arising out of human-wildlife interface needs to be implemented, which include long term and short term measures through prevention and mitigation. Human-animal conflict has risen to a great extent in the recent past leading to increase in claims for compensation. During the last one decade 1051 human casualties are reported in Kerala of which 69 per cent are due to snake bite. In 2020-21 alone ₹10.45 crore was disbursed as compensation. Details are given in **Table 3.6.1**. Total number of incidents increased by 20 per cent within one year from 2019-20 to 2020-21 and compensation by 12 per cent.

Apart from the traditional methods like crop guarding, noise making, setting fire along the boundaries, erecting simple barriers, use of traps, spikes, and fire crackers, clearing field boundaries of thick vegetation, other techniques such as erecting solar fences, construction of elephant proof trenches, elephant proof walls, bio fences, rail fences, use of flash lights and flares, SMS alert system to farmers are used to reduce Human-Wildlife conflict. Demarcation of boundaries

by erecting permanent cairns and constructing stone walls in sensitive areas can help in the protection of forests and in controlling attempts of encroachments. Construction of boundary wall is an effective measure in reducing human-wild animal conflict. As part of boundary consolidation to prevent encroachment, 16,993 permanent cairns were constructed during 2020-21. Other measures included construction of elephant proof trenches, elephant proof walls, solar power fencing and other preventive measures.

Kerala is the first State in India to develop and implement a set of approved guidelines for the rescue and release of snakes from human settlements of the State. Training on rescue and release of snakes were given to about 1400 personnel in 2020-21. Certificates were issued to about 850 trainees certifying as approved snake rescuers. The entire rescue operations were brought under a single platform through a mobile application named Sarpa. The initiative has multiple objectives including safeguarding human lives during instances of snake rescue and ensuring effective protection of reptiles, which cause threat in human dominated areas. Wild animals often get injured due to several reasons like road accidents, being trapped in abandoned well or ditches or in the snare set by the poachers for hunting or by the local people for preventing entry into their farmland. Injured animals have to be rescued and given proper treatment.

Table 3.6.1 Details of adverse incidents of human-animal interface reported and compensation paid in 2020-21

Incidents	Snake Bite (in nos)	Elephant attack (in nos)	Wild Boar attack (in nos)	Wild Gaur attack (in nos)	Tiger Attack (in nos)	Leopard Attack (in nos)	Others (in nos)	Total Incidents (in nos)	Compensation paid (in ₹)
Human Death	52	27	8	0	1	0	0	88	2,70,50,000
Human Injured	767	34	146	2	0	0	39	988	2,59,27,248
Cattle Death	27	1	3	0	141	164	64	400	53,79,812
Crop Damage and Property Loss	26	2919	1898	58	23	7	1610	6541	4,61,24,763

Source: Forest and Wildlife Department, GoK, 2021

The Forest Department with the financial aid of KIIFB, is implementing a ₹110 crore project “Fencing along identified areas of forest boundary to reduce human- wildlife conflict.” The project is implemented in two phases. It includes measures to prevent the entry of wild animals to human habitations by erecting solar power fences, elephant proof walls, crash guard steel rope fencing, rail fencing and voluntary relocation of willing eligible families from the forests to convenient places as they choose.

Forest Revenue

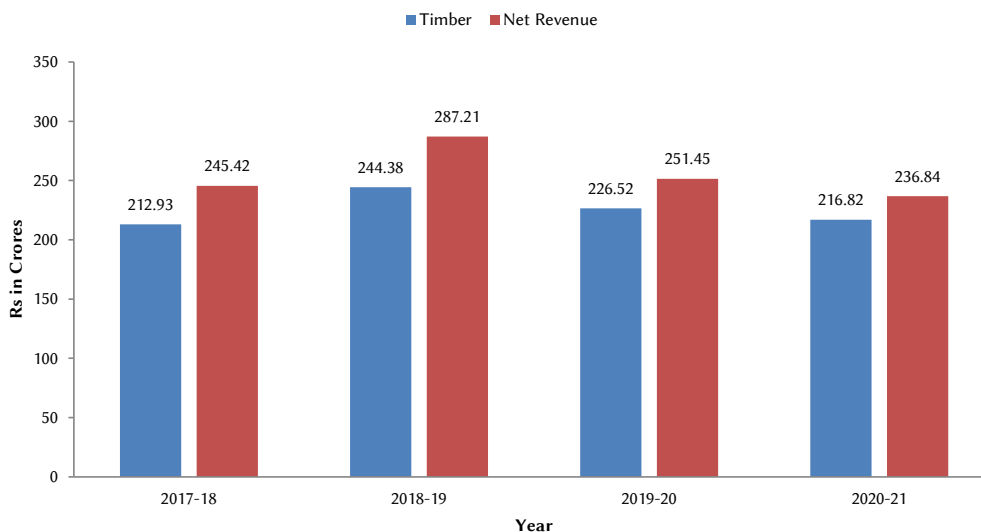
The Forest Department contributes substantially to the non- tax revenue of the State. The revenue from forestry sector by way of sale of timber and other forest produce was ₹236.8 crores in 2020-21. Major portion of the forest revenue is the contribution of timber. In 2020-21, ₹216.8 crore was collected towards revenue from the sale of timber alone which accounted for 91.6 per cent of the total forest revenue. Production of teak and bamboo decreased considerably during 2020-21. Production of teak decreased by 7402 cubic meters in comparison to previous year while sandalwood production increased by 11.7 per cent during the year. Production of major forest produces in 2019-20 and 2020-21 are given in **Appendix 3.6.3**. Production of honey, reeds and acacia mangium also increased during the period.

Trends in revenue from timber and other forest products during the period 2017-18 to 2020-21 is given in **Appendix 3.6.4**. Compared to 2019-20, in 2020-21 net revenue from forest products declined from ₹251.5 crore to ₹236.8 crore, a fall of 5.8 per cent. Major reasons for this fall is due to decline in timber revenue, decline in revenue from wild life department, and others.

Figure 3.6.1 shows the trend in forest revenue. From 2017-18 to 2018-19, forest net revenue showed an increase of 17 per cent, but in 2019-20 it declined by 12.5 per cent and further declined to 5.8 per cent in 2020-21. Recent fall in forest revenue was due to the impact of Covid-19 pandemic. Between 2019-20 and 2020-21, the revenue from timber declined from ₹226.5 crore to ₹216.8 crore, a fall of 4.3 per cent.

The share of forestry and logging in total GSVA at base prices was 0.99 per cent in 2020-21, whereas it was 0.92 per cent in 2019-20. Similarly, the share of primary sector in GSDP which was 8.74 per cent in 2019-20 has increased to 9.94 per cent in 2020-21. Contribution of forestry sector in GSVA is shown in **Appendix 3.6.5**.

Figure 3.6.1 Trends in forest revenue 2017-18 to 2020-21



Source: Forest and Wildlife Department, GOK, 2021

Biodiversity Conservation and Management of Protected Areas

Conservation of wildlife and biodiversity is gaining more importance these days. The wildlife wing manages 3437 sq km of forests under its protected area network which includes National Parks, wildlife sanctuaries and community reserve. Kerala has six national parks, 18 wildlife sanctuaries and one community reserve. The wildlife wing also looks after the conservation and management of high value biodiversity areas outside protected areas. Habitat improvement works such as fire protection, water source development, eradication of invasive weeds, infrastructure facilities including construction and maintenance of trek paths, provision for communication and so on are included in protection and conservation activities. Details of wild life sanctuaries, national parks, community reserves and biosphere reserves are provided in **Appendix 3.6.6.**

Apart from the general wildlife census being conducted in the forest area, separate population estimation is conducted for Tiger, Elephant and Nilgiri Tahr. As per the report of Ministry of Environment, Forests and Climate Change, the tiger population has increased from 136 in 2014 to 190 in 2018. The estimated population of Nilgiri Tahrs, an endemic species in Kerala was 575 in 2017, which increased to 643 in 2018 and further declined to 526 in 2019.

Conservation of the rich biodiversity, especially through the network of protected areas has been the key objective of the Department. Biodiversity management helps to reduce long term economic and ecological vulnerabilities, ensuring that the unique plant and animal wealth is sustainably managed for the economic development of the State. Based on detailed scientific studies, wildlife corridors connecting animal habitats are established through acquisition of land. Further, a voluntary resettlement programme is being implemented relocating settlements from inside the forests to the forest fringes. Support is provided to Local Government institutions to conserve biodiversity, especially through supporting the development and updating of biodiversity registers and conserving unique areas like sacred groves, mangroves, etc. Kerala has

two Biosphere Reserves that harbor exceptional biodiversity, namely Agasthyamala Biosphere Reserve and Nilgiri Biosphere Reserve.

Activities like habitat improvement works such as fire protection, water source development, eradication of invasive weeds, infrastructure facilities including construction and maintenance of trek paths, provision for communication, equipment like wireless sets and vehicles are included for protection and conservation. Training and research are other major activities undertaken in order to strengthen biodiversity conservation. In addition to the improvement of the degraded forests in general, special protection of unique eco-systems like shola forests, sandalwood areas are also included under this programme.

The activities of the department include habitat improvement, maintenance of rescue centers, fire protection, conduct of anti-poaching camps, water resource management, eco-development activities, Wildlife Week celebrations, and prevention of depredation of crop by animals. There are many environmentally conscious and responsible citizens and citizens groups, who through personal efforts take proactive action in conservation of the biodiversity and biological resources outside forests. To encourage such citizens and citizen groups, Prakrithi Mithra Award was instituted at the Panchayat level. School and college students are imparted exposure to nature in nature education camps in Sanctuaries, National Parks and other forest locations. Residential programme includes trekking in forests, study of flora and fauna etc. Other programmes include ex-situ conservation of flora and fauna, acquisition of private enclosures, maintenance of secret service fund for rewarding informants to prevent wildlife crimes, specialised training in wildlife management, veterinary care inside and outside Protected Areas, staff welfare activities, and wildlife population estimation.

Vanamithra award was given to individuals, educational institutions, NGOs, and farmers considering their activities which contribute to the conservation of biodiversity, conservation of sacred groves, mangroves, medicinal plants, and

agro-biodiversity; 14 nominations were selected during 2020-21 and awards distributed. The owners of mangroves are being awarded monetary incentive for their support in maintaining existing mangroves and protecting them from destruction and making available the ecosystem services to the society.

Sustainable Ecotourism

Considering the rapid socio-economic changes, in particular urbanisation, the demand for eco-tourism is expanding rapidly. If managed sustainably, ecotourism could become a major source of employment and income, surpassing what can be obtained from managing forests for wood production. Scientific strategies need to be developed and implemented to promote forest-based ecotourism ensuring that a major share of the benefits accrues to local communities.

Eco-tourism is a travel to natural areas to understand the nature in its original form taking care not to meddle with the nature in any manner. The Kerala forests have beautiful locations to attract all types of tourists. Eco-tourism in and around forest areas helps in environmental conservation by promoting awareness amongst various groups. It is not intended to provide large scale infrastructure in the forest areas. The department has 60 ecotourism destinations. An amount of ₹799.94 lakh was expended in 2020-21 for various activities. Due to Covid-19 pandemic all ecotourism centres remained closed during the period, however in 2019-20 the revenue from ecotourism amounted to ₹27.19 crore.

Ecotourism was implemented based on the micro plans prepared by the Vana Samrakhana Samithis (VSS) and Eco Development Committees (EDC) on spots like river, waterfalls, grasslands and places which are largely visited by people from time to time. Improvement of livelihood of the forest dependent communities is the main objective of the project. In each project, 10 to 25 members of VSSs/EDCs are working as guides. Efforts are taken to include maximum number of women labours in eco-tourism centres. As such about 1,200 VSS and EDC members are engaged as guides in these ecotourism centres.

In every centre, an eco-shop for selling NTFP and MFP is set up, which provides employment

to the local forest dependent communities. Creating such employment opportunities will reduce dependency over forests of the local people and will help conserve the natural eco system. In addition to the direct engagement of VSS members, it is estimated that more than 5,000 people are indirectly benefited through the ecotourism programmes carried out by the Kerala Forest Department.

Social Forestry

Haritha Keralam Scheme of the Kerala forest department was started in 2009-10 with the objective of greening Kerala by way of distributing seedlings free of cost to schools and higher educational institutions for planting in public lands and for media, political parties, and youth organizations. The scheme also included production of seedlings and supply at subsidised rate to local self government bodies, media, public and other organizations. The 13th phase of the Haritha Keralam scheme is being implemented in 2021-22; for which about 46.6 lakh seedlings were raised for distribution to public and Government. Details of seedlings distributed through social forestry is given in **Appendix 3.6.7.**

The institutional and avenue planting programme envisaging planting of seedlings of more than one year old on the sides of important roads, institutions and avenues during 2020-21 numbered 1.9 lakh seedlings.

Home Gardens and Urban Forestry

The programme for improving wood production from the home gardens requires to be implemented involving the Local Governments and taking advantage of expertise from the Kerala Agricultural University and other institutions. Production of seedlings and other planting materials will be improved through active involvement of Kudumbasree units. A beginning will be made to develop urban green spaces as an integral component of city planning in selected corporations and municipalities.

The incentive for private forestry programme is proposed to give cash incentives to farmers with an objective of encouraging to grow more trees and produce timber in private lands. The tree species included in the scheme are Teak,

Sandal, Mahagony, Anjily, Plavu, Rosewood, Kambakam, Kumbil, Kunnivaka and Thembavu and the scheme is proposed to be implemented through individual farmers, VSS, EDC, Kudumbasree units, Self Help Groups, farmers, co-operatives and NGOs. Those who are planting a minimum of 50 seedlings in their land will be eligible for incentive.

Recognition of Forest Rights Act

The Forest Rights Act 2006 envisages recognition of rights of forest dependent communities. The Act recognize the rights of the forest dwelling scheduled tribes and the responsibility and authority for sustainable use, conservation of biodiversity and maintenance of ecological balance of dependent communities in terms of individual and community rights. Scheduled Tribes Development Department is the nodal agency in the State entrusted with the task of implementation of the Forest Rights Act. The implementation of the Act in the State is done through 511 grama sabhas, 14 sub divisional level committees and 12 district level committees.

Livelihood of Forest-Dependent Communities

Considering the close relationship between forest dependent communities and forests, the Department in collaboration with other departments and agencies is attempting to implement a programme to improve the livelihood of the forest dwelling tribal communities, fully taking cognizance of their aspirations. Apart from providing a wide array of employment opportunities in forestry, including in improved collection and value addition of non-wood forest products, alternative livelihood improvement opportunities are envisaged. Providing amenities to tribal hamlets, especially education and health care would be taken up. To reduce the dependency of local people on forest resources, alternate livelihood to the local people is provided by way of supply of better yielding cattle, sewing machines and, training in ecotourism activities. Supply of solar lamps, smokeless chulas, LPG and construction of biogas plants for local people are also envisaged in order to prevent the exploitation of forest for fuel wood. As part of revitalizing the living standards of tribal people within the forest area, the department has vested the collection of minor forest products with them at free of cost.

Activities under eco-development programme included hamlet development programmes especially in tribal hamlets, alternate livelihood programmes, training in skill up-gradation especially in handicrafts, propagation of alternate energy resources, promoting renewable energy devices, solid waste disposal, organic farming, compost making, developing safe drinking water projects, education assistance including scholarships, developing infrastructure in tribal schools and hostels, and setting up of work sheds.

Rebuild Kerala Development Project (RKDP)

The devastating floods that wreaked havoc in Kerala in August 2018 caused considerable damage to the social, economic, human and ecological infrastructure of the forested landscapes. Loss of vegetal cover, wide-spread landslides, washing away of humus and topsoil, formation of gullies and ravines, and reduction of overall water retention capacity were some of the damages caused by floods. In order to rebuild the flood affected areas the Forest Department had drawn a project to implement in the forest areas of the State as part of Rebuild Kerala Initiative (RKI) which was approved with a total project cost of ₹800 crore to be implemented in three years, starting from 2019-20. The project envisages relocation of private settlements, and acquisition of mangroves and private estates. In addition to this, one hydrological study and two scoping studies are also included. State Level Empowered Committee (SLEC) approved the proposal for relocation of 21 willing eligible families from Kasaragod Forest Division for an amount of ₹3.2 crore and 57 eligible families from Kattilappara settlement of Shenduruny Wildlife Division for an amount of ₹8.6 crore. Verification of documents regarding legal status/ownership of 13 estates identified and preliminary discussion with individual estate owners are under progress. Valuation Committees under Ecologically Fragile Lands Act are constituted for Thrissur and Kollam Districts.

Achievements and Initiatives under Forestry and Wildlife in 2021

Project Green Grass: Under the Project Green Grass, measures were taken to map the waste dumping areas along the roads going through forests; 125 major dumping points were identified in the State by engaging VSS/EDC

members and NSS volunteers of various schools and colleges and NGOs. One of the most affected areas of the State was the forest areas of Munnar Division. In 2020-21, an amount of ₹8 lakh was allotted for Project Green Grass and ₹5 lakh from Compensatory Afforestation Fund Management and Planning Authority (CAMPA) funds to the identified Forest Divisions, which was totally utilised for removal of waste and other related activities. The Forest Department has so far collected, segregated and disposed 1853 tonnes of wastes from the identified 125 points spread over six circles covering the entire State with the help of Panchayats.

Conversion of pulpwood plantations of eucalyptus, acacia to natural forests: A High-Level Technical Committee was constituted to provide technical inputs for felling acacia, eucalyptus and wattle plantations and converting the area to natural forests. Specific emphasis is being given on areas which are disaster-prone, areas under wildlife corridor and riverside areas. Areas have been identified and the procedures are in the final stage. The felling and conversion to natural forests are to be taken up in a phased manner with the final phase to be completed by 2034. Already one project has been approved under NABARD-RIDF and work is underway in Thrissur and another eight projects are in the pipeline.

Automation of Working Plans based on ecosystem-based approaches: Working plans are the cornerstones of forest management. As part of improving the management of forests, the preparation of working plans has been automated. Further, hydrology has been made as the central theme of forest management and the working plan prescriptions have been made accordingly.

Recovery programme for critically endangered species: There are several species of plants categorised as critically endangered in the State. In collaboration with the Kerala Forest Research Institute, Peechi, a programme aiming at the recovery of these species has been initiated in 2020-21. Plants such as false calumba/daruharidra (*Coscinium fenestratum*), Nilgiri barberry (*Berberis tinctoria*), Ceylon ebony

(*Diospyros ebenum*), and Talipot palm (*Corypha umbraculifera*) were taken up for recovery in 2020-21.

Establishing a tiger rehabilitation centre: Tiger Rehabilitation Centre was proposed to be established at Thrissur; however, due to non-availability of proper space the project location was changed. Since Wayanad is the major tiger conflict area, the project location was shifted to Wayanad by scaling down the project cost and the work is nearing completion.

Use of eco-friendly coir fiber-root trainer instead of plastic bag for raising seedlings: As part of using an eco-friendly bag for raising seedlings, a new type of container namely coir fiber-root trainer has been developed for producing seedlings for planting as well as supply to the public. As part of this one lakh seedlings have been raised in coir fiber-root trainer. This will be continued and further expanded in the coming years.

Wildlife Safari Park at Kannavam, Kannur: The initial proposal had been amended as the site at Kannavam requires the removal of more trees than expected from Reserved Forests. Hence, steps have been taken to get land available from Aralam Farming Co-operation Society at Aralam.

High-end Cyber Forensic Lab: A detailed proposal to establish a Cyber Forensic Lab following the guidelines and norms of the Ministry of Electronics and Information Technology has been prepared and submitted to Government for ₹25 lakh, which is under active consideration of the Government.

Species Conservation Programme: The works related to the species conservation programmes of 83 plant species in Kerala listed as critically endangered is being planned and works are under way.

Pilot project to digitise the boundary of forests: The project is in the planning phase and Chalakkudy Forest Division has been identified for the pilot project.

Check posts to be upgraded as Integrated Forest Check posts: The project for upgrading 16

integrated forest check posts have been approved under the NABARD-RIDF; tenders for 14 are floated and the project is nearing the completion stage.

Declaration of Kallar and Bhavani Wildlife Sanctuary: Proposals for Kallar wildlife sanctuary is in its final stage of preparation and will be submitted shortly to Government whereas the proposal for Bhavani Wildlife sanctuary has been submitted and is under the active consideration of Government.

Monitoring mechanism to look after survival of seedlings planted under the tree sapling drive: A monitoring mechanism involving collaboration with the line departments including agriculture and LSG departments is being worked out.

Reorganizing the Field Units of Forest Department on a Landscape Basis: The devastating floods of 2018 and the landslips of 2019 and 2020 have significantly contributed to an increasing realization and general consensus that the forests of the State form the cornerstone for the water security of Kerala. To strengthen their capacity to perform their key role in the hydrological cycle, the State Government has taken several initiatives, like phasing out of plantations of exotic species, eco-restoration of such area to natural forests and so on. As a logical next step, the field units of the forest department will be reorganised on landscape basis, so that the forests and adjoining areas come under holistic and coordinated management which will improve their hydrological services.

Vidyavanam: To connect children to nature, the forest department introduced the concept of 'Forestry Clubs' in the schools during the early 1980s. It is felt that the functioning of these forestry clubs needs to be revived along with establishing new clubs wherever they are not formed till now. With this in view, forest department has recently initiated a programme to revive and expand the activities of forestry clubs in Kerala through "Mission forestry clubs". The objective of the programme is to create miniature forest patches in the school/college premises so as to enable the students to feel and experience forests. It will provide an opportunity

for students to understand native and indigenous species, biodiversity values and ecosystem services. The novel concept of Vidyavanam will inculcate a sense of love and belongingness to nature and forests, encourage students to know the practical aspects of forest protection and sustainability of the environment, help develop environmental discipline and ecological stewardship, empower children with leadership, team-work and problem-solving skills. Forest department has planned 500 such Vidyavanams in schools/colleges in forest fringe areas this year.

District Permanent Nursery. The concept of district permanent nursery is to produce seedlings of prescribed standards by following standard silvicultural practices, to raise seedlings of important/rare and endangered species and to spread awareness about tree species, their importance, and environmental services offered by trees. The implementation process has been started in Thiruvananthapuram, Pathanamthitta, Alappuzha, Kottayam, Palakkad, Wayanad, Kozhikode and Kasargode districts.

Nagaravanams: It is a known fact that urban dwellings and cities account for 78 per cent of carbon emissions and 60 per cent of residential water use. An increase in the water-impermeable built-up area, reduction in open green areas, increase in pedestrian and vehicular traffic, congestion, pollution, sewage and garbage are the known maladies of urbanisation in Kerala. Reduction in vegetation, higher prevalence of dark surfaces with low albedo and increased anthropogenic heat production results in the "heat island effect". WHO suggests ensuring at least a minimum availability of nine square metre green open space per city dweller. To tackle this issue, the Government proposes to promote urban forestry. As part of this, green spaces or urban parks called Nagaravanams will be established in cities across the state. Nagaravanams will be developed as a multi-canopy, close to natural forests with species indigenous to the area by incorporating the concepts of high-density planting which involves intensive planting of trees, shrubs, herbs and climbers to create dense forests in a short time.

Strengthening the Vanasree Initiative: As part of joint forest management, the Department has setup 640 VSS/EDC. Members of VSS/EDC are engaged in the collection of Non-Timber Forest Produce (NTFP) for which the Department provides facilities for value addition and also avenues for the sale of such value-added products. The Department has setup 34 Vanasree outlets and two mobile units for the sale of the NTFPs collected by the VSS/EDCs. The outlets have an annual turnover of more than ₹10 crore. These outlets, on the one hand, make available quality products to their retail customers and on the other hand, ensure that the maximum share of consumer rupee is ploughed back to the NTFP collectors, mostly members of Scheduled Tribe. The brand Vanasree will be registered and professional branding carried out so that its visibility is enhanced. Further, professionalism will be introduced into the management of Vanasree outlets by preparing business plans and assuring quality standards.

Online system for delivery of passes for cutting and transportation of trees from non-forest land: To increase transparency and efficiency in issuing passes for cutting and transportation of trees from non-forest land, the Government intends to implement an end-to-end online system wherein the applicant can download the pass once the process is completed.

Management of Captive Elephants: Kerala is among the top in the list of states having maximum number of captive elephants which are in the Schedule-I of Wildlife Protection Act and having the highest level of protection. They are being used in religious and other festivals and form an integral part of culture and tradition of the State. Kerala was the first State in the country to enact rules for the management of captive elephants. As a part of streamlining their management, DNA profiling of all the captive elephants in the State has already been carried out. In order to properly monitor the welfare of all the captive elephants and to provide hassle free services like permission for their use in festivals and functions, renewal of ownership certificate, and issuing permission for trimming of tusks are proposed. Kerala Captive Elephant Management System (KCEMS) will be developed and implemented.

Outlay and expenditure details of the sector from 2017-18 to 2020-21 of 13th Five Year Plan is as shown in **Appendix 3.6.8**.

3.7 Environment

Since economies are embedded in nature and depend profoundly on the flow of goods and services it generates, policies to promote economic development should also be beneficial to nature. As one of 17 mega-diverse countries in the world, India is located in a rich variety of ecosystems and geographic landscapes. In terms of area, India is the seventh largest country in the world and occupies 2.4 per cent of the world's land area. It contains over seven per cent of all recorded species of plants and animals – many uniquely endemic to the subcontinent. India's diverse geography and climatic conditions cover a variety of ecosystems, including such as hot and cold deserts, highlands, tropical and temperate forests, grasslands, swamplands, mangroves and plains. No wonder then that four of the 34 globally recognised biodiversity hotspots are in India. The 2020 Environmental Performance Index (EPI), which provides a data-driven summary of the state of sustainability around the world, ranked India at 168 among countries. This shows the severity of environmental challenges before the country. Major environmental issues in India include deforestation, pollution, degradation of land, depletion of resources such as water, minerals, sand and rocks, loss of biodiversity, and loss of resilience in ecosystems.

Kerala is one of the country's and world's distinctive biodiversity hotspots. It has all the three maximally productive and biodiversity rich ecosystems in the world, namely tropical rainforests, freshwater and brackish water wetlands, and marine coral reefs. There has been progressively rising pressure on the environment and the natural resources of Kerala over the years because high density of population as well as the State's developmental needs. The consequences of this pressure are becoming increasingly evident. Environmental consciousness is all pervasive in Kerala society, and related issues are debated intensely in the public sphere.

Sustainable development is an empty slogan without the effort to resolve the environment-

development conundrum through the application of science and technology. The importance of science has been recently re-emphasized by the Covid-19 pandemic and its impact and the need to monitor and, to the extent possible, guard against the outbreak of zoonotic diseases. The impact of the recent recurrent floods and landslides and unprecedented drought, have also necessitates science-based study and intervention to build resilience to extreme events.

Climate Change

Climate change is so rampant that it is affecting every country in all continents and it is disrupting national economies and affecting lives everywhere. Weather patterns are changing, sea levels rising, weather events becoming more extreme and greenhouse gas emissions are now at their highest levels in history. The poorest and most vulnerable people are the most affected. Climate change is real and human activities are the main cause; the concentration of greenhouse gases in the earth's atmosphere is directly linked to the average global temperature on Earth. The concentration has been rising steadily, and mean global temperature is rising since the time of the Industrial Revolution.

Climate change is an issue that requires solutions and need to be coordinated at the international level to help developing countries move towards a low-carbon economy. The historic Paris Agreement of 2015 provides an opportunity for countries to strengthen the global response to the threat of climate change by keeping global temperature rise in this century well below two degrees Celsius and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change. The IPCC was created to provide policymakers with regular scientific assessments on climate change, its implications and potential future risks, as well as to put forward adaptation and mitigation options. The IPCC Report on Climate change released in August, 2021 warns

of sea level rise as already happening across the world. This is alarming to coastal states like Kerala. In cities like Kochi, the projected sea level rise would be about 1-3 feet by the end of the century. Experts warn that coastal states will feel the impact not only by sea intrusions but also in increasing salinity in groundwater systems.

India is highly vulnerable to climate change because of high physical exposure to climate related disasters and also because the economy depends mainly on climate sensitive sectors like agriculture, forests, tourism and fisheries. India had started its work on action plan in 2007 and the National Action Plan for Climate Change (NAPCC) was released in October 2008. The National Action Plan for Climate Change (NAPCC) sets eight National Missions to respond to climate change; these include National Mission on Solar Energy, Enhanced Energy Efficiency, Sustainable Agriculture, Sustainable Habitat, Water, Sustaining Himalayan Eco-System, Green India Mission and Strategic Knowledge for climate change covering range of actions including adaptation and mitigations. Subsequent to the introduction of National Action Plan on Climate Change (NAPCC) in 2008, State Governments were also encouraged to prepare their own State Action Plan on Climate Change (SAPCC) consistent with strategies in the National Action Plan for Climate Change (NAPCC). Till date, 33 SAPCCs of States and Union Territories have been approved and are operational.

Climate change poses serious threat to Kerala's environment and has become an agenda for development planning in recent years. The Environment Department is the nodal agency for coordination related to climate change in the State. With the formulation of National Action Plan on Climate Change through its Missions for addressing climate change concern, Government of Kerala has been working on State Action Plan on Climate Change (SAPCC) to address climate change issues at state level. The Kerala State Action Plan on Climate Change was drafted by the Directorate of Environment and Climate Change (DoECC) with inputs from relevant departments, agencies and institutes. This was endorsed by the Government of India in 2014.

The Ministry has also requested States to initiate the process of revision of the SAPCCs and issued the guidelines for the revision of SAPCC in 2019. In this context, the Directorate has initiated the process of revision of SAPCC with special focus on developing implementable action plans in the wake of recent extreme climatic events. The DoECC has completed the State Climate profile and vulnerability assessment for various sectors. Stakeholder consultation has also been initiated to frame the adaptation and mitigation policies and financing. Being an important vision document of the State, SAPCC places the climate change concerns at the forefront of sustainable development for maintaining the quality of life of the people of the State. Its main objective is to mainstream climate change strategies into State level planning and development process and to reduce climate change associated risks of the State.

Major Initiatives of the Department in 2021

Under the Bhoomithrasena Clubs (BMCs) Scheme, activities to strengthen the environmental commitment of students at college and higher secondary school level in the State are carried out. Presently there are 369 BMCs functioning in various higher secondary schools/colleges all over Kerala to create and promote environmental awareness among the students. Under Paaristhithikam scheme financial assistance was given to various schools/colleges/NGOs across the State to conduct awareness cum action-oriented programmes focused on creating awareness about pollution and post flood environmental restoration activities. The programmes conducted as part of the scheme also create awareness among the public regarding the ill effects of plastic pollution on environment and human health and helped for the production of more alternate products which can reduce the use of plastic. Webinars on various topics related to environment were carried out by DoECC through Bhoomithrasena Clubs (BMCs) and other organizations including NGOs.

As part of environment research and development, 12 new projects were initiated and four recurring projects are functioning successfully. Geo-spatial laboratory facility accommodating expert technicians, high

performance computing systems, and GIS software were established in the directorate for vulnerability and allied analyses. The Vidhyaposhini student fellowship programme aims to provide financial assistance to postgraduate students to undertake short term research projects in the field of environment. Paristhithiposhini research fellowship programme has supported young researchers on critical issues related to environment and climate change. Two PhD scholars successfully completed the fellowship programme during the period. A new post-doctoral fellowship programme titled Ujjwal was initiated for engaging young talents in the State in practices relating to climate change mitigation and adaptation policies.

The scheme on climate resilient farming aims to enhance resilience of agriculture sector to the effects of climate change through strategic research, technology development and demonstration. The DoECC is implementing the project on 'Innovative approaches to climate resilient farming' in Munroe island of Kollam. The project envisages developing and promoting sustainable farming and land use systems in the climate change prone island. It is intended to reduce vulnerability to climate stress and enhance sustainability of the wetland resources by stimulating research and training in partnership with all the stakeholders through participatory approach.

As per Coastal Regulation Zone Notification, draft Coastal Zone Management Plans (CZMP) for all the coastal districts have been prepared by Kerala Coastal Zone Management Authority (KCZMA). Under the National Plan for Conservation of Aquatic Ecosystems (NPCA) various conservation activities are in progress in Sasthamkotta in Kollam district. As part of the conservation and management of Vemband-Kol, Ashtamudi lake, Sasthamkotta and Vellayani lake, the State Wetland Authority has prepared "Wetland ecosystem health cards" and constituted 'Wetland Mitras' to enable participation of local stake holders in wetland conservation and its wise use.

Impact of Thanneermukkom regulator on Kuttanad ecology of the region has been a centre

point of discussion due to environmental issues. Development of a scientific crop calendar for Kuttanad and its enforcement can solve to certain extent the problems in the region and also bring down the severe instances of pests/diseases. This has been pointed out in 'A special package for post flood Kuttanad' brought out by Kerala State Planning Board. Accordingly a crop calendar for Kuttanad is being prepared under the guidance of Kerala Agriculture University. Second wave of Covid-19 pandemic created challenges for implementation of many of the projects and were not able adhere to the timeline stipulated for different activities.

Pollution Control

Pollution is pervasive and poses a direct threat to human health and the environment. Various forms of pollution are found in the air we breathe, the water we drink, and the land we live on. The UN Environment Programme is working with governments, business and civil society to beat pollution. To this end, the implementation plan towards a pollution free planet, which was welcomed at the fourth United Nations Environment Assembly, identified five key action areas for addressing the gaps and challenges associated with pollution: knowledge, implementation, infrastructure, awareness, and leadership. In order to beat pollution, governments, businesses, and civil society must have access to the up to date geo-spatial information, assessment, and tools for evidence-based policy and action. Equipped with this knowledge, we can contribute to the achievement of the Sustainable Development Goal by 2030.

One of the fastest growing economies in the world, India contributes around seven per cent of the green house gas emissions in the world and ranked third after China and US in greenhouse gas emission. The State of India's Environment Report 2021 published by the Centre for Science and Environment warned that air pollution caused 12.5 per cent deaths in the country. The surface and groundwater in the country are under threat, with 86 per cent of the water bodies being critically polluted. The major reason for this is the build-up of heavy industries which divert the effluents into water bodies. According to the Central Pollution Control Board, out of

the 88 major industrial clusters in the country, 35 clusters showed overall environmental degradation, 33 pointed to worsening air quality, 45 had polluted water and in 17, land pollution became worse.

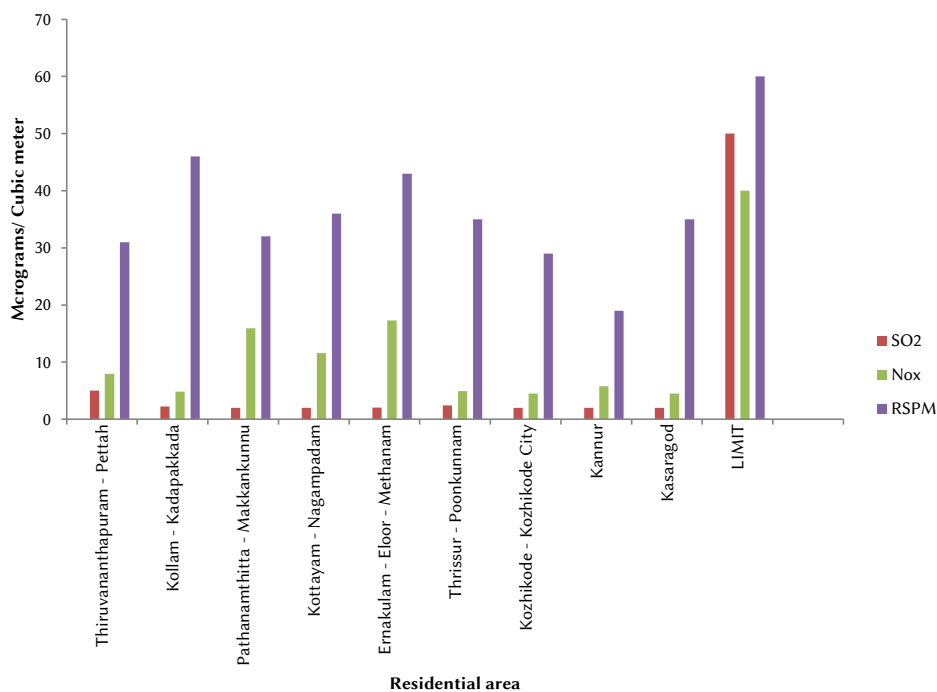
The Kerala State Pollution Control Board (KSPCB) is monitoring ambient air quality at 34 stations in the State, of which 28 stations come under the National Ambient Air Quality Monitoring Programme (NAMP). The State Ambient Air Quality Monitoring Programme (SAMP) is being implemented at seven stations. Annual average values of air pollutants at major monitoring stations in residential areas of Kerala are shown in **Figure 3.7.1** and annual average values of air pollutants at three monitoring stations in sensitive areas of Kerala in **Figure 3.7.2**. **Figure 3.7.3** depicts the annual average values of air pollutants at 11 monitoring stations in industrial areas of Kerala.

A total of 128 water Quality Monitoring Stations are under National Water Quality Monitoring Programme (NWMP) in the State. It includes 72 stations in 48 rivers (major, medium and minor

streams), six in reservoirs, three in fresh water lakes, eight in estuarine lakes, three in canals, two in ponds and 34 stations in ground water. State Water Quality Monitoring Programme (SWMP) operates at 115 stations in 23 rivers and 23 stations in four lakes. Some of the rivers having high Biochemical Oxygen Demand (BOD) values are river Pamba during Sabarimala festive seasons and downstream of river Karamana, Periyar, Bharathapuzha, Vamanapuram and Kadalundi. Coliform counts are reported to be very high at Munnattumukku in Karamana river, Kallayi bridge in Kallayi river, Pamba river, Purakatteri in Korapuzha river, Thodupuzha river and Munnar river. **Figure 3.7.4** depicts BOD levels at selected river stations in Kerala. Compared to 2019, BOD levels were high in 2020 only in Kadalundi and Periyar.

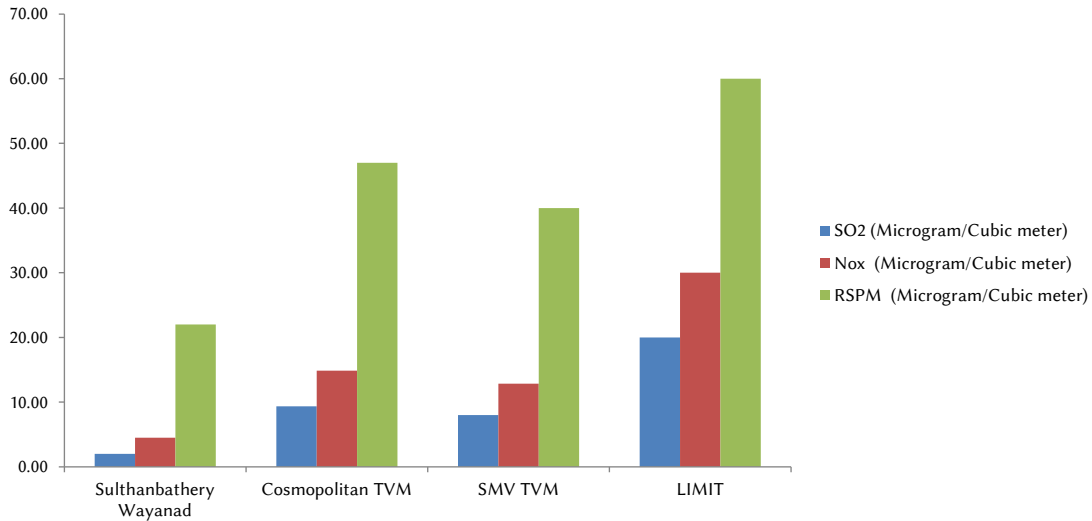
The State Pollution Control Board conducted online training programme on environmental impact assessment of mining project in 2021. Setting up of a Common Biomedical Waste Treatment and Disposal Facility (CBWTF) at Kerala Enviro Infrastructure Limited (KEIL), with an outlay of ₹10.38 crores in Kochi is

Figure 3.7.1 Annual average values of air pollutants at major monitoring stations in residential areas of Kerala 2020



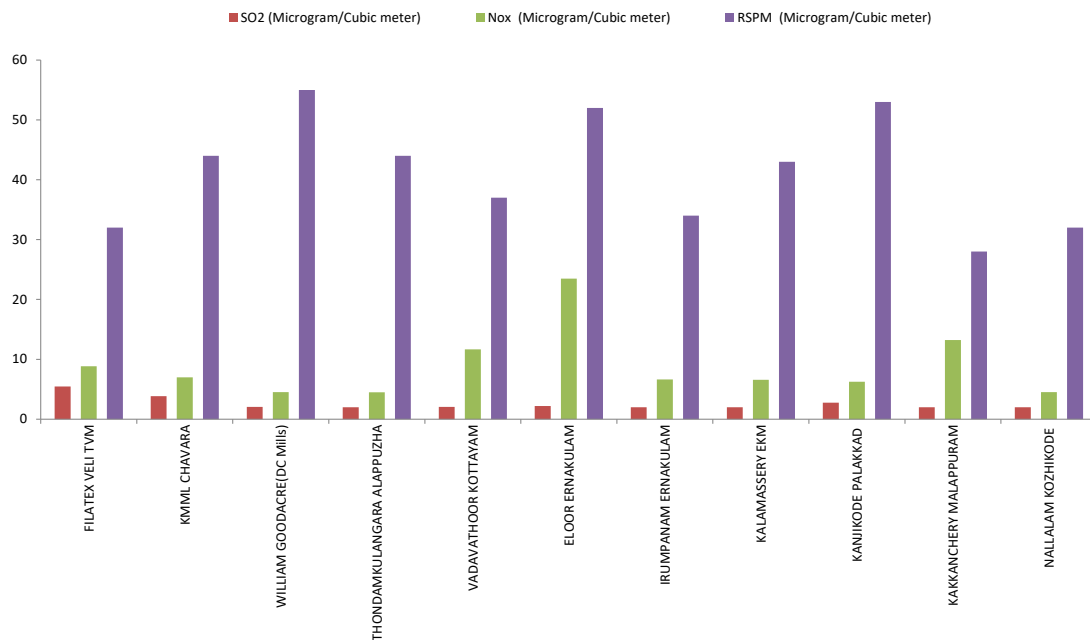
Source: Kerala State Pollution Control Board, 2021

Figure 3.7.2 Annual average values of air pollutants at 3 monitoring stations in “Sensitive” areas of Kerala 2020



Source: Kerala State Pollution Control Board, 2021

Figure 3.7.3 Annual average values of air pollutants at 11 monitoring stations in Industrial areas of Kerala 2020



Source: Kerala State Pollution Control Board, 2021

in progress and is expected to be completed by the end of the financial year. During the period, sanitation survey of Ashtamudi lake was conducted. Installation system for monitoring the water quality facilities at Karamana river and AMR lab at Central laboratory, Ernakulam are progressing well. Digital platform software

application for KSPCB as part of its e-governance and ease of doing business initiative is in the final stage. Surveillance of water quality in Sabarimala was done during pilgrimage season with camp offices at Sannidhanam, Pamba and Erumeli and lab for analyzing drinking water quality distributed in Sabarimala and Pamba.

During the Covid-19 pandemic the quantity of Biomedical Waste (BMW) generation was unusually high. The BMW generated and treated in the State was also quite high during the Covid period. The revenue of the State Pollution Control Board in 2019-20 was ₹131.08 crore, which declined to ₹122.71 crore in 2020-21.

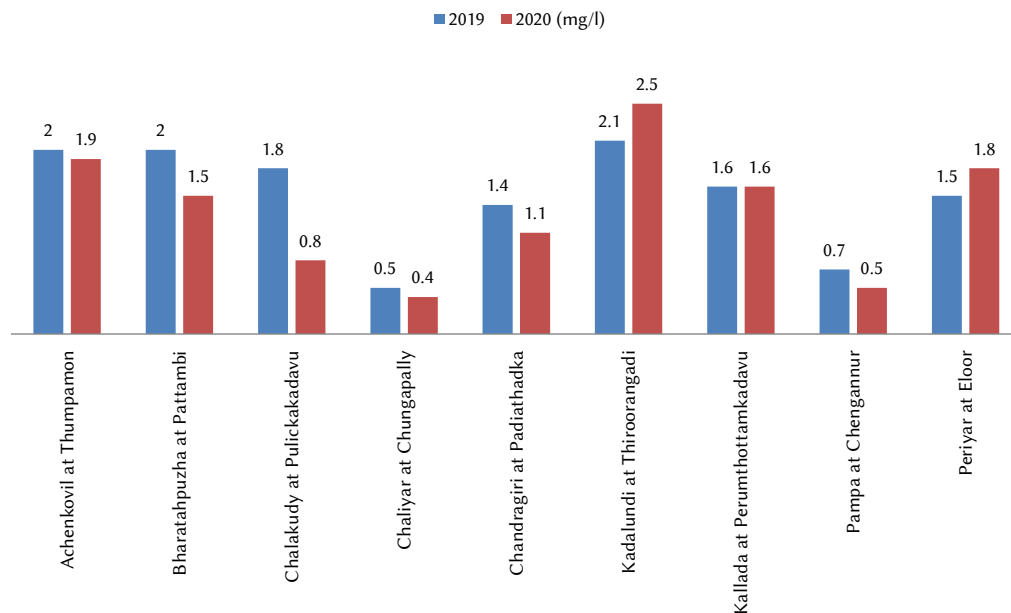
Biodiversity

Biodiversity provides the basic goods and services for human society to exist and secure economic and social development. Health, wealth, food security and many other needs of human beings are dependent on natural resources, yet human beings have used these with scant regard to nature's health and survival. Such indiscriminate use and resultant loss of biodiversity threatens the very survival of the planet itself. Biodiversity is declining faster than at any other period in human history. Direct drivers of the decline include changes in land and sea use, over-exploitation of organisms, climate change, pollution and invasive alien species. These drivers are themselves influenced by demographic, macroeconomic and political factors. Such a rapid decline is causing significant damage to the global economy and human wellbeing and threatens to undermine efforts to achieve the Sustainable Development Goals.

Recognizing the scale and urgency of the challenge, in 2020 governments from more than 80 countries signed a “Leaders Pledge for Nature”, committing to reverse biodiversity loss by 2030, and sending a united signal to step up global ambition for nature, climate and people. These commitments demonstrate that governments worldwide are recognizing the interdependencies between the economy, society and biodiversity, and the importance of taking action. There tends to be three main reasons for valuing biodiversity: (a) Functional reasons – biodiversity sustains flow of many benefits that have material value and that underpin the economy; (b) Cultural reasons – biodiversity is an intimate part of community, aesthetic and spiritual values that are essential for society; and (c) Security reasons – biodiversity is a fundamental basis for life itself, the foundation of a secure and functioning environment.

In 2010, Parties to the Convention on Biological Diversity (CBD) adopted the Strategic Plan for Biodiversity 2011–2020, a ten-year framework for action by all countries and stakeholders to safeguard biodiversity and the benefits it provides to people. Aware of the critical need to halt, prevent and reverse ecosystem degradation, and to effectively restore degraded terrestrial,

Figure 3.7.4 BOD levels at selected river stations in 2019 and 2020



Source: Kerala State Pollution Control Board, 2021

freshwater and marine ecosystems across the globe, the United Nations General Assembly declared 2021–2030 as the United Nations Decade on Ecosystem Restoration. Ecosystem restoration encompasses a wide continuum of practices, depending on local conditions and societal choice.

As a megadiverse country harbouring nearly seven per cent of globally recorded species while supporting 18 per cent of the global human population on a mere 2.4 per cent of the world's land area, India's quest for inclusive economic development while maintaining integrity of its natural capital is being pursued through various programmes and strategies. India has been investing a huge amount on biodiversity directly or indirectly through several development schemes of the Central and State Governments. While globally over 0.3 per cent of total recorded species are critically endangered, in India only 0.08 per cent of the species recorded are in this category. India is committed to protecting its rich heritage of biodiversity which are so vital to our economic and social development. Biodiversity touches every human being and contribution of every person is required for its conservation and sustainable use. Students and youth need to be incepted in the process right from their formative years with special attention to the youth which constitute nearly 35 per cent of the total population in India. A little more than two-thirds of India's geographical area is arid, semi-arid or dry sub-humid on which depend a vast majority of rural and semi urban poor for their livelihoods. The rural poor and particularly women are severely impacted by the effect of environmental degradation on soil fertility, quantity and quality of water, air quality, forests, wildlife and fisheries.

As part of promoting biodiversity conservation at local level, Kerala State Biodiversity Board (KSBB) initiated the work of establishing Biodiversity Parks in 13 localities in 11 districts with the support of Biodiversity Management Committees (BMC). Asramam is the first Biodiversity Heritage Site (BHS) declared in Kerala and a Management Plan for BHS area has been prepared in consultation with the BMC. Areas for Butterfly Garden and Miyawaki forest have been identified and work has been initiated. Considering the significance of conservation of

locally important areas, four local biodiversity heritage sites were declared by the respective BMC in their jurisdiction and conservation activities has been initiated with the support of KSBB.

Rebuild Kerala Initiative

As part of Rebuild Kerala Initiative three projects are implemented by KSBB which will be completed by March 2022.

Conservation of Agro biodiversity. The homesteads of Kerala are described as centres of tropical biodiversity similar to tropical forest ecosystem and they are one of the most productive units of land. A rapid impact assessment study carried out by the KSBB indicated the continuous loss of diversity of agricultural crops earlier cultivated by farmers. The study recommended to an agro-ecological approach to the agricultural sector with the promotion of climate-resilient locally adapted cropping patterns. Accordingly, thrust was given to on-farm conservation and conservation in community gene banks. Under the project, on-farm conservation of agro-biodiversity through custodian farmers is initiated in eight districts of Kerala.

Riverine Biodiversity Rejuvenation. The studies conducted after 2018 floods suggested that recovery strategies should be site specific, eco-friendly and based on a landscape and ecosystem approach using the concept of "Room for River" as recommended in 'A Special Package for Post flood Kuttanad' by the Kerala State Planning Board. The impact on riparian vegetation in Pamba, Periyar, Chalakudy and Bharatapuzha was studied; 12 per cent of area including all the four rivers needs immediate intervention. There are 39 per cent areas for second stage intervention, 32 per cent for long term intervention and remaining 17 per cent requires not much intervention. A riverine biodiversity rejuvenation project in selected flood affected Panchayats of Pamba river is initiated through Rebuild Kerala Initiative to conserve the natural flora of the area.

Database of Commercially Potential Bio-resources and Economic Valuation in Kerala. Kerala is a biodiversity rich State and many

economically important plant and marine species are found in Kerala. The project aims to document the information on traded bio-resources in the 14 districts of Kerala by placing an institutional framework for implementation of access and benefit sharing in Kerala and regulation of unsustainable harvesting of bio-resources.

It is reported by the WHO that about 60 per cent of emerging infectious diseases are transmitted between animals and people. A major reason has been cited as loss/shrinkage of natural habitats leading to migration of wild animals to human habitations. Kerala due to high population density is experiencing fast urbanisation and loss of natural habitats. In the context of the Covid-19 pandemic outbreak, there is a need to identify research priorities to deal with such outbreaks and review the large amount of work carried out by academic institutes. In this background KSBB developed a collection of ideas, and conceptual notes on problems on which research and action plans can be initiated at State level. The concept bank includes short term, mid-term and long-term strategies and action plans in four areas of conservation, research, extension and policy level. Suggestions are invited from more than 70 experts including scientists from research organisations, departments of agriculture, fisheries, academicians and NGOs. During the period, the KSBB also undertook several innovative programs as homestead biodiversity inventory.

Achievements in the 13th Five Year Plan 2017-2021

Established 369 BhooMithra Sena Clubs (BMCs) in Higher Secondary schools and colleges with an objective to provide environmental education opportunities for students and involve them in addressing environmental issues of the locality. These clubs helped in disseminating water quality monitoring programme, post flood environmental restoration programmes and so on. Organized the first National Environment and Climate Change Congress (NECCC) and observed environmentally significant national and international days. During the period Local Action Plan for Climate Change in selected Local Self Governments were prepared with the support

of Kerala Institute of Local Administration (KILA). Crop calendar was prepared for Kuttanad. Sanctioned 25 research projects addressing various environmental issues during the period. Bio-saline agriculture and open water fish farming in Munroe Island Kollam was inaugurated. Conducted climate change vulnerability analysis for selected sectors as part of the revision of State Action Plan on Climate Change (SAPCC), and is progressing. Established Geospatial Laboratory Facility in DoECC and implementation of the management action plan for Ashtamudi, Sasthamkotta and Vembanad estuary wetlands are in progress.

Management Action Plan on eight major wetlands in Kerala was drafted with the help of CWRDM, Kozhikode. As part of the Phase I of 100 Transformative Ideas Mission Programme, Vellayani Lake from Kerala was selected for implementing the Integrated Management Action Plan. The Directorate carried out a post-flood ecosystem condition assessment of all major wetlands across the State. The Kerala Centre for Integrated Coastal Management (KCICM), the State Project Management Unit was established under the Environment Department. As per coastal regulation zone notification, Coastal Zone Management Plan was prepared and published by the Kerala Coastal Zone Management Authority (KCZMA).

Biodiversity Management Committees (BMC) are constituted at all levels of local bodies and People's Biodiversity Register preparation was completed in all Panchayats, Municipalities and Corporations during the 13th Five Year Plan. Marine Biodiversity Register of Thiruvananthapuram and Kollam, documenting the traditional knowledge of fishermen community was completed. Hon'ble Chief Minister declared Asramom Mangroves in Kollam district on the banks of Ashtamudi Lake as a heritage site of Kerala on June 5, 2019. A five-year management plan in this regard was prepared linking the schemes of line departments and is implemented by BMC along with Kollam Corporation. Model BMC was one of the innovative projects suggested during 13th Five Year Plan; 48 model BMCs are supported financially and technically for implementing

locally specific biodiversity conservation projects with the support of concerned local bodies.

During 2018-19, KSBB conducted impact assessment of floods on biodiversity in 187 LSGs through BMCs. Such a vast assessment with the involvement of State-District-BMC mechanisms is the first of its kind in the country. Various tools are used to generate data on impact on livelihoods, biodiversity loss, landscape devastation, and destruction of floral and faunal components. As a follow-up to this, areas requiring attention were prioritised and 28 studies related to assessment of impact of floods/landslides on biodiversity and ecosystem was awarded to research and development institutions and universities. Three new project proposals for riverine biodiversity rejuvenation through BMCs, conservation of agro-biodiversity through BMCs, and study on database of traded bio-resources of Kerala are awarded to KSBB as part of Rebuild Kerala Initiative. The project was initiated in 2020 and will be completed by 2022. KSBB in 2020 has initiated a project for listing comprehensive details of floral and faunal species, scheduled species, and other notifications/legislations in Kerala with the support of Jawaharlal Nehru Tropical Botanical Research Institute (JNTBGRI), Zoological Survey of India (ZSI) and Central Marine Fisheries Research Institute (CMFRI). The project aims to suggest recommendations for sustainable management measures for commercially important species. The project is ongoing and will be completed in 2021-22.

The state of art biodiversity museum showcasing the rich diversity of India and Kerala was opened to public in 2018. As part of outreach, education and public awareness programmes, commemorative days as International Biological Diversity Day, World Environment Day, Wildlife Week and National Bird Day were celebrated. During the period 1500 biodiversity clubs were formed in educational institutions in Kerala and conducted workshops for creating biodiversity awareness.

Pollution Control Board started Continuous Ambient Air Quality Monitoring Stations at Palayam, Kozhikode, MG road and Eloor in Ernakulam during the period and completed

projects on 'Environmental Status Report of Thiruvananthapuram', and 'Study on Classification of Water Bodies- Nallathanni and Muthirappuzha River. Highlights of schemes completed also include installation of PM 2.5 sampler at 19 Air Quality Monitoring stations, setting up of online consent management system as a part of ease of doing business, installation of night vision cameras for surveillance of Periyar, development of web based decision support and monitoring system for pollution abatement and ENVICLEAN for surveying industrial units, sanitation survey of Killi and Karamana rivers, and monitoring of 40,000 wells in flood affected areas. The Pollution Control Board also published State Water and Air Quality monitoring Directories, and has also done surveillance of Sabarimala including camp offices at Sannidhanam, Pamba and Erumeli and lab for analysing drinking water quality distributed in Sabarimala and Pamba.

Measures were taken to strengthen ambient air quality monitoring in district offices, regional offices and labs including AMR lab. Initiatives were taken for implementation of Kerala Antimicrobial Resistance Strategic Action Plan in the State. Measures were taken to setup common biomedical waste treatment and disposal facility at KEIL and to strengthen Central lab, district labs, head office, surveillance vans, and district offices. Sanitation Survey of Ashtamudi lake was conducted in 2020-21.

Haritha Keralam Mission

Haritha Keralam Mission was set up in the State in December, 2016 with the objective of ensuring hygiene, water abundance, water security and the production of safe food items. It has three sub-missions namely, (i) Sanitation and Waste Management, (ii) Water Conservation and (iii) Agriculture Development. The Haritha Keralam Mission has carried out several activities in these spheres in coordination with different departments, including Local Governments. The main focus areas of the Mission are:

- To formulate methods for various levels of coordination of Plans of Local Governments and other departments to address the major issues in each District.
- To provide scientific, efficient and technical

advice to Local Governments.

- Provide leadership and to conduct activities that ensure peoples participation and social inclusion for creating 'Haritha Keralam'.

Some of the major interventions under the submissions are detailed below:

The '*Freedom from Waste*' campaign laid a strong foundation for the activities in Sanitation and Waste Management by the Local Governments (LGs). By providing basic requirements for source level treatment of waste such as Material Collection Facility (MCF), Resource Recovery Facility (RRF), Haritha Karma Sena, household source level treatment plants and community composting units, waste processing has got the importance it deserves so that sustainable and clean environment is created and maintained. Haritha Karmasena, formed for the collection of non-degradable waste is now active in 1,005 LG institutions. This project is also generating income as they earn between ₹3,000 and ₹15,000 per month.

1,018 Material Collection Facility (MCF) Centres for collection and storage of non-degradable waste and 177 Resource Recovery Facility centres for its segregation, recycling and subsequent activities are fully operational in the LGs. 15,358 waste treatment projects have been completed in various Local Governments. As a result, 45 per cent of the bio-waste generated daily in the State is being treated scientifically through the source level waste treatment system. 1,419 industrial enterprise level biogas plants and 210 community level biogas plants were set up. 2,445.27km of road was tarred by Local Governments with powdered plastic. 1,554 million tonne of e-waste was collected from the State and delivered to e-waste recyclers. Green Tourism project (eg. *Vazhikaattaaan Vagamon*) as part of the decontamination of tourist destinations in the State was launched.

Significant role has been played by Haritha Keralam Mission to make the Green Protocol a part of the social life. Green Protocol is being implemented in festivals and celebrations and also in 11,510 offices and institutions in the State and District level. State-wide green law literacy awareness campaign has been made available to people leading to severe penalties

for dumping waste into water bodies and a ban on single-use plastics. Even in the context of the Covid-19 pandemic, efforts are being made by the Local Governments to achieve cleanliness status. Cleanliness status is the first step towards complete sanitation status given to Local Governments that have demonstrated excellence in solid waste management and created the infrastructure for it. As a result of the efforts made to achieve this goal, 791 LSGIs could attain sanitation status.

Haritha Keralam Mission has done efficacious activities in the sector of water conservation and water preservation during the last four years in the form of river rejuvenation and cleaning activities at the water source. A total of 412km of rivers and 42,774km of streams were rejuvenated. 1,013 Local Government institutions prepared the watershed plans. 105 blockhead watershed master plans were prepared. 60,116 acres of the watershed area was maintained. The revival and rejuvenation of the Varattar river was made possible. Kuttamperur river, Killiyar, Kolarayar, Vadakkepuzha, Chalamkode torrent, Muttamparappa torrent, Kamprayar, Perumthodu, Poonur river, Kottarakkara Pandivayal torrent, and other polluted water sources were cleaned and made free water flow possible. The Meenachilaar-Meenantharayar-Kodoorar reunion was also made possible. Through this, cultivation was resumed in more than 4000 acres. 62,921 wells have been recharged in the last four years; 23,158 wells newly constructed; 13,942 wells upgraded; 18,203 ponds were constructed and 25,241 ponds were upgraded. Through these activities, 1,21,81,650 cubic meters of water storage was ensured. These activities were done through the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and with the support of Local Governments.

Organized a wide public campaign named *inijanozhukatte* (Now, let me flow) for recovery of water streams in the State. Through this 7,291 km of water streams in the State were cleaned to ensure free flow of water. This helped to reduce the severity of water logging caused by heavy rains in various districts of the State including Kottayam and Alappuzha during the monsoon. Work has started to measure water availability

by installing scales in ponds. It was implemented in 100 ponds in the Kattakada constituency. It is proposed to start water budgeting activities in each block in all the districts. On a pilot basis it has started at Kalpetta in Wayanad district as per the guidelines prepared and approved by the Government. Work has commenced on the construction of bandara type summer reservoirs in four water-deficient districts of the State. In the Taliparamba constituency, construction of bandara has been completed and water storage has been made possible. Through KIIFB, permission was granted for 34 ports at Bhavanipuzha, 6 at Thoothupuzha, 9 at Chandragiri, and 6 at Achankovilar.

Work has started to set up labs for testing the quality of drinking water for the locals in conjunction with the chemistry lab of a Higher Secondary School in each Local Self Government area. It is being implemented in 426 schools with MLASDF funds of 57 MLAs and local governments concerned. The Honourable Chief Minister inaugurated the project at Anjarakandy Higher Secondary School in Dharmadam constituency on September 7, 2020. 10 such labs have been in Chittoor constituency. Preliminary quality testing can be done directly in the labs of the schools where the well water sample testing facility is set up and people can avail of the facility now. With the establishment of labs locally, it has become possible to extend facilities for testing drinking water and to ensure water quality.

Significant achievements have been attained by Haritha Keralam Mission in the agricultural sector through its activities with the support of Local Governments and the Agriculture Department. During the 13th Plan period, the Mission carried out campaigns for fallow land cultivation, expansion of vegetable cultivation, creation of green IT campuses, afforestation programme called *Pachathuruth*. These campaigns were conducted with the coordination of various departments and agencies at LG level. In 2499 LSG's 1344 wards have been made Haritha Samrudhi wards. Steps were taken to make selected ITI campuses in the State as green ITIs and 12 campuses have been declared as green campuses.

As part of fallow land cultivation, paddy cultivation in the State increased from 1.96 lakh hectare to 2.02 lakh hectare. *Tharishu Rabitha Gramam* campaign was carried out with the aim of cultivating any suitable crop in all the cultivable land in a particular Gramapanchayat. This campaign was conducted in 87 Gramapanchayats in 12 districts. Farming activities including inland fishing were started in the fallow land adjacent to 39 industrial units under the State Industries Department in nine districts.

A novel project has been started by Haritha Keralam Mission on June 5, 2019, with the objective of creating 1,000 green islets (*Pachathuruth*) to preserve local biodiversity and has already completed 1,686 green shoots at various places in the State. Tree saplings were planted on 529.37 acres in 658 local governments. Production of fruit saplings is being popularised in various districts as part of the Pachathuruthu project. In addition, numerous shrubs, vines, and bio-fences were planted.

Under the Travancore Devaswom Board, a project has been started to cultivate vegetables, kernels, fruit trees, herbs, and flowers for temple purposes in the fallow lands of 1428 temples. The project named '*Devaharitham*' is being implemented on 3,000 acres of land of Devaswom Board and has been started in some temples in North Kerala.

In parallel, the '*Haritha Drishti*' mobile application for monitoring, data collection and mapping of waterways in the State is being implemented. All the various campaigns organised as part of the Haritha Keralam Mission have served as strong public education and awareness programmes in these sectors. Notable among these were the campaigns aimed at sanitation, such as freedom from waste (*Maalinyathil Ninnu Swathanthryam*), vigil fest (*Jaagratholsavam*), green festivals in schools (*Haritholsavam*), clean home and clean living and 'water is life' (*Jalamaanu Jeevan*) aimed at water conservation and water preservation and fallow less village campaign for agriculture promotion. In short, the activities of Haritha Keralam Mission have been able to create motivation to make environmental protection a part of life.

3.8 Food Security and Public Distribution System

Hunger was a critical issue in most countries during the Covid-19 pandemic. According to the “UN World Hunger Facts 2021”, 957 million people worldwide do not have enough to eat on a regular basis and one billion people are living in extreme poverty among 93 hungry countries.

According to the report of State Food Security and Nutrition in the World 2021, between 720 and 811 million people in the world faced hunger in 2020, 161 million more than 2019. The prevalence of under nourishment increased around 9.9 per cent in 2020 from 8.4 per cent in previous year. Even though several measures have been taken to end world hunger and malnutrition by 2030, the challenges have grown with the Covid-19 pandemic and the burden imposed by mitigation efforts. In the Global Food Security (GFS) Index 2021, India ranked 71st out of 131 countries with an overall score of 57.2 points.

Eradicating hunger requires focussed policy action that addresses all the four dimensions of food security, that is, availability, access, utilisation, and stability.

Public Distribution System in Kerala

Public Distribution System (PDS) in Kerala in its present form was started in 1965 and has grown in to a universal rationing system. Based on the policy changes of GoI, the State had introduced the Targeted Distribution System (TDS) in 1997. The successful implementation of National Food Security Act (NFSA) 2013 in the State in 2016, as per the guidelines of Government of India, along with the measures for strengthening enforcement and monitoring mechanism have ensured more transparency and accountability in PDS which has a chain of 14,245 ration shops.

Identification of eligible priority households as per the approved parameters adopted by the State has been done and the list is put in the public domain. Ration cards issued as per the NFSA are of the size of ATM cards.

The entitlement of persons each month is communicated to them through SMS. Door delivery of food grains at fair price shops level and mobile fair price shops are arranged in hilly areas, where the Anthyodaya Anna Yojana (AAY) beneficiaries are mostly populated. Electronic Point of Sale (ePoS) machines have been installed in all fair price shops and enforcement mechanism has been strengthened. Separate call-centre has been constituted at the Civil Supplies Commissionerate for lodging grievance online. There are also grievance redressal officers functioning in each district. Pilot project for social audit and tracking of movement of vehicles carrying food grains is being implemented at taluk level.

Policy Initiative of the State-Hunger Free Kerala

In the 13th Five Year Plan, the project Hunger Free Kerala aiming at “No person in the State shall remain hungry” has been initiated. Government has accorded sanction for ₹3.58 crore to implement the project in various districts. Hotels under the common brand “Subhiksha” provide lunch at ₹20 to all. Subhiksha restaurants have been started in Alappuzha, Thrissur and Kottayam districts and efforts are being made to expand it to all districts. Kudumbashree/voluntary organisation and co-operatives have entered in to an agreement to cook and distribute lunch at Subhiksha. On an average, 500 to 1,500 people have lunch which is priced at ₹20 from Subhiksha hotels in a day. For cooking and distribution, an amount of ₹5 per meal is given by the Government to this group as subsidy.

Key Achievements in the 13th Plan

- Implementation of NFSA 2013- The NFSA, 2013 was implemented in the State with effect from 2016 and rationing was started based on the list of Priority House Holders (PHH) prepared and approved by the State Government. The Supplyco is the authorised

agency entrusted to lift the stock from the FCI depots and store it in the intermediary godowns. The door delivery of stock at fair price shop level was implemented throughout the State.

- End to End Computerisation- As envisaged in the NFSA, computerisation of the supply chain for ensuring more transparency and accountability has been successfully implemented.
- Inter-State portability of Ration Cards - The scheme of Aadhaar based portability is in force in the State.
- Launch of Electronic Point of Sale (ePoS) transaction portal- ePoS machines have been installed in all fair price shops. The release of entitlement is being made through ePoS transactions to plug any possibility of diversion of PDS articles.
- Procurement of paddy farming through Supply co. It is effectively being done in all crop seasons.

Distribution of Ration Cards

The number of ration cardholders in the State increased to 89.8 lakh in 2020-21 from 87.1 lakh in 2019-20. The number of ration card holders as on August 2021 is 90.70 lakh. Out of this, 38.3 lakh cards come under NFSA, 52.3 lakh come under non NFSA and 6,324 ration cards issued under Annapporna scheme. The NFSA section includes 5.8 lakh AAY cards and 32.5 lakh priority cards. The non-NFSA section includes 25.0 lakh on non-priority subsidy group and 27.3 lakh on non-priority non subsidy group (**Figure 3.8.1**). In addition to this, there were 997 ration permits for institutions in 2020-21. The category-wise card holders and subsidy

amount spent by Government of Kerala for distribution of food grains in 2020-21 are given in **Appendix 3.8.1**.

Subsidy Spent by GoK for Various Card Holders

An amount of ₹238.4 crore was spent on various card holders as subsidy in 2020-21 as against ₹200.0 crore spent in 2019-20. Details are shown in **Table 3.8.2**. A total of 25.5 per cent of subsidy was spent for priority card holders and 45.5 per cent to non-priority card holders in 2020-21. The subsidy amount spent for priority card holders and non-priority card holders increased by 9.7 per cent and 33.4 per cent respectively compared to previous year. (**Table 3.8.1 and Appendix 3.8.1**).

Allotment of Food Grains and Kerosene

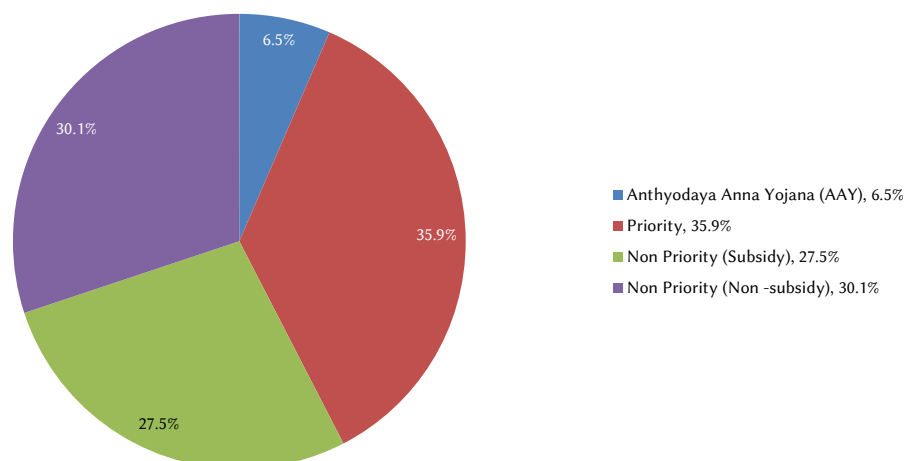
The total rice distribution through the PDS in State has increased to 12,09,840 MT in 2020-21 from 10,11,556 MT in 2019-20, registering a growth of 19.6 per cent. In 2020-21, 1,99,317 MT of wheat, 37,809 KL of kerosene and 6641 MT of sugar were distributed through PDS in State as against 1,86,353 MT, 75,000 KL, and 6430 MT in previous year registering an increase of 7.0 per cent, decline of 50 per cent and 3.3 per cent growth respectively. In 2021-22 (up to August 2021) a total quantity of 4,88,717 MT of rice, 65,779 MT of wheat, 16,342 KL of kerosene and 2703 MT of sugar were distributed through the PDS in the State. Details of the distribution of commodities through the PDS are given in **Appendix 3.8.2**.

Table 3.8.1 Subsidy spent by Government of Kerala for various card holders, ₹ in lakh

Sl. No.	Category	Amount (₹ in lakh)		Percentage of total		% change in 2020-21 over previous year
		2019-20	2020-21	2019-20	2020-21	
1	Annapoorna	0.00	0.00	0.00	0.00	
2	AAY	6,336.3	6927.0	31.7	29.0	9.3
3	Priority	5,538.2	6073.9	27.7	25.5	9.7
4	Non-Priority	8,128.0	10842.0	40.6	45.5	33.4
	Total	20,002.5	23842.9	100.0	100.0	19.2

Source: Civil Supplies Department

Figure 3.8.1 Category-wise card holders in Kerala as on August, 2021 in per cent



Source: Civil Supplies Department

Anthyodaya Anna Yojana (AAY) and Annapoorna Scheme (ANP)

There are 5.94 lakh Anthyodaya Anna Yojana (AAY) card holders in 2020-21 (as on March 2021), eligible for 30kg of rice and 5kg of wheat per month under AAY scheme aimed at the poorest of the poor families under NFSA. In 2020-21, the off-take of rice under AAY was 2.11 lakh MT. The GoI supplies food grains under AAY to the State @ ₹3 per kg for rice and ₹2 per kg for wheat and the State Government, in turn, provides it to the beneficiaries free of cost. (**Appendix 3.8.1 and 3.8.3**)

Under the Annapoorna scheme, 10 kg of rice per month is given free of cost to destitute people aged 65 years and above who are not in receipt of any of the pensions from the Government. The targeted number of beneficiaries approved by the GoI is 44,980. But the number of beneficiaries identified in the State is decreasing over the years, from 23,322 in 2015-16 to 6,324 in 2020-21. Details of distribution of food grains under AAY and ANP schemes in 2020-21 are given in **Appendix 3.8.3**. Details up to August 31, 2021 are given in **Appendix 3.8.4**.

Central Allotment of Sugar and Kerosene

Anthyodaya Anna Yojana (AAY) families are entitled to get sugar through PDS. The quantity of sugar now being issued from GoI for AAY families is 595.8 MT per month. But the average

per capita consumption of sugar is 1-2kg per month. The State Government is incurring the differential cost and also the implementation cost. In 2020-21, a total of 6,641 MT of sugar was distributed in the State as against 6,430 MT in 2019-20 registering a growth of 3.3 per cent. As on August 2021-22, a total of 2,703 MT of sugar has been distributed.

In the allotment of Kerosene, there exists a wide gap between the actual requirements and the allotment now being received. The fishing sector has been affected severely on account of this. Kerosene allotment in 2020-21 declined sharply to 37,809 KL as against 75,000 KL in 2019-20. Up to August 2021-22, 16,342 KL of kerosene was distributed in the State.

District-Wise Distribution of Food Grains

In 2020-21, the off take of AAY rice was highest in Thiruvananthapuram district with 22,122 MT followed by Malappuram with 19,152 MT. Off take of rice to Priority Household (PHH) was highest in Malappuram District with 91,486 MT followed by Thiruvananthapuram with 68,550 MT. In the case of PHH, Malappuram had the highest off take of wheat with 22,063 MT followed by Thiruvananthapuram with 16,962 MT. Details are given in **Appendix 3.8.3, 3.8.4, 3.8.5 and 3.8.6**.

Distribution of Food Kits

To tide over the impact of Covid-19, the State Government provided essential articles kit at free of cost to all ration card holders in 2020 through Kerala State Civil Supplies Corporation Ltd.. The distribution was continued in 2021. This is in addition to the free supply of ration through PDS shops for eligible beneficiaries. A total of more than 11.0 crore food kits have been distributed so far. The details of district wise distribution of food kits in 2020-21 is given in **Appendix 3.8.7**. In 2021, Onam food kits were distributed to 86.92 lakh families and fish workers food kits distributed to 1.1 lakh families. Details are given in **Appendix 3.8.8 and Appendix 3.8.9** respectively. The distribution of food kits in 2021-22, as on September 2021 is given in **Appendix 3.8.10**.

Kerala State Civil Supplies Corporation (Supplyco)

The Kerala State Civil Supplies Corporation-Supplyco has actively intervened in the open market for stabilising the price of 13 essential commodities.

Supplyco is engaged in retailing of fast moving consumer goods items at an average price of 10 per cent less than the open market, conducting special fairs during festival seasons, retailing

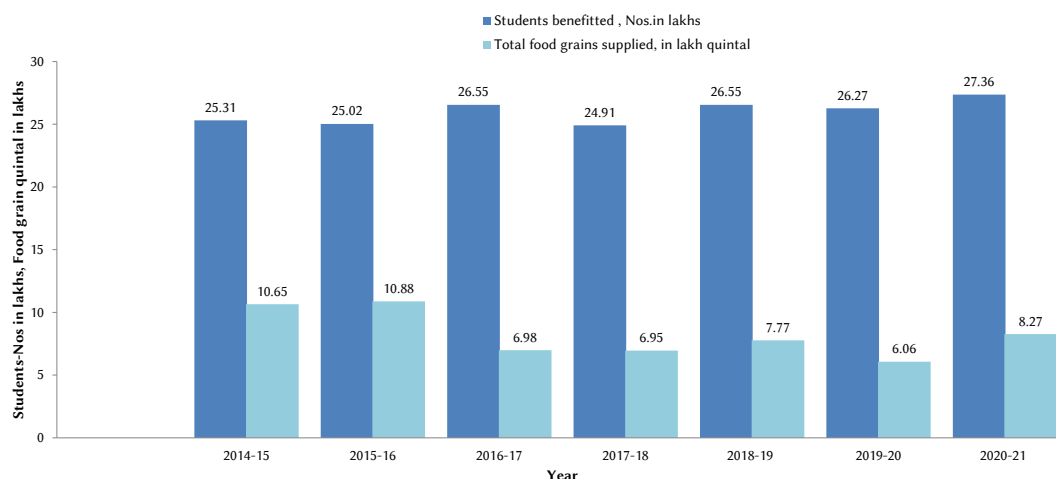
of medicines at an average of 15 per cent discount, conversion of PDS wheat into atta and distribution @ ₹17 per kg, supply of PDS sugar, distribution of rice under Mid-day Meal scheme and door delivery of food grains under NFSA. Supplyco is also engaged in procurement of paddy, processing and distribution of wheat and its products and is a dealer of petroleum products like kerosene, petrol, diesel and LPG. A new scheme for the distribution of PDS atta to AAY and PHH card holders has been implemented in all the districts in 2020-21. The cost of AAY atta is ₹6 per kg and PHH atta is ₹8 per kg.

Supplyco has its headquarters in Kochi and operates through 5 regional offices, 56 depots and around 1,600 retail outlets. In 2020-21, 10 Maveli stores, 7 supermarkets, and 13 Maveli super stores were opened by the Supplyco. Details of the outlets opened are given in **Appendix 3.8.11**.

Mid-Day Meal Programme

The Mid-Day meal programme has been implemented in Kerala since the 1960s. The present Mid-day Meal programme was introduced in 1995 by the Ministry of Human Resources Development (MoHRD), Government of India, to provide nutritional support to primary school going children and to

Figure 3.8.2 Mid-day meal programme during 2014-15 to 2020-21



Source: Supplyco, Kerala

boost universalisation of primary education by increasing enrolment, retention and attendance. The Mid-day Meal programme in schools is implemented in the State with the financial support of the State and Central Government.

Supplyco is entrusted with the responsibility of providing commodities to the Mid-Day Meal programme in the State. The required quantity of rice is taken from the FCI. The Corporation supplied 8.3 lakh quintal of rice benefiting 27.4 lakh students in 2020-21 as against 4.8 lakh quintal of rice and 1.3 lakh quintal of special rice supplied to 26.3 lakh students in 2019-20. During 2021-22, (as on August 2021), 2.1 lakh quintal of rice was supplied to 29.5 lakh students coming under 12,302 schools.

The number of students benefiting from the Mid-Day Meal programme is given in **Figure 3.8.2** and the details of the supply of food grains from 2014-15 to 2020-21 are shown in **Appendix 3.8.12**.

Paddy Procurement

Supplyco procures paddy directly from registered farmers and the cost of paddy is transferred to the bank account of the individual beneficiaries. For 2020-21 season, 7.65 lakh MT of paddy was procured at procurement rate of ₹27.48 per kg. The processing of paddy into rice as per the quality specification of GoI is done through modern rice mills and the processed paddy is distributed through PDS.

The Government of Kerala accords prime priority to food security and is committed to maintain a robust Public Distribution System and to ensure that prices of essential commodities are kept within affordable limits through timely market interventions.

CHAPTER

4

MANUFACTURING
SECTOR

MANUFACTURING SECTOR

4.1 Kerala's Industrialisation

Kerala has achieved substantial progress with respect to modernising and diversifying its industrial sector. The manufacturing sector in Kerala is relatively small in size. It accounted for a share of only 11 per cent of Kerala's GSVA (at constant 2011-12 prices) in 2020-21. In comparison, the manufacturing sector accounted for 17 per cent of India's GDP in 2020-21.

A Revival in Manufacturing in Kerala

There has been a steady increase in the size of Kerala's manufacturing sector in value terms, especially over the last four years. The share of manufacturing in Kerala's GSVA increased from 9.8 per cent in 2014-15 to 11.1 per cent in 2019-20. The share declined to 11 per cent in 2020-21. According to data from Annual Survey of Industries, Kerala's share in gross value added by India's factory sector increased from 1.2 per cent in 2014-15 to 1.7 per cent in 2017-18.

According to PLFS data, the manufacturing sector in Kerala employed 15 lakh workers (which comprised 12.8 per cent of the State's total workforce of 127 lakh) in 2017-18. They include workers in the factory sector numbering 3.1 lakh in 2017-18. The factory sector is almost identical with the organised manufacturing sector. The factory sector comprises factories that employ more than 10 workers and operate with the aid of electric power (as well as factories that employ more than 20 workers without the aid of electric power). Annual Survey of Industries (ASI) published by the Government of India's Ministry of Statistics and Programme Implementation (MOSPI) is the main source of data on the factory sector.

Workers in traditional industries, importantly coir, cashew and handloom, form a substantial share of Kerala's manufacturing workforce. A few resources-based industries accounted for 46.8 per cent or 1.52 lakh workers out of the 3.25 lakh workers in Kerala's factory sector (in 2017-18). These industries are food products and beverages (cashew processing is a major component of this), beedi manufacturing, and textiles (which include coir processing and handlooms) (Table 4.1.1).

There has been a substantial reduction over the years in the size of the workforce engaged in traditional industries in Kerala. This is because of structural problems faced by some of these industries (such as cashew) as well as the withdrawal of younger generation of educated workers from the traditional industries.

At the same time, it is notable that a new set of modern industries are growing in size in Kerala. The top industries in Kerala with respect to value added are chemicals, refined petroleum products, rubber and plastic products, electronic products, and pharmaceuticals and medicinal botanical products. Bharat Petroleum Corporation Limited's (BPCL)-Kochi Refinery has been undergoing a major expansion of its refining and petrochemical production capabilities and this holds great promise for the chemical and allied industries in Kerala. Between 2011-12 and 2016-17, value added by refined petroleum products increased by eight times in Kerala. In fact, growth of value added by manufacturing sector as a whole as well a number of industries including chemicals, garments, pharmaceuticals, furniture, jewellery and medical instruments was much faster in Kerala compared to the corresponding national averages.

Table 4.1.1 Structure and relative size with respect to employment and value added: shares of industries in total factory sector of Kerala and shares of Kerala's industries in total by the respective industries in India, 2017-18

Industries	Kerala's total factory sector		Shares in Kerala's total factory sector		India's total factory sector		Kerala's Shares in India's factory sector	
	Employment (No's)	Value added (Rs.lakh)	Employment (%)	Value added (%)	Employment (No's)	Value added (Rs.lakh)	Employment (%)	Value added (%)
1	2	3	4	5	6	7	8	9
Food Products and beverages (10, 11)	101994	403192	31.4	17.9	1933464	3064719	5.28	13.16
Tobacco products (12)	14375	10321	4.4	0.5	461335	1709660	3.12	0.6
Textiles (13)	25724	77679	7.9	3.4	1678671	7135269	1.53	1.09
Garments (14)	9546	31592	2.9	1.4	1189520	3510562	0.8	0.9
Footwear (15)	11436	40681	3.5	1.8	387134	1222478	2.95	3.33
Wood and wood products (16)	8346	24310	2.6	1.1	98674	428687	8.46	5.67
Paper and paper products (17)	3866	10850	1.2	0.5	284057	2166071	1.36	0.5
Printing and reproduction of recorded media (18)	6185	90585	1.9	4	159164	1260232	3.89	7.19
Refined petroleum products (19)	7880	460662	2.4	20.3	146866	15910666	5.37	2.9
Chemical products and pharmaceuticals (20,21)	21335	324193	6.6	14.2	1568566	24634493	1.36	1.32
Rubber and plastics products (22)	25890	208685	8	9.2	713214	5373872	3.63	3.88
Other non-metallic mineral products (23)	20616	142797	6.3	6.3	1090629	7660779	1.89	1.86
Basic metals (24)	4405	20101	1.4	0.9	1032613	14556712	0.43	0.14
Fabricated metal products (25)	5096	21654	1.6	0.9	691567	4380776	0.74	0.49
Electronic, computer and optical Products (26)	6565	67591	2	3	231454	3235105	2.84	2.09
Electrical Equipment (27)	6097	38902	1.9	1.7	598477	5363196	1.02	0.73

Machinery and equipment (28)	2633	13062	0.8	0.6	848502	9255645	0.31	0.14
Motor vehicles (29)	374	1070	0.1	0	1017614	10411207	0.04	0.01
Other transport equipment ships and boats (30)	5879	87425	1.8	3.8	347825	3904596	1.69	2.24
Furniture, jewelery, medical and dental instruments, toys (31,32)	7119	93405	2.2	4.1	486081	2784.88	1.46	3.35
Repair and installation of machinery and equipment (33)	296	1277	1	0.1	30081	369492	0.98	0.35
Publishing activities (58)	2361	31506	0.7	1.4	25328	267460	9.32	11.78
Others	26754	76354	8.2	3.3	593785	7918860	4.51	1.03
All Industries	3,24,773	22,77,897	100	100	1,56,14,619	14,66,97,043	2.08	1.56

Source: Annual Survey of Industries data on persons engaged and gross value added.

Note: Figures in brackets refer to the divisions (in two digits) to which each of these industries belong according to National Industrial Classification (NIC)-2008

Turnaround in Performance of Public Sector Units

Kerala has a number of State and Central public sector units engaged in diverse areas of manufacturing, mainly chemicals, engineering and electronics. Some of the PSUs in the State, such as Travancore Cochin Chemicals (TCC) and Keltron, have been pioneers in the country in their respective fields of production (caustic soda and electronics respectively). However, the performance of many of the PSUs in Kerala has been rather lacklustre during the recent times. A major highlight of the improved performance of Kerala's manufacturing sector from 2016-17 onwards is a turnaround in the performance of some of these PSUs, engaged mainly in the production of chemicals and electrical machinery.

During the financial year 2020-21, the PSUs under Industries Department were reported an altogether turnover of ₹3,321.67 crore. Out of 42 PSU's under Industries Department, 10 units earned profit and 32 units incurred loss during the period 2020-21. Even in the Covid-19 scenario, the PSUs were able to increase the turnover by 5 per cent from that of

the previous year. The major profit making PSUs during the year includes Kerala Minerals and Metals Ltd (KMML), Kerala State Drugs and Pharmaceuticals Ltd, Kerala State Electronics Development Corporation Ltd and Malabar Cements.

New Opportunities in Modern Industries

Another positive aspect is the emergence of a few new set of modern industries in the State. The number of workers engaged in the manufacture of electronic components in Kerala rose from 2,930 only in 2012-13 to 3,525 by 2017-18. Workers engaged in the manufacture of medical and dental instruments and supplies increased from 1,023 only in 2012-13 to 2,730 in 2017-18 (Table 4.1.2)

After its expansion, BPCL-Kochi Refinery's refining capacity is expected to increase from the current 9.5 million metric tonnes per annum (MMTPA) to 15 MMTPA. Some of the products of BPCL-Kochi Refinery, such as propylene and ethylene, are key ingredients for a wide range of downstream industries in the areas of petrochemicals and specialty chemicals, including plastics, polymers, fibers, and personal and home

Table 4.1.2 *Employment in selected major industries, Kerala and India, 2017-18, in numbers*

Industries	Kerala	India	Kerala's share in India
Rubber products (221)	16,249	1,81,957	8.93
Refined petroleum products (192)	7,615	96,068	7.92
Chemical products (201, 202)	11,379	5,76,348	1.97
Manufacture of electronic components (261)	3,525	55,385	6.36
Pharmaceuticals, medicinal chemical and botanical products (210)	9,950	4,54,024	2.19
Footwear (152)	11,154	2,32,509	4.79
Garments (141)	9,546	6,98,738	1.36
Plastic products (222)	9,641	3,79,234	2.54
Printing and services related to printing (181)	6,185	1,04,694	5.90
Ships and boats (301)	5,009	11,201	44.71
Electric motors, transformers and generators (271)	4,525	1,62,115	2.79
Medical and dental instruments and supplies (325)	2,730	41,253	6.61
Furniture (310)	3,129	59,154	5.28

Source: Annual Survey of Industries.

care products. The State government has taken steps to set up a petrochemical complex at Kochi, which is likely to attract large private investments in the above-referred areas.

There is great potential in Kerala for the growth of pharmaceuticals, biotechnology, life sciences, and medical-equipment manufacturing industries. This is partly on account of the large demand within the State for medicines and healthcare products. These industries will also have much to gain from the large numbers of hospitals, doctors and nurses in Kerala.

Kerala has the potential to build a large electronics hardware manufacturing sector. The State should build on the unique advantages of the IT sector in the State and also make good use of the skill sets of its professionally qualified workforce. Globally, there is now a growing integration between the IT and electronic sectors and between software and hardware production. With IT sector itself going through fundamental changes, it is important that Kerala turn its attention to diversifying into hardware manufacturing as well.

New opportunities include modernising traditional sector also. The government is taking steps to modernise the traditional industries in the State, including coir, cashew and handloom. Modernisation of traditional industries will include (but not limited to) mechanisation of production processes in these industries. With modernisation, Kerala's traditional industries will strive to diversify into new products and evolve effective marketing and distribution strategies. The growth of traditional, food and agro-based industries and of tourism can go hand in hand in Kerala, feeding on each other to create a globally recognised niche for the State in these sectors

Industrial Promotion and Investment Facilitation Activities

The State Government has decided to make business friendly amendments to the relevant laws and regulations. In order to strengthen the sector, the Government of Kerala has come up with the Kerala Investment Promotion and Facilitation Act, 2018 which envisages mandatory approval within a period of 30 days if applications are submitted with necessary documents. The Act seeks to avoid delays in granting various licenses, permissions, approvals

and clearances required under the various enactments and make the State investor friendly.

Kerala Micro Small Medium Enterprises Facilitation Act 2019 and the rules made there in under Section 14 of the Act dated January 6, 2020 vide G.O.(P)No.2/2020/ID is one of the key initiatives under the Ease of Doing Business Reforms of the Industries Department for establishing and operating MSME units. This forms part of the online single window clearance mechanism which covers central inspection system for compliance inspections, introduction of self-certification regime, parallel processing of applications by various departments, deemed approvals post the mandated timelines, elimination of redundant clearances and spot approval for registration through nodal agencies which are revamped single window Board at State, District and Industrial Parks.

4.2 MANUFACTURING SECTOR

Provisional data from the Central Statistics Office (CSO) indicate that the growth of India's manufacturing sector has been estimated at (-)7.2 per cent in 2020-21 as against the previous year's growth rate of (-)2.4 per cent. The annual growth of Gross Value Added (GVA) by the manufacturing sector in India as per provisional estimates, at constant prices from 2015-16 to 2020-21 is exhibited in **Figure 4.2.1**.

Manufacturing Sector in Kerala

According to quick estimates of Kerala's Gross State Value Added (GSVA) for 2020-21 by Department of Economics and Statistics, the manufacturing sector of Kerala shows a decline of 8.9 per cent at constant prices (2011-12) in 2020-21. The shares of manufacturing sector to GSVA in Kerala at constant and current prices in 2020-21 were 11 per cent and 8.6 per cent respectively. The growth of manufacturing sector in Kerala from 2015-16 to 2020-21 is given in **Appendix 4.2.1**.

The trend in growth rate of GSVA of manufacturing sector in Kerala (at constant

prices) for the period from 2011-12 to 2020-21 is shown in **Figure 4.2.2**.

Mining Sector in Kerala

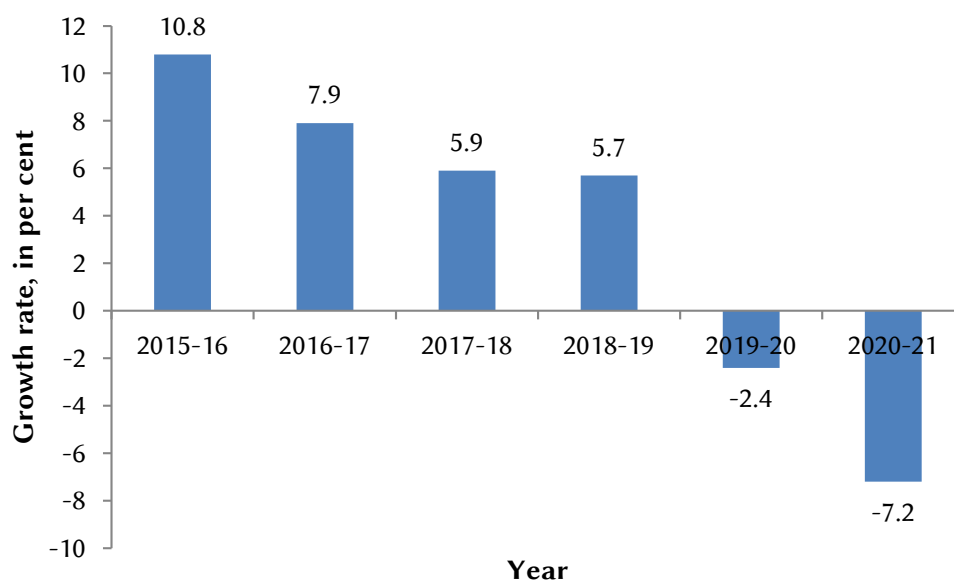
The contribution of mining and quarrying sector to Gross State Value Added (GSVA) of Kerala at constant prices is estimated at ₹2,280.61 crore in 2020-21. It shows an increase of 12.58 per cent compared to the previous year. The share of mining and quarrying in GSVA at constant prices has marginally declined to 0.4 per cent in 2019-20 from 0.6 per cent in 2018-19 and then increased to 0.5 per cent in 2020-21.

The growth of income from the mining and quarrying sector in Kerala at constant prices from 2011-12 to 2020-21 is depicted in **Figure 4.2.3**.

Mineral wise Production and Revenue Collection 2020-21

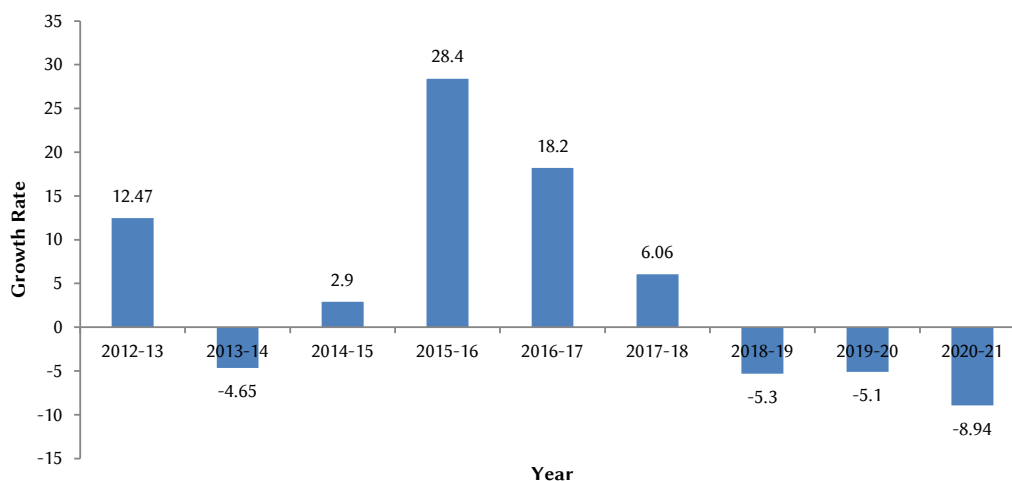
The Government gets revenue from minerals mainly by way of royalty. About 95 per cent of the revenue comes from minor minerals and rest from major minerals. In 2019-20, an amount

Figure 4.2.1 Annual Growth of Gross Value Added by the Manufacturing Sector in India, at Constant Prices, in per cent



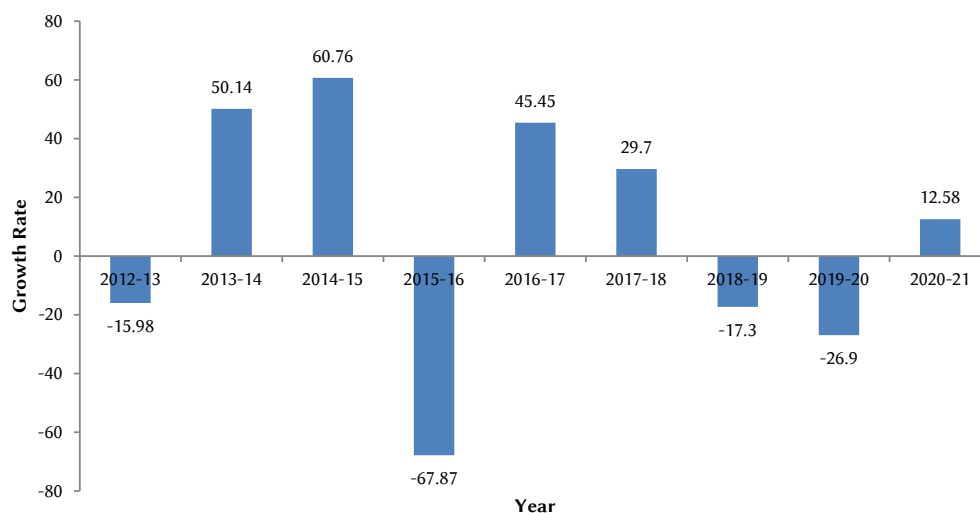
Source: Central Statistics Office

Figure 4.2.2 Annual growth of Gross State Value Added (GSVA) by manufacturing sector in Kerala, at constant prices, in per cent



Source: Department of Economics and Statistics

Figure 4.2.3 Annual rates of growth of GVA by mining and quarrying sector in Kerala, at constant prices, in per cent



Source: Directorate of Economics and Statistics

of ₹160.10 crore was received as revenue from minerals and it increased to ₹192.13 crore (increase of 20 per cent) in 2020-21. Of this, ₹8.38 crore was received from major minerals and ₹183.75 crore from minor minerals. In 2020-21, the highest revenue received among major minerals was from Ilmenite (₹3.08 crore)

followed by Zircon (₹1.35 crore). Among minor minerals, granite building stone contributes the highest (₹87.18 crore) followed by Laterite (building) (₹1.09 crore) in 2020-21. The revenue from minerals from 2016-17 to 2020-21 in

Table 4.2.1.

Table 4.2.1 Revenue from minerals, ₹ in crore

Sl No	Year	Major Minerals	Minor Minerals	Total
1	2016-17	6.4	132.3	138.7
2	2017-18	8.5	143.5	152.0
3	2018-19	5.4	165.9	171.3
4	2019-20	8.8	151.3	160.1
5	2020-21*	8.4	183.8	192.2

Source: Mining and Geology Dept

Note: *Expenditure as on October 31, 2021

In 2020-21, 448.1 lakh tonnes of major and minor minerals were produced in Kerala. Among major minerals, limestone topped the list with 3.1 lakh tonnes followed by Ilmanite (1.1 lakh tonnes). Among minor minerals, the highest production was from granite building stone (363.3 lakh tonnes) followed by ordinary earth (69.7 lakh tonnes). The production and royalty received from minerals in the State during 2020-21 is given in **Appendix 4.2.2**.

Table 4.2.2 Plan Outlay and Expenditure of Mining Department, ₹ in lakh

Sl No	Year	Outlay	Expenditure
1	2016-17	84.00	48.82
2	2017-18	135.00	123.03
3	2018-19	149.00	61.46
4	2019-20	149.00	75.92
5	2020-21	132.00	117.73
6	2021-22	132.00	16.28

Source: Budget Estimates

Note: *Expenditure as on October 31, 2021

District Wise Analysis of Revenue Collected from Major and Minor Minerals

District-wise analysis of revenue collection in 2020-21 shows that Thiruvananthapuram district had the highest collection of ₹31.4 crore followed by ₹29.1 crore in Ernakulam and ₹20.2 crore in Palakkad. The lowest revenue collection of ₹2.3 crore was from Wayanad. The district wise collection of revenue from major and minor minerals is furnished in **Appendix 4.2.3**.

Implementation of e-governance Projects

The Kerala Online Mining Permit Awarding Services (KOMPAS) is an online system which is implemented through the National Informatics Centre and is implemented in all districts.

Mineral Based Industries in Kerala

Some of the industries based on major minerals are Indian Rare Earths Ltd, Kerala Minerals and Metals Ltd, Travancore Titanium Products, Malabar Cements, Travancore Cements Ltd, Kundara Ceramics, English Indian Clays Ltd, and Kerala Clays and Ceramic Products Ltd. The major industries based on minor minerals are stone crushers, units of production of manufactured sand, brick factories as well as tile factories. Due to recent spurt in infrastructure development, a number of granite building stone crushers as well as sand production units have come up in the State.

Mining and quarrying are important economic activities, although the impact they may have on the environment needs to be closely monitored. The Government is therefore diligent in adopting and implementing regulations to moderate the negative impacts of mining operations. Modern technologies and practices have, to a great extent, reduced to some extent the risks associated with mining and quarrying to the environment and economy.

4.3 PUBLIC SECTOR UNDERTAKINGS

The Government of Kerala aims to strengthen the public sector, run PSUs professionally, and help them earn profits and contribute to the larger development of the industrial sector and the economy.

Central Public Sector Undertakings

As on March 31, 2020, there were 366 PSUs under the administrative control of various ministries/departments of the Government of India (GoI). In 2019-20, 171 central PSUs in India generated a combined profit of ₹1,38,112 crore as compared to ₹1,74,587 crore in 2018-19 (179 central PSUs), showing a decline in profit by 20.9 per cent. There were 84 Central PSUs in the economy which incurred a combined loss of ₹44,817 crore in 2019-20 as compared to 31,635 crore in 2018-19, showing an increase in loss by 41.7 per cent. (Public Enterprises Survey 2019-20).

Central Sector Investment

The aggregate real investment in Central PSUs in India, measured in terms of 'gross blocks', increased from ₹17.8 lakh crore in 2018-19 to ₹21.6 lakh crore in 2019-20, registering a growth of 21.1 per cent over the previous year. The investment by Central PSUs in Kerala in terms of gross block grew by 19.6 per cent from ₹56,663 crore in 2018-19 to ₹67,776 crore in

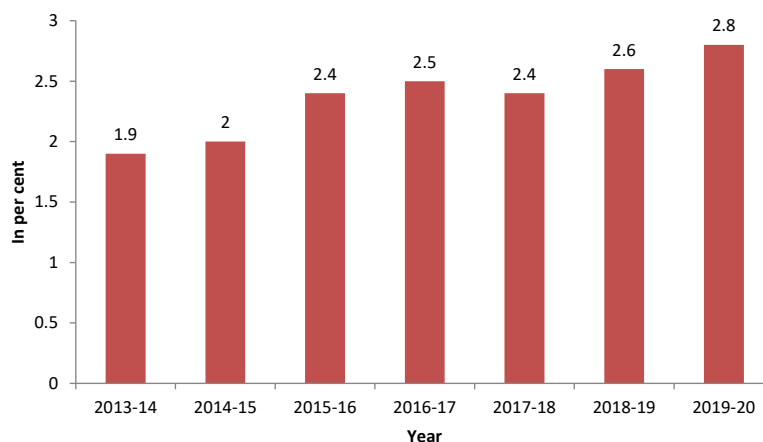
2019-20. The State's share in total investment by Central PSUs increased marginally from 2.4 per cent in 2018-19 to 2.8 per cent in 2019-20. The investment by central PSUs as on March 31, 2020 is highest in Maharashtra (8.2 per cent of investment), followed by Uttar Pradesh (6.7 per cent of investment) and Tamil Nadu (6.7 per cent of investment). (Public Enterprises Survey 2019-20). Details of central sector investment in Kerala from 2013-14 to 2019-20 are given in **Appendix 4.3.1** and central sector investment in selected States as on March 31, 2020 are given in **Appendix 4.3.2**.

Kerala's share in investment by Central PSUs from 2013-14 to 2019-20 is shown in **Figure 4.3.1**.

Joint Stock Companies

There were 39,461 Joint Stock Companies in Kerala as on March 2021, of which 37,145 (94 per cent) were private limited companies and 2,316 (6 per cent) were public limited companies. Compared to March 2020, the number of joint stock companies has increased by 5,425 by March 2021. In 2020-21, 6,409 companies were newly registered (6,094 private limited and 315 public limited). 60 companies were transferred from other states and 58 companies were transferred to other

Figure 4.3.1 Share of Kerala in investment by Central PSUs, in per cent



Source: Public Enterprises Survey 2019-20

states in 2020-21. Number of companies wound up dissolved/ struck off/amalgamated in 2020-21 were 986. 19 public limited companies were converted to private limited companies and 12 private limited companies were converted to public limited companies. Total number of Government companies as on March 2021 was 172 (Registrar of Companies Kerala and Lakshadweep). Details of joint stock companies working in Kerala are given in **Appendix 4.3.3**.

State Public Sector Undertakings under Industries Department

There are 42 Public Sector Units under the Department of Industries and Commerce, which include KINFRA, a statutory corporation, KSTC, an apex body of textile companies under the co-operative sector, and KSIDC.

In 2019-20, the PSUs under the Industries Department reported a net loss of ₹152.98 crore against a turnover of ₹3,171.77 crore. But in 2020-21, the PSUs under the Industries Department reported a net loss of ₹137.62 crore against a turnover of ₹3,321.67 crore (RIAB). The profit making PSUs include Travancore Cochin Chemicals Ltd (TCC), Kerala Minerals and Metals Ltd (KMML) Kerala State Drugs and Pharmaceuticals Ltd, Kerala State Electronics Development Corporation Ltd and Malabar cements. The outbreak of Covid-19 has adversely reflected on the overall performance of PSUs.

Major Achievements in PSUs under Industries Department (2020-21 and 2021-22 up to September 2021)

The major achievements by PSUs include:

Kerala Minerals and Metals Ltd:

- Completion of the project for installation of Distributed Control System (DCS) at a total outlay of ₹12 crore and conversion of existing LPG System to LNG at a total cost of ₹8 crore.
- The R&D wing of company has developed and launched new titanium products (RC 829, RC 800PG+)
- Commissioned 70 TPD oxygen plant with increased capacity of 10 MTP Liquid oxygen.

Travancore Titanium Products Ltd:

- Company has commissioned a plant to produce hand sanitiser and cleaning lotions as part of Government's Covid-19 preventives measures.

Kerala State Drugs and Pharmaceuticals Ltd.

- Company has produced and supplied 30 lakh litre of hand sanitiser to the Health Department in view of the increased demand for this product following the outbreak of Covid-19.

Autokast Ltd:

- Successfully completed manufacturing of Casnub-Bogies and handed over to Indian Railways.
- Started the functioning of charging station for electric vehicles and machining centre for manufacturing of value added products.

Kerala State Electronics Development Corporation.

- Successfully developed and completed the supply of Low Frequency Dunking Sonar against the order received from BEL.
- Developed NavIC receiver for fish workers in Kerala.
- Received order for implementation of Integrated Traffic Management System (ITMS) for Kochi Smart City Project.

United Electrical Industries Ltd

- Started commercial production of smart energy meter and setup facility for manufacturing smart water meter.
- Obtained approval from C-DAC for manufacturing the Vehicle Tracking System launched by the company.
- Company has attained safety award 2020 from Department of Industrial Safety.

Kerala Ceramic Ltd

- Completed the first phase of modernisation projects which resulted in doubling of production. Also completed the project of conversion of fuel source from LPG to LNG.

Kerala Electrical and Allied Engineering Company Ltd

- Completed the project for setting up of facility for manufacturing power transformers at an outlay of ₹12 crore. The company has also setup an EV charging station at Mamala unit.

Traco Cable Company Ltd

- Installed balancing machineries to enhance the production capacity and has setup a new line for manufacturing weather proof cables.

Kerala Clays and Ceramic Products Ltd and the Metal Industries Ltd.

- Set up petrol pumps as part of diversification projects.

Other Major Achievements of PSU's

- The overall performance of textile sector has improved. Three units in the sector has reported operating profits and the remaining units could reduce the loss.
- Government of Kerala has taken over the 51 per cent of share of Bharat Heavy Electricals Ltd (BHEL), in Bharat Heavy Electricals Ltd-Electrical Machine Ltd (BHEL-EML) and converted it as State PSU.
- Government of Kerala has taken over M/s Hindustan News Print Ltd Velloore, GOI a PSU through approved resolution plan by NCLT, Kochi Bench under the Corporate insolvency Resolution Process.
- The procedures for formulation of the Kerala State Public Enterprises Selection and Recruitment Board for ensuring transparency in the recruitment of employees in PSU'S is progressing.

The industrial performance of State PSUs under Industries Department during the last 6 years is given in **Appendix 4.3.4**.

Financial Performance of State PSUs Under Industries Department

The sector-wise financial performance of State PSUs under Industries department during the last Six years is shown in **Table 4.3.1**.

PSUs under chemical and electronic sectors contributed to the better performance of State PSUs in the industrial sector in 2020-21. At the same time, PSUs in the textile sector recorded losses, pulling down the overall performance of the State PSUs. The State Government has launched efforts to revive the PSUs and help them emerge as agents of technological transformation of Kerala's industrial sector.

The turnover of State PSUs increased by 4.7 per cent in 2020-21 as compared to 2019-20. Details of PSU-wise turnover and profit/loss in 2020-21 and 2021-22 (as on September 2021) are shown in **Appendix 4.3.5**.

The increased dependency on budgetary support even for continuing with regular operations of PSUs was a major concern during the Twelfth Five-Year Plan period. However, from the last year of the Twelfth Five Year Plan period (2016-17) onwards, major initiatives for strengthening and revamping of PSUs under the Industries department are being undertaken.

Future Plans

PSUs need transformation from purely profit-making ventures to institutions that create an enabling environment for high technology enterprises, in private and public sector. There is need to increase the linkages between PSUs and the State's economy. For this, raw material should be procured as much as possible from the State itself and measures will be taken to help and support the development of ancillary and downstream industries. PSUs in Kerala should play the role of facilitators for the promotion of entrepreneurship, especially high technology entrepreneurship.

Government of Kerala is committed to the development and rejuvenation of PSUs. Professional managers have been appointed to oversee the operations of PSUs. A permanent Public Enterprises Selection Board has been set up for selecting a cadre of top managers in a transparent manner. Convergence and mergers of PSUs manufacturing similar products will be undertaken to bring about efficiency in their operations.

Public Sector Restructuring and Internal Audit Board (RIAB)

RIAB, which is functioning under the Industries department, is the agency for undertaking reform initiatives in State PSUs. RIAB has been playing a major role in the rejuvenation and revival of PSUs under the Industries department. Major responsibilities of the agency include performance planning and monitoring of PSUs, enterprise reconstruction, capacity building, recruitments in PSUs, and governance advisory support to State PSUs.

Table 4.3.1 State PSUs under Industries Department: Plan fund allocation, Turnover and Net profit
(₹ in crore)

		2016-17	2017-18	2018-19	2019-20	2020-21	2021-22 upto 30-09- 2021
Chemical Sector	Total Units (nos)	7	7	7	7	7	7
	Plan Fund Release in crore	19.70	19.50	28.22	21.07	43.24	7.48
	Turnover in crore	1,311.99	1,432.68	1,634.39	1,454.44	1,532.60	903.34
	Operating Profit in crore	106.34	268.02	241.59	56.39	163.33	153.23
	Net Profit in crore	9.80	221.63	189.05	55.09	95.33	115.84
Electrical Sector	Total Units (nos)	4	4	4	4	4	4
	Plan Fund Release in crore	15.50	17.86	32.95	7.43	29.00	10.50
	Turnover in crore	453.70	376.46	575.45	502.60	482.15	86.39
	Operating Profit in crore	-12.87	-1.28	11.90	-16.58	-20.06	-40.09
	Net Profit in crore	-19.67	-34.18	-19.91	-18.75	-58.18	-57.08
Engineering Sector	Total Units (nos)	6	6	6	6	6	6
	Plan Fund Release in crore	12.85	25.86	30.45	16.00	40.49	18.84
	Turnover in crore	120.77	128.58	152.38	155.13	183.39	84.74
	Operating Profit in crore	-13.94	-16.35	-25.22	-16.60	-7.47	-13.88
	Net Profit in crore	-42.42	-45.71	-53.96	-42.63	-36.68	-30.20
Electronics	Total Units (nos)	3	3	3	3	3	3
	Plan Fund Release in crore	2.75	2.68	10.57	2.51	7.96	8.97
	Turnover in crore	460.85	480.59	546.88	530.44	535.19	167.72
	Operating Profit in crore	2.61	22.71	21.56	19.27	26.81	-4.70
	Net Profit in crore	-17.83	4.77	8.71	4.38	9.97	-13.06
Textiles	Total Units (nos)	10	10	11	11	11	11
	Plan Fund Release in crore	34.80	23.81	22.20	19.40	40.91	4.87
	Turnover in crore	114.64	134.52	155.28	159.24	181.19	128.38
	Operating Profit in crore	-39.10	-45.69	-39.85	-49.04	-15.34	-2.66
	Net Profit in crore	-86.63	-92.43	-95.66	-114.64	-87.57	-45.24
Ceramics and Refractories	Total Units (nos)	2	2	2	2	2	2
	Plan Fund Release in crore	4.94	4.94	16.20	3.02	14.48	6.75

Traditional and wood based Industries	Turnover in crore	4.67	5.76	10.26	11.53	37.34	27.11
	Operating Profit in crore	-5.41	-9.50	-1.31	-1.17	-2.34	-0.96
	Net Profit in crore	-10.92	-15.35	-6.97	-10.45	-11.97	-6.59
	Total Units (nos)	7	7	7	7	7	7
	Plan Fund Release in crore	4.90	7.10	7.45	5.08	15.00	9.83
	Development and Infrastructural agencies	Turnover in crore	140.91	127.15	128.70	141.35	67.29
Operating Profit in crore		-13.79	-19.60	-21.49	-15.65	-27.78	-12.29
Net Profit in crore		-22.97	-30.68	-26.42	-24.83	-34.43	-15.69
Total Units (nos)		2	2	2	2	2	2
Plan Fund Release in crore		5.50	-	-	1.10	17.10	4.50
Overall		Turnover in crore	198.62	253.58	282.52	217.04	302.52
	Operating Profit in crore	-13.32	-7.97	-0.83	2.13	-5.86	-6.18
	Net Profit in crore	-22.17	-14.56	-4.18	-1.15	-14.09	-11.36
	Total Units (nos)	41	41	42	42	42	42
	Plan Fund Release in crore	100.94	101.75	148.04	75.61	208.18	71.74
	Turnover in crore	2,806.15	2,939.32	3,485.86	3,171.77	3,321.67	1,485.44
Operating Profit in crore	36.26	192.90	186.35	11.91	111.29	72.47	
Net Profit in crore	-212.81	-6.51	-9.34	-152.98	-137.62	-63.38	

Source: RIAB

Industrial Promotion and Investment Facilitation

The main industrial financing agencies in the State are Kerala State Industrial Development Corporation (KSIDC) and Kerala Financial Corporation (KFC). In addition to industrial financing, KSIDC promotes and facilitates physical and social infrastructure required for industrial growth in the State. KINFRA has been focusing on industrial infrastructure development.

Kerala State Industrial Development Corporation (KSIDC)

KSIDC is a wholly owned company of the Government of Kerala, established in 1961, for the promotion and development of medium and large scale units in the State. KSIDC

initiated major industrial and infrastructure projects, which are strategically important for Kerala's economic development. KSIDC also plays a vital role in the State by financing and promoting private industrial projects, spearheading investment promotion initiatives, creating sector-specific industrial infrastructure and ecosystem, and nurturing entrepreneurship and start-ups. As the nodal agency for foreign and domestic investment in Kerala, KSIDC provides comprehensive support for investors, helping them access various incentives and schemes, and facilitating constant interaction between the Government and the industrial sector.

KSIDC acts as the single point of contact for investors setting up enterprise in the State. KSIDC offers a comprehensive set of services

from support in developing business ideas into viable projects, assistance in conducting feasibility studies, providing developed infrastructure facilities, facilitating timely approvals and clearances to handholding the investor from project conceptualisation to commissioning. KSIDC has strived to create an enabling ecosystem for start-ups through setting up Business Incubation Centres, providing mentoring sessions and extending seed funding for startup.

Besides financing several industrial units and implementing various mega projects, KSIDC had also taken up many activities. The major activities and ongoing projects initiated by KSIDC are shown in **Box 4.3.2**.

Financial Status

The Corporation reported a net profit of ₹41.8 crore in 2019-20. Certain key financial parameters of KSIDC for the past four years are given in **Table 4.3.2**.

Industrial Financing by KSIDC

In 2020-21, KSIDC sanctioned projects worth of ₹336.54 crore. These projects are expected to generate employment for 758 persons directly and indirectly. The Corporation achieved ₹312.26 crore of disbursements, and a total amount of ₹80.26 crore was recovered by way of principal and interest. There are 12 projects under various stages of implementation with a total investment of ₹510.15 crore, which would create employment for around 1,705 persons. The physical and financial performance of KSIDC in 2020-21 and 2021-22 (as on October 2021) is given in **Appendix 4.3.6**.

Box 4.3.2 KSIDC: Major activities and on-going projects

- Financial assistance and support to medium and large-scale industries
- Investment promotion in Kerala
- Industrial infrastructure development, including Industrial Growth Centres
- Promoting Ease of Doing Business (EoDB) in Kerala
- Providing support for various start-up initiatives
- Entrepreneur support through mentoring
- Angel/seed fund scheme
- Electronic Hardware Park at Kochi
- Life Science Park for promoting private industries and R&D institutions in the life sciences sector
- Second phase of Light Engineering Industrial Park, Palakkad
- Business Incubators
- Medical devices Park (Med Spark)
- Mega Food park

Table 4.3.2 Key Financial Parameters of KSIDC. ₹ in crore

Particulars	2016-17	2017-18	2018-19	2019-20
Net Worth	669	777.3	703.7	621.2
Total expenditure	13.7	44.9	14.7	16.3
Employee Expenses	9.1	10.3	8.9	10.6
Net Profit/Loss (+/-)	34.5	33.6	33.8	41.8
Audit Status	Audit up-to-date			Not completed

Source: BPE Review 2019-20

The plan outlay and expenditure of KSIDC from 2016-17 to 2021-22 are shown in **Table 4.3.3**.
Table 4.3.3 Plan Outlay and Expenditure, KSIDC, ₹ in crore

Sl. No	Year	Outlay	Expenditure	%
1	2016-17	87.5	75.5	86.3
2	2017-18	96.3	171.7	178.4
3	2018-19	134.4	77.5	57.7
4	2019-20	116.0	15.9	13.7
5	2020-21	109	84.32	77.36
6	2021-22*	109	15.55	14.27

Source: Budget Estimate

Note: *Expenditure as on October 31, 2021

Major Promotional Activities of KSIDC

Ease of Doing Business (EoDB)

The Department of Industrial Policy and Promotion (DIPP), Government of India, has been ranking States annually based on the reform measures taken to improve EoDB. KSIDC carried out a study on the reforms needed to improve EoDB in Kerala, especially reforms in the existing Rules and Acts relating to clearance procedures for starting an industrial unit in Kerala. Based on the recommendation of the study report, amendments to seven Acts were approved by the State Cabinet. The State Legislature passed the Kerala Investment Promotion and Facilitation Act 2018.

The Kerala Micro Small Medium Enterprises Facilitation Act 2019 was enacted to implement an automated approval route exempting all projects having capital investments up to ₹10 crore and not falling under red category as notified by the Pollution Control Board from licences, approvals, permits etc. under State Rule for the first three years. As on today more than 13,863 MSMEs have availed the exemptions under the legislation for setting up MSME units across the State.

Kerala Single Window Interface for Fast and Transparent Clearance (KSWIFT)

State Government has introduced the 'Single Window Clearance System' to ease the setting up of industrial projects in the State. KSIDC is the nodal agency for the scheme and National Informatics Centre (NIC) has been engaged for

the development of online clearance mechanism and online common application form. KSWIFT will be the platform for all future transactions with the Government on the issue of granting licences and approvals in a time bound manner. As on October 20, 2021, a total of 27,776 registered entrepreneurs have used the KSWIFT system and availed 75 plus services of 21 departments.

Financial Assistance

KSIDC launched several financial assistance and support programme for medium and large scale industries in the State. KSIDC's term loan assistance is limited up to a maximum of ₹100 crore in a project. The various kinds of loans provided by KSIDC are term loan, short term loans, equipment purchase loans, working capital term loans, corporate loans and equity/preference share investments. KSIDC has been supporting young entrepreneurs by various initiatives such as seed fund assistance, incubation facility and mentoring support. Innovative ventures are given seed fund by way of soft loan on equity share capital at 90 per cent of the project cost or ₹25 lakh whichever is lower. This programme has sanctioned over ₹22 crore to more than 100 companies since its launch.

KSIDC has identified encouraging women entrepreneurs as one of the key areas of growth for Kerala economy. The Women Entrepreneurship Mission of KSIDC was another initiative launched to identify, promote, and provide support to existing women entrepreneurs for scaling up their business ventures. The quantum of assistance under this programme is limited to 80 per cent of the fund requirements or a maximum of ₹25 lakh, whichever is less.

Relief Package of KSIDC

In the wake of Covid-19 pandemic, KSIDC introduced a package of relief measures for its clients as part of the 'Vyavasaya Bhadratha' package in 2020. The details of the package are as follows.

- New Land Premium Payment Policy.
- New allottees shall be allotted land by collecting upfront lease premium of only 20 per cent.
- Freezing of land premium for one year.
- The land premium to be paid from April 2020 to March 31, 2021 in KSIDC and KINFRA

- parks will be frozen.
- The rental charges for the Standard Design Factories presently occupied by the investors in KSIDC/KINFRA parks for a period of three months from March 2020 to May 2020 will be waived off.
- Waiving off common facility charges for 3 months from March 2020 to May 2020.
- Moratorium for payment of principal and interest for all operating units of KSIDC for a period of three months.
- Top up loans in KSIDC.
- Support to existing standard client of KSIDC to meet immediate working capital and asset creation needs.
- Waiver of penal interest for existing customers of KSIDC.
- One time settlement policy for settling the loans given by KSIDC.
- Special loans for asset creation for MSMEs.

As part of Covid-19 Samashwasa Padhathi the following schemes were implemented by KSIDC.

- All KSIDC customers who have availed loan and are unable to repay the same due to Covid-19 related restrictions can now avail the scheme of restructuring without the account getting labelled as a bad debt.
- Moratorium on repayment of top-up loan for six months from October 1, 2020 to March 31, 2021.
- Waive all penal interest for its customers for one year from April 2021 for the entire financial year.
- KSIDC will sanction ₹100 crore as soft loan for MSMEs with 5 per cent interest rate.
- KSIDC will be sanction ₹100 crore as soft loan for returnee migrants selected by NORKA Roots with 5 per cent interest.

- KSIDC has earmarked ₹100 crore towards extending special loan for industries coming under Covid-19 related healthcare activities at 5 per cent rate.

Kerala Industrial Infrastructure Development Corporation (KINFRA)

KINFRA was set up in 1993 with the objective of building industry-specific infrastructure across the State and thereby promoting private investment and employment creation, and creating a land bank for future industrial growth. KINFRA has promoted economic development of industrially backward regions of the State by setting up industrial parks/townships/zones, which provide most of the facilities required for entrepreneurs to start an industry. The industrial parks developed by KINFRA have facilities such as developed land on built up space, dedicated power and water supply, and communication facilities. KINFRA provides a readymade manufacturing environment for entrepreneurs, and help them reduce the time and cost involved in setting up a unit.

Financial Status

The Corporation reported a net profit of ₹2.3 crore in 2019-20. Certain key financial parameters for the past four years are shown in **Table 4.3.4**.

The plan outlay and expenditure of KINFRA from 2016-17 to 2021-22 are shown in **Table 4.3.5**.

Land Available with KINFRA

The total land acquired by KINFRA is 2,939.14 acres. Land available with KINFRA for industrial development purposes is 2,318.3

Table: 4.3.4 Key Financial Parameters of KINFRA, ₹ in crore

Particulars	2016-17	2017-18	2018-19	2019-20
Net Worth	741.6	1,122.5	1,230.2	1,427.4
Total expenditure	37.6	33.7	43.4	*519.0
Employee Expenses	11.2	12.3	18.1	-
Net Profit/Loss (+/-)	0.4	0.9	6.4	2.3
Audit Status	Complete and up to date			Not completed

Source: BPE Review 2019-20

Note: *Cost of land on long lease.

Table 4.3.5 Plan Outlay and Expenditure, KINFRA, ₹ in crore

Sl. No	Year	Outlay	Expenditure	Expenditure as per cent of outlay
1	2016-17	101.2	52.7	52.1
2	2017-18	111.3	66.36	72.7
3	2018-19	96.0	47.0	49.0
4	2019-20	107.0	31	17.4
3	2020-21	92.53	85.14	92.0
6	2021-22*	302.53	156.53	51.57

Source: Budget Estimate

Note: *Expenditure as on October 31, 2021

acres, of which 1,445.08 acres have already been allotted to industrial units. The remaining land (873.22 acres) is still available with KINFRA for allotment to industrial units. The details of allotments in KINFRA industrial parks as on September 2021 are given in **Appendix 4.3.7**.

KINFRA has promoted investments in the State and created investment friendly climate within its parks, contributing significantly to the State's economy.

KINFRA has successfully completed India's first International Apparel Park at Thiruvananthapuram, Export Promotion Industrial Park at Ernakulam; Infotainment Park, the Film and Video Park at Thiruvananthapuram, and Food Processing Industrial Park at Malappuram. KINFRA

has developed Small Industries Park at Thiruvananthapuram, Pathanamthitta, Ernakulam, Thrissur, Kannur, Wayanad and Kasaragod.

With regard to the industrial Park at Ottapalam, construction of Standard Design Factory has been completed and allocation of built-up space is under progress. Internal roads and other common facilities have been completed.

The major on-going projects of KINFRA are shown in **Box 4.3.3**.

KINFRA has promoted investments in the State and created investment friendly climate within its parks, contributing significantly to the state's economy. In this regard, 1,127

Box 4.3.3 On-going Projects of KINFRA

- Water supply and road works for Info park, Smart City and KEPIP
- Industrial Park, Mattannur, Kannur
- Food and Spices Park, Muttam, Thodupuzha
- Special Economic Zone for Animation/IT/ITES in KINFRA Film and Video Park, Kazhakuttam, Thiruvananthapuram,
- Construction of Standard Design Factory in Neo Space at KINFRA Techno Industrial park, Kakkancherry, Malappuram
- Petrochemical Park, Kochi
- Standard Design Factory, Koratty, Thrissur
- Advanced Technology Park, Ramanattukara, Kozhikode
- Global Ayurveda Village, Thonnakkal and Varkala, Thiruvananthapuram
- International Trade and Convention centre (JV with ITPO), Kochi
- Defence Park, Ottapalam, Palakkad
- Mega Food Park, Palakkad
- Common Facilities for Women
- Upgradation of infrastructure in existing industrial parks

industrial units have been allotted land in the various industrial parks of KINFRA with total committed investment of ₹3,315.53 crore with direct employment of 41,821. KINFRA has also successfully implemented single window clearance system in all the parks.

Kerala Financial Corporation (KFC) (Industrial Financing)

KFC is a government owned non-banking financial company in the State. KFC has been playing a major role in the industrialisation of Kerala. The main objective of KFC is to extend financial assistance to micro, small and medium enterprises (MSMEs) in the manufacturing and services sectors. The Corporation provides financial assistance for setting up of new units and for the expansion/modernisation/diversification of existing units in both manufacturing and service sectors. Financial assistance is provided in the form of term loans, working capital loans and special schemes. KFC is a member of Credit Guarantee Fund Trust for Micro and Small Enterprises. The major activities of the Corporation are the following:

- Sanction of term loans to new micro, small and medium enterprises in the manufacturing and services sector.
- Sanction of term loans to existing industrial concerns and services sector units for expansion/ modernisation/ diversification.
- Sanction of working capital loans to meet working capital requirements of industrial/ service enterprises under special schemes.
- Special schemes for financial assistance to civil contractors.
- Special scheme for financial assistance for producing feature film and TV serials.
- Special scheme for modernisation, up gradation and expansion of existing cinema theatres and establishment of new multiplexes.
- Special scheme for purchase of lab equipments/ waste management.
- Scheme for Funding Venture Debt for IT Hardware and Software Enterprises.
- Scheme for Financing Working Capital Requirements of Start-ups for Executing Purchase Orders.

The Corporation sanctioned financial assistance amounting to ₹4,146.5 crore in 2020-21 as against ₹1,657.9 crore in the previous year.

An amount of ₹3,709.2 crore was disbursed in 2020-21 as against ₹1,446.2 crore in 2019-20. The changes in the government policies and other external factors affected business in certain sectors. Performance of KFC during the last five years is given in **Appendix 4.3.8**. The details of loan operations and industry-wise classification of loans in 2020-21 of KFC are shown in **Appendix 4.3.9 and Appendix 4.3.10** respectively.

Kerala Bureau of Industrial Promotion (KBIP)
Kerala Bureau of Industrial Promotion (KBIP) is an autonomous body under Department of Industries and Commerce. KBIP established in 1991 is a registered society under the Travancore Cochin Scientific Literary and Charitable Societies Act 1955.

The various industrial promotion activities undertaken by KBIP are classified as follows.

- Industrial cluster development.
- Activities of Kerala State Bamboo Mission.
- Implementation of PM Formalisation of Micro Food Processing Enterprises Scheme.
- Activities of Commerce Mission.
- Audit and Certification of Food Processing and related units.
- National Scheduled Caste/Scheduled Tribe Hub activities in Kerala.
- Participation in Regional, National and International Events.
- General Promotional Activities.
- Kerala B2B Online Portal.
- Maintenance of Official Websites.

New Initiatives

- **Meet the Minister** - An initiative to solve the problems faced by investors in the industrial sector by meeting the minister directly. It is proposed to conduct the programme, in all the 14 districts. Meetings are completed in 10 districts. Out of 1,377 complaints received, 930 were solved.
- **Meet the Investor** - A programme where the Minister meets the investors who propose to invest more than ₹100 crore in the industrial sector. A nodal officer is also appointed to help the investor. Proposals of ₹7,000 crore were received so far in this programme.
- Tata Elexy proposed to invest ₹75 crore in KINFRA apparel park Kazhakuttom.

- Agreement was signed with Tata Elxys.
- Agreement was signed with TCS for ₹600 crore investments in Kakkanad KINFRA Electronics and Manufacturing cluster.
 - Land acquisition process was progressing for Kochi-Palakkad High Tech Industrial corridor. It is expected to attract an investment of ₹10,000 crore and is expected to generate 22,000 direct employments and 80,000 indirect employments in 5 years.
 - Masterplans have been prepared for the renovation and modernization each of the public sector undertakings under industries department.

Way Forward

There has been a steady increase in the size of Kerala's manufacturing sector in value terms, especially over the last four years. More importantly, Kerala has achieved substantial progress with respect to modernising and diversifying its industrial sector. It is worth highlighting that a new set of modern industries is growing, in Kerala.

The Government aims to support entrepreneurs by setting up industrial parks with good infrastructure, providing assistance in marketing, and encouraging the use of local resources. There has been a growing focus on food and agro-based industries and technologically advanced industries.

The vision of the Government is to achieve an industrial transformation in Kerala that is socially and environmentally sustainable. Adoption of new technologies in various stages of production, design, and marketing will be an important component of this transformation.

4.4 MICRO, SMALL AND MEDIUM ENTERPRISES (MSMEs)

Micro, Small and Medium Enterprises (MSMEs) account for about 90 per cent of businesses and more than 50 per cent of employment worldwide and are key engines of job creation and economic growth in developing countries. The MSME sector is a major contributor to economic development in India and contributes significantly to Gross Domestic Product (GDP) of the country and its exports. It also has a significant role in entrepreneurship development, especially in semi-urban and rural areas of India. MSMEs provide the largest number of employment opportunities in the country outside agriculture, with relatively low level of capital per employee. The sector contributes about 45 per cent to India's manufacturing output, more than 40 per cent of the country's exports and over 28 per cent of the GDP (including services), while creating employment for about 111 million people.¹

The MSME sector in India is diverse in terms of size, levels of technology employed, and products. As per the 73rd round of NSS data for 2015-16, there were 633.88 lakh unincorporated non-agricultural MSMEs in the country engaged in different economic activities. 31 per cent MSMEs were found to be engaged in manufacturing activities, while 32 per cent were in trade and 33 per cent in other services (196.65 lakh in manufacturing, 230.35 lakh in trade, 206.85 lakh in other services and 0.03 lakh in non-captive electricity generation and transmission) excluding those MSMEs registered under Factories Act, 1948. MSME sector provided employment for 11.10 crore workers (3.60 crore in manufacturing, 3.87 crore in trade and 3.62 crore in other services and 0.007 crore in non-captive electricity generation and transmission) in the rural and urban areas

across the country. Again, out of an estimated 633.88 lakh MSMEs, 324.09 lakh MSMEs (51 per cent) were in rural areas and 306.43 lakh MSMEs (49 per cent) were in the urban areas (Source: Annual Report 2020-21 Ministry of Micro, Small and Medium Enterprises, Government of India). Existing classification of MSME units based on investment in plant/ machinery/ equipment and annual turnover is shown in **Table 4.4.1**.

MSME Sector in Kerala

The Micro, Small and Medium Enterprises (MSME) sector is emerging as a major income generating and employment providing sector in Kerala. As per the MSME Survey and Quick Results of 4th Census, Ministry of MSME Government of India, 5.62 per cent of MSME enterprises in India are in Kerala. Kerala, with its excellent connectivity, communication network, availability of highly skilled human resources, and relatively good industrial infrastructure, is highly suited for the growth of the MSME sector. The MSME sector helps in industrialisation of rural and backward areas, and provides employment to youth and socially disadvantaged groups such as SC, ST, women and persons with physical disabilities.

MSMEs play a critical role in innovation, and have ability to experiment with new technologies on small scales. The industries coming under this sector are handicrafts, handloom, khadi, food processing industries, garment making and textile industries and industries related to coir/wood/bamboo/Plastic/rubber/leather/clay products. There are over 6,000 various MSME products ranging from traditional to high-tech items which are manufactured in this sector.

Table 4.4.1 Classification of MSMEs

Composite Criteria: Investment in plant / machinery / equipment and Annual Turnover			
Classification	Micro	Small	Medium
Manufacturing enterprises and enterprises rendering Services	Investment < 1 crore Turn over < 5 crore	Investment < 10 crore Turn over < 50 crore	Investment < 50 crore Turn over < 250 crore

Source: Ministry of MSME, Government of India

1. Report of the expert committee on Micro, Small & Medium Enterprises, RBI, 2019

Table 4.4.2 *Outlay and Expenditure in the 13th five year plan, ₹ in lakh*

Sector	2017-18		2018-19		2019-20		2020-21		2021-22		2017-22	
	Outlay	Exp	Outlay	Exp	Outlay	Exp	Outlay	Exp	Outlay	Exp*	Outlay	Exp
Small Scale Industries	13,721	10,027.98	15,206	9,183.47	16,389	52,53.67	13,469	11,078	13,894	58,58.85	72,679	41,402.01
Commerce	400	396.95	400	278.60	1543	476.83	1,600	864	1,200	1,009	5,183	3,025.43
Handicrafts	565	501.9	355	351.26	355	404.28	410	1,093	385	216.49	2,070	2,567.15
Total	14,886	10,926.80	16,001	9,813.33	18,287	6,135	15,479	13,035	1,547	7,084.34	79,932	46,994.59

Source: Plan space Kerala *expenditure as on November 30, 2021

The economic growth of Kerala is related to the development of MSMEs. Directorate of Industries and Commerce is implementing various schemes such as Entrepreneurship Development Programme, Entrepreneurship Support Scheme to increase production and employment in this sector. The agencies under the Directorate are: Directorate of Handloom and Textiles, which aims at evolving policies for the promotion and development of handloom and textile sector in the State, Directorate of Coir Development which is the implementing agency for all policy decisions of the Government of Kerala related to coir industry; and Khadi and Village Industries Board is vested with the responsibility of organising and promoting Khadi and Village Industries in the State.

In Kerala, the Government and banks are providing lot of facilities and support for MSME sector. The Directorate of Industries and Commerce (DIC) act as a facilitator for the growth of the MSME and traditional industrial sectors in Kerala and is implementing various schemes to develop entrepreneurial culture in the State. Department provides financial assistance to start Entrepreneurship Development clubs at school and college level to develop entrepreneurial culture among the youth and to organise entrepreneurship development programmes for them. In addition, the Department has made it a priority to provide services to Start-ups and to set up business incubation centres in District Industries Centres.

In the 13th Five-Year Plan, an amount of 79,932.00 lakh has been allocated to the sector. Details are provided in **Table 4.4.2**.

Udyog Aadhar Memorandum (UAM) in the State Kerala has discontinued the practice of filing

Entrepreneurs Memorandum Part-II from September 18, 2015, and in its place, started online registration in Udyog Aadhar. As on March 31, 2021, the total number of Udyog Aadhar Memorandums filed was 72,416 which included UAMs for micro, small and medium manufacturing units of 26,448,2,494 and 307 numbers respectively (totalling 29,249 numbers). In addition, there were 43,167 UAMs filed in the service sector including 40,411,2,476, and 250 micro, small and medium units respectively (Source: Directorate of Industries and Commerce).

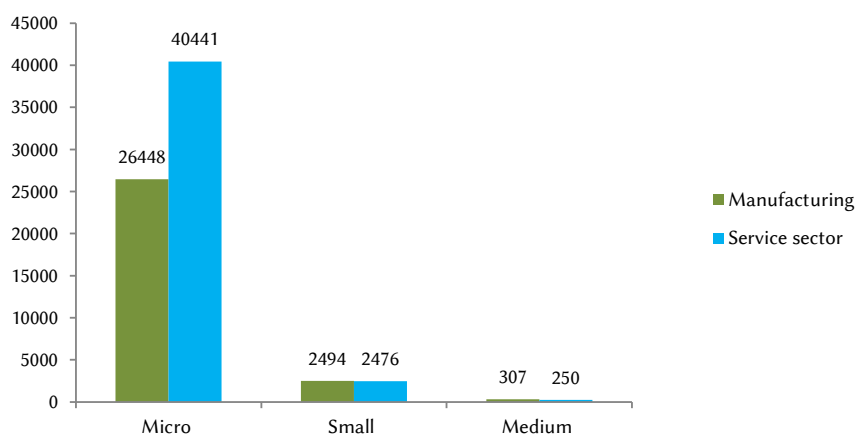
The details are given in **Appendix 4.4.1**. **Figure 4.4.1** shows the number of Micro, Small and Medium units registered under manufacturing and service in 2020-21.

Performance of the Sector

In 2020-21, 11,540 new MSME units were started in the State with an investment of ₹1,221.86 crore and provided employment to 44,975 persons. In 2019-20, 13,695 new MSME units were created with an investment of ₹1,338.65 crore and provided employment for 46,081 persons. In FY 2021-22, and till September 2021, 5,326 new units employing 21,382 persons started functioning. The number of new MSME units and employment provided for the last two years is shown in **Figure 4.4.2**.

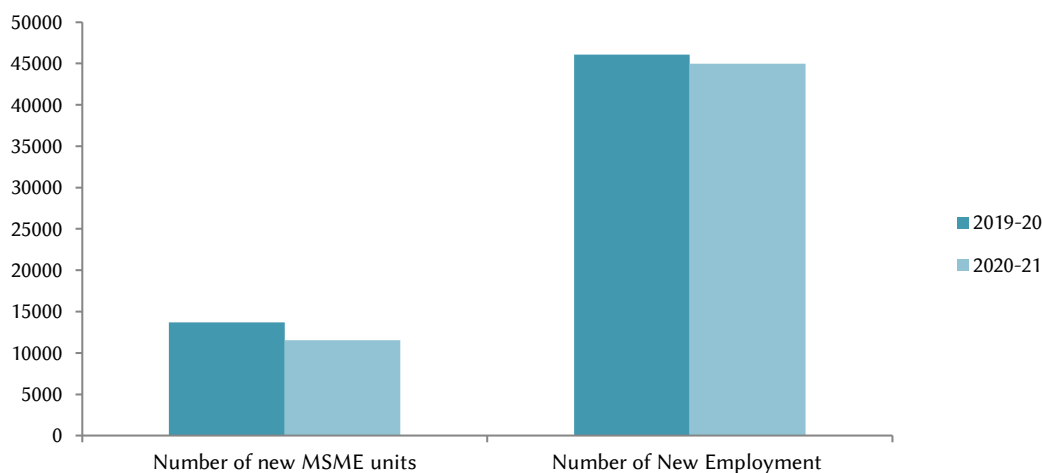
In 2020-21, the district with the largest number of new MSME units was Thrissur (1,855 units) with an investment of 144.91 crore, generating 6,118 employment opportunities, followed by Palakkad (1,477 units) with an investment of 230.86 crore generating 6,300 employment opportunities and Ernakulam with 1,165 units providing employment to 4,729 persons. Kasaragod had the lowest number with 220 units, and generating

Figure. 4.4.1. Number of Micro, Small and Medium units registered under manufacturing and service sectors in Kerala, 2020-21



Source: Directorate of Industries and Commerce

Figure.4.4.2 Number of new Micro, Small and Medium units and employment created in MSMEs in 2019-20 and 2020-21



Source : Directorate of Industries and Commerce

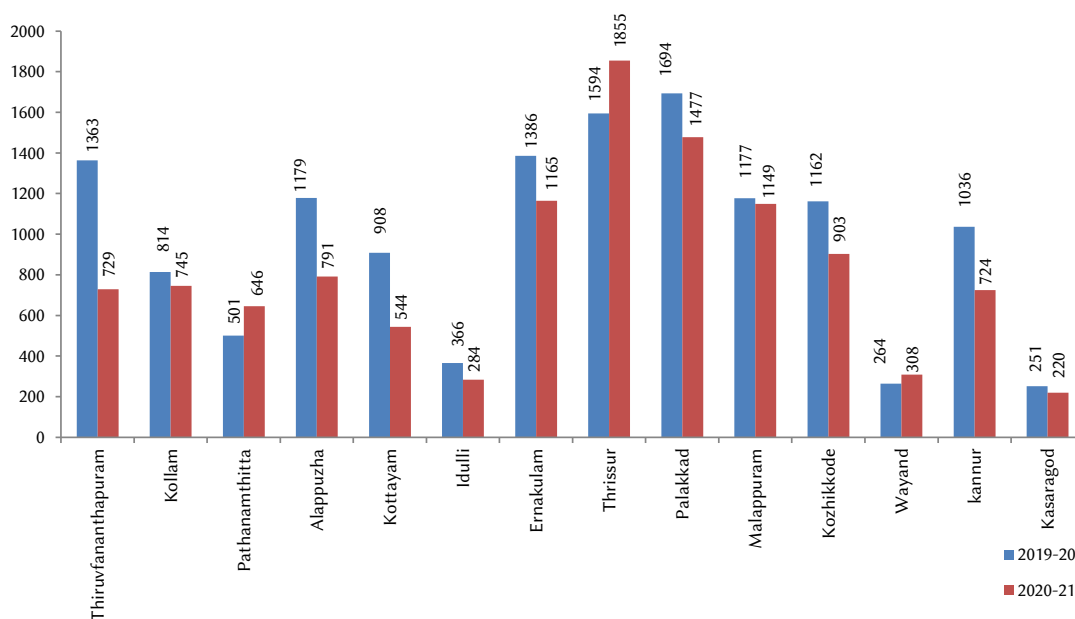
employment for 843 persons. The details are given in **Appendix 4.4.2**.

In 2019-20, Palakkad was the district with the largest number of new units (1,694 units) generating 5,984 jobs, followed by Thrissur with 1,594 units generating 4,341 jobs and Ernakulam with 1,386 MSME units with 4,903 jobs. Kasaragod had the lowest number (251) of units in the previous year also. **Figure 4.4.3** shows district wise details of new MSME units in the State in 2019-20 and 2020-21.

A total of 70,064 MSME units started functioning in the State from 2016-17 to 2020-21 with an investment of ₹6,519.17 core and provided employment for 2,48,813 persons. Details are given in **Table 4.4.3**.

The sector-wise growth of MSME units over the last five years shows that there is a steady increase in the number of new agro and food-based MSME units from 2,395 units in 2016-17 to 3,359 units in 2020-21. The number of new service related MSME units increased from 3,057 in 2016-17 to 4,036 in 2019-20 and decreased to 2,725 in

Figure 4.4.3 District wise new MSME units in Kerala in 2019-20 and 2020-21



Source: Directorate of Industries and Commerce

2020-21. The subsector -wise details of MSME units started during the last five years is given in **Table 4.4.4**.

Table 4.4.3 Achievement in MSME sector from 2016-17 to 2020-21

Year	No.of MSME units	Investment (in crore)	Employment (in number)
2016-17	15,535	1,387.11	57,445
2017-18	15,468	1,249.61	51,244
2018-19	13,826	1,321.94	49,068
2020-21	13,695	1,338.65	46,081
2019-20	11,540	1,221.86	44,975
Total	700,64	6,519.17	2,48,813

Source: Directorate of Industries and commerce

In 2020-21, the highest number of MSME units were started in the agro and food based sector (3,359 units) followed by service sector, (2,725 units) “others” category (which covers units making plastic containers, gold ornaments, rubber products and handicrafts products) with 1,949 units and textiles and garments as shown in **Figure 4.4.4**.

Industrial Co-operative Societies

In Kerala, the total number of working industrial co-operative societies as on March 31, 2021 was 807. Kannur has the larger number of working societies with 165 numbers. Out of the total societies, 88 societies were registered by women. The number of societies registered in 2020-21 is 232. The details are given in **Appendix 4.4.3**.

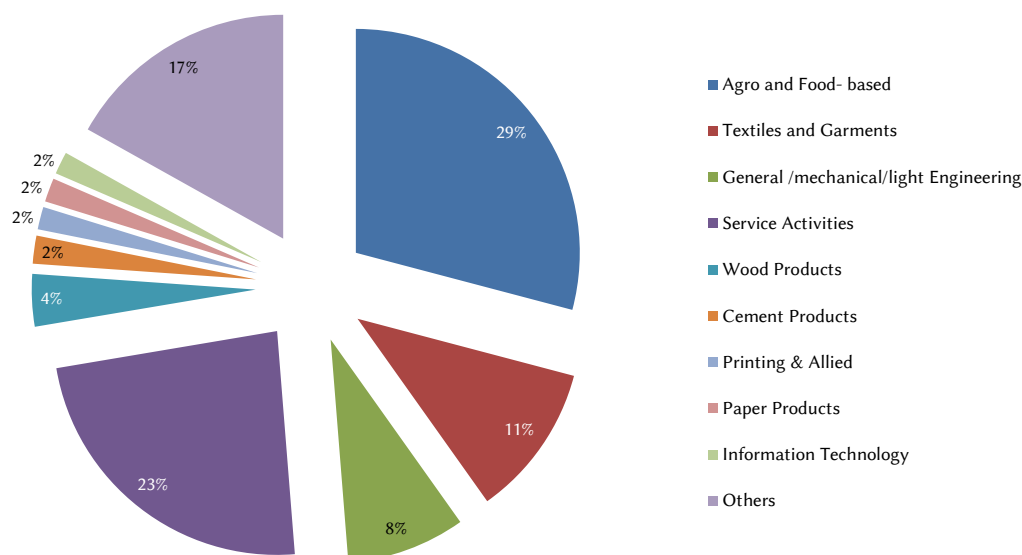
Improving infrastructure in existing Development Plots/Areas

The Directorate of Industries and Commerce (DIC) develop infrastructure facilities for small-scale industries in the State. At present, there are 38 Development Area/Development Plots under DIC, having a total area of 2,396.35 acre. A total of 2,303 units are functioning in these DA/DPs. Total employment provided through these DAs/DPs during 2020-21 are 38,500 and income generated is ₹2,22,878.25 lakh. The details are given in **Appendix 4.4.4**.

Industrial Estates

Industrial estates are being utilised as an effective tool for the promotion and growth of small-scale industries in the State and also as an effective tool to decentralise industrial activity to rural and backward areas. Industrial estates are specific

Figure 4.4.4 Number of MSME units were started in 2020-21



Source: Directorate of Industries and commerce

Table 4.4.4 Subsector wise details of new MSME units started in Kerala

Sl. No.	Name of subsector	2016-17	2017-18	2018-19	2019-20	2020-21
1	Agro and Food- based	2,395	2,553	2,712	2,582	3,359
2	Textiles and Garments	1,695	1,947	1,858	1,904	1,276
3	General /mechanical/light Engineering	1,606	2,001	1,533	1,334	959
4	Service Activities	3,057	3,679	3,259	4,036	2,725
5	Wood Products	775	871	644	5,32	436
6	Cement Products	344	469	329	3,09	233
7	Printing & Allied	322	392	348	2,80	188
8	Paper Products	158	163	192	1,88	198
9	Information Technology	263	316	294	2,40	187
10	Others	3,098	3,077	2,657	2,290	1949
	Total	13,713	15,468	13,826	13,695	11,540

Source: Directorate of Industries and commerce

areas zoned for industrial activities in which infrastructure such as roads, power and other utility services are provided to facilitate the growth of industries and to minimize impacts on the environment. **Table 4.4.5** details the number of major and mini industrial estates in Kerala as on March 31, 2021.

The District Industries Centre is a permanent set up at the District level, to provide all the services and support facilities to the entrepreneur for setting up micro, small and medium enterprises. This includes end-to-end support such as identification of suitable projects, preparation of feasibility report, arrangements of credit, machinery and equipment, and raw materials and also connect the

units into industrial clusters. This Centre helps in establishment of MSMEs as also the registration and development of industrial cooperatives. There are 90 mini industrial estates cooperatives under District Industries Centre with 864 SSI units as on March 31, 2021; 752 working units in these estates provided employment to 3,333 persons.. The details are given in **Appendix 4.4.5**.

Table 4.4.5 Industrial Estates in Kerala, 2020-21

Sl No	Agency	No. of Industrial Estates	
		Major Estates	Mini Estates
1	District Industries Centre		90
2	SIDCO	17	36
Total		17	126

Industrial Estates Under SIDCO

Kerala Small Industries Development Corporation (SIDCO) is playing a vital role in the promotion of Small Micro and Medium Industries in the State by providing more than 10,000 direct employment opportunities and over 20,000 indirect employment opportunities.

The industrial Estates under SIDCO provides infrastructure facilities such as land, work shed, water and raw material to the units in the small scale sector. SIDCO has developed 17 major industrial estates in 233.86 acre of land. 200.37 acre have been allotted to 861 working units, which employs 7,833 workers (as on March 31,2021). Besides there are 7 industrial parks and 36 mini industrial estates under SIDCO . The total income generated by 36 mini industrial estates under SIDCO during 2020-21 was ₹16.07 lakh. Details of industrial estates under SIDCO are given in **Appendix 4.4.6, 4.4.7 and 4.4.8**.

Industrial Cluster Development

Industrial clusters play an important role in the promotion of small and medium-sized enterprises mainly because of their inclusiveness, technology absorption, efficiency improvement, and availability of common resources. The Ministry of Micro, Small and Medium Enterprises (MSMEs) has adopted the cluster approach as a key strategy for enhancing the productivity and competitiveness as well as capacity building of small enterprises.

The State has also adopted the cluster development approach for industrialisation to reap the benefits of agglomerations. The State supports cluster development of MSMEs through MSME-DI, Government of India, Thrissur and Kerala Bureau of Industrial Promotion (K-BIP). The common facility centres, which are in various stages of development in the State, are in the areas of wood, plywood, furniture, rubber, textile, rice mill, plastic, printers, ethnic food, agriculture implements and general engineering. Ministry of MSME under the Scheme Micro Small Enterprises Cluster Development Programme (MSE-CDP) is assisting 19 Cluster CFC in Kerala. MSME-DI, Thrissur is actively engaged in the promotion and development of clusters in the State in close liaison with the State Government and other stakeholders. Promotion of local entrepreneurship is important for the creation of sustainable consumption and production systems. MSME-Development Institute (MSME-DI), Thrissur, Government of India has conducted 18 trainings/ courses in 2020-21, benefitting 776 persons. Details are given in **Appendix 4.4.9**.

Kerala Bureau of Industrial Promotion (K-Bip)

K-Bip is the implementing agency of Common Facility Centre (CFC) projects in industrial cluster under Micro Small Enterprises-Cluster Development Programme (MSE-CDP) scheme of the Ministry of Micro Small and Medium Enterprises (MSME) Government of India. The projects are implemented in association with Directorate of Industries and Commerce/District Industries Centres of the State. MSE-CDP scheme is implemented by the Ministry of MSME Government of India and provides maximum of 70 per cent financial assistance for setting up of CFC in various clusters. 20 per cent of the total project is the matching State contribution and the balance 10 per cent is the SPV (consortium) contribution. In 2020-21, two common facility centres started functioning: (i.) Wood Furniture Cluster, Taliparamba, Kannur, having 400 micro and small wood based industrial units. Presently there are 53 Units in the consortium which acts as the Special Purpose Vehicle (SPV) (ii.) Wood Furniture Cluster, Taliparamba, Thrissur, having 400 micro and small wood based industrial units functioning. Presently there are 41 units in the consortium which acts as the Special Purpose Vehicle (SPV).

Package for Rural Industries-prime Minister's Employment Generation Programme (PMEGP)

Prime Minister's Employment Generation Programme (PMEGP) is a credit linked subsidy scheme at the national level. The scheme aims to generate employment opportunities by setting up micro-enterprises in the non-farm sector in rural as well as urban areas. In 2020-21, the banks sectioned 2,215 applications and provided margin money of ₹3,671.28 lakh. Details are given in **Appendix 4.4.10**.

Industrial Financing in MSME Sector

State Level Bankers' Committee (SLBC)

As per the State Level Banker's Committee (SLBC) report, the outstanding flow of credit to the MSME sector in March 2021 was ₹59,771.00 crore, an increase of 5 percent compared to ₹56,894.00 crore in March 2020. The status of flow of credit to various sectors is given in **Appendix 4.4.11**.

The Small Industries Development Bank of India (SIDBI)

The Government encourages SIDBI to refinance credit institutions, which provide unsecured loans, at reasonable interest rates, to borrowers based on their transaction history. Till March 31, 2020 under the scheme, SIDBI Make in India Fund for MSME (SMILE) aggregate loans of ₹7,846.40 crore had been disbursed to 4,347 MSMEs. To provide liquidity support to MSME sector in view of Covid-19, RBI provided Special Liquidity Facility (SLF) of ₹15,000 crore to SIDBI. SIDBI introduced Covid-19 Start up Assistance Scheme

(CSAS) to provide financial assistance to startups affected by Covid-19. (Source: SIDBI, Working Report 2020)

Emergency Credit Line Guarantee Scheme (ECLGS)

ECLGS, launched by GoI is a special scheme introduced in the wake of Covid-19 crisis to provide 100 per cent guarantee coverage to banks and NBFIs. This will enable them to extend emergency credit facilities to business enterprises/MSMEs to meet additional term loan/ additional working capital requirements.

As per statistics provided by SLBC, in Kerala as on August 31, 2021, emergency credit has been sanctioned to 1,44,226 eligible cases out of 2,48,695 eligible borrowers across the State. The total amount sanctioned is ₹6,913.73 crore. Credit amounting to ₹6,056.97 crore has already been disbursed to 1,16,244 borrowers. Details are given in the **Table 4.4.5**.

Major Physical Achievements during the 13th Five Year Plan

- Formation of Commerce Mission to encourage and develop trade and commerce in the State and to market indigenous products in domestic and global markets
- Kerala Institute for Entrepreneurship Development (KIED) as a Centre of Excellence in entrepreneurship development
- Launched new websites www.keralamsme.org and www.keralamsme.com for accessing national and international markets and E-Market web portal has been launched to provide better marketing facilities to MSMEs and PSUs.

Table 4.4.5. Emergency Credit Line Facility sanctioned and disbursed to eligible MSME Borrowers in Kerala as on August 31, 2021

Bank	No of eligible borrowers	Sanctioned		Disbursed	
		A/c s	Amount (In crore)	A/c s	Amount (In crore)
Total Public Sector Commercial Bank	1,66,563	1,22,902	2,849.27	98,156	2,372.42
RRB-Kerala Gramin bank	35,568	2,264	25.37	2,264	25.37
Total - Private Sector Commercial Bank	46,564	19,060	4,039.09	15,824	3,659.18
Total – Banking Sector	2,48,695	1,44,226	6,913.73	1,16,244	6,056.97

Source: State Level Bankers Committee

- 305 Entrepreneurship Development Clubs have been set up in educational institutions to promote entrepreneurship among students
- 5,027 industrial units received assistance under Entrepreneur Support Scheme
- Completed Modernisation of the Common Facility Service Centre (CFSC) at Changanassery
- Implemented Kerala Micro Small Medium Enterprises Facilitation Act, 2019
- Implemented a Special Package 'Vyavasaya Bhadratha' for Relief and Financial Assistance to MSMEs in the State in the Wake of Covid-19
- Setting up of "Central Inspection Framework" and an online system "Kerala – Central Inspection System (K-CIS)" to carry out all inspections in a single platform. A total number of 1,509 inspections were carried out till December 2021.
- Kerala Industrial Single Window Clearance Boards and Industrial Township Area Development (Amendment) Rules, 2021
- Conducted 'Meet the Minister' Campaign to address the grievances of investors those who are planning to launch new enterprises in the state with the help of the District Industries Centres. Out of the total 1,377 petitions received during the programmes conducted in 10 districts, 955 were resolved as till December 2021.
- 'Organised Meet-the-investor' Programme for interaction with investors to promote new ventures in the State.
- Kerala become the first Indian State to adopt 'Responsible Investment, Responsible Industry' programme as part of industrial growth

Issues and Challenges in the Sector

The contribution of the sector in the economy is currently constrained because of several challenges affecting the growth of the sector. Some of the major ones are:

- Policy and institutional interventions - The challenges include formulation of targeted policies in the areas of infrastructure development, modernisation, technology adoption, building backward and forward linkages credit gap reduction and ensuring timely payments to MSMEs.
- Accelerating growth and enabling formalisation - There is a need to nurture and support innovative business ideas and shape them into

enterprises and create a favourable ecosystem for MSMEs. This can be achieved with support from entrepreneurial development and incubation centres. Utilisation and reach of various schemes, including schemes for credit support, have been constrained because a number of reasons. Promoting formalisation and digitisation amongst MSMEs and encouraging them to register in UAM has been a challenge.

- Addressing infrastructural bottlenecks - Inadequate availability of basic amenities such as work sheds, tool rooms, product testing laboratories, electricity, rural broadband and innovation hubs is a deterrent to the growth of the sector. There are only a few MSME clusters which provide good infrastructure facilities
- Facilitating access to credit and risk capital - Due to their informal nature, MSMEs lack access to formal sources of credit. Banks face challenges in credit risk assessment of MSMEs owing to lack of financial information. Very few MSMEs are able to attract equity support and venture capital financing.
- Enabling market linkage and tie-ups with public procurement platforms - MSMEs face the twin challenge of limited access to quality raw material and market for finished product. Tie ups with public sector units can help their growth.

4.5 FOOD PROCESSING

Food processing in India covers fruit and vegetables, plantations, grain processing, spices, milk and dairy products, meat and poultry, fisheries, non-alcoholic and alcoholic beverages, as well as other consumer product groups such as confectionery, chocolates, cocoa products, soya-based products, mineral water and high protein foods. The food and grocery market in India is the sixth largest in the world. The food and grocery retail market in India constitutes almost 65 per cent of the total retail market in India. The Ministry of Food Processing Industries (MoFPI) has approved 39 Mega Food Park projects and 7 of these Mega Food Parks have female promoters. The industry engages approximately 18.5 lakh people in around 39,748 registered units. (Source: Annual report 2019-20, Ministry of Food Processing Industries, Government of India)

There is substantial women's participation in the manufacture of food products and beverages. Around two lakh women workers are directly employed in registered food processing units and around 12 lakh women workers are engaged in unincorporated non-agricultural enterprises in the food processing sector.

India ranks first in the world in the production of milk, ghee, pulses, ginger, banana, guava, papaya and mango. Further, India ranks second in the world in the production of rice, wheat and some of the fruits and vegetables. During the last 5 years ending 2018-19, food processing sector has been growing at an average annual growth rate (AAGR) of around 10 per cent as compared to around 3.11 per cent in agriculture at 2011-12 Constant Prices. Food processing sector has also emerged as an important segment of the Indian economy in terms of its contribution to GDP, employment and investment. The sector constituted as much as 8.98 per cent and 11.11 per cent of GVA in manufacturing and agriculture sector respectively in 2018-19 at 2011-12 Constant Prices.

The value of processed food exports during 2019-20 was of the order of US \$32.73 billion

accounting for about 10.4 per cent of India's total exports (i.e. US \$313.36 billion). The value of import of processed food during 2019-20 was US \$19.64 billion, which is 4.1 per cent of India's total imports (US \$474.71 billion). The share of India's food export in the world was 2.27 per cent in 2019 and share of India's food imports in the world was 1.27 per cent in 2019. (Source: Annual Report 2020-21, Ministry of Food Processing Industries, GoI)

Food Processing Industry in Kerala

Kerala accounts for nearly 20 per cent of the country's total food exports. Kerala has been traditionally strong in spices, marine products, cashews, coconuts, cocoa, coffee and tea and fruits such as banana and pine apple.

Kerala Industrial Infrastructure Development Corporation (KINFRA) has been playing a proactive role for the promotion of food processing industry in the State. KINFRA functions as nodal agency for the Ministry of Food Processing Industries, GoI and also the nodal agency of the State for implementing "Assistance to States for developing Export Infrastructure and Allied Activities" (ASIDE) scheme of Ministry of Commerce and Industries. KINFRA has set up a number of food based parks across the State. Details of KINFRA food processing units in parks are given in **Appendix 4.5.1**.

KINFRA Food Processing Park, Kakkancherry, Malappuram

The KINFRA Food Processing Park at Kakkancherry, Malappuram district, set up in an area of 71.5 acres, has 45 working units. In 2020-21, the park attracted an investment of ₹15,053.00 lakh and created 1,494 jobs.

KINFRA Mega Food Park, Palakkad

Ministry of Food Processing Industries (MOFPI), Government of India has approved the proposal from KINFRA for setting up a Mega Food Park in 79 acres with 40 working units at Kanjikode, Palakkad in accordance with the Mega Food Park

Scheme (MFPS). The estimated project cost is ₹119.02 crore. The assistance provided by the Ministry of Food Processing Industries is ₹50 crore. In 2020-21, the park attracted an investment of ₹22,989.54 lakh and created 1,211 jobs.

KINFRA Food Processing Park, Adoor, Pathanamthitta

The KINFRA Food Processing Park at Adoor, Pathanamthitta district, set up in an area of 40.54 acres, currently have 18 working units. In 2020-21, the park has attracted investment of ₹6,010.44 lakh and created 759 jobs.

Food and Spices Park, Muttam, Idukki

The project, which will be located in 15 acres of land at Muttam, Idukki district is to be implemented under MSME-Cluster Development Programme (MSME-CDP), Ministry of MSME, Government of India. It envisages full-fledged common infrastructure facilities for food and spices and allied activities. Government of India has accorded “in-principle approval for the project”. Total project cost is ₹12.5 crore, out of which ₹6 crore will be the assistance from GoI.

KSIDC Mega Food Park, Alappuzha

KSIDC is developing a Mega Food Park at Industrial Growth Centre Pallippuram, Cherthala with focus on the sea food processing sector, with grant assistance from Ministry of Food Processing Industries (MOFPI), Govt. of India under the Mega Food Park Scheme. The park will cater to marine food processing sector with common infrastructure facilities such as cold storage, standard design factory and ice plant. The project is expected to bring an investment of ₹350 crore within 3 years. As of now, about 42 acres has been allotted to different seafood/food processing and allied units at the park. Balance available land at Mega Food Park comes to about 3 acres. Land will be allotted to sea food and food processing units and industrial units in allied sectors for 30 year lease period. The present applicable lease premium is 137.26 lakh per acre up to March 31, 2020. (Source: www.ksidc.org)

Implementation of Food Safety System through NCHC

National Centre for HACCP Certification (NCHC) in association with K-BIP has been conducting auditing, certification and recertification at various food processing and allied units in Kerala, along with organizing awareness programmes on food Safety across the State.

Major Challenges in Food Processing Sector

- Lack of primary processing, storage and distribution facilities
- Inadequate link between production and processing
- Seasonability of operations and low capacity utilization
- Inadequate focus on quality and safety standards
- Lack of product development and innovation

Way Forward

Food processing sector faces a set of unique problems which have a direct bearing on the strategy and requires intervention for the development of the sector. As the sector mainly consists, micro and small units neither are they able to generate adequate surplus for their expansion nor invest in supporting infrastructure. Therefore, the sector needs support for creation of infrastructure and targeted incentives to attract investment for creation of processing capacity. To address these issues, considerable investment is required in different components of the supply chain by way of grading and packing centers, controlled atmosphere facilities, reefer vans, cold storage for perishable cargo at port/airport/railway stations, testing laboratories and other supporting infrastructure and services such as setting up of testing laboratories, research and development, imparting skill training and marketing support.

4.6 TRADITIONAL INDUSTRIES

Handicraft Sector

The handicraft sector plays a significant role in the country's economy. It provides employment to a vast segment of craft persons in rural and semi urban areas and generates substantial foreign exchange for the country, while preserving its cultural heritage. Handicrafts have great potential, as they hold the key for sustaining not only the existing millions of artisans spread across the country, but also the increasingly large number of new entrants in the crafts activity. The handicrafts sector employs 68.86 lakh artisans, out of which 38.61 lakh are female artisans. The export of handicrafts, including handmade carpet, in 2019-20, till September 2019 was ₹18,679.60 crore. (Source: Annual Report 2019-20, Ministry of Textiles, Government of India)

The sector suffers from weaknesses such as the unorganised nature of the industry, low levels of education of workers, low capital base, poor exposure to new technologies, absence of market intelligence, and poor institutional framework. The Government implements various schemes for promotion and development of handicrafts sector under the National Handicraft Development Programme (NHDP) and the Comprehensive Handicrafts Cluster Development Scheme (CHCDS).

Handicraft Industry in Kerala

There are about 1.7 lakh handicrafts artisans actively engaged in the handicraft sector in Kerala. Kerala has traditions of making beautiful handicrafts with ivory, bamboo, palm leaves, seashells, wood, coconut shells, clay, cloth, coir, metals, stone, lacquer ware, and so on. Many old handicraft classics can be seen in palaces, old heritage homes, and museums across the State.

There are 32 different listed crafts in Kerala, of which ivory carving, wood and horn carving, bell metal casting, hand embroidery, and coconut shell carving are important commercial items. The vast majority of traditional artisans need social and economic support. The schemes

implemented by the Government of Kerala intend to eliminate intermediaries, improve the skill of artisans, enhance productivity, increase market opportunities, and strengthen cooperatives in the sector.

Kerala State Handicrafts Apex Cooperative Society (SURABHI), Handicrafts Development Corporation of Kerala (HDCK), and Kerala Artisans Development Corporation (KADCO) are the major agencies for the promotion of the handicraft industry in Kerala.

Kerala State Handicrafts Apex Cooperative Society (SURABHI)

SURABHI is the apex organisation of primary handicrafts cooperatives established with a view to uplift the artisans by marketing their products and supporting them through welfare schemes of GoK and GoI. In 2020-21, there were 38 Cooperative societies under SURABHI. There are 10 showrooms under SURABHI inside and outside Kerala. The turnover of the society in 2020-21 was ₹38.91 lakh. The Apex society received an amount of ₹35.00 lakh during 2020-21 as assistance from the Government of Kerala. SURABHI did not conduct any exhibitions in 2021-22. The total employment provided in 2020-21 was 30,000. Details are given in **Appendix 4.6.1**.

Handicrafts Development Corporation of Kerala (HDCK)

Handicrafts Development Corporation of Kerala (HDCK) is engaged in procuring and marketing of handicraft products, and thereby ensuring fair returns to artisans. HDCK has showrooms at various locations including Sree Moolam Shashtyabdapurthi Memorial Institute (SMSMI) in Thiruvananthapuram and 19 Kairali emporia outlets spread across State and other major locations in India. Apart from marketing, HDCK supports artisans through welfare schemes of GoK and GoI such as Common Facility Service Centre (CFSC) at Thiruvananthapuram for artisans who engage in development of wood crafts.

Besides the sales of handicrafts through 19 sales units, the Corporation implements financing schemes for the benefit of the craftsmen, to satisfy their capital requirements under NBCFDC loan schemes. Moreover, with the support of GoI, the Corporation has been also implementing welfare schemes for artisans, conducting training programmes, setting up CFCs, distributing tool kits, and conducting exhibitions/craft bazars at important places and tourists centres for exhibiting and providing marketing facilities to the crafts produced by artisans.

In 2020-21, Corporation has targeted a sales turnover of ₹1,900 lakh, but achieved only a total sales of only ₹285.26 lakh due to Covid-19 pandemic as the sales of the Corporation is mainly dependent on domestic and foreign tourists and also on fairs and exhibitions. The total number of employment generated in 2020-21 is 71. Details are given in **Appendix 4.6.2.**

The Kerala Artisans Development Corporation (KADCO)

Kerala State Artisans Development Corporation Ltd was incorporated in 1981 as a fully owned Government of Kerala company registered under Companies Act, 1956. The main objective of the Corporation is the upliftment of indigenous artisans in Kerala including carpenters, goldsmiths, blacksmiths and those engaged in pottery, masonry, work using copper/bronze, and other handicraft work. The primary objective of KADCO is the identification of different types of artisans along with the promotion of the crafts produced by them. KADCO is successfully running Common Facility Centres for Carpentry in Mini Industrial Estate at Nadavannur, Kozhikode, and Umayanallore Kollam.

KADCO is a State Channelling Agency (SCA) for National Backward Classes Finance and Development Corporation (NBCFDC), for disbursing short term loan upto rupees one lakh with a nominal interest rate of 5 per cent for women who belong to backward classes and living below poverty line to start various income generating activities. More over loan up to ₹5 lakh is also given to the artisans units for renovation and setting up of new production units. (Source: www.keralaartisans.com)

Bamboo Industry

Bamboo is a highly useful renewable and eco-friendly resource which has several applications. It is widely used in environment protection, as a nutritious food, high-value construction material, and in about 1,500 other applications. It is estimated that about 2.5 billion people use bamboo in one form or the other at the global level. Advanced research activities are being taken up to utilise bamboo for efficient fuel generating system.

In Kerala, 28 species of bamboo are found. Bamboo from Kerala forests are supplied to pulp and rayon units at concessional rates. It is estimated that there are about one lakh people in the State dependent on bamboo for their livelihood. A unique feature of Kerala is that 67.3 per cent of the extracted bamboo comes from home gardens rather than from forests. The weaving sector artisans around Angamaly region is supported by the State Bamboo Corporation. Recent data from the panchayaths indicate that from the early seventies onwards there has been a great drain in the number of artisans from the sector to semi skilled and unskilled jobs in the tertiary sectors such as construction. (Source: www.keralabamboomission.org)

The Kerala State Bamboo Mission

Kerala State Bamboo Mission (KSBM) being the Bamboo Development Agency (BDA) of the State was constituted in 2003 to revitalise the bamboo Sector, promote value addition, enhance incomes of workers in the sector, and help alleviate poverty. The interventions initiated by KSBM through K-BIP in 2020-21 includes promotion of bamboo cultivation, creation of new designs for innovative products, skill development, and promotion of bamboo-based modern industries supported by technology adaptation and development. Kerala State Bamboo Mission supplied 2,000 Bamboo saplings to Nedumangad Bock Panchayath. The saplings were planted in the river banks of Killiyaar as part of river bank protection programme. (Source: Kerala State Bamboo Mission)

The Kerala State Bamboo Corporation

The Kerala State Bamboo Corporation is an undertaking established in 1971 for the welfare, development, and upliftment of traditional

bamboo workers in Kerala. The main objectives of the Corporation are to develop and promote industries based on bamboo, reed, cane, and rattan; to undertake manufacture and trading of bamboo based products; and provide financial, technical, and other assistance to the traditional bamboo workers. The Corporation is serving about 10,000 bamboo workers in Kerala. A majority of these workers are poor and belong to socially and economically backward and SC/ST Communities.

The main activities of the Corporation include the collection of good quality reeds from Government forests distribution of these reeds to traditional bamboo weavers at a subsidised rate on credit basis, and also the procurement of woven mats from the weavers. The main products of the corporation are bamboo mats, bamboo ply, flattened bamboo boards, bamboo flooring tile, bamboo furniture, and handicraft items. As part of encouraging more workers into mat weaving, Kerala State Bamboo Corporation has started training programmes in making bamboo mats and handicraft items.

Kerala State Bamboo Corporation Ltd. has three Feeder/Primary Processing Units at Palakkad, Mananthavady, and Nadapuram for the purpose of processing raw bamboo into strips of various thicknesses by weaving it as bamboo curtains for the production of Flattened Bamboo Board at its subsidiary unit of Bamboo Board Factory, Angamaly. The waste bamboo, arising out of the above process ranging from 50 per cent to 70 per cent are further used for the manufacturing of value added products such as toothpick, curtain blinds, bamboo curtains, and incense sticks.

Problems/Issues in the Sector

The major issues affecting the sector are following:

- Severe competition from the private sector
- Availability of cheap replacement of the crafts, Chinese products in particular
- Reluctance of artisans' to pursue the traditional work because of unfavourable work conditions
- Lack of interest among youth to enter the sector
- Shortage of skilled workers in the sector such as bamboo

- Rules relating to cutting of and procuring bamboo from forests.
- Absence of a proper supply chain (for bamboo)
- Shortage of working capital and credit for artisans/NGOs/MSMEs
- Limited entrepreneurship, insufficient skill development programmes, and lack of modernisation in designs and products.
- Lack of awareness about technology, designs, and developing tools.
- Lack of Standardisation and packaging technology
- Inadequate marketing facilities/handholding support for forward and backward linkages

Way Forward

Kerala's industrial sector needs to take advantage of global best practises and attract more investors, and educated and skilled work force. Emphasis should be given to value addition in the sector.

Handloom and Textile Industries

Textile and Garment Industry in India

The Indian textile industry is one of the largest in the world with a large raw material base and manufacturing strength across the value chain. It is the second largest producer of Man Made Fibre (MMF) after China. India is the sixth largest exporter of textiles and apparel in the world. India's textiles and clothing industry makes significant contributions to the national economy. The share of Textile and Apparel (T&A) including handicrafts in India's total exports was 11.8 per cent in 2019-20. India has a share of 5 per cent of the global trade in textiles and apparel. The uniqueness of the industry lies in its strength both in the hand-woven sector as well as in the capital intensive mill sector. The mill sector is the second largest in the world. Traditional sectors such as handloom, handicrafts, and small scale power-loom units are the biggest source of employment for millions of people in rural and semi urban area. It provides direct employment to over 4.5 crore people and is a source of livelihood for over 100 million people indirectly, including a large number of women and rural population.

Handloom and Power Loom Industry in India

Handloom industry is the largest cottage industry in the country with about 23.77 lakh looms. According to the Annual Report 2020-21 of the Ministry of Textiles, handloom weaving is one of the largest economic activities after agriculture providing direct and indirect employment to 35.23 lakh weavers and allied workers. This sector contributes nearly 15 per cent of the cloth production in the country and is also a major source of export earnings. It is estimated that almost 95 per cent of the world's hand woven fabric comes from India. Though the number of weavers in handloom sector is declining, persistent efforts on the part of the Central and State Governments have succeeded in arresting the declining trend in handloom production. Since 2004-05, considerable growth in production of handloom products is visible in India. The production was 79,900 lakh sq metres in 2017-18. The value of export of handloom items in 2019-20 was ₹2,248.33 crore and in 2020-21 (upto Sept.2020) was ₹650.94 crore.

Products from the handloom industry include fabrics, bed linen, table linen, toilet and kitchen linen, towels, curtains, cushions and pads, tapestries and upholstery, carpets, floor coverings, and embroidered textile materials which also have a good export market. Karur, Panipat, Varanasi, and Kannur are some of the prominent handloom export centres in the country. According to Handloom Export Promotion Council (HEPC), the nodal agency constituted under the Ministry of Textiles, Government of India to promote exports of handloom products, the major export destinations of handloom products from India are USA, UK, Spain, Italy, UAE, Germany, France, Japan, Saudi Arabia, Australia, and Netherlands.

The decentralised power loom sector is one of the most important segments of the textile industry in terms of fabric production and employment generation. It provides employment to about 44.18 lakh persons and contributes 60 per cent of total cloth production in the country. More than 60 per cent of fabric meant for export is also sourced from power loom sector. The readymade garments and home textile sectors are heavily dependent on the power loom sector to meet

their fabric requirement (*Source: Annual Report 2020-21, Ministry of Textiles, Government of India*).

There are approximately 25 lakh power looms in the country. The technology level of this sector varies from plain loom to high tech shuttleless looms. It is estimated that more than 75 per cent of the shuttle looms are obsolete and out dated. These are more than 15 years old and have virtually no process or quality control devices/ attachments. However, upgradation of technology in the power loom sector has picked up during the last 8-9 years (*Source: Annual Report 2020-21, Ministry of Textiles, Government of India*).

Textile Sector in Kerala

The textile sector in Kerala includes spinning, weaving, garment manufacturing, dyeing, and processing units. The sector involves units in the public sector (both State and Central), cooperative sector, and private sector. Since the onset of the Covid pandemic, the Central PSUs have not been able to function. The spinning sector includes 26 mills with total spindle capacity of 7.03 lakh, employing about 7,600 people. The weaving sector includes the khadi units, handloom units, and power loom units. The garment industry has the potential to generate employment in large numbers even with the adoption of latest technologies. It has a large presence of women employees. The Government of Kerala is setting up a Textile Processing Centre at Nadukani, which will be an important step towards localisation of textile processing in the State.

The total State Plan outlay for the textile sector (excluding State PSUs and Khadi) in the Annual Plan 2020-21 was ₹5,139 lakh and amount spent was ₹6,000.78 lakh (116.77 per cent). The total plan outlay for the sector in the Annual Plan 2021-22 is ₹5,139 lakh and amount spent till October 2021 is ₹2,176.37 lakh (42.35 per cent). Details are provided in **Table 4.6.1**.

Handloom Sector in Kerala

The handloom sector is a major source of employment in Kerala. In fact, among the traditional industries in the State, the handloom sector is second only to the coir sector with respect to employment. The handloom industry in the State is

Table 4.6.1 State Plan Outlay and Expenditure for Textile sector (excluding PSUs and Khadi), ₹ in lakh

Sub-Sector	2020-21			2021-22 (till October 2021)		
	Outlay	Expenditure	%	Outlay	Expenditure	%
Handloom	2,333	3,693.98	158.33	2,192	762.31	34.77
Powerloom	169	125.8	74.43	197	49.06	24.9
Spinning Mills	2,037	2,031	99.7	1,750	1,365	78
Textile Processing Centre-Nadukani	600	150	25	1,000	0	0
Total	5,139	6,000.78	116.77	5,139	2,176.37	42.35

Source: Plan Space, Kerala State Planning Board

mainly concentrated in Thiruvananthapuram and Kannur district and in some parts of Kozhikode, Palakkad, Thrissur, Ernakulam, Kollam, and Kasaragod districts. The industry is dominated by the cooperative sector which covers more than 93 per cent of total looms. The rest of the industry is owned by private sector firms.

The total number of handlooms in the State in 2020-21 was 16,657. They produced about 148.8 lakh metres of handloom cloth. The total value of production in 2020-21 was ₹45.27 crore while the turnover was ₹164.98 crore. The total number of weavers in handloom sector in 2020-21 was 13,656. The number of women weavers was 9,032. Total employment generated in 2020-21 was 11.67 lakh person days. Compared to 2019-20, the total number of looms, total production, value of production, productivity, total turnover, number of weavers, person days of work generated, and number of women employed fell drastically in 2020-21. The fall is a result of the Covid-19 pandemic, and is spread both in the cooperative and corporate/unorganised/private sector. Inability to operate and loss of festive seasons (which usually bring in good sales) have had a profound impact in the handloom sector. Details are provided in **Appendix 4.6.3**.

The major varieties produced in the handloom sector of the State are dhotis, furnishing material, bed sheets, shirting, sari, and lungi. The following products of the State are registered under the Geo Indication Act of India.

- Balaramapuram saree and fine cotton fabrics.
- Kasaragod saree
- Kuthampully saree
- Chendamangalam dhoti
- Cannannore home furnishings

Agencies in Handloom Sector

The Directorate of Handlooms and Textiles, Kerala State Handloom Weaver's Cooperative Society (HANTEX), Kerala State Handloom Development Corporation (HANVEEV), and the Indian Institute of Handloom Technology (IIHT, Kannur) are the major stakeholder institutions involved in the development of the handloom sector in the State.

Directorate of Handlooms and Textiles

The Directorate of Handlooms and Textiles Kerala is the principal arm of the State Government in implementation of schemes for the development of the sector. It has the overall responsibility to support the sector in areas of infrastructure, marketing, human resource development, conservation and preservation of traditional skills and products, finance, design input, raw materials supply, modernisation, welfare programmes, and ensuring price stability to equip the segment to compete with the global environment. The Government provides assistance by way of loan and grant for the development of the handloom industry. Loans and Grants include those from the Government of Kerala, Government of India and other financial agencies such as NCDC, NABARD, and HUDCO. Government also provides assistance for sales promotion through rebates. Details are provided in **Appendix 4.6.4**.

Kerala State Handloom Weaver's Cooperative Society (HANTEX)

HANTEX was registered in 1961, as the apex body of primary handloom weaver's cooperative societies in Kerala. The main objectives of HANTEX is to market the products of member societies, provide them institutional support and inputs for production. Currently, HANTEX has

about 380 primary cooperative societies registered with it engaging about 10,000 weavers. HANTEX societies are engaged in production with modern infrastructure to produce handcrafted fabrics, garments, furnishings, made-ups, sarees, and traditional weaves in tune and harmony with eco-friendly norms for internal and export market. HANTEX collects yarn, chemicals, and dyes from NHDC with Government subsidy and distributes among the members.

HANTEX is also involved in the marketing and sales of the produce from its members. Currently, there are 78 functional showrooms. All production and procurement activities are covered by 4 regional offices and 5 functional production centres. HANTEX has a process house at Thiruvananthapuram which has all facilities for dyeing and printing of fabrics. It also owns two weaving factories and an international garment unit with modern machinery.

HANTEX achieved a sale of ₹1,432 lakh in 2020-21 of which, ₹1303 lakh is showroom sale and ₹129 lakh is department sale. It procured fabric worth ₹905 lakh in 2020-21. The paid up capital at the end of the year 2019-20 was ₹6,556.44 lakh. The agency has reported losses in 2017-18, 2018-19 and 2019-20. The accumulated loss of HANTEX is also increasing on a yearly basis. It has reached about ₹206 crore by the end of 2019-20. Details are given in **Appendix 4.6.5**.

HANTEX has successfully launched a modern garments unit with a production capacity of 500 shirts per day. It has renovated 4 showrooms at Thiruvananthapuram, North Paravoor, Kanjangad, and Kannur. The agency suffered a loss of sales to the tune of ₹14.32 crore on account of Covid-19 pandemic related issues in 2020-21. To overcome issues due to the pandemic, the agency implemented the Kaithari Suraksha Scheme as a support to weavers. The agency has also launched an 'E-credit card scheme' to attract employees in the Government / banking sector as its customers.

Kerala State Handloom Development Corporation (Hanveev)

Hanveev, was incorporated in 1968, for the welfare and development of traditional weavers in the unorganised sector. It is engaged in the manufacturing and marketing of a wide range of

handloom products. At present Hanveev supports employment to 1,950 individual weavers. It has 46 own showrooms, 2 exclusive agency showrooms and 34 production centres. The corporation also conducts exhibitions during festival seasons and participates in expos conducted at national and international level.

The Covid-19 pandemic has adversely affected Hanveev. Sales turnover (provisional figures) of Hanveev in 2020-21 was ₹687.06 lakh. This is less than one-third the sales turnover in 2019-20. The value of cloth and other items produced has fallen from ₹1,668.40 lakh in 2019-20 to 1,133.61 in 2020-21. The value of yarn and other inputs purchased and distributed was ₹479.49 lakh in 2019-20. It has fallen to ₹291.91 lakh in 2020-21. Details are provided in **Appendix 4.6.6**. The paid up capital of Hanveev at the end of 2020-21 was ₹4,966 lakh. The net loss of Hanveev in 2020-21 was ₹730.77 lakh, which was less than the corresponding loss figures for 2019-20. The accumulated loss of the agency is increasing every year. The details regarding the financials of Hanveev are provided in **Appendix 4.6.7**.

As a result of the Covid-19 lock down, Hanveev suffered a production loss of about 2 lakh meters valued at ₹350 lakh. Hanveev incurred loss of sales to the tune of ₹524 lakh during two important seasons namely Vishu and school re-opening. The total loss incurred is ₹874 lakhs. Moreover, Hanveev could not achieve the expected sales during the Onam festival.

Indian Institute of Handloom Technology (IIHT, Kannur)

Indian Institute of Handloom Technology was established in 1987 in the name of Institute of Handloom and Textile Technology (IHHT). Subsequently, the IHHTs were amalgamated to form the Indian Institute of Handloom Technology. It functions according to the guidelines of Ministry of Textiles, Government of India. IIHTs technical support system has improved quality control in the handloom sector. The institute initially had an area of 4.13 acres. The institute recently purchased 5.64 acres of land from ESI Corporation taking the total area of the facility to 9.77 acres. In 2020-21, it has started a new course 'BSc Costume and Fashion Designing'.

Cooperative Sector

The cooperative sector in textiles sector is involved in spinning and weaving activity (both power loom and handloom) in the State. There are 8 spinning mills in the cooperative sector. They are the Quilon Cooperative Spinning Mills Ltd, Alleppey Cooperative Spinning Mills Ltd, The Priyadarshini Cooperative Spinning Mills Ltd, The Trichur Cooperative Spinning Mills Ltd, The Malabar Cooperative Textiles Ltd, The Malappuram Cooperative Spinning Mills Ltd, The Cannanore Cooperative Spinning Mills Ltd, and the Karunakaran Memorial Cooperative Spinning Mills Ltd. There are 562 conventional power looms in five cooperative societies under Kerala State Cooperative Textiles Federation Ltd (TEXFED) in the State. The total number of power looms in the cooperative sector is estimated to be about 801. The cooperative units form about 82 per cent of total number of power looms in the State. There are 46 powerloom cooperative societies in the State.

The cooperative sector in handloom sector consists of factory type and cottage type societies. In 2020-21, there were 630 registered Primary Handloom Weavers Co-Operative Societies (PHWCS) in the State of which 180 were factory type and 450 were cottage type societies. Out of 630 registered Primary Handloom Weavers Cooperative Societies, 407 were working. Out of the 407 working societies in 2020-21, only 149 were profitable and 258 were in loss. Details of hand loom societies in the State are given in **Appendix 4.6.8**.

The production of handloom cloth by cooperative sector in 2020-21 was 14.03 million metres valued at ₹40.66 crore. The quantity of production and value of product have fallen primarily on account of the inability to produce and sell, due to Covid-19 restrictions. Total turnover which was ₹208.35 crore in 2019-20, has contracted by 25 per cent to reach ₹156.94 lakh in 2020-21. Number of looms has fallen from 15,851 in 2019-20 to 15,405 in 2020-21. The the number of weavers has decreased marginally to 12,458 in 2020-21. Employment generated was 10.66 lakh man days. This is only one-third the figure in 2019-20. The number of women weavers has also fallen, compared to the previous year. Details can be found in **Appendix 4.6.3** mentioned earlier.

Powerloom Sector

There are 958 power looms in the State of which more than 84 per cent (812) are in the cooperative sector. In the power loom sector, production of cloth in 2020-21 was 55.73 lakh meters valued at ₹384.62 lakh. Productivity was 5,817.94 meters per loom and the total turnover was ₹396.01 lakh. Details are given in **Appendix 4.6.9**.

To promote weaving in the State, four integrated powerloom societies have been started with budgetary support. Modernization of power loom cooperatives has increased productivity of looms. Earlier two looms were attended by one weaver. After modernisation, a weaver could attend to about 8 looms. Thus productivity and wages of weavers has increased.

Spinning Mills

The spinning sector in Kerala includes the public sector (State and Central), the cooperative sector, and the private sector. The spinning sector includes 26 mills with total spindle capacity of 7.03 lakh, employing about 7,600 people. There are 9 spinning mills under the 3 State PSUs namely Kerala State Textile Corporation Limited (7 mills), Sitaram Textiles Limited, and Trivandrum Spinning Mills Limited. There are 8 cooperative spinning mills in Kerala. They are part of Kerala State Cooperative Textile Federation Limited (TEXFED). Together under State PSUs and cooperative sector, there are 17 spinning mills having 2.87 lakh spindle capacity and employing about 3,500 people. The central PSU National Textile Corporation Limited has 5 mills with a total spindle capacity of 1.99 lakh. It employed about 1,900 people. Covid pandemic has adversely affected the functioning of the central PSUs. They are not currently functional. In addition, there are two major private sector enterprises with a total of 4 mills. They have a spindle capacity of 2.16 lakh and employ about 2,200 people.

The main problems faced by these mills are the lack of working capital and availability of raw material. To overcome shortage of raw material for the sector, Government of Kerala now procures cotton for the entire textile sector in the State through a centralised purchase system managed professionally by a committee comprising RIAB, TEXFED, KSTC, and managing directors of the individual spinning mills. Sale of yarn produced by these mills is carried out through a depot system

which is monitored by the same committee. As a result, raw material costs have been brought down and the sector's performance has improved.

Government constituted an Expert Committee to study the crisis prevailing in the mills which recommended modernisation of five cooperative spinning mills in the State. The Government approved modernisation of Malappuram Cooperative Spinning Mills, Cannanore Cooperative Spinning Mills, Priyadarshini Cooperative Spinning Mill, and the Quilon Cooperative spinning Mill. The first phase of modernisation of Malappuram Cooperative Spinning Mill and Kannur Cooperative Spinning Mill has been completed. The second phase of modernisation of the mill has started. During 2020-21, for the renovation of spinning mills under TEXFED, an amount of ₹1,750 lakh assistance was provided. Government of Kerala is considering the completion of modernisation of Thrissur, Alleppey, Malabar, Malappuram, Kannur, Priyadarshini, Karunakaran, and Quilon Cooperative Spinning Mills with Plan assistance in 2021-22.

Kerala State Cooperative Textile Federation Limited (TEXFED)

TEXFED was established in 1992 as a body to plan, assist, and supervise the setting up and management of cooperative textile units in Kerala. TEXFED is the apex body of cooperative spinning mills and integrated powerloom cooperative societies in the State. It integrates all the segments of the textile industry including spinning, weaving, processing, and garmenting. There are eight cooperative spinning mills as members of TEXFED. Six of them are administered by the State Government and two by elected boards. Government administered Mills include The Quilon Cooperative Spinning Mills Ltd, Alleppey Cooperative Spinning Mills Ltd, The Thrichur Cooperative Spinning Mills Ltd, The Malappuram Cooperative Spinning Mills Ltd, The Malabar Cooperative Spinning Mills Ltd, and The Cannanore Cooperative Spinning Mills Ltd. The spinning mills administered by elected Boards includes The Priyadarshini Cooperative Spinning Mills Ltd, and K.Karunakaran Memorial Cooperative Spinning Mills Ltd.

These eight cooperative spinning mills have a total capacity of 1,29,232 spindles and directly employ 1,901 workmen. The annual production is about 42 lakh kilograms of grey yarn and annual sales turnover is around ₹107 crore. In 2020-21, losses of all spinning mills have come down. Cash profit was registered after ten years in three mills under TEXFED namely The Malappuram Cooperative Spinning Mills Ltd, The Priyadarshini Cooperative Spinning Mills Ltd, and the K. Karunakaran Memorial Cooperative Spinning Mills Ltd.

Kerala State Textile Corporation Limited (KSTC)

KSTC, a Government of Kerala undertaking, was incorporated in 1972 with the main objective of setting up and running textile mills in the State, and uplifting the sick units in textile industry in Kerala. The Corporation has seven mills and one research and testing centre. The mills under KSTC are Prabhuram mills, Kottayam Textiles, Edarikkode Textiles, Malabar Spinning and Weaving Mills, Hi Tech Weaving Mills, Komalapuram Spinning and Weaving Mills, and Uduma Textile Mills. Two other units Sitaram Textiles and Trivandrum Spinning Mills Limited are now under the administrative control of KSTC. In addition to the above, Corporation has under its fold a research and testing division (CARDT – Centre for Applied Research and Development in Textiles), located at Balaramapuram, Thiruvananthapuram. The corporation (along with mills and CARDT) has managerial staff strength of 130. The number of workers is 1,711. The agency is setting up a new Printing cum dyeing unit at Nadukani KINFRA Park, Kannur.

The value of production of the corporation has increased to ₹83.63 crore in 2020-21 from ₹56.09 crore in 2019-20. Income from sales has also increased to ₹78.77 crore in 2020-21 from ₹57.02 crore in 2019-20. However, expenses have been more than income. Textfed has reported net loss in the last five years. The accumulated loss of the corporation at the end of 2020-21 is estimated to be about ₹426.07 crore. Details regarding the performance of KSTC are provided in **Appendix 4.6.10.**

Achievements in Textile sector 2020-21

In 2020-21, Government Share Participation was given to 14 Primary Handloom Weaver

Cooperative Societies. 2,119 weavers benefitted from the Production Incentive Scheme. 2961 weavers benefitted from the Contributory Thrift Fund Scheme. Government share participation assistance was also provided to HANTEX and Hanveev. An amount of ₹33.39 crore was released to seven cooperative spinning mills, for modernising their infrastructure. KSTC is setting up a new printing cum dyeing unit at Nadukani KINFRA Park, Kannur.

Issues and Challenges

Shortage of working capital and difficulty in procuring raw materials are among the challenges faced by the sector. Mills involved in spinning and weaving in Kerala have been facing problems of both demand and supply. Out-dated machinery, stiff competition, high cost of raw material, low productivity, decreasing profits, and lack of working capital are also issues of concern for the textile sector in Kerala. A majority of textile spinning mills in the State are over 25 years old and they use obsolete technologies and equipment. Partial modernisation was attempted in certain units, to bring it at par with the industry standards. Absence of fabric processing facilities is also a problem faced by the power loom industry in Kerala. Lack of awareness among the weavers about the facilities made available to them by the Government is also a problem. Lock down because of Covid-19 pandemic has also adversely affected production and sales in this sector.

Way Forward

Kerala has a large market for clothing and the State has the potential to emerge as a major player along various segments within the value chain (from spinning to garments). The focus for future endeavour should be on greater value creation. New products, new marketing strategies, and innovation are critical for the future success of the sector. Opportunities exist in production of fabrics, bed linen, toilet and kitchen linen, towels, curtains, cushions and pads, upholstery, carpets and floor coverings, and embroidered textiles. The textile sector needs to find ways to attract the young and educated in Kerala to this sector, as entrepreneurs or as workers. The Government of Kerala has taken several measures for the modernisation of the textile sector, while ensuring the interests of workers engaged. It has to be continued. Covid-19 induced lockdown has

opened up new opportunities in online marketing. These can be explored to tap new markets. With the economy moving towards normalcy, it is essential to utilise the emerging opportunities associated with opening up. Increasing interest in 'Made in India' products and changing international trade conditions, open up new opportunities for textiles in India and the State. The sector can benefit by grabbing the emerging opportunities.

Khadi and Village Industries

Khadi and Village Industries Sector in India

Khadi and village industries have the potential to create employment for rural artisans with a very low capital investment. Khadi and Village Industries Commission (KVIC), Government of India is the statutory organisation tasked with the role of promoting the production and sale of Khadi. There are 2,737 Khadi institutions in the country, which employ a total of 4.97 lakh artisans, a majority of whom (over 80 per cent) are women.

Table 4.6.2 Production, Sales and Employment generation in Khadi & Village Industries Sector in India, 2016-17 – 2020-21

Year	Production (₹ in crore)	Sales (₹ in crore)	Employment (₹ in crore)
2016-17	42,631.09	52,138.21	1.36
2017-18	48,081.41	59,182.43	1.40
2018-19	58,130.34	74,292.09	1.46
2019-20	67,667.31	88,875.54	1.52
2020-21 (upto 31/12/2020)	55,049.73	72,336.47	1.55

Source: Annual Report 2020-21, Ministry of Micro, Small & Medium Enterprises, Government of India

The production in khadi and village industries (including polyvasthra and solar vasthra) in India have grown from ₹58,130.34 crore in 2018-19 to ₹67,667.31 crore in 2019-20. Similarly, sales of khadi goods have shown growth from ₹74,292.09 crore in 2018-19 to ₹88,875 crore in 2019-20. Employment generation in khadi and village

industries sector increased from 1.46 crore in 2018-19 to 1.52 crore in 2019-20. Production, sales and employment in Khadi and Village Industries in India for the last five years is shown in the **Table 4.6.2**.

Khadi and Village Industries Sector in Kerala

Khadi sector in Kerala has a strong base with its historical significance and social and political patronage. There are 29 Khadi institutions including Khadi and Village Industries Board (KKVIB), KKVIB aided institutions (14 numbers), and KVIC aided institutions (14 numbers) engaged in khadi production and sales. In 2020-21, khadi sector in Kerala provided employment to 13,190 artisans and value of cloth and yarn production was ₹7,981.83 lakh. The total wages paid to khadi artisans was ₹3,618 lakh in 2020-21. The Khadi and Village Industries Board could generate 2,834 new employment through the village industries programme in 2020-21. Through special employment generation programme (Entegramam), Khadi Board made a capital investment of ₹499.49 lakh through 154 units and provided 497 number of employment opportunities. Through the scheme, Prime Minister's Employment Generation Programme (PMEGP), the board created capital investment of ₹2,910 lakh for 429 units and number of employments created was 2,337. Production, sales details of these institutions from 2017-18 to 2020-21 and employment during 2020-21 are given in **Appendix 4.6.11 and Appendix 4.6.12**.

In the 13th Five Year Plan, an amount of ₹8,214.00 lakh has been allocated to the sector. Details provided in **Table 4.6.3**.

Table 4.6.3 Outlay and Expenditure in the 13th Five Year Plan (₹ in lakh)

Year	Outlay	Expenditure	% of Exp
2017-18	1,691.00	723.78	42.80
2018-19	1,860.00	1,066.56	57.34
2019-20	1,443.00	667.15	46.22
2020-21	1,610.00	1,248.45	77.54
2021-22	1,610.00	630.59	39.16
Total	8,214.00	4,336.53	52.79

Source: Plan Space Kerala

Kerala Khadi and Village Industries Board (KKVIB)

KKVIB is a statutory body under the Department of Industries and Commerce vested with the responsibility of organising, developing, and promoting Khadi and Village Industries in Kerala. The Board implements the programmes of Government of Kerala, Khadi Commission, and Nationalized Banks through cooperatives, registered institutions, individuals, and departmental units. Schemes under State plan include the Special Employment Generation Programme (SEGP) (Ente Gramam), Prime Minister's Employment Generation Programme (PMEGP), and Rural Employment Generation Programme (REGP) of KVIC. Khadi and village industry's production, sales, employment, wages paid for the last two years is shown in the **Table 4.6.4**.

The allocation of funds from various sources to KVIB and the expenditure incurred by the Board during 2019-20 and 2020-21 is shown in **Table 4.6.5**.

Table 4.6.4 Production, Sales, and Employment in Khadi and Village Industries in Kerala in 2019-20 and 2020-21

Sector/sub sector	Value of Production (₹ in crore)		Value of sales (₹ in crore)		Employment (in numbers)	
	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21
Khadi sector	74.26	79.81	156.82	92.19	13,470	12,507
Village industries Sector	105.69	106.17	112.34	112.71	83,407	83,395
Total	179.95	185.98	269.16	204.90	96,877	95,902

Source: Kerala Khadi and Village Industries Board

Table 4.6.5 Fund allocated to and Expenditure incurred by Khadi and Village Industries Board in Kerala, ₹in lakh.

Particulars	2019-20		2020-21	
	Receipt	Expenditure	Receipt	Expenditure
State Government Grant -Plan				
1. Administrative Expenses (Budget provision)	670.00	670.00	1,248.45	1,248.45
2. Income Support Scheme (Fund through DIC)	2,100.00	2,100.00	3,000.00	2,100.00
State Government Grant - Non-Plan				
1.Non- Plan – Administrative Expenses	4,554.95	4,554.95	4,650.00	4,656.24
2.Non- Plan - Special Rebate	1,116.00	1,116.00	1,500.00	1,500.00
KVIC Grant				
PMEGP - Margin Money	1,250.35	1,250.35	1329.22	723.03

Source: Khadi and Village Industries Board, Government of Kerala.

Special Employment Generation Programme

Special Employment Generation Programme provides margin money subsidy to small entrepreneurs and traditional artisans through bank linked projects, based on appraisal of the project and guidelines approved by Industries and Commerce Department. In 2020-21, 154 village industries units were established and it helped to create 497 new employment opportunities. The details of district wise achievement under self-employment generation programme in 2020-21 is given in **Appendix 4.6.13**.

Prime Minister's Employment Generation Programme (PMEGP) and Rural Employment Generation Programme (REGP)

PMEGP is a credit-linked subsidy programme that aims at generating employment opportunities through establishment of micro enterprises in rural as well as urban areas. The objective of the programme is to provide continuous and sustainable employment to a large segment of traditional and prospective artisans and rural and urban unemployed youth in the country. The scheme facilitates participation of financial institutions for

higher credit flow to micro sectors. Under the programme, government subsidy will be credited to the bank accounts of micro enterprises.

The Rural Employment Generation Programme (REGP), is implemented through the Khadi and Village Industries Commission (KVIC), to help eligible entrepreneurs to set up village industry units and thus create employment opportunities in villages including small towns with population upto 20,000. Under this programme, entrepreneurs can establish village industries by availing margin money assistance from KVIC and loans from public sector scheduled commercial banks, selected regional rural banks, and cooperative banks for projects with a maximum cost of ₹25 lakh. Achievements under the two programmes in 2020-21 are given in **Table 4.6.6**.

Khadi Gramam Programme

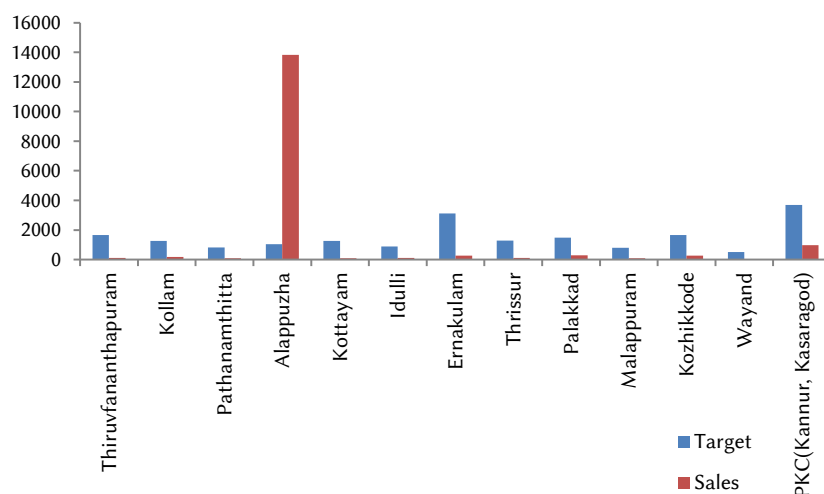
Khadi Gramam Programme is envisaged to establish 3,000 charkhas and 2,000 looms at household levels in selected grama panchayaths on a cluster mode providing employment to 5,000 people, mostly women or those belonging to disadvantaged sections.

Table 4.6.6 Achievements under Prime Minister's Employment Generation Programme (PMEGP) & Rural Employment Generation Programme (REGP) in 2020-21

Sl.No.	Programme	No. of Units	Production (in lakh)	Sales (in lakh)	Employment (in number)	Wages (in lakh)
1	PMEGP	275	3,303	3,793	2,337	980.00
2	REGP	4,897	23,371	28,647	27,634	6,777.00

Source: Khadi and Village Industries Board, Government of Kerala.

Figure 4.6.1. District wise sales targets and achievement 2020-21, in lakh



Source: Khadi and Village Industries Board, Government of Kerala.

Marketing

The KKVIB has 182 sales outlets for khadi and village goods. This includes 46 Khadi Grama Soubhagya (including 3 mobile sales van) units, 49 Khadi Soubhagya units and 88 Grama Soubhagya (GS Depot). District wise details of departmental sales outlets and sales under KKVIB Board for 2019-20 and 2020-21 is given in **Appendix 4.6.14 and Appendix 4.6.15.** **Figure 4.6.1** portrays district - wise sales targets and achievement during 2020-21.

Issues and Challenges of Khadi and Village Industries in Kerala

- There is a huge gap between production and sales of khadi. Khadi units in Kerala fails to fill the market demand which is now satisfied imports from other States.
- Underutilisation of production capacity is another issue. There are sufficient number of charkhas and looms in Kerala. Lack of funds for purchasing spare parts and servicing of implements is a major issue faced by khadi institutions. Many charkha and looms are lying idle.
- Low productivity is a major issue in khadi sector. Low productivity leads to low wages.
- There is huge dependence on other State for high quality muslin and silk fabrics
- Khadi institutions lack professional management and professional competency to

cope up with present day challenges.

- Khadi sector involving traditional mode of production faces big challenges in adapting to the fast changing economic environment.
- Wide spread production and use of spurious khadi is a serious challenge to khadi sector.
- Infrastructure facilities in most of the sales outlets are poor and fail to attract the customers.
- Marketing of products is a major problem. High competition, low publicity and advertisement, and lack of technology are the main reasons.

Way Forward

Innovation in production and marketing of products is necessary for survival of any industry. Khadi sector being traditional industry depends upon Government support for survival. Making this sector self-sufficient and adapting to changing economic environment is necessary.

Coir Industry

Coir Industry in India

The coir industry in India contributes significantly to employment creation and the economy at large, mainly in Kerala and Tamil Nadu and also in other major coconut growing States and Union Territories including Andhra Pradesh, Karnataka, Maharashtra, Goa, Odisha,

Assam, Andaman and Nicobar, Lakshadweep, and Puducherry. In the country as a whole, approximately 7 lakh persons find employment, both direct and indirect, in this industry. It is estimated that about 80 per cent of workforce in the industry are women. The industry is also significant in terms of exports. In 2020-21, India exported 11.6 lakh MT of coir and coir products, earning ₹3,778.98 crore in export revenues. Export of coir in 2020-21, increased by 37 per cent in terms of value and 17.6 per cent in terms of quantity, over the preceding year. Coir and coir products are now exported to 106 countries. The domestic revenue earned is double the export revenue. India accounts for more than two-thirds of the global production of coir and coir products including 60 per cent of the total global supply of white fiber. Sri Lanka is the second largest producer accounting for 36 per cent of the total global supply of the golden fibre. (Coir Board, GoI and Ministry of Micro, Small and Medium Enterprises, GoI).

The coir industry assumes significance because it is agro-based, has a large presence in rural areas, and involves a large proportion of women workers (80 per cent) and workers belonging to the economically and socially disadvantaged sections. India currently exports about 14 coir products, which include coir pith, coir fibre, tufted mats, handloom mats, geo textiles, coir yarn, curled coir, handloom matting, and rubberised coir. Currently, only 40 per cent of the coconut husk is utilised by the coir industry, and there is potential for further development of the industry.

Coir Industry in Kerala

Kerala is the home of the Indian coir industry, particularly white fibre. Kerala accounts for 61 per cent of coconut production and over 85 per cent of coir products. Coir sector is the foremost traditional industry in Kerala employing nearly 1.5 lakh coir workers, of which 80 per cent are women. The entire processes in coir industry can be segregated into three major segments, namely fibre extraction, spinning, and products sectors. The fibre extraction and spinning segments are mostly concentrated in the cooperative sector while the manufacturing segment mostly runs in factory mode with large presence of exporters. Coir industry is also significant to Kerala

for its role in generating export earnings. State Public Sector Undertakings and private entrepreneurs are engaged in export of coir and coir products in Kerala. In Kerala, the Coir PSUs namely Kerala State Coir Corporation and Foam Mattings (India) Limited along with Coirfed are engaged in export of coir products. Export from these agencies has been increasing continuously since 2015-16. From ₹1,072.55 lakh in 2016-17, exports had increased to ₹1,425.86 lakh in 2019-20. However, it has fallen to ₹1,413.78 lakh in 2020-21. Details are provided in **Figure 4.6.2 and Appendix 4.6.16.**

Performance under Schemes and Programmes in Coir Sector

Much of the efforts of Government of Kerala in the sector are directed through the Coir Development Department and the Directorate of Coir Development. Since 2015-16, Government of Kerala has allocated an outlay of ₹862.13 crore for the sector through Annual Plans. This excludes outlay to PSUs. The expenditure reported is ₹914.72 crore (106.10 per cent). As a whole, it is seen that the percentage of expenditure has been increasing since 2015-16. Details are provided in **Table 4.6.7.**

Table 4.6.7 State Plan Outlay and Expenditure for Coir sector (excluding PSUs), in ₹lakh

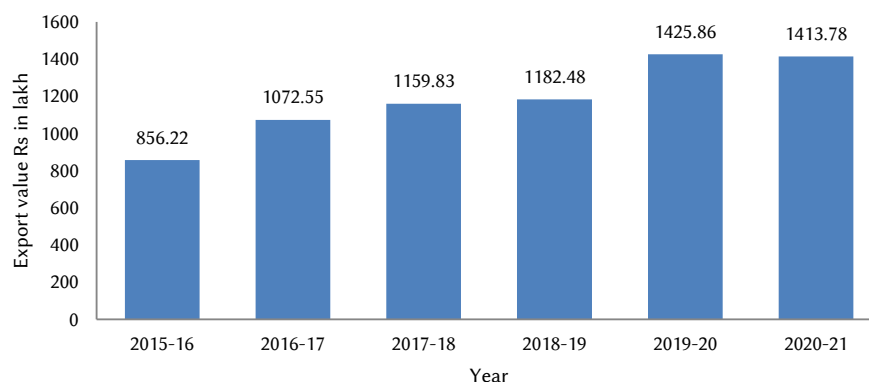
Year	Outlay	Expenditure	Percentage of expenditure
2015-16	10,894	6,915.10	63.48
2016-17	11,700	15,611.17	133.43
2017-18	12,812	9,872.89	77.06
2018-19	14,108	12,766.13	90.49
2019-20	14,151	13,968.27	98.71
2020-21	11,274	23,996.10	212.84
2021-22 ¹	11274	8343.16	74.00
Total	86,213	91,472.82	106.10

Source: 12th Five Year Plan Accounts, Budget Programme Book 2021-22 and Plan Space Kerala.

Note: Expenditure as on 10 December 2021

Being an agro-based rural industry providing sustenance to lakh of families in the State, revitalising the coir sector is crucial. Directorate of Coir Development, Government of Kerala is implementing a comprehensive revival and

Figure 4.6.2 Export of coir and coir products by Kerala State PSUs and Coirfed, in ₹lakh



Source: Directorate of Coir Development, Government of Kerala

transformational package for coir industry in the State as part of the ‘2nd Reorganisation of Coir Industry’. Through the programme, effort is taken to mechanise the coir sector and protect the wages of labourers, at the same time. The total outlay of the package is around ₹1,444.44 crore which includes state funds and NCDC fund to the tune of ₹200 crore. State funds include plan and non-plan allocation. The package involves activities in five thrust areas namely (i) Technology enabled procurement and decentralised fiber extraction, (ii) Distinct strategy for traditional spinning and weaving sector, (iii) Modernisation of industrial spinning and weaving sector (focussing on geo-textiles), (iv) Product diversification of industrial coir – focus on non-woven, and (v) Institutional support for the coir sector.

The push for re-organisation that include among others, modernisation and mechanisation, is starting to benefit the sector. As part of reorganisation, about 130 new defibering units (DF) have been established across the State. Many of the units have reported an increase in capacity from 10,000 husks per day to 80,000 husks per day. Through the operation of new defibering units, the husk utilisation in the State has risen from 12.5 per cent to 14.8 per cent due to reorganisation. New applications for pith and short fibre were discovered. As a result, the value of raw coir pith has risen from ₹0.50 per kg to ₹6 per kg. A coir composite manufacturing plant has been established. The State has also initiated the process of establishing a pilot unit to manufacture binderless board.

With the introduction of over 25,000 good quality electronic ratts, and 1,000 Automated Spinning Mills (ASMs) in over 100 societies, yarn production has jumped from 7,880 tons in 2016 to 25,000 in 2021. Yearly income of coir workers have increased to ₹49,000 in 2021 from 13,000 in 2016. The daily wage of ASM workers has increased to about ₹500 per day. It is estimated that the current resources have a potential capacity to produce 1,26,000 tons yarn from 28,000 ratts and 3,000 tons yarn from 1,000 ASMs. Efforts are under way to introduce ASMs fitted with auto synchronous feed. Government of Kerala has decided to focus on the weaving sector as the next stage in order to utilise fibre and yarn produced. It is proposed to introduce power looms and automatic power looms. In 2021-22, order for coir geotextiles worth ₹121 crore was received, and the Coir Department is in the process of executing the orders.

As part of on-going schemes, an amount of ₹1,136 lakh was given to 509 societies as ‘Production and Marketing Incentives’. ‘Market Development Assistance’ was given to 25 Coir Mat societies, Coirfed, FOMIL and KSCC. Large capacity heavy duty DF mills with rotary crushers were installed at units in Nileswaram, Kasaragod and Payyangadi, Kannur. Investment subsidy was given to 11 private DF units. Working capital assistance was provided to 562 coir cooperative societies. A total of 480 women coir workers in 48 batches were provided training on spinning of coir yarn. Assistance of ₹81 crore was provided to Coirfed and Coir Corporation

for the implementation of Purchase Price Stabilization Scheme. An amount of ₹22.25 crore was provided as assistance to coir workers under Income Support Scheme. An amount of ₹17.02 crore was released as cash credit assistance to 134 societies.

The ninth edition of the international event on coir and natural fibre products, Coir Kerala 2021 was held from February 16 to 21, 2021. With Alappuzha as the nerve centre, the event was held virtually in an online platform. An International Expo with about two-hundred virtual stalls from across the country was arranged. Buyers and sellers meet, seminars, discussions, and cultural programmes were also held as part of the event. About 5 lakh viewers and 527 buyers visited the event online. The event garnered orders worth ₹616.73 crore for exhibitors, of which orders for about ₹448.73 crore was for exhibitors from the state and orders for ₹121.00 crore was for exhibitors from outside the state.

One of the key factors for increase in production in coir sector has been the popularisation of Coir Geo-textiles. This eco-friendly product has a host of applications in construction including roads and activities related to soil and water conservation. Coir Geo-textiles worth about ₹100 crore are already distributed to LSGIs in the State. Agreement to supply Coir Geo-textiles worth ₹121 crore has also been made during Coir Kerala 2021.

Directorate of Coir Development and Agencies in Kerala Coir Sector

The Directorate of Coir Development acts as a facilitator for the promotion of coir industry in the State. Kerala State Coir Corporation (KSCC), Foam Mattings (India) Ltd (FOMIL), Kerala State Cooperative Coir Marketing Federation Ltd (Coirfed), National Coir Research and Management Institute (NCRMI), Kerala State Coir Machinery Manufacturing Company (KSCMMC), and Kerala State Coir Workers Welfare Fund Board are the important agencies functioning for the promotion of coir industry. The cooperative sector plays a substantial role in activities such as collecting husk, defibering, and production of yarn and other products in the Coir sector.

Coir Cooperative Societies

The total number of coir cooperative societies in Kerala has increased marginally from 1,100 in 2019-20 to 1,122 in 2020-21. During this period, the number of working societies (581 nos) has remained more or less same. The number of societies under liquidation has increased from 249 to 272. Among the working societies, the number of profitable societies has increased from 316 in 2019-20 to 437 in 2020-21. This is the result of Government of Kerala efforts which has increased production, ensured steady supply of raw materials at lower cost and assured procurement via Coirfed. This has positively affected the value chain in the industry along with corresponding fund flows.

More than half of the total number of working societies is primary cooperative societies are engaged in the yarn sector. Compared to 2019-20, the total number of primary cooperative in yarn sector has increased. Moreover, among these societies, the number of loss making societies has decreased from 176 in 2019-20 to 71 in 2020-21.

The non-yarn sector includes manufacturing societies (mats and mattings) and small scale producers' cooperative societies. The total number of manufacturing societies (mats and mattings) and the number of small scale producers' cooperative societies has remained more or less stagnant, but the number of profit making societies has decreased. Details are provided in **Appendix 4.6.17**.

The number of workers engaged in the coir cooperative societies in the yarn sector has increased from 28,626 in 2019-20 to 38,500 in 2020-21 (34 per cent). As a result, the amount of wages paid in the sector increased from ₹45.30 crore in 2019-20 to ₹46.56 crore in 2020-21. Compared to 2019-20, the value of husk procured has decreased in 2020-21. However, the value of fiber purchased and the value of yarn produced have increased. The number of workers in the cooperative societies in the product sector has fallen in 2020-21 compared to the previous year. However, the value of production and wages paid have increased from 2018-19 to 2020-21. Details are provided in **Appendix 4.6.18**.

Coirfed

The Kerala State Cooperative Coir Marketing Federation Ltd (Coirfed) is the apex federation of primary coir cooperative societies spread all over Kerala. The main objective of the federation is procurement of the products of the member societies and marketing of these goods through its sales outlet. The process helps in providing fair wages and subsistence to the poor coir workers of Kerala. Coirfed has two facilities for the manufacturing of value added products. One factory produces rubberised coir products and the other produces rubber backed coir mats. Coirfed has 4 defibering units. Coirfed succeeded in increasing sales in almost all product segments resulting in increase in income from sales. Income from sales has increased from ₹58.77 crore in 2015-16 to 125.72 crore in 2019-20. It is reported that over the 5 years from 2015-16 to 2019-20, the agency has been able to make net profit in 3 years. Details are provided in **Appendix 4.6.19**.

Kerala State Coir Corporation

The Kerala State Coir Corporation Ltd was established in 1969 to help small-scale coir manufacturers by providing them assistance in manufacturing and marketing. Over the years, the Corporation has been procuring the produce of small scale manufacturers, thereby reducing their dependence on the intermediaries. They provide the procured products to exporters and other sellers. KSCC also runs 11 showrooms (8 in Kerala and 3 outside Kerala). The Kerala State Coir Corporation has 3 production facilities in Kerala. One more unit is being established in Adoor. The products produced / traded by the corporation include PVC tufted Coir mats/mattings, Coir pith, Coir yarn, Coir fibre, and curled rope. During the Covid pandemic, the corporation was able to sell its unique product 'Sani mat' (sanitising coir mats) worth around ₹2 crore. The agency has recently entered the coir mattress business and proposes to open a new manufacturing unit for the same.

The corporation implements the Purchase Price Stabilisation Scheme (PPSS) in coir sector. Value of procurement under the PPSS has increased from ₹98.21 crore in 2016-17 to ₹170.08 crore in 2019-20 and ₹210.34 crore in 2020-21. Total

procurement value under PPSS from 2016-17 to 2020-21 is ₹731.64 crore. The turnover of the corporation has increased from ₹104.10 crore in 2016-17 to ₹184.99 crore in 2019-20 and ₹231.72 crore in 2020-21. Total turnover from 2016-17 to 2019-20 is ₹810.63 crore. Total income and total expenditure of the state PSU has been increasing since 2016-17. The PSU has also continuously reported net profit. Its net profit has increased from ₹1.02 crore in 2016-17 to ₹1.42 crore in 2020-21. Details are provided in **Appendix 4.6.20**.

National Coir Research and Management Institute (NCRMI)

The NCRMI is setup to strengthen the research and development activities of coir sector with a view to enable the industry to produce more value added products and new design products at competitive price.

The activities of the research institute in 2020-21 can be classified under the following heads -

(i) Demonstration projects including use of coir geocell for slope stabilisation and cultivation, coir geotextile for slope stabilisation, application of coir geotextile as mulch, and retaining wall using coir bamboo reinforcement. (ii) Collaborative projects including development of biodegradable mulching mats using coir polymer systems, development of coir composites for furniture applications, large scale production of coir composites for acoustic applications, use of coir fibre as reinforcing material in cement mortar, development of polymer coir composites for electrical insulation, canal bank protection using geotextiles and cocolog, fortification and enrichment of coir pith compost, identification of coir pith based growing medium for vegetable cultivation in terraces, and development of binderless boards (iii) Technology development including utilisation of coir pith for production of bio plastic using significant microbial strains, conversion of household organic waste into compost using coir pith enriched with micro-organisms, treatment of coir to improve texture and colour, development of mobile tender coconut crushing machine, and conversion of tender coconut husk into organic manure (iv) Machine development including development of high tech spinning mill (v) Commercial activities including tricopith spawn production and pith

activator (vi) management and technical training and; (vii) skill development training.

Foam Mattings (India) Limited (FOMIL)

FOMIL was established in 1979 with an authorised capital of ₹800 lakh and paid up capital of ₹666.73 lakhs. It is an entity functioning for the promotion, manufacture, and marketing of a wide range of environment friendly products made from coir, jute, and sisal. The products include door mats, mattings, carpets, rugs, coir geo-textiles, and car mats which are sold in domestic and overseas markets. It is also engaged in trading of coir mattress all over the State. The company has state of art facilities such as Latex Backing Plant, Modern Dye House, and Fully Automatic Powerloom where spare capacity is used for undertaking works of other exporters. New products from the company such as coir pith manure and coir tiles have good demand in the market. A new factory for manufacturing coir composite boards has been established and sales worth ₹19.37 lakh has been achieved.

The state PSU has reported losses during the last 5 years. However, compared to the high of 2018-19, loss has decreased in 2019-20 and 2020-21. The accumulated loss of the PSU was about ₹13.69 crore at the end of 2020-21. Income from the sale of products had doubled in 2017-18 compared to 2016-17. After reaching ₹12.05 crore in 2018-19, it has remained lower in subsequent years. Details are provided in **Appendix 4.6.21**.

Kerala State Coir Machinery Manufacturing Company Ltd (KSCMMC)

KSCMMC was started in February 2014, in Alappuzha, to provide the machinery needed for the coir sector in Kerala. The company provides coir machinery such as electronic ratts, automated spinning machines, defibering machines, integrated coir processing units, willowing machines, and allied machines required for the coir industry. Apart from producing machines, the company is also involved in the development of basic infrastructure including civil works and electrification works associated with mechanisation in the coir societies. The company installs machines and also provides after

sales service. The company is playing a crucial role in the on-going mechanisation drive in coir sector. During the past 5 years the company has produced and distributed machines worth ₹86 crore. In the last 4 years the company has distributed about 24,000 electronic ratts. About 155 defibering machines have been installed by KSCMMC. The company has been instrumental in starting 150 factories with about 1,400 automatic spinning mills. Around 500 machines have been provided to cooperative societies for cleaning coir fiber.

The sales revenue of KSCMMC has increased from ₹4.89 crore in 2017-18 to ₹9.41 crore in 2018-19 and ₹18.61 crore in 2019-20. It is reported that the sales revenue has increased to ₹44 crore in 2020-21. After two years of net loss, the company reported a net profit of ₹90.4 lakh in 2019-20. The unaudited figures of the company show a profit of about ₹3 crore in 2020-21.

Government of India Schemes

The Government of India has implemented various schemes for the Coir sector. The Coir Board is the nodal agency to implement these schemes in the sector. Coir Board at Cochin is an autonomous body established by the Government of India under the Coir Industry Act, in 1953 for the development of coir industry. The umbrella scheme Coir Vikas Yojana comprises components such as Coir Industry Technology Upgradation Scheme (CITUS), Science and Technology (S&T), Skill Upgradation and Mahila Coir Yojana, Export Market Promotion (EMP), Domestic Market Promotion (DMP), Trade and Industry Related Functional Support Services (TIRFSS) and Welfare Measures. Collaborative projects undertaken in Kerala (2020-21) includes – (a) ‘Product Design and Development of value added Bit Coir Fibre Reinforced “Fully Green” Polymer Composites for Automotive and Domestic application’, with Centre for Biopolymer Science and Technology, Ernakulum; and (b) ‘Studies on the performance of coir geotextiles reinforced embankments’, with IIT, Palakkad. In the three years since 2018-19, a total of 94 beneficiaries from Kerala have received export market development assistance worth ₹180.56 lakh. During this

period, a sum of ₹2,015.99 lakh was provided to Kerala for domestic market development assistance.

The sector also benefits from the schemes implemented by the Ministry of Micro, Small and Medium Enterprises (MSME) such as 'Scheme of Funds for Regeneration of Traditional Industries' (SFURTI) and 'A Scheme for Promotion of Innovation, Rural Industries, and Entrepreneurship' (ASPIRE). A total of 40 coir clusters have been approved under SFURTI, with outlay of ₹142.15 crore, where GoI grant is ₹117.05 crore. Out of these, 4 are in Kerala. The sector has also benefitted from the Prime Ministers Employment Generation Programme (PMEGP), a central sector scheme administered by the Ministry of Micro, Small, and Medium Enterprises (MSME). In the three years since 2018-19, a total of 112 units have been established in Kerala under PMEGP and subsidy of ₹146.09 lakh has been released for them.

Challenges and the Way Forward

The relatively low wages in traditional coir sector and the shortage of raw material are challenges facing the industry. The industry requires effective models for procurement of raw material, and modernisation of its production and organisation. Mechanisation and modernisation efforts initiated by the Government of Kerala have started showing positive results in Kerala. However, the modernisation process has to pick up speed. Continued hand-holding by the Government in modernisation of technologies and regulation of market-driven price fluctuations is important to propel the industry on a self-sustaining path. With emphasis on innovations, competitiveness, diversification of products, and tapping of new markets, the sector is expected to do well over the coming years.

Cashew Industry

Cashew, considered a "wonder nut" in the international market, occupied the fourth position after almond, walnut, and pistachios in global tree nut production in 2020-21. Cashew occupied the third position after almond and walnut in global tree nut consumption in 2019. India is a major producer (of raw cashew nut

and kernels), consumer and exporter (shelled) of cashew nut. As per the Nuts and Dried Fruits Statistical Yearbook 2020-21 published by the INC International Nut and Dried Fruit Council, global production of raw cashew nuts in 2020-21 was around 38 lakh tons. Global production of cashew kernels in 2020-21 reached 8.36 lakh metric tons. Cote d'Ivoire (1.8 lakh tons) was the largest producer of cashew kernels followed by India (1.66 lakh tons), Vietnam (1.03 lakh tons), Cambodia, and Nigeria. India's share in global cashew kernel production is 20 per cent. Western Africa, with 48 per cent share in world cashew production, was the biggest cashew producing region.

India is a major importer of raw cashew nut for processing. Global imports of raw cashew nut in 2018 was about 16 lakh metric tonnes, of which India imported about 9 lakh MT and Vietnam, about 5.2 lakh MT. However, in 2019, Vietnam imported about 11 lakh MT while India imported 6.28 lakh MT. In 2019, global exports of cashew (shelled) was 6.32 lakh MT. India with an export of 92,386 MT accounted for a share of 11 per cent of exports. It was second to Vietnam which had an export of 4.07 lakh MT and share of 65 per cent of exports. Global consumption of cashew nut kernel in 2019 was 8.3 lakh MT. India with a consumption of 2.07 lakh MT of cashew kernels was the largest consumer of cashew and had a share of 24.9 per cent in global cashew consumption. USA, China, Netherlands and Germany are other leading consumers of cashew nut.

Some interesting observations can be noted about the cashew sector at the global level. Some of the major producers of raw cashew (especially those in Africa) consume very less and are mainly engaged in exports. Value addition in such countries is low. Countries such as Vietnam, which produce raw cashew nut in significant quantities, specialise in value addition. It imports large volumes of raw cashew nut and exports large volumes of processed cashew nut, while its domestic consumption is low. India is a major player in all stages of the value chain involving production, import, value addition, export, and consumption.

Cashew Sector in India

Cashew was first introduced in India in Goa, from where it spread to other parts of the country. The major areas of cultivation of cashew in India are in Kerala, Karnataka, Goa, and Maharashtra along the West Coast, as well as in Tamil Nadu, Andhra Pradesh, and Orissa along the East Coast and to some extent in the States of West Bengal, Chhattisgarh, Gujarat, Jharkhand, and the North-eastern States.

According to the Directorate of Cashew and Cocoa Development (DCCD), Government of India, in 2020-21, cashew was grown in an area of 11.58 lakh hectares in India with a total production of 7.38 lakh MT of raw nuts. The largest producer of cashew nut in India is the State of Maharashtra followed by Andhra Pradesh and Odisha. In terms of total production of raw cashew, Kerala ranks 6th among the producing states. The largest area under cashew nut production in India is in the state of Odisha (2.13 lakh ha) followed by Andhra Pradesh (1.96 lakh ha) and Maharashtra (1.91 lakh ha). Kerala has an area of 1.03 lakh ha under cashew production and is sixth in terms of area under cashew production. State-wise details of cashew nut production and area are provided in **Appendix 4.6.22**.

Cashew kernels are graded into white/scorched wholes, pieces, splits, and butts depending on the shape, size and colour of the kernel. The Export (Quality Control and Inspection) Act 1963 of Government of India, prescribes 33 different grades of cashew kernels. Only 26 grades are commercially available and exported. W-180, W-210, W-240, W-320, and W-450 are some of the popular grades of cashew produced in India.

According to the Cashew Export Promotion Council of India (CEPCI), in 2020-21, the export of cashew kernels from India was 49,992 MT and the earnings were about ₹2,906.98 crore. In 2019-20, the export of cashew kernels from India was 67,647 MT and the earnings were about ₹3,867.17 crore. The quantity and value of export of cashew kernels from India is falling since 2017-18. India exports cashew kernels to more than 60 countries. Of the total exports, the largest exports were to the West Asian Zone, followed by European zone and then South

East/Far East Zones. Total earnings also include export of by-products such as Cashew Nut Shell Liquid.

The domestic production of cashew nut in India is not sufficient to cater to the industry's current requirement/installed processing capacity of about 20 lakh MT. Hence India imports raw cashew nut from other producing countries. India imported 8.31 lakh MT of raw cashew nut in 2020-21.

Cashew Sector in Kerala

The cashew industry is a major traditional agro-based industry in Kerala. Many cashew processing units are located in Kollam district, earning it the title "cashew capital of the world". It is estimated that there are more than 800 formal and informal cashew processing units in Kerala. About 65 per cent of the cashew exporting and processing units officially registered with the Cashew Export Promotion Council of India (CEPCI) are from Kerala. It is estimated that the sector employs about 3 lakh workers and 90 per cent of them are women. Cashew processing is concentrated mainly in the private sector. The cooperative sector has limited presence in cashew processing. There are two public institutions engaged in the cashew processing industry in Kerala, namely Kerala State Cashew Workers Apex Industrial Cooperative Society Ltd (CAPEX) and Kerala State Cashew Development Corporation (KSCDC).

In 2020-21, cashew kernel export from Kerala was 24,929 MT valued at ₹1,461.27 crore. At the same time, India's export of cashew kernel in 2020-21 was 49,992 MT valued at ₹2,906.98 crore. The share of Kerala in export of cashew kernel from India was 49.87 per cent in terms of quantity and 50.27 per cent in terms of value.

In Kerala the production of raw cashew nut increased marginally from 80,000 MT in 2014-15 to 82,889 MT in 2018-19. However, the production has subsequently fallen to 73,105 MT in 2020-21. Though the area under cultivation has increased, increase in production during recent years is attributed more to improvement in productivity. The area under cultivation of cashew increased from 84,500 hectares in

2014-15 to 1,03,210 hectares in 2020-21, with significant gains since 2015-16. Usually as area under cultivation increases, the production also increases. In the case of cashew, replantation has been undertaken in this period. Moreover production benefits from new plantations will have a delay of 3 – 4 years due to the gestation period. Hence a direct proportional relation between area under cultivation and production is not visible in Kerala since 2014-15. Details are provided in **Table 4.6.8**.

Table 4.6.8 Production of raw cashew nut in Kerala – 2014-15 to 2020-21, in ha and MT

Year	Area in 000 ha	Annual growth, %	Quantity (in MT)	Annual growth, %
2014-15	84.5	-0.4	80,000	-0.2
2015-16	87.0	2.9	72,000	-10
2016-17	90.8	4.4	83,980	16.6
2017-18	92.8	2.1	88,180	5
2018-19	95.7	3.1	82,889	-6.1
2019-20	98.8	3.2	69,624	-16.1
2020-21	103.21	4.4	73,105	5

Source: Directorate of Cashew and Cocoa Development (DCCD), Government of India

The challenges to expansion of cashew cultivation in Kerala include the pressure on land in the State, existing land ceiling laws, and the erstwhile shift to cash crops such as rubber (particularly due to the absence of plantation status to cashew). Many of the cash crops have a long gestation period and to be economic,

the activity has to be continued for a relatively longer period of time. Hence, an immediate shift to cashew from other cash crops is not possible. During the last decade, Kerala has initiated steps to expand area under cultivation, production and productivity. Though positive changes are visible, there is further scope for improvement. It is also noted that Kerala has vast areas under cashew cultivation where replantation is yet to happen. A major reason limiting improvement in productivity in cashew cultivation is the fact that nearly 70 per cent of the cashew trees in the State are aged, and are local varieties, that start yielding late in the season. Climate change effects such as excessive rainfall and high relative humidity have also been a factor.

Agencies in Cashew Sector

Kerala State Cashew Development Corporation (KSCDC) and Kerala State Cashew Workers Apex Cooperative Society (CAPEX) are the two state Government agencies involved in the processing of cashew in the State. Kerala State Agency for the Expansion of Cashew Cultivation (KSACC) and Kerala Cashew Board (KCB) are the other two state Government agencies in the sector. Cashew Export Promotion Council of India (CEPCI) and the Directorate of Cashew and Cocoa Development (DCCD) are the other agencies involved in cashew promotion. The details regarding the outlay from State Annual Plan to agencies under Government of Kerala and expenditure incurred in 2020-21 and 2021-22 are provided in **Table 4.6.9**.

Table 4.6.9 Plan outlay and expenditure of State Government agencies in cashew sector, 2020-21 and 2021-22, ₹ in crore and in per cent

Sl No.	Agency	2020-21			2021-22		
		Outlay	Exp	%	Outlay	Exp	%
1	Kerala Cashew Board Ltd	30.3	53.3	175.91	37.3	37.3	100
2	Kerala State Cashew Development Corporation	14.0	51.54	368.19	6.0	0.0	0
3	Kerala State Agency for the expansion of Cashew Cultivation	5.5	3.5	63.64	6.5	2.5	38.46
4	CAPEX	5.5	4.69	85.31	5.5	0.0	0
	Total	55.3	113.03	204.41	55.3	39.8	71.97

Source: Plan Space, State Planning Board

Kerala State Cashew Development Corporation (KSCDC)

Kerala State Cashew Development Corporation Ltd. (KSCDC) was formed in 1969 as a company fully owned by the Government of Kerala. Partial mechanisation and the introduction of cutting machines has increased the processing of RCN per day from 100 MT to around 125 MT. The installation of 1,250 cutting machines during the recent years has resulted in enhanced productivity of about 56 per cent. KSCDC currently operates 30 factories, of which 20 are private factories run by KSCDC based on agreement. The process has enhanced livelihood opportunities to those engaged in the sector. However Covid-19 pandemic have had an impact on the functioning of the Corporation. Number of working days and turnover has fallen in 2020-21. In 2020-21, KSCDC provided employment to 12,397 people. It includes about 650 staff in factories, 90 staff in head office, and workers in factories. The number of working days in factories was 89 days. KSCDC processed about 7,200 MT of raw cashew nuts and produced around 1,700 MT of cashew kernels in 2020-21. Total turnover of KSCDC in 2020-21 was ₹87.44 crore. Though the agency has been reporting loss during recent years, loss has reduced since 2019-20. Details are given in **Table 4.6.10 and Appendix 4.6.23.**

Table 4.6.10 Sales turnover of KSCDC, in ₹crore

Period	Turnover	Profit / Loss
2014 - 15	146.90	-118.67
2015 - 16	38.56	-86.92
2016 - 17	84.99	-70.38
2017 - 18	173.08	-92.25
2018 - 19*	132.23	-100.27
2019-20*	173.13	-44.05
2020-21*	87.44	-51.68

Source: KSCDC, Kollam

Note: *Provisional, Subject to audit #Estimated

KSCDC is marketing its own 'value added products' that has given it better margins. The agency has launched new products such as gift hampers (250 gram tins, platinum and premium boxes), and assorted premium cashews and jumbo cashews. These products have received

good response from customers. KSCDC has also started outlets to increase the sales. As a step towards backward linkage, KSCDC has taken steps to propagate cultivation of cashew. It supplies grafts in grow bags, at a discounted price. In 2020-21, KSCDC undertook modernization activities including construction of godowns, drying yards, and tarring and other civil work in factories. KSCDC also carried out technological upgradation activities including purchase of crates, cutting machine, and borma replacement. Details regarding performance of KSCDC can be found in **Appendix 4.6.24.**

Kerala State Cashew Workers Apex Industrial Cooperative Society Ltd. (CAPEX)

CAPEX was set up at Kollam in 1984 as an apex body to take care of the operations of factories of 10 primary cooperative societies under Government of Kerala. Its major function includes procurement, management of processing through cooperative societies and marketing. It procures raw nuts, distributes the same to the primary societies, gets them processed, and markets the kernels. These are done with the aim of bringing down the processing costs and providing continuous employment and fair wages to the workers.

In spite of Covid-19 restrictions, in the calendar year 2020, CAPEX provided continuous employment to more than 4,600 workers and staff for 160 working days. In the calendar year 2021, a total number of 92 working days was recorded as on September 30, 2021. The scheme for modernisation and mechanisation in 10 CAPEX factories and packing centres has been done partially. The number of workers required to process one bag (80kg) of raw cashew nuts has fallen from 5 to 4.5, as a result of partial mechanisation and productivity of workers has improved. Total sales turnover in 2020-21 was ₹46.88 crore. The turnover during the current financial year up to September 30, 2021 was only ₹19.98 crore due to Covid-19 restrictions. Details regarding the functioning of CAPEX are given in **Appendices 4.6.25 and 4.6.26.** Details regarding sales and turnover of CAPEX are given in **Table 4.6.11.**

Table 4.6.11 Sales turnover of CAPEX, in ₹ crore

Year	Domestic Sales	Export	Total Sales Turnover	Profit / Loss
2014-15	59.46	14.4	73.86	-14.46
2015-16	59.07	14.65	73.72	-16.41
2016-17	26.27	19.58	45.85	-9.82
2017-18	81.55	5.32	86.87	-12.59
2018-19	76.5	0	76.5	-19.81
2019-20	85.18	0	85.18	-16.95
2020-21*	46.88	0	46.88	-

Source - CAPEX

Note: *Subject to audit

Kerala State Agency for the Expansion of Cashew Cultivation (KSACC)

KSACC was constituted by the Government of Kerala in 2007 to promote cashew cultivation and to ensure adoption of innovative technologies. KSACC started the project 'Cultivation of Organic Cashew and Establishment of Raw Nut Bank' in 2007-08. In 2020-21, the agency distributed 2,15,834 number of grafts among farmers and institutions. It is estimated to cover a total area of 913 ha. It includes an area of 166.48 ha brought under high density planting and an area of 572.97 ha brought under normal planting. Two Model Cashew Gardens have been established in the State. One is located in the premises of Kerala State Cashew Development Corporation and the other is at the Open Jail at Nettukaltheri in Thiruvananthapuram. Details of cashew farming supported by KSACC are provided in **Appendix 4.6.27**.

Cashew graft production in government nurseries, surveying of cashew cultivable area, regular field visit, farmer contact, creation of awareness trainings, availability of labour in planting and harvesting sector, and marketing of the produce were hampered in 2020-21 by Covid-19 pandemic.

Kerala Cashew Board Limited (KCB)

KCB was established in 2017 by the Government of Kerala as a special purpose vehicle with the main objective of procuring and supplying Raw

Cashew Nuts (RCN) at reasonable price to the cashew processing units in Kerala. In 2020-21, Kerala Cashew Board procured 3,589 MT of RCN for a value of ₹55.5 crore, which was utilised by 40 processing units under Kerala State Cashew Development Corporation (KSCDC) and Kerala State Cashew Workers Apex Cooperative Society (CAPEX). In 2021-22 till October, the agency has imported about 10,694 MT of raw cashew nut for a value of ₹113.82 crore. The cumulative value of cashew imports of the agency is about ₹422.67 crore since 2018-19.

Covid-19 pandemic had an adverse impact on the cashew processing sector in 2020-21 too. After relaxations in lockdown guidelines, the factories are slowly improving their capacity. The import operations of KCB Ltd were affected since the suppliers were reluctant to participate in the tender operations as the operations of ports, banks, and transportation facilities were adversely affected because of the lockdown. Moreover, the prices of processed cashew kernels in international markets fell to the disadvantage of the cashew processing industry.

The cashew growers in Kerala were also in distress because of the Covid-19 pandemic as they were unable to find market for harvested Raw Cashew Nuts. To help the cashew growers in the State, the Government of Kerala introduced a support price scheme with KSCDC and CAPEX procuring RCN from the growers offering them better prices. KCB Ltd has availed a one-time loan of ₹30 crore from Kerala State Cooperative Bank to provide assistance to KSCDC and CAPEX for this procurement activity. Under this initiative, a total quantity of 2,743 MT of RCN was procured from the cashew growers in the State. KSCDC and CAPEX, the agencies which use cashew imported by KCB, have not been able to give KCB the value of cashew imports. It has led to accumulation of receivables for KCB. It is reported that the agency has to receive about ₹181.68 crore of which ₹132.68 crore is from KSCDC, and ₹49 crore is from CAPEX.

Cashew Export Promotion Council of India (CEPCI)

CEPCI established by Government of India in 1955, aims to promote the export of cashew kernels and cashew nut shell liquid. The Council

serves as an intermediary between importers of cashew kernels and domestic exporters who are members of the council.

According to the Cashew Export Promotion Council of India (CEPCI), in 2020-21, the export of cashew kernels from India was 49,992 MT and the earnings were about ₹2,906.98 crore. In 2019-20, the export of cashew kernels from India was 67,647 MT and the earnings were about ₹3,867.17 crore. The quantity and value of export of cashew kernels from India has been falling since 2017-18. In 2020-21, the export of cashew kernels from Kerala was 24,929 MT and the earnings were about ₹1,461.27 crore. Share of Kerala in total cashew kernel export from India in recent years is about 45 to 50 percent in both quantity and value terms.

The export of raw cashew nut from India in 2020-21 was 19,832 MT, which was valued at ₹199.75 crore. Kerala has not exported raw cashew nut since 2012-13. The exception was 2017-18 when 92 MT of raw cashew nut valued at ₹1.12 crore was exported. It was exported for processing in other countries. In 2020-21, import of raw cashew nut (RCN) in India was 8.31 lakh MT valued at ₹7,331.28 crore. Import of RCN to Kerala in 2020-21 was 18,424 MT, valued at ₹166.28 crore. Large variations over the years in the export and import of raw cashew nut are primarily due to the activities of traders in the processing industry. There are large fluctuations in the international prices of raw cashew nut and cashew kernel. In India, cashew nut is imported also for export to other processing countries. Therefore, market conditions in other processing countries also affect international trade. Export of cashew nut shell liquid from the country during 2020-21 was 3,736 MT (valued at ₹19.72 crore) and the export from Kerala was nil in 2020-21.

Directorate of Cashew Nut and Cocoa Development (DCCD)

DCCD is the subordinate office of the Department of Agriculture, Co-operation, and Farmers Welfare of the Government of India. It is the nodal agency for accelerating cashew and cocoa development programmes in the country. Its activities are spread across the country. In 2020-21, as a result of the combined efforts of

Central and state governments, an additional area of 17,907 ha has been brought under cashew cultivation with high yielding varieties. Replantation and rejuvenation was undertaken in an area of 3,444 hectares that had senile and unproductive plantations. Two cashew nurseries were established and two were upgraded. A total of 35,81,400 cashew grafts were distributed for developmental programmes. In association with institutes, farmer level training programmes were conducted which benefited about 750 people. Under skill development programme, training was provided to 21 batches and 525 unemployed women on preparation of value added products.

Challenges and the Way Forward

The challenges to cashew cultivation in Kerala include the pressure on land, restrictions because of land ceiling laws, incidence of fungal diseases, and competition from other crops which provide better financial returns to farmers. The slow spread of high yielding cashew varieties and of modern cultivation techniques in the State are also constraints. Cashew processing in Kerala faces problems such as relative shortage of raw nuts at competitive prices, higher processing costs, slow adoption of modern processing technologies, and stiff competition from other processing nations/regions. Given such challenges, the focus of the Government of Kerala has been to restart the operations of private sector factories that had been closed and thereby ensure greater number of working days for workers who depend on this industry for their livelihoods. In Annual Plan 2021-22, the Government of Kerala had allocated an amount of ₹11 crore for the scheme 'Revival and rehabilitation of MSME units' which included cashew processing units. In the revised budget 2021-22 presented by the Government of Kerala, an amount of ₹50 crore was also proposed for interest subvention to enable MSMEs to avail loans at low interest rate. It is expected that cashew processing sector will benefit from such initiatives.

Given the changes agriculture in Kerala is witnessing, cashew cultivation is turning out to be a profitable venture. The adoption of high yielding varieties, scientific farming techniques, greater support in terms of extension services, and commercial scale of production can bring

remarkable improvement in the production of raw cashew nut in the State. Increased domestic production of good quality cashew at reasonable price can reduce Kerala's dependence on imported cashew. Faster adoption of modern technologies in processing and value addition, reduction of processing cost, evolving new technologies and value added products from cashew including the use of cashew apple are focus areas for the development of the cashew sector in Kerala. Greater efforts to develop new markets and marketing strategies that can retain the identity of 'Kerala Cashew' can help the industry prosper in future.

CHAPTER

5

SERVICE SECTOR

SERVICE SECTOR

5.1 INFORMATION TECHNOLOGY

The Information Technology (IT) sector in Kerala occupies a significant space in the State's economy. Its importance has been recognised particularly in terms of its potential and significance in income generation and employment creation in the State.

Kerala has emerged as a major IT destination in the country. This has been achieved by committed and talented human resources along with innovative initiatives by the Government. The high quality of life in the State, well established Government policies, and low operational costs have transformed Kerala into a favoured IT hub for investors.

The Government of Kerala is aware of the potential and critical importance of IT, and has made earnest efforts to create a world class infrastructure for the sector and to develop the State's digital technology capacities and resources. This has enabled the State to be at the forefront in implementing information and communication technology projects, e-governance initiatives, e-literacy programmes and in the creation of basic IT infrastructure facilities.

In a path-breaking initiative, the Government of Kerala has recognised access to the internet as a basic right and has taken steps to implement the right through the Kerala Fibre Optic Network (KFON) project that aims to eventually provide internet connectivity to every household in the State. Two million BPL households are to be provided connectivity free of charge. The early implementation of the KFON project has the potential to raise the level of economic

development of the State to a higher level. The project itself is an innovative collaboration through the pooling of the resources of the Kerala State Electricity Board (KSEB) and Kerala State Information Technology Infrastructure Ltd. (KSITIL), especially in guaranteeing the necessary last-mile connectivity for full coverage, while collaborating with various service providers to provide the link to the national and global internet.

The major agencies involved in the implementation and promotion of IT related activity in the State are Kerala State Information Technology Mission (KSITM), Kerala University of Digital Sciences Innovation and Technology, Technopark, Infopark, Cyberpark, Kerala State Information Technology Infrastructure Ltd. (KSITIL), International Centre for Free and Open Source Software (ICFOSS), Kerala Startup Mission (KSUM) and Centre for Development of Imaging Technology (C-DIT).

Impact of Covid-19 on IT Sector

The impact of Covid-19 on the IT sector and the response measures by the sector to the pandemic has been very significant. Due to unprecedented spread of Covid-19 pandemic, daily business operations, project deliveries and revenue streams of majority of the IT companies have been affected. The companies have opted for Work From Home for all the employees from the end of March 2020 because of lock down and containment zone restrictions. The past one and a half years has been critical for most of the business units as they had a challenge of setting up hardware and software systems.

Box 5.1.1 Major highlights of IT sector

- According to the Internet and Mobile Association of India (IAMAI) report, titled 'India Internet 2019', Kerala's internet penetration rate is the second highest in the country (54 per cent), with Delhi NCR topping the list with 69 per cent penetration. The report also notes that Kerala, Tamil Nadu, and Delhi have the highest proportion of female internet users.
- As per the latest report by IAMAI, India has more internet users in rural areas than in urban areas. India has become the second largest internet user market behind China.
- KSUM launched the integrated startup complex in Kochi, a sprawling complex, spread over 1.80 lakh square feet with dedicated facilities for various tech sectors in January 2019.
- 2,692 Akshaya Centres are functioning across the State giving employment to 7,816 persons.
- Maker Village of IIITM-K was awarded with "Smart Incubator of the Year-2020" by India Smart Grid Forum (ISGF).
- Completed installation of second phase of 1000 Wi-Fi hotspots and nearly 15 lakh unique mobile users are availing the facility. Per day data consumption is up to 8 TB.
- Cyberpark in association with Internet and Mobile Association of India (IAMAI) has developed app incubation hub, first of its kind in Kerala.
- Presently there are about 900 permanent Enrollment Centres and 1,500 Child Enrollment Centres by Akshaya CSCs to facilitate Aadhar enrollment and modification in Aadhar details.
- Technopark has become the largest employment base campus in Kerala and with the commissioning of Technopark Phase-III, it became one of the largest IT park in India with 380 acres of land, 9.7 million square feet built-up area.

The revenue losses incurred by the firms are mainly because of losses arising from existing projects put on hold, existing projects being cancelled and project in pipeline being cancelled. Internet connectivity, followed by power disruptions, security threats, and hardware issues are the major issues in 'Work From Home' mode. There were issues related to clients meetings and client visits getting cancelled.

Performance of Agencies in the IT Sector

The State Government envisages expansion of IT industry in the State in a manner that benefits all the districts in the State. A hub and spoke model has been planned. Thiruvananthapuram (Technopark), Kochi (Infopark), and Kozhikode (Cyberpark) will act as hubs and the remaining districts will be the spokes.

Government of Kerala provided an amount of ₹500.10 crore in the Budget (2020-21), for the development of core IT infrastructure, ITeS, e-governance activities and incentivising investment in the sector and the expenditure incurred was ₹325.04 crore (64.99 per cent). In 2021-22, the outlay

earmarked for the sector was ₹525.25 crore. The details of Plan outlay and expenditure for the last 3 years (2019-2022) are given in **Table 5.1.1.**

Kerala State Information Technology Mission (KSITM)

Kerala State IT Mission is an autonomous nodal IT implementation agency of the Department of Information Technology, Government of Kerala, which provides managerial and technical support to various initiatives of the Department. KSITM performs diverse roles including, enactment of ICT related policies, development of guidelines and standards for e-governance, ICT facilitation for the Government entities, provides end to end support and guidance to State Departments in digitisation efforts, act as a bridge between Government and industry, undertakes capacity building initiatives and bridges the digital divide, establishes and sustains common IT Infrastructure and takes up various e-Governance initiatives. The main activity is delivering the best of the digital services to the citizens keeping in mind "Citizen First" approach.

Table 5.1.1 Plan outlay and expenditure, in ₹ crore

Sl No	Name of Department/ Scheme	Annual Plan 2019-20		Annual Plan 2020-21		Annual Plan 2021-22	
		Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure (upto October, 2021)
1	Kerala State IT Mission	144.14	79.02	124.14	87.43	125.13	25.99
2	Technopark	84.00	33.14	2.00	1.75	24.05	22.21
3	Infopark	67.05	26.06	10.00	8.16	35.55	38.07
4	Cyber Park	22.69	0.58	0.01	0.00	12.37	0.00
5	Indian Institute of Information Technology and Management-Kerala (IIITM-K)	15.50	4.94	64.20	8.49	20.00	2.50
6	Kerala Startup Mission	80.00	38.57	73.50	13.97	68.75	13.50
7	Kerala State IT Infrastructure Ltd	148.00	48.12	212.75	77.29	201.90	0.00
8	C-DIT	7.00	0.73	6.00	5.72	6.00	1.36
9	International Centre for Free and Open Source Software	6.00	5.00	7.50	1.75	7.50	1.50
10	Digital University	0.00	0.00	0.00	0.00	24.00	0.00
	Total	574.38	236.16 (41.1%)	500.10	325.04 (65%)	525.25	105.13 (20.0%)

Source: Annual Plans, Kerala State Planning Board and Planspace

Key Accomplishments of KSITM

In the present world, e-governance is an important tool for good governance by achieving transparency, reliability, and accountability in rendering services. Kerala has been a forerunner in e-governance and mobile governance by promoting and developing core infrastructure and e-literacy programmes.

Public Wi-Fi: Public Wi-Fi project established 2,000 Wi-Fi hotspots across the State to provide free internet to the citizens of the State. The hotspots locations have been identified by the district administration which includes bus stands, tourist places, parks, public places, janasevanakendras and government offices. In addition Public WI FI facility has also been made available in 222 fishing villages along the Kerala coast.

e-Office aims to conduct office procedures electronically thereby transforming Government offices to paperless offices and bringing out

the benefits of digital communication that ultimately leads to faster decision making. e-office has been implemented in all departments in Secretariat, 66 Directorates/Commissionerate/ other Government offices, all Collectorates, 17 Sub-Collectorates/RDOs. The Government has decided to roll out e-office up to grassroot level in Taluks and Village Offices in coming years.

Core Infrastructure for e-governance in the State consists of Kerala State Wide Area Network (KSWAN), Secretariat Wide Area Network (SWAN), State Data Centre, and State Service Delivery Gate way (SSDG).

KSWAN is the backbone of the State Information Infrastructure (SII) connecting all districts and 152 Block Panchayats and 63 Mini Civil Stations/revenue towers across the State. Around 4,000 offices of Government departments are connected to KSWAN through wireless and a larger number through leased lines and LAN. KSWAN aims to establish a state-

of-the-art OFC based network architecture in the Government Secretariat with a vision to improve the quality and availability of ITeS at its administrative headquarters. State Data Centres (SDCs) are at the heart of e-governance framework of the State, hosting various applications and websites of the Government entities and provisioning associated services.

e-District is a State Mission Mode project under National e-Governance Plan. It targets delivery of high volume services at the district level and back-end computerisation to enable the delivery of online availability of these services through Akshaya. In 2019-20, 83,60,940 application were received. Of this, 76,30,945 applications were approved and the number of applications rejected was 61,026.

At present e-District has made 25 revenue certificate services online across the State. The facility enables citizens to apply for certificates with the help of Akshaya Centres or through public portal and obtain digitally signed certificates. More than 6 crore digital certificates were issued through the e-District portal.

e-Government Procurement (e-GP) has been rolled out in the State. 54 Government departments and 335 PSUs/Boards/Autonomous Bodies/Government agencies are utilising the common e-procurement facilities. All government department/ boards/ universities/ organizations were directed to adopt e-tendering for all tenders with the value above ₹25 lakh.

Friends Janaseva Kendras have been established in all the 14 district headquarters. In 2018-19, an amount of ₹148.1 crore revenue for the Government was collected through Friends and in 2019-20, the revenue collected was ₹126.87 crore. It is a single window 'no queue' integrated remittance centre, where the citizens have the opportunity to pay all taxes and other dues to the Government, under one roof, at no extra cost. On an average, 1,000-1,050 people visit each centre every day. A new software with enhanced features for FREES (FRIENDS Re-engineered Enterprise Enabled System), was developed and introduced in FRIENDS Janasevana Kendram.

Akshaya is an innovative project launched on November 18, 2002 to bridge the digital divide. It works on public private participation mode. In the initial stages, the objective of the project was to make at least one person in a family e-literate. Gradually focus of Akshaya shifted to citizen service centric mode. Akshaya acts as the enrolment agency. Aadhaar enrolment is conducted through the Akshaya centres. In 2020-21, 2,692 Akshaya centres are functioning across the State giving employment to 7,816 persons. The details of Akshaya centres in Kerala are furnished in **Appendix 5.1.1**.

Aadhaar-Kerala has achieved about 100 per cent of Aadhar generation. UIDAI has approved KSITM as the Authentication User Agency and e-KYC User Agency for offering the Authentication and e-KYC services offered by UIDAI. At present, there are about 900 Permanent Enrolment Centres and 1,500 Child Enrolment Centres by Akshaya CSCs to facilitate Aadhaar Enrolment and changes to details in Aadhaar.

Video Conferencing (VC) is a technology which integrates and transmits video and audio to connect distant locations providing a location independent platform while conducting a meeting/discussion. The management of VC sessions, upkeep of VC equipment and studios are done with the support of C-DIT. Using VC infrastructure, KSITM was able to conduct around 750-800 VCs this year.

DigiLocker service is currently integrated for the following services.

- e-District project – Revenue Certificates.
- Food and Civil Supplies Department – Ration Card
- Pareeksha Bhavan – SSLC
- Motor Vehicle Department – Driving Licence and Vehicle Registration
- PSC – One Time Verification(OTV)

e-SEVANAM & m-SEVANAM: Kerala e-Service portal, e- SEVANAM is launched as a good governance initiative, has used technology to aggregate almost all online services (G2C and G2B) of Government of Kerala, in a single platform. In addition to the consolidation of around 500 services of more than 60

departments in a single platform, all mobile friendly services (about 450 services) are rendered through a uniform mobile application called m-SEVANAM.

Kerala State Spatial Data Infrastructure (KSDI): Mapathon Keralam programme is aimed to create detailed living map of Kerala through a participatory process. With the help of various voluntary and community organizations mapping groups will be created across Kerala. The new geo-portal, based on Free and Open Source Software (FOSS) platform is developed jointly with International Centre for Free and Open Source Software (ICFOSS).

SUGAMA PORTAL: Row Permission Portal: At present an agency that requires road cutting permission/row permission needs to visit multiple offices, with varied documentation requirement, further multiple rates are adopted by agencies. KSITM has developed an online application system for road cutting permission and Utility Shifting making approval process hassle-free.

Kerala University of Digital Sciences, Innovation and Technology

In 2020, Government of Kerala upgraded IITM-K as “Kerala University of Digital Sciences, Innovation and Technology.”

Digital University has been upgraded as the Kerala University of Digital Sciences, Innovations, and Technology through an Ordinance (No.9 of 2020) promulgated by the Hon’ble Governor of Kerala. The university was inaugurated on February 20, 2021 and started functioning from Technocity campus. The university is envisaged to become a unique centre of excellence of global repute by conducting education, research and extension activities in areas of digital technologies, science and humanities. The university is aiming to create capacity building in masters and doctorate programmes in the areas of Artificial Intelligence and Natural Language Processing, Internet of things, Electronic systems and Automation, Imaging Technologies, Data Analytics and Big Data, Cyber Security, Block chain, Ecological, Informatics and Geospatial Analytics.

The Indian Institute of Information Technology and Management-Kerala was set up in 2000 as a premier institution of excellence in science, technology, and management. It emphasises quality education to students and develops professionals and leaders of high calibre imbued with values of entrepreneurship, ethics, and social responsibility. It co-ordinates national and international conferences and workshops to provide opportunity to students to interact with world class experts and researchers.

The institute focuses on education, research, development and training in basic and applied information technology and management. The academic programmes of the institute are Masters programme, M.Phil programmes, Ph.D programmes and Postgraduate Diploma programmes.

There are four specialised post graduate programmes (M.Sc.) being offered by the Institute in Computer Science with specialisation in Cyber Security, Machine Intelligence, Data Analytics, and Geospatial Analytics. Along with the above four specialised courses, the Institute also offers M.Phil Ecological Informatics, M.Phil Computer Science and PG Diploma in e-Governance. The M.Phil and M.Sc degree are awarded by Cochin University of Science and Technology (CUSAT) and post graduate diploma by Directorate of Technical Education, GoK.

Placement Records

The pass outs from Digital University hold commendable positions in internationally reputed IT companies such as JFWTC-General Electric, Accenture, Amdocs, Siemens, Ernst and Young, ARS Software, Allianz Cornhill, IBM, IBS, Infosys, Tata Elxsi, Tata Consultancy Services, UST Global Technology, and Wipro.

Research Groups

The following research groups functioning in the Institute with state-of-the-art labs have produced more than 100 national and international research publications during the last 10 years.

- CV Raman Laboratory of Ecological Informatics
- Centre of Excellence in Cognitive Computing
- Kerala Blockchain Academy

- Centre for Research and Innovation in Cyber Threat Resilience
- Centre for Excellence in Pattern and Image Analysis
- Virtual Resource Centre for Language Computing
- Centre for Geo Informatics
- Centre for Data Science and Informatics
- Centre for Augmentation of Web based Multimedia to facilitate TEL for High Quality Education and Skill Development
- Knowledge Centre in Software Engineering for e-Governance
- Centre for Medical Information Systems
- Informatics Systems and Services
- Centre for Intelligence and Security Informatics (CISI)
- Centre for Agri Informatics and E-governance

ThingQbator, Cloud Computing lab, Data and Computational Modelling Lab, Embedded Systems Lab, Fab lab, Geo-Informatics lab, The LoT Lab, The Electronics Incubator lab, language computing lab, multimedia lab, medical image computing and signal processing lab, Data Engineering lab, agri-informatics lab are the various research labs functioning in the Institute.

Technocity Campus

The new campus of the Institute at Technocity is in completion phase and shall facilitate and promote studies, research and incubation in IT and its application domains. The fully completed campus would have a total built up area of 48,161 square metre. Construction of academic block, students hostel block, allied infrastructure like substation, sump and pump house are completed. KSEB power supply to the campus is ready to use with tested transformer and Time Of the Day (TOD) metre. Final approval from Kerala Pollution Control Board for operating STP plants have been received.

Most Significant Achievements of the Year

- Creation of a Remotely Accessible Package of 1015 syllabus based and open access digital books for MSC and MPhil students.
- An online familiarisation programme for the new batches of students on the IIITMK Library and KUDSIT Knowledge Centre Resources and Services including the special facilities to avail the same remotely.

- Provided customized access to a range of e-resources to all segments of library users and that too without incurring any extra expenditure. This was a remarkable achievement totally nullifying the constraints of lockdown to Library users.
- Created a new activity area named The 'Learning Space' as a part of the Knowledge Centre to meet the changing needs and usage patterns of learner's community.

Technopark

Technopark was set up as an autonomous organisation fully owned by Government of Kerala to create global standard infrastructure and to provide total support required for development of high technology industries. It was formally dedicated to the Nation on November 18, 1995. Since then Technopark has been growing steadily both in size and employees strength. With the commissioning of Phase III, Technopark has become one of the largest IT Park in India with 380 acres of land, 9.7 million square feet built up area. With the launch of Technocity project in Kazhakkuttam, the largest integrated IT township in 335 acres of land, the Kazhakkuttam-Kovalam (NH 66) has become the first IT Corridor in Kerala. The Park is now home to 460 companies, employing more than 63,000 IT/ITeS professionals. Technopark's contribution to the State economy is shown in **Table 5.1.2**. Details of growth and physical achievements of Technopark are given in **Appendix 5.1.2** and **5.1.3** respectively.

Land Available with Technopark

Technopark has 5 campuses which is spread over 662.54 acres under various phases of development. The details of extent of land in its 5 campuses are shown in **Table 5.1.3**.

Growth of Built up Space in Technopark

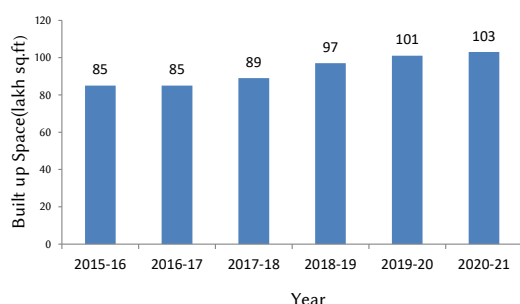
The built up space in Technopark has increased from 72 lakh square feet in 2015-16 to 102.7 lakh square feet in 2020-21. Out of which Technopark has created 32.8 lakh square feet area for industrial modules and total built up space completed by companies is 75.7 lakh square feet. The growth of built up space in the Technopark is shown in **Figure 5.1.1**.

Table 5.1.2 *Technopark's contribution to the State economy*

Particulars	Achievements 2017-18	Achievements 2018-19	Achievements 2019-20	Achievements 2020-21
Total turnover (in ₹ crore)	14,000	14,000	15,000	15,000
Total export (in ₹ crore)	6,450	7,000	7,350	#
Total investment (in ₹ crore)	4,970	4,979	4,979	5,309
Total Employment (Nos)	56,000	60,000	62,000	63,000
No of Companies (Nos)	400	410	450	460
Total land (acres)	662.54	662.54	662.54	662.54
Total built up space (lakh square feet)	89	97	101	103

Source: Technopark

Note: # Audited data yet to receive.

Figure 5.1.1 *Growth of built-up space in Technopark.*

Source: Technopark

Table 5.1.3 *Land available with Technopark*

Phases	Phase I	Phase II	Phase III	Technocity	Technopark, Kollam
Area, in acres	148.22	86	90.12	335.53	2.67

Source: Technopark

Companies in Technopark

There has been an increase in the number of the companies working in Technopark during the last 5 years. In 2015-16, there were 358 companies in Technopark. It increased to 460 in 2020-21. The number of companies in Technopark from 2015-16 to 2020-21 is shown in **Figure 5.1.2**.

Growth in Export from Technopark

Export from Technopark increased from ₹5,100 crore in 2014-15 to ₹7,000 crore in 2018-19. In

2019-20, it increased to ₹7,350 crore which is 5 per cent increase over the previous year. The trend in export from Technopark during the last five years is depicted in **Figure 5.1.3**.

Growth of Employment in Technopark

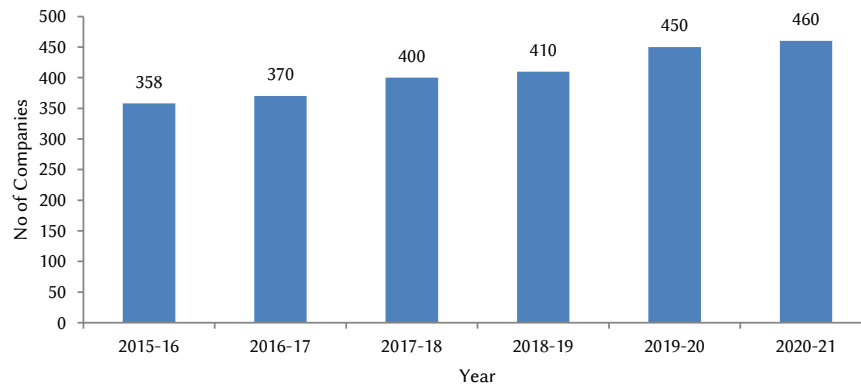
The growth of Technopark can also be analysed in terms of employment generated during the last five years. The employment generated increased from 47,100 in 2014-15 to 63,000 in 2020-21. The growth of employment generation for the last five years is shown in **Figure 5.1.4**.

In Technopark Phase-III, Embassy Taurus project construction has started and is in full swing. It envisages to create a world-class business infrastructure in Technopark with a total investment of ₹1,500 crore in two phases. On completion, Taurus downtown is expected to generate 20,000 direct employment and about 50,000 indirect employment.

Technocity

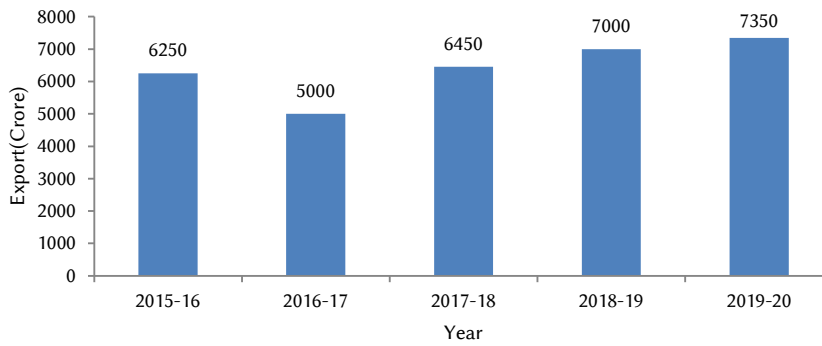
Technocity project is a flagship project by Technopark. Technocity project is broadly divided into two, namely, IT Integrated Township and Knowledge City, which is designed to have six Centres of Excellence (CoEs) in emerging technologies. The CoEs were help to create a sustainable and healthy IT ecosystem in the state. CoEs will be based on emerging technologies in IT like 1) cyber security, blockchain, 2) Fintech and blockchain, 3) Artificial Intelligence and Machine Learning, 4) Virtual/Augmented Reality, 5) e-Mobility, and 6) Space Science.

Figure 5.1.2 *Number of companies in Technopark*



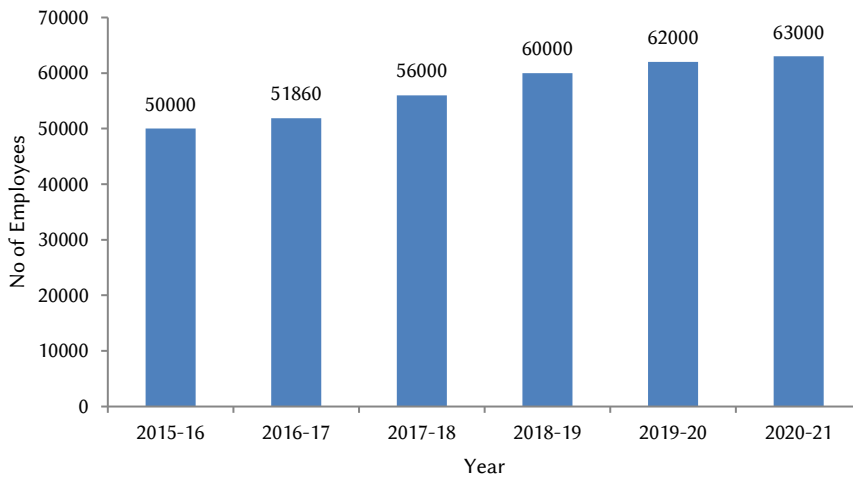
Source: Technopark

Figure 5.1.3 *Export from Technopark*



Source: Technopark

Figure 5.1.4 *Growth of employment*



Source: Technopark

Nissan Digital India LLP at Knowledge City will be the CoE for Artificial Intelligence, Deep Machine Learning, Robotics and Electric/automated vehicles. Technopark has collaborated with VSSC for space mission programmes thus setting up Space Systems Complex with Nano Space Park Project.

Technopark has acquired 335.53 acres of land at Pallipuram for its Technocity project with 287.7 acres for IT Integrated Township and 102.05 acres for Knowledge City. Work on basic infrastructure has commenced and land allotted to TCS, Nissan, Suntech, KASE, and IIITM-K. Technocity project is envisaged as a ten year project. The project will cater to one lakh direct employment in IT and about 4 lakh indirect employment. The total built office space will be about 10 million square feet with an estimated investment of ₹5,000 crore.

Technopark Kollam

Government of Kerala has transferred 18 hectare of land to M/s Kerala State IT Infrastructure Ltd. Out of this, 10 per cent of land will be given to Technopark for the operation and maintenance of Kollam Technopark. The world class 1,00,000 square feet IT building at Ashtamudi is completed. Water distribution system inside the campus including a pump house, overhead water tank and arterial road works are completed. The

streetlights in the campus are fully solar based. It is expected to provide 800 employment by the next 2 years. Smart Business Centre is operational and 20 companies are working in the centre.

Infopark

Infopark, Kochi is the second largest IT hub in Kerala with spokes at Cherthala and Thrissur. The objective of Infopark is creation of state-of-the-art infrastructure facilities such as space for IT/ITeS companies, supply of power, water and connectivity. Since its inception in 2004, Infopark and its co-developers created 9.2 million square feet built up space and have provided employment to over 51,000 IT professionals through 415 IT companies who have taken space in its Parks. The export, in 2019-20 was ₹5200 crore and in 2020-21, it is approximately ₹5,700 crore.

Land Available with Infopark

Infopark has five campuses which is spread over 322.98 acres under various phases of development. The details of extent of land in its five campuses are shown in **Table 5.1.4**.

The physical achievements of Infopark are furnished in **Appendix 5.1.4**. The major physical performance of Infopark for the last three years is given in **Table 5.1.5**.

Table 5.1.4 Land available with Infopark, in acre

Phases	Kochi Phase I	Kochi Phase II	Thrissur	Cherthala	TBC, Kaloor
Area	100.86	125.92	30	66.2	30,000 square feet of built up space under the lease of KSITM owned by GCDA

Source: Infopark

Table 5.1.5 Physical performance of Infopark

Particulars	Achievements 2018-19	Achievements 2019-20	Achievements 2020-21
Total turnover (in ₹ crore.)	4,500	5,200	5700
Total Employment (Nos)	40,000	47,000	53,000
No of Companies (Nos)	392	427	420
Total land (Acres)	323	323	323
Total built up space (million square feet).	9.0	10.2	10.2

Source: Infopark

Major Achievements of Infopark in 2020-21

- The total employee strength increased to 53,000.
- Total export revenue increased to ₹5,700 crore.
- Internal road resurfacing completed.
- LAR liability settled fully.
- Space allotted to new 33 small/medium companies.
- Around 300 new job opportunities created.
- Construction of building by M/s IBS systems is under progress.
- Construction of building by M/s Media systems & M/s Caspian are under progress.

Cyberpark

Cyberpark Kozhikode was established on the lines of Technopark in Trivandrum and Infopark in Kochi based on a hub and spoke model. It was set up to bridge the IT infrastructure gap along the west coast starting from Kochi to Kasaragod. The objective of Cyberpark is to provide cost effective and top of the line infrastructure to the IT/ITeS investors and thereby encourage, promote and boost the export of software and software services and create employment opportunities in the Malabar region. It is the responsibility of Cyberpark to interface between Government and Industry, interact with potential investors, strengthen the IT/ITeS base, hold promotional campaigns, and develop human resources for IT and ITeS. Kerala State IT Infrastructure Limited (KSITIL) holds the ownership of the entire area of 43 acres of land at Kozhikode Cyberpark.

Major Physical Achievement

- 2.88 lakh sq.ft built up space with 62 percentage occupancy. Currently 52 companies are operational in SEZ.
- Earmarked a built up space of 1,2391 sq.ft for non- SEZ IT operations. Half of the space is currently allocated to startup companies working under KSUM.
- Created around 917 direct employment
- Export revenue have been reported to the tune of ₹26.17 crore.

The physical achievements of Cyberpark are given in **Appendix 5.1.5**. The major physical performance of cyberpark for the last 4 years is given **Table 5.1.6**.

Kerala State IT Infrastructure Ltd (KSITIL)

KSITIL is a public limited company formed for the creation of the infrastructure for IT/ITeS in the State. The company leverages the valuable land assets owned by the Government and through viable financial models, generates funds for building the IT Infrastructure in the State in a Private Public Participation model.

The business model of the company is to acquire land and develop basic infrastructure facilities like electricity, water, road and compound wall in the area, obtain SEZ status and other such Government approvals that may be required and then allot land to private developers for development of either IT SEZ or IT parks. Some of the highlighted projects of KSITIL are as follows:

1. **Skill Delivery Project, Kerala:** SDPK is a prestigious project assigned to KSITIL by Government of Kerala. The objective of the project is to bridge the gap between students and industry. SDPK consists of a virtual platform with teleconferencing system being installed in all the 150 engineering colleges and 3 studios, which are being setup as part of the project. System Integration works in 74 class rooms across Kerala and 3 studios in Technopark, Infopark and NIT Calicut has been completed.
2. **Kerala Fibre Optic Network (KFON):** KFON is a State-wide optical fibre network for providing high-speed internet connectivity to about 30,000 Government and educational institutions (Track 1) and offer free internet to 20 lakh economically backward families and internet services at a lower rate for others (Track 2). Government has accorded Administrative Sanction for the implementation of K-FON project for an estimated cost of ₹1028.20 crore. Later, revised Administrative Sanction was issued for an estimated cost of ₹1548.08 crore. It has been decided to implement Track-1 with KIIFB assistance. A new joint venture company (KFON Limited) was formed in the share holding pattern of 49:49:2 in favour of KSEBL, KSITIL and GoK as the SPV for the project. First Phase of the project launch was done on February 18, 2021. The project is scheduled to be completed by April 30, 2022.

Table 5.1.6 Physical performance of Cyberpark

Particulars	Achievements 2018-19	Achievements 2019-20	Achievements 2020-21	Achievements 2021-22 (Up to Sep 2021)
Total turnover (₹ crore)	8.14	14.75	26.16	14.09
Total export (₹ crore)	8.14	14.75	26.16	14.09
Total investment (₹ crore)	0.74	1.35	2.47	1.93
Total Employment (Nos)	487	607	764	917
No of Companies (Operational)	23	46	52	52
Total land (acres)	43	43	43	43
Total built up space (lakh square feet)	3.0	3.0	3.0	3.0

Source: Cyberpark

3. Construction of IT building at Technocity: As part of development of Technocity, GoK has decided to construct the first IT building at Technocity with a built up area of 2 lakh square feet. For this, KSITIL is assigned as SPV and the funding agency is KIIFB. The total project cost is ₹105 crore. 85 percentage of physical works were completed.

4. Building 1 at Technology Innovation Zone, Kalamassery: As part of creating a startup ecosystem in Kerala, Government has announced the construction of 3.4 lakh square feet building at Kochi Innovation Zone. Accordingly, Government has accorded Administrative Sanction for ₹215.26 crore with financial assistance from KIIFB. KSITIL is designated as the SPV for the execution of the project. The works includes construction of three buildings and associated supporting infrastructure works. 35 percentage of physical works are completed

5. Village Knowledge Centres Works at Dharmadam LAC and Thalipparambu LAC: KSITIL was engaged as the implementing agency for the construction of Village Knowledge Centres at Kannur. Total estimated cost was ₹5.61 crore. NABARD has sanctioned a loan of ₹5.33 crore. The work involves the construction of Village Knowledge Centre buildings using GFRG panel in 15 panchayat locations. 70 percentage of physical works are completed for Village Knowledge Centres at Dharmadam LAC and 55 percentage of physical works completed for Village Knowledge Centres at Thaliparambu LAC.

6. Space Park: Kerala Space Park is one of the ambitious initiatives of the Government of Kerala to make Kerala a production hub for aerospace products and services. Government appointed KSITIL as the nodal agency of the project. KSITIL has prepared DPR and submitted to Government for approval. The plan focuses mainly to establish aerospace industrial units within the allotted 20 acres of land.

International Centre for Free and Open Source Software (ICFOSS)

Government of Kerala established ICFOSS as an international centre in collaboration with Free Software Organisations in India and abroad to promote development and application of free software and free knowledge. It is a nodal agency in all matters relating to free and open source software including consultancy, research and development, academics, studies and service, training, publishing, certification, international co-operation and collaboration. ICFOSS has carried out many FOSS-based training programmes, workshops, seminars, research programmes, projects, Malayalam computing activities, student internships and projects, summer camps, faculty development programmes, and fellowship programmes. The major achievements of ICFOSS in 2020-21 are the following:

- Braille Crossword Puzzle Device – Ideation of the device was completed on December 2020.
- ISL AVATAT – BLENDER COE for hearing impaired. The avatar generation

and HAMNOSYS rotation 20/240 got created.

- Developed FACE TRACKING MOUSE – Completely bedridden persons can access computing with simple face movement.
- FLIP MOUSE EXTENTION completed.
- Developed FABI – Flexible Assistive Button.
- Interface aka switches – Computing Interface developed for Disabled.
- Women Hackathon session conducted; 1 with 77 participants.
- Winter school for women conducted with 39 participants.
- Developed cloud user interface for AWS node data monitoring.
- Developed a video on AWS implementation at Kattakkada.
- Designed and Developed Virtual Lab for Open Hardware.
- Developed LoRaWAN Class C Node.
- Designed and manufactured LoRaWAN based STM32 PCB for application deployment.
- Successfully completed the customization of OSM tools for Mapathon Keralam project.
- Successfully deployed customised spatial data repository ‘OpenSDI’ for Kerala spatial Data Infrastructure.
- 9 companies incubated with Swatantra Incubation.
- Conducted two faculty development programmes with 77 participants.
- Conducted four webinars/seminars with 345 participants.

Kerala Startup Mission (KSUM)

Kerala Startup Mission (KSUM) is the nodal agency of Government of Kerala for implementing the entrepreneurship development and incubation activities in the State. Kerala Startup Mission, formerly known as ‘Technopark Technology Business Incubator’ is India’s first successful non-academic business incubator. It started operations in 2007.

The objective of the Mission is to identify and develop entrepreneurial talents among youth and students in Kerala, address the technology based entrepreneurship development requirements in the traditional sectors of Kerala, build

appropriate training programmes suitable for Kerala’s socio-economic culture, identify market niche for technology products and services, interfacing and networking among academic, R&D institutions, industries and financial institutions and establishing a platform for speedy commercialisation of the technologies developed in the institutes to reach the end-users.

GoI had started the startup rankings to encourage states to create an environment that is conducive to the growth of entrepreneurs. As per the Nasscom report, Gujarat took the best performer ranking, while Karnataka and Kerala are top performers. Kerala has been recognised for its institutional support particularly to the women entrepreneurs and robust venture funding mechanism for the startups.

The number of startups in Kerala has increased even during the Covid-19 period. This is because of increase in return emigrants, the interest of youth in ventures and the quality of Government facilities offered for startups

In January 2019, KSUM launched the Integrated Start up Complex in Kochi, a sprawling complex, spread over 1.80 lakh square feet with dedicated facilities for various tech sectors. It also hosts

1. Maker Village – India’s largest electronic hardware incubator and Electronics system Design and Manufacturing (ESDM) facility.
2. Bionest – State of the art biotechnology instrumentation platform to promote and develop new entrepreneurs
3. BRINC – India’s first international accelerator for hardware startups.
4. Biomedical Research Innovation and Commercialisation in Cancer care (BRIC) – an incubator dedicated to developing solutions for cancer diagnosis and care
5. Centre of Excellence established by UNITY and CERA.

The startup companies at Maker Village, which is the largest exclusive hardware incubator in the country, are developing state-of-the-art hardware electronic products in divergent areas namely, automation, robotics, drones, Internet of Things, autonomous vehicles, biomedical instrumentation and energy management. Most of the startups are leveraging cutting edge technologies-machine learning, Artificial Intelligence, Augmented

Reality/Virtual Reality to make their products innovative and globally competitive.

Technology Innovation Zone is the global innovation incubator hub for many technology sectors. TIZ will create world class infrastructure facilities for multi sector technology incubators to incubate their startups and to support home grown enterprises. TIZ is being established in the 13.2 acres of land at KINFRA Hitech Park, Kalamassery. The Zone comprises of built-up start up modules, high end fabrication labs, R&D lab facilities, commercial office spaces, dormitories, Small Office/Home Office (SOHOs), malls. TIZ will create a total built up area of approximately 5 lakh square feet facilities. The infrastructure for TIZ will be built in different phases. Currently Phase-I is operational.

KSUM has collaborations with Government, PSUs and corporates to enable and empower startups and youth with opportunities in the tech industry and the digital economy.

Major physical achievements of KSUM for the last 3 years are given in **Table 5.1.7**.

Achievements of KSUM in 2020-21

- Organised the fifth edition of the Innovation and Entrepreneurship Development Centre (IEDC) Summit 2021.
- Organized 21 day webinar series IEDC Webinar series-Inspire 2 innovate(I2I)

for the student champions in three major areas – Innovation, Technology and Entrepreneurship.

- Formulated the handbook for nodal offices of IEDC.
- Conducted orientation programme for IEDC nodal officers.
- A webinar series was organised to support MSMEs and startups with the support of Adhwani Foundation.
- Selected 20 colleges for organising technical skill appreciation workshop in Future Technologies.
- Designed INNOVATE Portal – Management support system for IEDCs.
- Organized student innovations meet on July 25, 2020.
- Organised importance of minimalistic approaches to survive in difficult times-event conducted on May 15, 2020 with 115 participants.
- Organized KSUM Virtual Tour and get a 360 degree view of one of India’s largest startup hub.
- Hosted Founder’s meet with founders during Covid-19 time in Zoho meet.
- Conducted 27 web series in business, marketing, leadership talks and funding.
- More than 150 models were displayed at the interactive forum which featured 300 participants in the virtual expo “Innovative Unlocked Kerala Student Innovators Meet” on July 25, 2020.

Table 5.1.7 Major physical achievements of KSUM

Sl No	Particulars	Achievements 2018-19	Achievements 2019-20	Achievements 2020-21
1	Number of tech startups in Ecosystem	1500	2500	3143
2	Incubators / Accelerators (nos)	13	13	19
3	Value creation (₹ crore)	50000	100000	-
4	Employment creation (no)	15000	25000	30,000
5	External investment (₹ crore)	500	1500	1638
6	Ranking of Ecosystem		Top performer as per 2019 ranking	Top performer as per 2020 ranking
7	Startups from other parts of India (nos)	30	30	33
8	Incubation Space (lakh sq.ft)	315,500	400263	-

Source: KSUM

Centre for Development of Imaging Technology (C-DIT)

C-DIT has been functioning as an Information and Communication Technologies (ICT) solutions provider in the Government sector. The major programmes undertaken by C-DIT are:

- Carried out Hologram embedded Tax Label Production for Kerala State Beverages Corporation for affixing in Indian Made Foreign Liquor bottles. Besides, hologram embedded security documents such as RC Book, driving license were also supplied to Motor Vehicles Department.
- The Security Design Lab set up at Lottery Directorate for the designing of lottery tickets incorporating security features, and security forensic for preventing counterfeit is being managed by the technical support of C-DIT.
- As a cross border security measure, the project of fixing high security-registration boards for sea going vessels have been taken up for the Fisheries Department
- Successfully carried out Facility Management System for all the RT offices under MVD Vehicles Department
- Completed digitisation of documents in Sub Registrar Offices in six districts. Besides, completed digitisation of old Registration Cards in Employment Directorate, Digitisation of Palm leaves and archaeological documents in Sree Padmanabhaswami Temple
- Completed online examination Software for Entrance Examination Commissionerate, online quiz platform for KSACS, Janajagratha portal for PRD, and 'Koode' the portal for the Covid-19 affected patients.
- Produced of 246 episodes of pre school learning video lessons for Women and Child Development Department in the context of Covid-19 pandemic and subsequent closure of Anganwadies in the State.
- Facilitated Nammal Namukkai under Rebuild Kerala Initiative and Transgender Advocacy Campaign. Creative support offered for the Break the Chain Campaign to prevent spread of Covid-19 pandemic
- Animation video production series for Sampushtakeralam for Women and Child

Development Department, Navakeralam weekly television show, sign language bulletin, TV news monitoring project, social medial campaign of Haritha Keralam Mission, Rebuild Kerala Initiative, GST, Food Safety Commissionerate, Suchitwa Mission, Arogyakeralam, live streaming of various programmes of Chief Minister and other Ministers, technical support for the various projects of KIIFB, K-DISK, KSFE Pravasi Chitty and technical facilitation of Chief Minister's Public Grievance Redressal System are the major other projects of C-DIT.

Way Forward

To stay competitive as an IT destination, the IT sector in Kerala must attract investment in emerging areas in the IT sector and not rely solely on established IT/ITES activities. As the Indian IT sector as a whole grapples with issues of the changing focus and emerging issues within the global IT sector, Kerala must also keep pace with these changes. The advances that have been made in the digital empowerment of the population and the spread of IT awareness and use must be recognised as the State's real asset. This asset would be built upon with further investment in appropriate infrastructure.

5.2 SCIENTIFIC SERVICES AND RESEARCH

Science, Technology and Innovation (STI) are key drivers of economic growth and human development. Science and technology institutions have an important role to play in every society for the promotion of excellence in science and technology through learning, research and development with the participation of academia, industry and research organisations.

The Department of Science and Technology, Government of Kerala plays the key role in promotion of science and technology in the State and provides research and development support to scientists of various institutions and disciplines. The two major institutions in the Science and Technology sector in the State are the Kerala State Council for Science, Technology and Environment (KSCSTE) and the Regional Cancer Centre (RCC), Thiruvananthapuram.

Outlay and Expenditure of Agencies under Science and Technology Sector

The details of outlay and expenditure of Science and Technology sector during the 13th Five Year Plan are given in **Table 5.2.1**.

1. Kerala State Council for Science, Technology and Environment (KSCSTE)

Kerala State Council for Science, Technology and Environment (KSCSTE) drives the research and development efforts of the State through various scientific programmes and research and development centres functioning under the Council. The R&D centres are Kerala

Forest Research Institute (KFRI), National Transportation Planning and Research Centre (NATPAC), Centre for Water Resources Development and Management (CWRDM), Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI), Kerala School of Mathematics (KSoM), Srinivasa Ramanujan Institute for Basic Sciences (SRIBS) and Malabar Botanical Garden and Institute for Plant Sciences (MBGIPS).

The main objective of KSCSTE is to plan and formulate science, technology and innovation policy and connected initiatives and programmes pertaining to the development of the State. The Council promotes and activates programmes for increasing the stock of knowledge in science, and fine tunes policies which are significant for the sustained development of humanity. The council prepares the road map for development through scientific research and innovation in technologies.

KSCSTE and R&D centres together implement several planned initiatives focused on enabling the Science and Technology community for increasing its scientific and technological outputs in term of quality and quantity.

Major Achievements of R&D Centres Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI)

JNTBGRI is a national centre of excellence recognised by the Government of India which undertakes research programmes for the

Table 5.2.1 Outlay and Expenditure of agencies under Science and Technology Sector during 13th FYP, ₹ in lakh

Year	KSCSTE			RCC			Total		
	Outlay	Expenditure	%	Outlay	Expenditure	%	Outlay	Expenditure	%
2017-18	10907	9089.42	83.34	6600	4910.7	74.40	17507	14000.12	79.97
2018-19	12148	5034.04	41.44	7260	7890.9	108.69	19408	12924.94	66.60
2019-20	15258	3437.1	22.53	7260	2777	38.25	22518	6214.10	27.60
2020-21	12664	7865.71	62.11	7100	3274.67	46.12	19764	11140.38	56.37
2021-22	13164	2075.56*	15.77	7100	1630.56	22.97	20264	3706.12*	18.29

Source: Plan Space Kerala, Accounts

*Expenditure upto August 31, 2021

sustainable utilisation of resources. The institute currently conserves more than 4,000 species of flowering plants and about 300 species of non-flowering angiosperms, which is the highest number of plant species conserved among the botanic gardens in Asia. The institute has established Bioinformatics Centre at the Saraswathy Thangavelu Centre at Puthenthope, Thiruvananthapuram.

- Collected ethnobiological data from the coastal areas of 7 Grama Panchayats and tribal areas of 7 Grama Panchayats of Thrissur district.
- Three research papers were presented and one paper published in the Journal of Traditional and Folk Practices.
- Completed intra-specific variability studies on 3 medicinal plant species
- Evaluated the morphological characters of five bamboo hybrids.
- Renovated the major Conservatory for Orchids/ Carnivorous plants and presently maintaining 7 conservatories
- A model TC laboratory was constructed at Kuzhur, in Thrissur district to rejuvenate screw- pine based cottage industry and to support green industry providing quality planting materials.
- New additions to germplasm - 20 orchids, 4 carnivorous plants, 15 medicinal plants, 2 gingers, 15 Andaman plants and 8 bamboos.
- Prepared a “Hand Book on Medicinal Plants in the Herbal Garden at Raj Bhavan, Kerala.”

Centre for Water Resources Development and Management (CWRDM)

A premier R&D institution in the water sector under KSCSTE. It provides research inputs for water resources development and management, especially in the humid tropic areas and has expertise in tackling different problems pertaining to watershed development, wetland management, water management for agriculture, forest and urban hydrology, estuarine management, groundwater development, water quality management, water related environmental issues and irrigation and drainage issues. Major achievements of CWRDM are;

1. Estimated water use efficiency of Kuttiyadi, Malampuzha and Peechi irrigation projects
2. Functional chitosan beads based on nano sized photocatalytic titanium dioxide and magnetic iron oxide were synthesised.

3. Developed soil spectral library, containing spectral signatures of specific soil types of Palakkad district that can be linked to a range of soil properties to derive water and nutrient recommendations.
4. Standardized wick irrigation automation to measure the quantity of water consumed by vegetables.
5. Developed Drought Information System (NKDIS) for Northern Kerala districts.
6. Evaluated the groundwater status and formulated effective recharge strategies for Valapattanam River Basin.
7. WATER-Citizen Assessment Tool (WATER-CAT), a mobile application intended to empower citizens with tools for water quality assessment and monitoring was launched
8. Prepared Management Action Plan for the conservation of Biyyam Kayal.
9. Designed carbon-neutral village concept for two panchayaths, namely Olavanna and Kadalundi.
10. Environmental Management Plan was developed for blue-flag-certified Kappad Beach, for sustainable tourism development.
11. Distributed Soil Health Cards to 37,800 farmers in Kozhikode, Palakkad, Malappuram, Kannur and Wayanad districts with soil fertility status and fertilizer recommendation for various crops.

Kerala Forest Research Institute (KFRI)

Envisioned as a centre of excellence in tropical forestry to provide scientific support for decision making on matters related to forestry with particular emphasis on conservation, sustainable utilisation and scientific management of natural resources. Working in collaboration with the forest department and other stakeholders, the institute continues to play a key role in improving the science foundation of forest management.

- A manual (bilingual) on river bank stabilisation was published with suitable species for restoration.
- Analysed impact of flood on flora and soil for major four rivers in Kerala and suggested action plans.
- Developed strategies for *in situ* as well as *ex situ* conservation of rare, endangered and threatened (RET) species besides monitoring the impacts of climate change and vegetation process in the natural forests and human modified landscape.
- Assessment of adaptive genetic diversity in teak

and sandalwood to guide conservation and genetic improvement efforts.

- Handed over 20,000 seedlings representing 38 palm and 21 bamboo species for landscaping activities at Puthur Zoological Park.
- Provided technical advice to several agencies for the establishment of butterfly parks and popularised the concept of butterfly garden.
- Standardised DNA barcoding of economically important bamboo species.

National Transportation Planning and Research Centre (NATPAC)

NATPAC undertakes research and consultancy works in the fields of traffic engineering and transportation planning, highway engineering, public transport system, alternate options for transport system, transport energy, inland water transport, tourism planning and rural roads. It is the only R&D centre in the country which works on all modes of transport. The activities of NATPAC range from surveying to preparation of techno economic studies, feasibility analysis, detailed project reports for infrastructure development projects involving multi-modal system of transportation covering road, rail, water, ports/harbours and airports.

In 2020-21, the following were the main achievements by the organisation-

- Developed a traffic growth rate model for national highways in the State.
- Conducted study on the impact of duration of flooding on different layers of flexible pavements of flood prone roads in Kerala.
- Prepared regional transportation development plan for various districts in the State.
- Conducted study on the effect of vehicle type in the saturation flow at signalised intersections.
- Prepared 3 technical documents - Kerala Transport Development Report, Method for fund allocation to local bodies in Kerala and Optimal allocation and distribution of liquefied medical oxygen in Kerala State.
- Five training programmes for drivers of hazardous goods carrying vehicle were conducted.
- The Centre is creating and updating a web based GIS database management system to compile, store and analyse database for inland waterways in Kerala.
- The Centre studied the traffic issues at

Enchakkal junction, Thiruvananthapuram and suggested remedial measures for easing the issues.

- Developed an integrated land use transport model for Thiruvananthapuram.
- NATPAC is in the process of creating a Road Asset Management System (RAM) for the selected network of roads which includes National Highways (NH), State Highways (SHs) and Major District Roads (MDRs).
- A rehabilitation study for the appraisal of the low volume roads in Kerala using Dynamic Cone Penetrometer Test (DCPT) is being done by the Centre.
- NATPAC investigated the potential use of an emerging storm water management technology in the Kerala climatic conditions.
- The Centre identified highway construction materials and prepared a lead chart of materials and their quality from each source in the GIS platform.
- NATPAC is developing a mobile app – “GetMap” app for road data collection and a Road Crash Information System (RCIS) in GIS environment using geospatial tools for Kerala.
- In 2020-21, several one day training on road safety were conducted in online platform in co-operation with the Kerala Police Academy and Police Training Colleges.

Kerala School of Mathematics (KSoM)

- A joint venture between GoK and Department of Atomic Energy (DAE), GoI, for carrying out advanced learning and research in Mathematics.
- Talent Nurture Programme is the signature outreach programme of KSoM.
- Started an Integrated MSc-PhD programme in December 2021.
- KSoM currently specialises in C*-Algebras, Number Theory and Several Complex Variables.
- Organised many international and national conferences along with many workshops in varied research topics in Mathematics.
- Organised an international conference titled “Recent advances in Mathematics and related areas” in association with the National Board for Higher Mathematics.
- Instilled smart classroom and canteen facility in the campus.

Malabar Botanical Garden and Institute for Plant Sciences (MBGIPS)

An institution dedicated to the conservation and research on aquatic plant diversity, lower group plants, endangered plants of the erstwhile Malabar Region, as well as disseminating knowledge on various facets of plant sciences.

- Organised colloquia, seminars for students, teachers and researchers in various areas of science
- Created plant database (1550 plants) in the Malabar Botanical Garden.
- Created an aqua scaping and a Euphorbia garden.
- 18 species of bryophytes were successfully established
- Introduced 139 medicinal plants.
- Studied the behaviour of seed germination and development of *Crinum malabaricum*.
- A total of 22,747 numbers of plants were multiplied and distributed to several conservatories. Different seedlings were raised and distributed.
- Floristic explorations for the survey and collection of specimens were conducted in different parts of India.

Srinivasa Ramanujan Institute for Basic Sciences (SRIBS)

SRIBS aims to become an internationally known centre for fundamental research in basic sciences and serve as a platform that would facilitates capacity building exercise in theoretical sciences.

In 2020-21, four capacity building programmes were organised benefitting about 220 students, researchers and junior teachers in basic sciences. Many webinar programmes on Introduction to Immunology and Immunotherapy, Catalysis: From Life to livelihood, Nuclear Magnetic Resonance (NMR) Spectroscopy, Computational Chemistry, Light Matter Interaction at nano scale were organised.

The major performances of R&D centres is given in **Table 5.2.2**.

Schemes and Programmes of KSCSTE

With a view to identify and implement programmes to achieve excellence in Science and Technology within the State and to provide service to the society at large, the Council is implementing various schemes and

Table 5.2.2 Major performance of R&D centres in 2020-21

Sl No	Parameters	CWRDM	JNTBGRI	KFRI	NATPAC	MBGIPS	KSoM	Total
1	Papers in referred journals	27	68	50	3	10	11	169
2	Books published	4	1	11				16
3	Chapters in books	7	4	6	2			19
4	Papers in conferences	31	40	129	24	3	2	229
5	No: of PhD's produced	8	4	2		2		16
6	Research Manpower trained	19	27	33	34		3	116
7	Technical Manpower trained	225	100	15	8			348
8	Scientific Meet/ Conferences organised	10	3		4	2	1	20
9	Consultancy services	16	2	1	21	2		42
10	B.Tech/UG projects guided		1	7	15			23
11	M.Tech/MSc/ M.Phil projects guided	48	12	42	32	6	5	145

Source: KSCSTE

programmes focusing science popularisation and promotion, research and development, ecology and environment, technology development and transfer, biotechnology development, school level promotional activities and science programmes for women. The schemes and programmes implemented by KSCSTE and achievement in 2020-21 are discussed below.

Achievements of Schemes and Programmes of KSCSTE

1. Human Resource Development in Science and Technology

i. Science Research Scheme (SRS)

It is one of the flagship activities of the Council that aims at promotion of R&D activities in the State both in fundamental and applied research. Under the scheme, research projects in emerging areas of science and engineering are supported in University departments, colleges and R&D institutions. In 2020-21, 5 new projects were granted, 31 books published, 154 papers in refereed journals and 74 papers in conference/seminars were published from supported projects, 405 man power trained and produced 12 Ph.D under this programme. In 2021-22, (upto September) produced 5 Ph.D and published 22 papers in refereed journals from supported projects.

ii) Emeritus Scientist Scheme

The objective of the scheme is to make use the talent and knowledge of superannuated outstanding scientists and support them to pursue research in their respective field of specialisation for the benefit of the State. In 2020-21, 25 conference/seminars were conducted, 17 papers were published in refereed journals from supported projects under the programme, 11 Ph.Ds awarded and 28 new findings/technologies generated. In 2021-22, 5 papers were published in refereed journals and 4 conferences/seminars were conducted.

iii) Scheme for Promotion of Young Talents in Science (SPYTiS)

The programme is for giving awards for the students of Class VIII-IX for doing a science project (SPYTiS I) and for giving financial assistance to students who have innovative ideas in science and technology and enrolled in

polytechnic colleges and undergraduate courses in colleges for conducting projects (SPYTiS II). In 2020-21, a webinar series aimed at creating awareness about the different career options in the field of science and technology was conducted.

iv) Crafting Young Scientists for Tomorrow (CRYSTAL) - CRYSTAL is the programme to identify students' talents in science at an early age and nurturing them. The state level winners of National Science Congress are selected as target group of CRYSTAL. In 2020-21, 5 day online programme was organised for students on design thinking in association with PG students of National Institute of Design, Gandhinagar campus

v) Student Project

Under this project, financial support is given to the students of University departments and colleges in the State to conduct scientific projects. In 2020-21, 500 projects from pharmaceuticals, ayurveda, physics, chemistry, geology, optoelectronics, microbiology, botany, zoology, health sciences, mathematics and different fields of engineering were recommended for financial assistance.

vi) KSCSTE Research Fellowship Programme

This scheme is to support bright students in research leading to Ph.D. In 2020-21, 20 Ph.Ds were awarded and 61 papers were published under the programme.

vii) KSCSTE Post-Doctoral Fellowship

With the objective of attracting doctorate holders to remain in science and technology and to motivate them to pursue research and develop career as scientists, KSCSTE gives post-doctoral fellowships every year. Under this programme, 14 papers were produced in refereed journals, 2 books were published and 25 conference/seminars were conducted in 2020-21. As on September 2021, 2 papers published in refereed journals.

2. Technology Development and Transfer

i) Intellectual Property Rights Information Centre – Kerala (IPRIC-K) – Under this programme, in 2020-21, seven patents were

granted, 29 webinars were organised covering various topics on IPR in association with various institutions and organisations. The Centre sensitized around 3,000 people, processed 67 patent facilitation applications and facilitated the filing of 10 patents in 2020-21. In 2021-22, the Centre organised 13 webinars and processed 26 patent facilitation applications.

ii) Engineering & Technology Programme (ETP) - ETP intends to encourage and promote research talents for the implementation of high-quality research projects in the emerging areas of engineering and technology. The scheme is instituted for the faculty of engineering colleges and scientists of R&D institutions in the State. In 2020-21, 24 research papers, 53 conference papers, 1 patent and 3 Ph.Ds were produced under the programme.

iii) Technology Development and Adaptation Programme (TDAP)- Technology Development and Adaptation Programme (TDAP) is envisaged to provide catalytic support for the development and demonstration of innovative and need-based technologies. In 2020-21, financial grant was released to two new projects and 13 ongoing projects.

iv) Rural Technology Programme (RTP)
RTP scheme is instituted for the purpose of providing assistance in the form of grants to promote and support traditional rural technology and upgrade them, so that it could be perfected for wider applications and employment generation and to reduce the drudgery of the rural households. The main objectives of this scheme are to encourage and promote grass root innovators, fine-tuning their innovative ideas and providing them with technical support to raise their innovations to an enterprise level. In 2020-21, three projects were supported under the programme.

3. Ecology and Environmental Programmes

The programmes on ecology and environment focus on environmental conservation, pollution mitigation and awareness creation. In 2020-21, five papers in referred journal were published, conducted two conferences/seminars, and 4 technical/research manpower were trained.

4. Support for Women in Science

In Kerala, though the State has the highest women literates, there is scope for improving representation of women in science. In order to provide a support system to attract and retain women and girls in science and encourage them to take up science as a career, the women scientists division at KSCSTE has initiated several schemes and programmes to increase their participation in science, technology, engineering, agriculture and medicine. These programmes facilitated re-entry of women after taking a career break. The important programmes carried out by the Council in this area are as follows.

- i. Back to Lab Research Fellowship Programme – Ten back to lab projects were sanctioned under the programme in 2020-21. 43 projects are under operation, of which 29 were post-doctoral fellowships and 14 were research fellowship projects. Out of 43 projects, 7 projects have been completed. The total number of research publication from the supported projects was 31.
- ii. Project on preparation of database of “Women in Science in Kerala”. – 3,107 registrations (as on March, 2021) were made in the online directory which is developed for obtaining base-line data on the status of women in various sectors of science in the State. There were 72 new registrations in 2020-21.

5. Science Popularisation

Science popularisation programmes of KSCSTE include i) Kerala Sasthrapuraskaram ii) Kerala State Young Scientists Award iii) Kerala Science Congress iv) Science Literature Awards v) National Children’s Science Congress vi) Science Media Support, Documentation and Publication and vi) Technology Festival (TECHFEST). Kerala Sasthrapuraskaram is instituted to encourage quality research, training and leadership in science and technology by honouring outstanding scientists of Kerala origin working anywhere in the world. Kerala Young Scientists Awards are given to talented young scientists in recognition of their outstanding contributions in science and technology. In 2020-21, 4 scientists were awarded Kerala State

Young Scientists Award (KSYSA) 2020. KSYSA research grant for 8 ongoing projects were released in 2020-21. Seven science literature awards were presented in five categories.

6. Infrastructure Development in Science and Technology

In order to provide sufficient infrastructure facilities in universities, colleges and schools for the promotion of scientific activities and augmenting research, the Council has been providing financial assistance for the creation of labs and related facilities in the institutions. Selective Augmentation of Research and Development (SARD) and *Sastraposhini* are the two schemes implemented by the Council for this purpose. SARD is envisaged to create facilities in colleges and universities for augmenting research in specified areas. Under this programme, grants will be paid for strengthening the laboratory infrastructure by procuring equipment and undertaking its maintenance. So far, 72 science post graduate laboratories and research institutions in the State have been augmented.

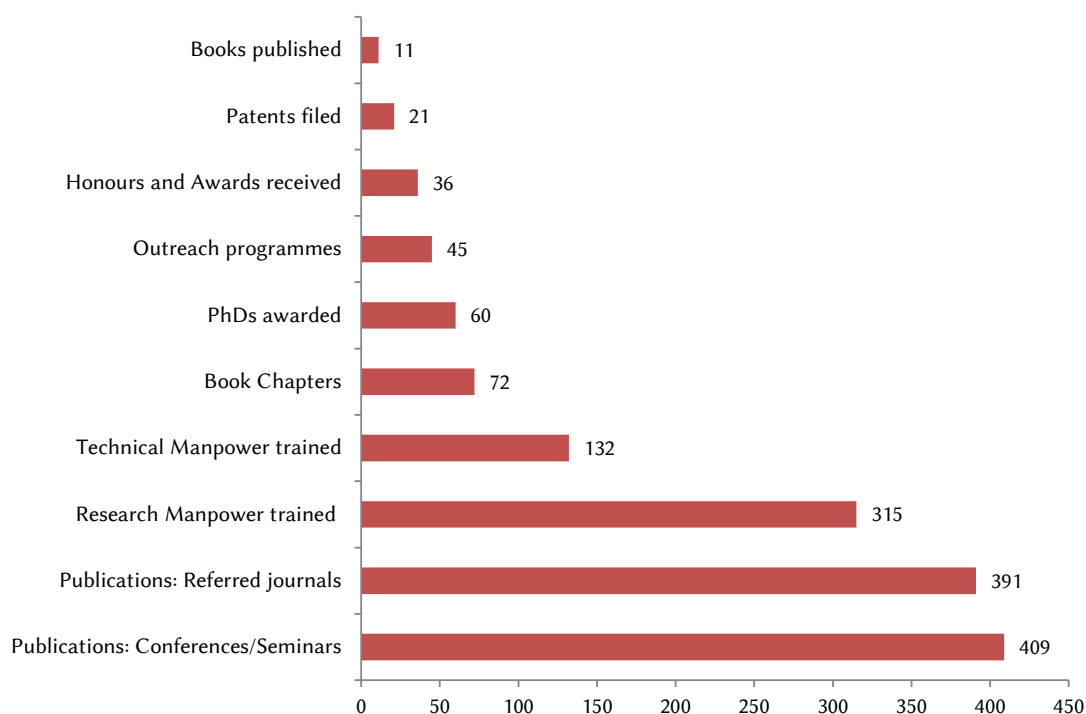
Sastraposhini scheme aims to establish model science laboratories in physics, chemistry and biology to create a better ambience in high schools.

7. Biotechnology Development

Biotechnology Development programme undertakes e-Investors Programme in Biotechnology, Industry Linked Biotechnology Research Scheme, Biotechnology Innovations for Rural Development, Biotechnology Training and Workshop Programme, Post-Doctoral Fellowship, Biotechnology Young Entrepreneur Award, Kerala Biotechnology Re-entry Fellowships and Biotechnology Education Programme. In 2019-20, 14 papers in peer reviewed journals and 3 chapters were published under this programme.

The major achievements of KSCSTE from supported projects in 2020-21 is given in **Figure 5.2.1**.

Figure 5.2.1 Achievements of KSCSTE from supported projects in 2020-21



Source: KSCSTE

Other achievements of KSCSTE in 2020-21

- Development of an online portal for REAP-K- to provide the information about the analytical instrumentation facility of the various academic and research institutes.
- Development of online recruitment portal for KSCSTE and its constituent R&D centres
- Development of online platform for Student Project Scheme
- Development of Digital Project Proposal Submission system
- Development of Digital library

Institute of Climate Change Studies

The Institute for Climate Change Studies, Kottayam (ICCS) is an autonomous R&D centre registered under Department of Environment. In July 2020, the administrative control of the Institute was transferred to the Kerala State Council for Science, Technology and Environment to enhance its research and development activities. The following are the milestones in research:

- Memorandum of Understanding (MoU) has been executed between Indian Institute of Technology Madras (IITM) and Institute for Climate Change Studies (ICCS) to develop collaboration in the following areas namely academic and research collaboration in the areas of mutual interest, exchange of faculty, staff and research scholars, exchange of students, exchange of academic materials, publications and other information, organisation of co-operative seminars, workshops, and other academic meetings.
- Investigated the influence of aerosols on extreme rainfall events over Kerala,
- Study on the impact of climate change on future water availability in Chaliyar river basin using Soil and Water Assessment Tool (SWAT) model.

Institute of Diabetic Research

Owing to the high incidence of Diabetes in India, and Kerala in particular, State Government wishes to establish Diabetes Institute in Kerala. The proposed institute shall be of international standards with a vision to “prevent, manage and cure diabetes”. Institute of Diabetes will develop the most cost- effective treatment strategies for managing diabetic patients, implement measures to prevent diabetes and detect it at an early

stage so that its complications can be prevented. In 2021-22, administrative sanction was issued to the institute for the preparation of project report and project management.

Institute of Advanced Virology

The Institute of Advanced Virology established in 2019 in the Bio 360 Life Sciences Park, Thonnakkal, Thiruvananthapuram by the Government of Kerala is envisioned as an institute of global standards, networking with Global Virology Institutes with most modern laboratories focusing on research, diagnosis and management of emerging and re-emerging infectious viral diseases. Its vision is to harness the best and eliminate the worst of viruses for a better human life and to work as a centre of excellence in collaboration with international institutions for training and education in the context of research covering basic science and translational research, providing sufficient scientific inputs to enable the prevention and control of viral infections. Its mission is to develop state-of-the-art infrastructure, skilled scientific and technical personnel, and services and products in virology to serve local, national and global needs. The institute with a total project cost of ₹202.00 crore is aimed to work for industrial transfer/facilitation of technology. Kerala State Industrial Development Corporation is the agency which has provided land and infrastructure. The construction of campus at Thonnakkal, Thiruvananthapuram, spread over 25 acres of land is planned in two phases, Phase I and Phase II consisting of Phase IA Prefab building (25,000 sq.ft) of 2 floors housing Administrative block, Bio labs, common instrumentation room, Bio-safety level facilities and Diagnostic facilities and Phase IB main building (78,000 sq.ft) of 3 floors with Administrative block, Bio labs, Bio safety level facilities and functional division.

The Institute of Advanced Virology has been virtually inaugurated in October 2020 and is affiliated to the Global Virus Network, which has 45 centres of excellence in over 29 countries. The clinical virology and viral diagnostics divisions became operational in the pre-fab building of 25,000 sq ft in area. The institute initiated steps for establishing diagnostic facility for airborne pathogens. Five BSL - II laboratories were made functional. The institute started

diagnostic services by giving directions to five medical centers for providing samples to IAV for diagnosis of dengue, chikungunya and ZIKA.

2. Regional Cancer Centre (RCC), Thiruvananthapuram

Globally, about one in six deaths is due to cancer and it is also the second leading cause of death accounting for an estimated 9.6 million deaths in 2018. Approximately, 70 per cent of the deaths from cancer occur in low and middle income countries. Tobacco use is the most important risk factor of the disease and is responsible for about 22 per cent of cancer death in 2018. World-wide 9.6 million people are estimated to have died from cancer in 2018. (Source: World Health Organisation)

In India, the projected number of patients with cancer is 13,92,179 in 2020, and the common 5 leading sites are breast, lung, mouth, cervix uteri, and tongue. The projected incidence of patients with cancer among males was 6,79,421 (94.1 per 100,000) and among females 7,12,758 (103.6 per 100,000). One in 68 males (lung cancer), 1 in 29 females (breast cancer), and 1 in 9 Indians will develop cancer during their lifetime (0-74 years of age). (Source: National Cancer Registry Programme, India)

According to the National Cancer Registry Programme, India's report, cancers of the lung, mouth, stomach and esophagus were the most common among men, while cancers of breast and cervix uteri were the most common among women. It also says incidence of breast cancer is on the rise while cervical cancer is on the decline. The highest burden of breast cancer was observed in metropolitan cities such as Hyderabad, Chennai, Bengaluru and Delhi.

In Kerala, RCC, Thiruvananthapuram carries out innovative and pioneering work in cancer control, treatment, research and training. RCC, Thiruvananthapuram is one of the top rated comprehensive cancer centres in the country offering diagnostic and treatment facilities for cancer. Its main objective is to undertake basic, applied and statistical research in various specialities of oncology. It undertakes basic, translational and clinical research and disseminates knowledge.

It is rated amongst the top three of the 28 Regional Cancer Centres in the country and maintains a working relationship with international bodies such as the WHO, International Agency for Research on Cancer (France), International Atomic Energy Agency (Vienna), National Cancer Institute (USA), Institute for Cancer Research (UK), University of Leeds (UK), Health Research Foundation (Japan) and a host of other reputed organisations.

Over the past forty years, RCC has been able to contribute significantly to the increasing needs of cancer care of the people of the State of Kerala and adjoining areas of Tamil Nadu and Karnataka providing state-of-the-art diagnostic and treatment facilities at the lowest possible cost. In addition, RCC is committed to carry out cancer control activities among the public, human resource generation in various specialities of oncology as well as cancer research expected to result in new treatments for cancer.

In addition to RCC, there are two other cancer centres, namely, Malabar Cancer Centre and Cochin Cancer Research Centre. The details of these two centres are covered in the Health section of Chapter 6 of this Review.

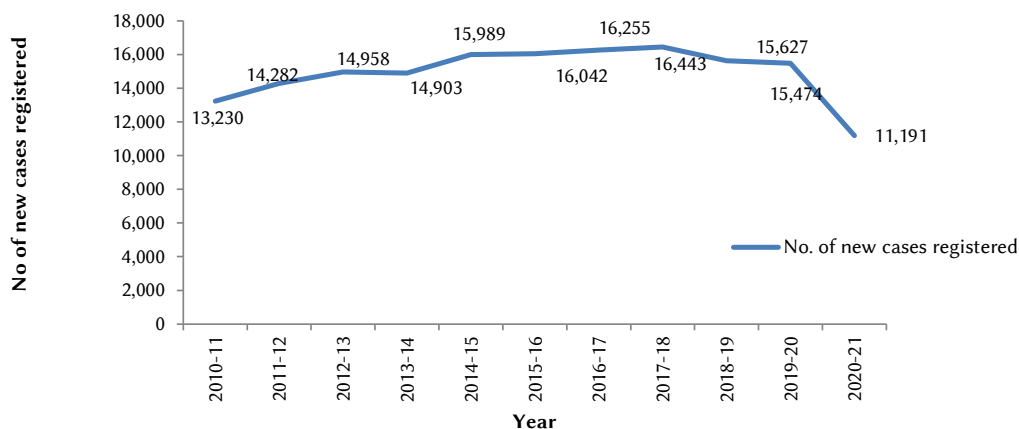
RCC- Profile

The vision of RCC is to emerge as a global leader in cancer control. In 2020-21, a total number of 11,191 new cases and 1,50,330 review cases were registered in the centre. Of the new cases registered, 5,322 were male (48 per cent) and 5,869 were women (52 per cent). The number of daily average patient visit was 525. **Table 5.2.3** provides the profile of the RCC in 2018-19, 2019-20 and 2020-21.

Cases Registered in RCC

The details regarding cases registered in RCC during the last 11 years show that the number of new cases is increasing every year, till 2017-18. But during the last three years, the number is decreasing. The total number of registered cases during the period 2015-16 to 2020-21 is 91,032. In 2020-21, a total number of 11,191 new cases were registered which was 27.7 per cent lower than previous year. This may be attributed to Covid-19 pandemic. In 2019-20, the new cases

Figure 5.2.2 New cases registered in RCC from 2010-11 to 2020-21



Source: Regional Cancer Centre, Thiruvananthapuram

registered were 15,474. New cases registered in RCC from 2010-11 to 2020-21 is given in **Figure 5.2.2**.

Table 5.2.3 Profile of RCC in 2018-19, 2019-20 and 2020-21 at a Glance

Particulars	2018-19	2019-20	2020-21
New Cases Registered	15,627	15,474	11,191
Review Cases Registered	2,58,838	2,67,348	1,50,330
In-patient Admissions	11,568	11,397	6,807
Radiotherapy	7,071	6,499	4,353
Brachytherapy	1,766	1,616	963
Surgical Procedures	5,756	6,075	3,097
Endoscopic Procedures	2,969	2,719	624
Chemotherapy Administered	11,939	12,323	10,067
Bone Marrow Transplantations	37	33	21
Ongoing Research Projects	179	215	239

Source: Regional Cancer Centre, Thiruvananthapuram

Out of the total 11,191 new cases registered in 2020-21, 10,562 cases (94 per cent) were reported from within the State and rest of

the numbers were from other states and outside the country. Out of the total new cases, more numbers were reported from Thiruvananthapuram (36 per cent) and least number from Wayanad (0.15 per cent). **Figure 5.2.3** represents number of new cases registered in the districts of Kerala.

Box No 5.2.2 Hospital statistics

- IP Bed strength : 307
- Operational bed : 298
- Average OP Per day : 525
- Average admissions per month : 567
- Bed occupancy rate : 72 per cent

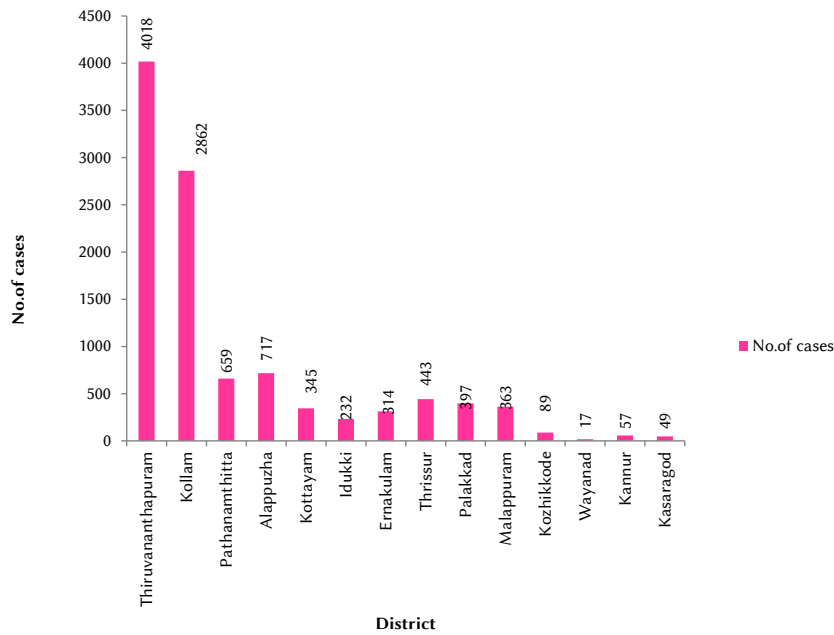
Source: RCC, Thiruvananthapuram

Cases Registered in Speciality Clinics

The highest per cent of new cancer cases registered were Chest and Gastrointestinal clinics (2,694 cases) in 2020-21 followed by Breast and Central Nervous System (2,029 cases), Gynaec, Genitourinary and others speciality clinic (1,965 cases). The lower number of cases was registered in Pediatric clinic (400 cases). **Figure 5.2.4** gives the incidence of cancer to human body parts detailed as per cent of new patients registered in speciality clinics in 2020-21.

The number of new cases registered in speciality clinics in 2018-19, 2019-20 and 2020-21 are shown in **Table 5.2.4**.

Figure 5.2.3 District wise new cases registered in 2020- 21, in numbers



Source: Regional Cancer Centre, Thiruvananthapuram

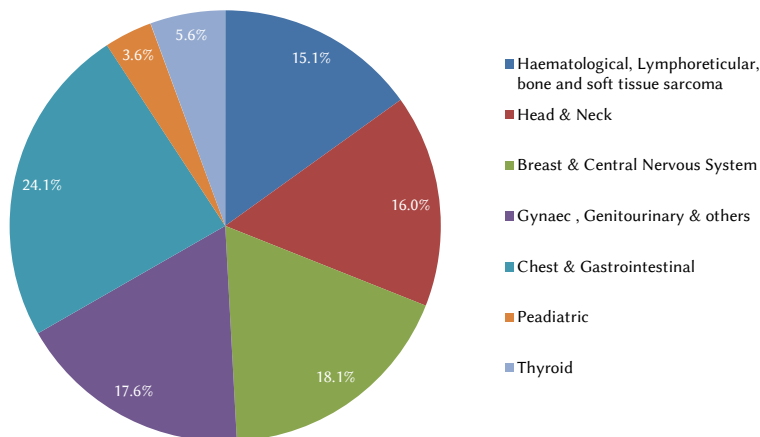
Cases Registered (Age and Gender-Wise)

The details of age and sex-wise number of new cases registered in 2020-21 reveals that people in the age group of 55-64 (27.87 per cent) are more prone to cancer diseases (29.74 per cent of male and 26.17 per cent of female). **Figure 5.2.5** illustrates age and sex-wise new cancer patients registered for treatment in RCC in 2020-21.

Gender-wise New Cases Registered in Speciality Clinics

Gender-wise new cases registered in Speciality Clinics shows that 34.67 per cent of male cases were registered in chest and gastrointestinal clinic and 31.93 per cent of female cases were registered in breast and central nervous system clinic.

Figure 5.2.4 Speciality clinic-wise percentage of new patients registered in 2020-21

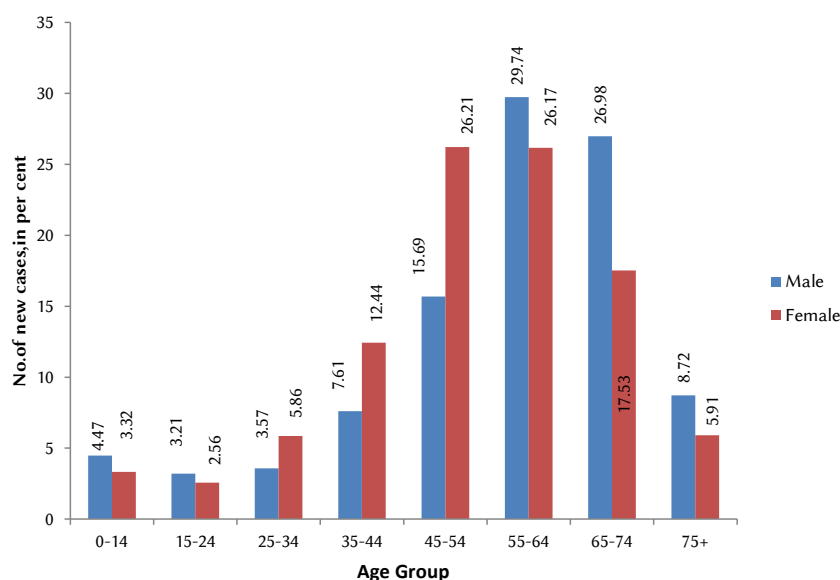


Source: Regional Cancer Centre, Thiruvananthapuram

Table 5.2.4 New cases registered in RCC during 2018-2019 2019-20 and 2020-21 (Speciality Clinic Wise)

Sl. No	Clinic	2018-19	2019-20	2020-21
1	Haematological, Lymphoreticular, bone and soft tissue sarcoma	2,382	2,432	1,687
2	Head and Neck	2,569	2,334	1,785
3	Breast and Central Nervous System	2,558	2,601	2,029
4	Gynaec, Genitourinary and Others	2,690	2,788	1,965
5	Chest and Gastrointestinal	3,763	3,654	2,694
6	Paediatric	537	561	400
7	Thyroid	1,128	1,104	631
	Total	15,627	15,474	11,191

Source: Regional Cancer Centre, Thiruvananthapuram

Figure 5.2.5 Age and gender-wise new cases registered in 2020-21

Source: Regional Cancer Centre, Thiruvananthapuram

Table 5.2.5 Gender wise new cases registered in Speciality Clinics

Clinics	Male	Per cent	Female	Per cent
Haematological, Lymphoreticular, bone and soft tissue sarcoma	959	18.02	729	12.42
Head and Neck	1379	25.91	404	6.88
Breast and Central Nervous System	154	2.89	1874	31.93
Gynaec, Genitourinary and Others	672	12.63	1296	22.08
Chest and Gastrointestinal	1845	34.67	848	14.45
Paediatric	226	4.25	174	2.96
Thyroid	87	1.63	544	9.27
Total	5322	100	5869	100

Source: Regional Cancer Centre, Thiruvananthapuram

Table 5.2.5 gives gender wise new cases registered in Speciality Clinics.

Referral System

RCC is a tertiary level referral hospital and admits patients referred from other Government and private hospitals. As in the previous year, most of the cases in 2020-21 were referred from Thiruvananthapuram (35.90 per cent) followed by Kollam (25.57 per cent) and the least number of cases were referred from Wayanad (0.15 per cent). The number of cases referred from Thiruvananthapuram was 4,073 in 2019-20 and 4,018 in 2020-21. Details are given in **Table 5.2.6**.

Table 5.2.6 Number of cases referred to RCC in 2018-19, 2019-20 and 2020-21

Sl. No.	District	No. of cases referred		
		2018-19	2019-20	2020-21
1	Thiruvananthapuram	4,013	4,073	4,018
2	Kollam	3,014	2,973	2,862
3	Pathanamthitta	830	886	659
4	Alappuzha	992	984	717
5	Kottayam	544	627	345
6	Idukki	323	330	232
7	Ernakulam	605	546	314
8	Thrissur	873	853	443
9	Palakkad	906	877	397
10	Malappuram	211	242	363
11	Kozhikode	751	697	89
12	Wayanad	72	63	15
13	Kannur	213	191	57
14	Kasaragod	140	140	49

Source: Regional Cancer Centre, Thiruvananthapuram

In addition to this, 539 cases in 2020-21 were referred from Tamil Nadu, 5 from Karnataka, 2 from Lakshadweep and 80 from other Indian States and 3 persons from Maldives were also referred.

Central and State Government Schemes

Both Central and State Governments have initiated various schemes to ensure free or subsidised treatment for cancer patients. Details are given in **Table 5 2.7**.

Major Initiatives of RCC in 2020-21

In addition to the Government supported

schemes, RCC provides support to patients and families through various other schemes as detailed below:

The Free Drug Bank functions according to specific guidelines and is monitored by a committee constituted by the Director, RCC. The drug bank provided full or partial help to 785 patients in 2020-21.

Under Free Food ('Akshayapathram'), free food was provided to 1,501 patients belonging to vulnerable socio-economic groups in 2020-21 with the support of many philanthropic organisations.

RCC, along with four other cancer centres in the country had been receiving financial support from the Indian Cancer Society for treatment of cancer. In 2020-21, 42 patients received support through the scheme worth ₹45.86 lakh.

Human Resource Development

A total number of 343 people were trained in 2020-21 through 7 trainer-trainee programmes conducted for health care providers which included doctors, dentists/dental students, nurses/paramedicals, health supervisors and community volunteers.

In 2020-21, 1,355 persons attended the early cancer detection clinic of RCC. As a result, 188 cancers and 122 pre-cancers were detected. During the Covid-19 pandemic period, only three cancer detection programmes were conducted. Among 191 persons screened, one oral cancer, 12 oral pre-cancers and five cervical pre-cancers were detected.

Research and Development Activities

The RCC as a pioneer research institution in cancer research has produced several Ph.Ds in cancer research. In 2020-21, around 30 scholars were pursuing Ph.D., 45 residents undertook specialisation in medical, paediatric and surgical oncology super speciality courses and 42 residents undertook postgraduate courses in Anaesthesia, Pathology, Radio diagnosis and Radiotherapy in the centre. The number of on-going research projects is 239. RCC prepared population-based cancer registry in Thiruvananthapuram, Kollam, Alappuzha and Pathanamthitta districts.

Table 5.2.7 Central and State Government schemes, 2019-20 and 2020-21

Scheme	Patients enrolled (new cases)		Total no. of people benefited		Amount spent (in crore)	
	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21
Central Government Schemes						
Prime Minister's Relief Fund	136	37	2,056	2,362	1.11	19.89
Health Minister's Rashtriya Arogya Nidhi (RAN)		0	2,019	2,109		8.72
Health Minister's Discretionary Fund		0	25	26		0.12
Health Minister's Cancer Patient Fund (HMCFP- CSR Scheme)	25	0	92	92	0.05	0.82
State Government Schemes						
Cancer Suraksha Scheme	500	293	5,932	6,184	4.88	57.75
Chis Plus	591	0	41,920	41,920	0.80	102.44
Karunya Benevolent Fund	745	862	24,344	37,927	3.88	226.32
Sukrutham		0	8,607	8,607		49.52
Thalolam	14	8	117	125	0.03	0.40
Scheduled Tribe Patient Fund	36	30	424	454	0.24	3.17
Snehasanthwanam for Endosulfan Victim	1	1	61	62	0.01	0.47
Karunya Arogya Suraksha Padhathi (KASP)		6,894		19,652		58.89

Source: Regional Cancer Centre, Thiruvananthapuram

Infrastructure Development in RCC

The preliminary works of the construction of a state of the art building of 14 floors with 2.75 lakh sq. feet built up area costing ₹18,722 lakh has been started by RCC in a phased manner with the target of improved space for patient care facilities. The construction of 13 floors is completed and which will be commissioned after the completion of structure, finishing works, MEP works and Testing.

Cancer care was decentralised during lockdown. This was a unique experiment by RCC. The activities of RCC during lockdown is given in **Box 5.2.3**.

Box No 5.2.3 Activities of RCC during lockdown

- Chemotherapy and follow up for RCC patients was given in all districts facilitated through RCC trained doctors in district and Taluk hospitals and peripheral centres of RCC.
- Set up cancer treatment facility in Govt Medical College Kanyakumari for RCC patients from Tamil Nadu
- RCC supplied anti-cancer drugs free of charge to 1,600 patients doorsteps in Kerala and Tamil Nadu through Kerala and Tamil Nadu Fire force services.

Source: Regional Cancer Centre, Thiruvananthapuram

Diagnostic and Treatment Facilities Added During the 13th FYP Period

- Three anaesthesia workstations and four ICU ventilators
- Integrated Bipolar and Ultrasonic Cutting and Coagulation Units
- Digital Radiography and Fluroscopy system
- Supersonic USG machine with Elastography
- Fourier-Transform Infrared Spectrometer
- Equinox Telecobalt machine
- Dexa Scanner
- Plasma Steriliser
- Electrical Drill Unit
- Video Endoscopy System

As per the reports of WHO, between 30-50 per cent of cancers can currently be prevented by avoiding risk factors and adopting preventive strategies and disease burden can be reduced through early detection and treatment. The decrease in number of new cases registered in RCC during the last few years' can be attributed to the impact of efforts made by the institution in cancer control activities and improvement of treatment facilities. The upcoming cancer institutes/other hospitals in the State engaged in cancer treatment and technologies may also focus on cancer preventive strategies as well as early detection and treatments in reducing disease burden in future.

Way Forward

The development of science and technology in the State faces important challenges despite the high levels of educational achievement, and the general awareness among the population on the importance of science. Major challenges in the sector are the (i) need for rapid improvement of the quality of science education and scientific research in the State (ii) to enhance the quality of scientific institutions in the State such that these institutions become the institutions of choice for study and research for young scientists from all over the country (iii) to develop centres of excellence in various disciplines in the State (iv) to promote income enhancing and employment generating activities in the State and provide science and technology support to the State's development.

5.3 TOURISM

Kerala is an internationally recognised and a sought-after tourist destination in India. Tourism industry in Kerala is known for its world-renowned brand, consistent growth, diverse products and presence of local entrepreneurs. Public spending in Kerala mainly focuses on infrastructure development, marketing, human resource development, and hospitality.

Tourism is a lifeline for many rural communities, especially in the developing world. Globally, tourism sector is facing a crisis because of the Covid-19 pandemic. According to the United Nations World Tourism Organisation (UNWTO), international tourist arrivals were estimated to fall between 60 per cent and 80 per cent in 2020. As per the estimates of UNWTO, domestic tourism will revive prior to international tourism. UNWTO has made available recommendations for action and guidelines to restart tourism. This action plan for a sustainable and resilient future emphasises the importance of tourism to rural communities, particularly in the context of the Covid-19 crisis.

Tourism in India

India is a large market for travel and tourism. It offers a diverse portfolio of niche tourism products – cruises, adventure, medical, wellness, sports, Meetings, Incentives, Conferences and Exhibition (MICE), eco-tourism, film, rural and religious tourism. India has been recognised as a destination for spiritual tourism for domestic and international tourists.

In the World Travel and Tourism Council's (WTTC) Economic Impact Report 2019, India's Travel and Tourism sector's contribution to GDP grew by 4.9 per cent. This is the third highest after China and Philippines. Additionally, the report also highlights that between 2014 to 2019, India witnessed the strongest growth in the number of jobs created (6.36 million), followed by China (5.47 million) and the Philippines (2.53 million). UNWTO has designated World Tourism Day 2021 as a day to focus on "Tourism for Inclusive Growth."

Foreign Tourist Arrivals (FTAs) in India stood at 10.93 million in 2019, achieving a growth rate of 3.5 per cent. During January to April 2021, FTAs was 3,76,083 as against 2.35 million during the same period in 2020, registering a negative growth of (-)84.0 per cent due to Covid-19. In 2020, over 610 million domestic tourist visits were made across India, a decrease of 73.7 per cent from the previous year. In 2019, around 2,321.98 million domestic tourist visits were recorded.

Impact of Covid-19 on Kerala Tourism

Tourism is a significant contributor to the economy of the State, with ₹45,019 crore as earnings in 2019. It provides employment to 1.5 million people (directly and indirectly). The State's tourism sector rebounded strongly in 2019 after the 2018 floods and recorded the highest growth rate in overall tourist arrivals in the last 24 years. Kerala received more than 1.19 million foreign tourists and 18.4 million domestic tourists in 2019 with an impressive annual growth of 8.52 per cent and 17.81 per cent respectively. But, with the Covid-19 pandemic, there was an estimated loss of ₹20,000 crore to the State tourism industry in 2020-21. (Source: Directorate of Tourism)

In March 2020, Kerala tourism suffered a setback of (-)70.8 per cent in foreign tourist arrivals. The situation worsened by April 2020 onwards; the foreign tourist arrival became almost zero. Foreign tourist arrivals declined by (-)71.36 per cent in 2020. The international footfall to Kerala during the first six months of 2021 also shows the same trend as that of 2020. The total international footfall for the first six months of 2021 is only about 16,000 which is about three lakh less than the first six months period in 2020.

The domestic tourist arrival to Kerala started with a significant increase of 13.84 per cent with a record footfall of 15.15 lakh in January 2020. But in February 2020, the growth rate declined to 3.62 per cent and in March to (-)55.69 per

cent. From April 2020, the growth rate came down to (-)99 per cent and the trend continued upto August 2020. The domestic tourist declined by (-)72.86 per cent in 2020. The domestic footfall for the first six months of 2021 is only about 27 lakh which is about ten lakh less than the first six months period of 2020.

Foreign Tourist Arrivals

The number of foreign tourists visited India in 2020 was 27.4 lakh, which is (-)74.9 per cent lower than the tourist arrivals in 2019. There were 3.4 lakh foreign tourists visited Kerala in 2020, which is (-)71.36 per cent lower, as compared to 11.89 lakh in 2019. The number of foreign tourists who visited India and Kerala in 2021 upto June was 4.18 lakh and 0.15 lakh respectively. **Figure 5.3.1** reveals the trends in the arrival of foreign tourists in India and Kerala during the period 2011-2020.

For a few years, the growth rate of FTA in Kerala was higher than the national average. The number of foreign tourists who visited Kerala in 2019 was 11,89,771 as against 10,96,407 foreign tourists in 2018 recording a 8.52 per cent growth in foreign tourist arrivals in the State as compared to 2018. **Appendix 5.3.1** shows the foreign tourist arrivals in India and Kerala and annual growth rate from 2011 onwards.

Month-wise statistics in 2019 shows that around 14 per cent of the total foreign tourists' visits in the State is in January followed by February (around 13 per cent). The lowest foreign tourist traffic in 2020 was registered in the month of June (0.7 per cent).

Month-wise foreign tourist arrival in India and Kerala in 2019 and 2020 is given in **Table 5.3.1**.

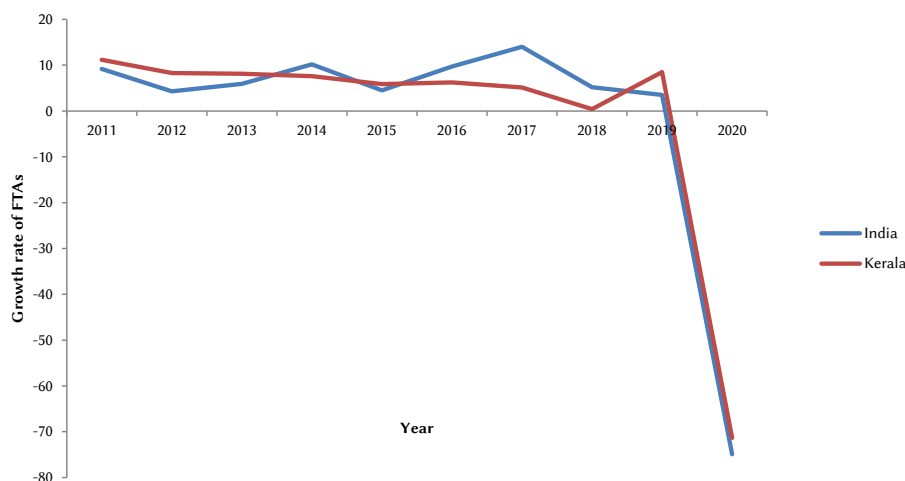
Source Market of Foreign Tourist Arrivals

In 2020, United Kingdom, with a percentage share of 21.1 per cent remains at the top of a list of the countries from where foreign tourists came to the State. France occupied the second position with 14.8 per cent share. In 2018 and 2019 also, United Kingdom remained at the top position. **Appendix 5.3.2** gives the share of major international source markets of Kerala tourism in 2018, 2019, 2020 and 2021 upto June. **Figure 5.3.2** illustrates the share of foreign tourist arrival to Kerala from top ten countries in 2019 and 2020.

Foreign Tourist Arrival - District-Wise

For the last few years, the two Districts which recorded largest foreign tourist arrivals in the State are Ernakulam and Thiruvananthapuram. In 2020, 1,34,952 foreign tourists visited Ernakulam whereas it was 5,22,232 in 2019. In the case of Thiruvananthapuram, 90,550 foreign

Figure 5.3.1 Annual growth rates of foreign tourists arrivals in India and Kerala from 2011 to 2020, in per cent



Source: Department of Tourism, GoK

Table 5.3.1 Month-wise foreign tourist arrivals in India and Kerala in 2019 and 2020, in number

Sl. No.	Month	No. of FTAs in 2019		No. of FTAs in 2020	
		India	Kerala	India	Kerala
1	January	11,11,040	1,60,588	11,19,250	1,74,439
2	February	10,90,516	1,48,024	10,18,440	1,25,523
3	March	9,78,236	1,13,857	3,28,304	33,245
4	April	7,74,651	86,693	2,820	707
5	May	6,15,136	49,952	3,764	75
6	June	7,26,446	45,675	8,590	60
7	July	8,18,125	7,80,34	12,655	188
8	August	8,00,837	74,210	19,761	373
9	September	7,51,513	62,942	28,167	406
10	October	9,45,017	94,205	41,494	1,041
11	November	10,92,440	1,20,848	70,977	2,167
12	December	12,26,398	1,54,743	90,544	2,531

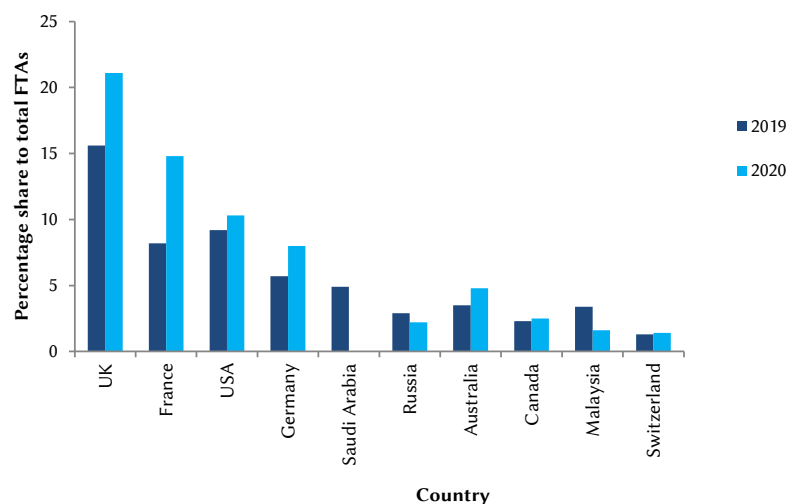
Source: Department of Tourism, Kerala

tourists visited the District in 2020 and 3,10,451 in 2019. The districts with least number of foreign tourist arrivals were Pathanamthitta (659) and Palakkad (742) in 2020. The scenario is the same in 2018 and in 2019. Details are given in **Appendix 5.3.3**.

Region-wise figures of foreign tourists visiting in the State shows that in 2020, about 52 per cent

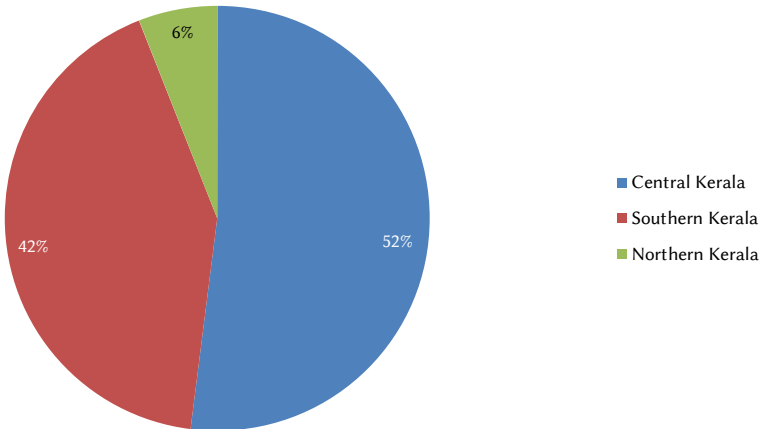
of the total foreign tourists visited central part of Kerala, 42 per cent visited southern part and only 6 per cent visited Northern part of the State. In 2019, about 57 per cent of the total foreign tourists visited central part of Kerala, 37 per cent visited southern part of the State and only 6 per cent visited northern Kerala. **Figure 5.3.3** presents the region-wise arrival of foreign tourists in Kerala in 2020.

Figure 5.3.2 Share of foreign tourist arrival from top ten countries of the world to Kerala in 2019 and 2020, in per cent



Source: Department of Tourism, GoK

Figure 5.3.3 Region-wise foreign tourist visits in Kerala in 2020, in per cent



Source: Department of Tourism, GoK

Domestic Tourist Arrival

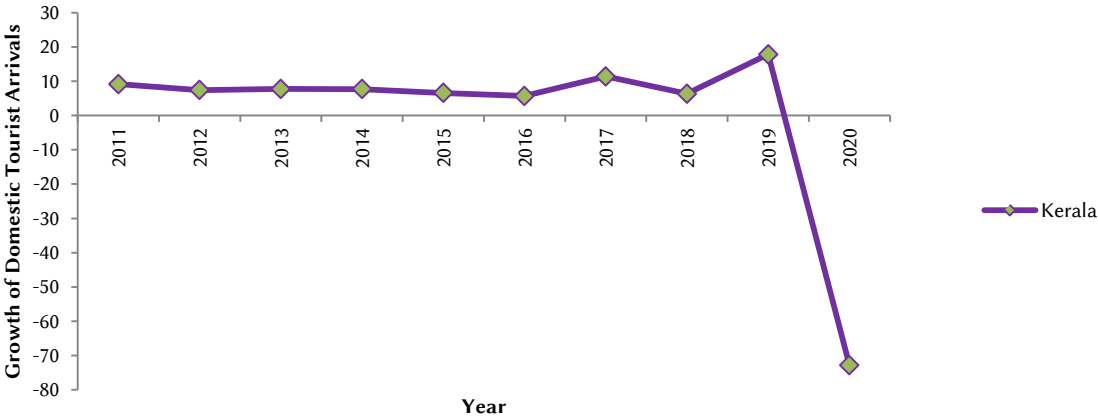
The number of domestic tourist arrivals to Kerala in 2020 was 49,88,972 which is (-)72.86 per cent lower than that in 2019. In 2019, the domestic tourist arrival to the State was 1,83,84,233. The number of domestic tourist arrivals up to June 2021 is 27,60,664. **Appendix 5.3.4** gives the details of domestic tourist arrivals to Kerala from 2011 to 2021. **Figure 5.3.4** reveals the trends in the arrival of domestic tourists in Kerala during the period 2011-2020.

The month-wise data on the arrival of domestic tourists in Kerala in 2020 shows that the highest inflow of tourists was in the month of January and the lowest was in the month of April. Details are given in **Table 5.3.2**.

Source of Domestic Tourism

The statistics on the distribution of domestic tourist visits in Kerala by State of origin in 2020 reveals that about 73.09 per cent originated within the State. With respect to the distribution of other States, Tamil Nadu ranks first with

Figure 5.3.4 Annual growth rates in the arrival of domestic tourists in Kerala from 2011 to 2020, in per cent



Source: Department of Tourism, GoK

a share of 7.61 per cent of domestic tourist visits. Karnataka (6 per cent) and Maharashtra (2.52 per cent) were the other important States. These States remained as top source areas for domestic tourist arrivals in the State in 2019

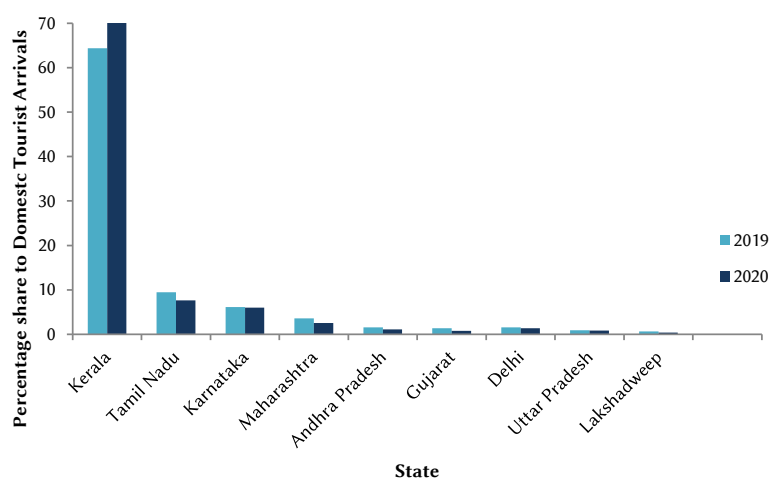
also. **Appendix 5.3.5** gives the details of top 15 State-wise share of domestic tourist arrival in Kerala. **Figure 5.3.5** shows State-wise share of domestic tourist arrivals to Kerala from top ten States in 2019 and 2020.

Table 5.3.2 Month-wise arrival of domestic tourists in Kerala in 2018, 2019 and 2020

Sl. No.	Month	No. of Domestic Tourists Arrival		
		2018	2019	2020
1	January	14,22,483	15,15,551	17,25,291
2	February	12,26,778	13,35,665	13,83,951
3	March	12,28,451	13,39,252	5,90,661
4	April	14,70,552	16,13,257	3,391
5	May	15,94,332	18,18,986	7,370
6	June	10,84,238	13,41,496	29,233
7	July	11,76,994	14,30,508	40,389
8	August	9,95,577	13,21,175	61,151
9	September	11,19,445	14,68,337	1,26,358
10	October	12,81,028	15,94,093	2,10,431
11	November	13,64,805	16,52,880	3,29,091
12	December	16,39,978	19,53,023	4,81,655
	Total	1,56,04,661	1,83,84,233	49,88,972

Source: Department of Tourism, GoK

Figure 5.3.5 Share of domestic tourist arrival from top ten States to Kerala during 2019 and 2020, in per cent

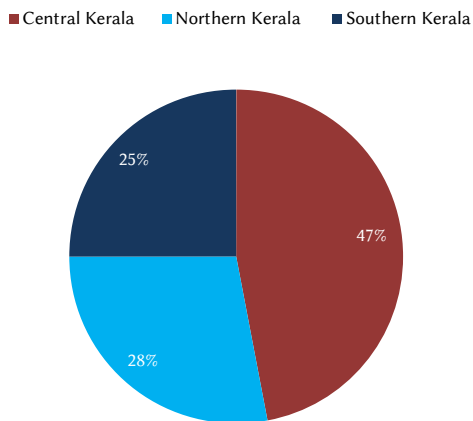


Source: Department of Tourism, GoK

District-wise Arrivals of Domestic Tourists

Regarding the District-wise domestic tourist arrivals in Kerala, Ernakulam and Thiruvananthapuram were the leading districts in 2020. In 2018 and 2019, these two districts were in the top position. Pathanamthitta attracts the lowest number of domestic tourists. Details are given in **Appendix 5.3.6**. Region-wise details show that more number of domestic tourists visited central parts of Kerala in 2018, 2019 and in 2020. **Figure 5.3.6** illustrates region-wise domestic tourist visits in Kerala in 2020.

Figure 5.3.6 Region-wise domestic tourist visits in Kerala in 2020, in per cent



Source: Department of Tourism, GoK

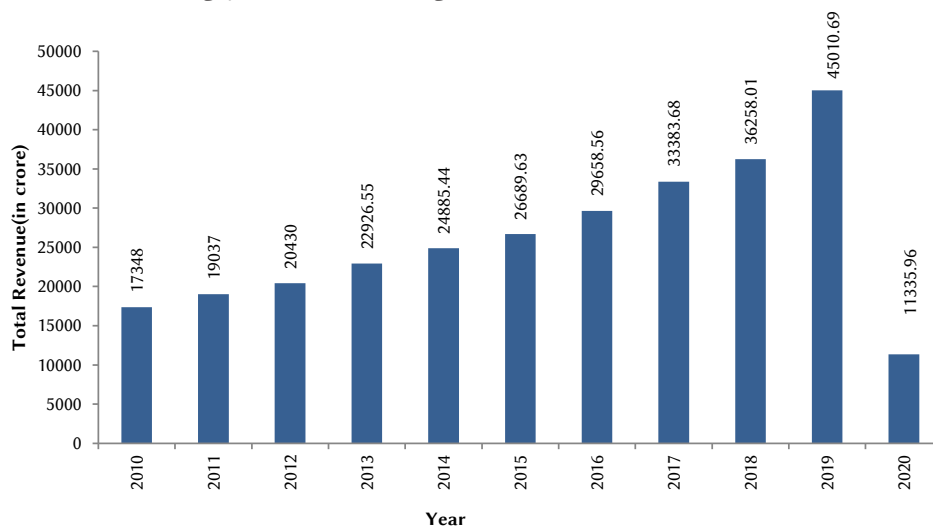
Impact of Covid on Tourism Earnings

The foreign exchange earnings from tourism in 2020 was ₹2,799.85 crore and domestic tourist earnings was ₹6,025.68 crore. In 2019, the foreign exchange earnings and domestic tourist earnings were ₹10,271.06 crore and ₹24,785.62 crore respectively. Details are given in **Appendix 5.3.7**. Total earnings in 2019 was ₹45,010.69 crore, an increase of 24.13 per cent over 2018. But the total earnings in 2020 was only ₹11,335.96 crore, registering a decline of (-)74.81 per cent over 2019. **Figure 5.3.7** presents total earnings from tourism in Kerala from 2010 to 2020.

State Intervention on Tourism Sector

The tourism sector has been hit hard by the Covid-19, since it has direct effect on employment and livelihood of rural people involved in the sector directly and indirectly. In a bid to revive the State's travel and tourism sector, the State Government has announced the Chief Minister's Tourism Loan Assistance Scheme (CMTLAS), covering Tourism Working Capital Support Scheme, Tourism Employment Support Scheme, Tourism Houseboat Support Scheme and Tourism Guide Support Scheme for the stakeholders in the tourism industry in the wake of Covid-19. The entrepreneurs and establishments in the travel and tourism sector can opt for Tourism Working Capital Support Scheme (TWCSS) to stay afloat, and employees

Figure 5.3.7 Total earnings from tourism during 2010 to 2020, in ₹ crore



Source: Department of Tourism, GoK

engaged in the industry can avail of short-term personal loans under Tourism Employment Support Scheme (TESS). Houseboats owners can make use of Tourism Houseboats Support Scheme (THSS) to get financial assistance for executing urgent repairs and maintenance to the assets. Under the Tourism Guides Support Scheme (TGSS), eligible tourist guides would be given a one-time financial assistance. Through these relief measures, the Government of Kerala extended help to all the stakeholders of the industry to tide over the current crisis and start functioning as soon as the pandemic gets controlled.

The State Government has always been actively supporting tourism sector. The major chunk of government spending has been on infrastructural projects like development of basic amenities in tourism destinations, beautifications, quality wayside and waterside amenities, state-of-the-art information centres, visitor lounges, infrastructure for land and water-based adventure tourism, erecting international quality tourism signage at destinations and en-route, tourism transportations and safety and security aspects of tourists. The second focus area in government spending has been marketing. The State is actively promoting tourism in domestic and international markets. The major initiative in thrust areas is discussed as following:

Bio-bubble tourism is a creative response of Kerala tourism which has rolled out an efficient and meticulous bio-bubble model to create protective layers of mostly inoculated service providers to receive and host tourists. Bio-bubble is a sanitised, safe and secure environment, in which people who are likely to come into contact with tourists are vaccinated. The protective ring of the bio-bubble will ensure that tourists landing in any airport in Kerala meet only vaccinated ground staff. From the airport, they can drive to their chosen destinations in cabs, provided by accredited tour operators, whose drivers are vaccinated. The same applies to the hotels, resorts or homestays they stay during their holidays.

Infrastructure Development

Kerala tourism attempts to deliver world class experiences to visitors by improving tourist destinations, providing better facilities,

launching new products and maintaining them perfectly. The Department of Tourism joined hands with the Kerala Tourism Infrastructure Limited (KTIL), Bekal Resorts Development Corporation Ltd. (BRDC) and District Tourism Promotion Councils (DTPCs) to build up quality infrastructure across the State. The KTIL is pioneering the tourism infrastructure growth in the State particularly through evolving partnership models. The BRDC focuses on coordinating the tourism activities in Bekal and northern districts.

Miniature Railway at Veli, Digital Museum at Kanakakkunnu, Vellar Arts and Craft Village operated by Uralungal Labour Contract Co-operative Society Limited (ULCCS), tourism projects at Panchalimedu and Madavoorpara are some of the milestones of the 13th Plan period. Upgradation and beautification of the existing projects like Akkulam Children's Park-Phase 2, development works of Kollam Beach, Veli swimming pool and park development, Moolur Smarakom, Aranmula Tourism Project, Konni Elephant Museum, and Perunthenaruvi tourism project in Pathanamthitta were completed and commissioned during this period. The first phase of barrier-free tourism project was also launched for making 70 destinations across the State disabled and elderly friendly.

Under Heritage Projects, notable projects focused on developing destinations were Muziris, Thalassery, and Alappuzha heritage circuit. The second phase of the Muziris Project is in its final stage. Thalassery Project covering 3 districts has been designed as 4 circuits connecting 61 destinations under the project area. Under Alappuzha Project, the construction of Living Coir Museum, Coir Factory Museum, Coir History Museum, and Yawn Museum are nearing completion.

The Centrally Sponsored Schemes like Pathanamthitta - Gavi - Wagamon - Thekkadi project under *Swadesh Darshan Scheme*, Shree Padmanabha Swami - Aranmula - Sabarimala project under "Spiritual Tourism Project" and development of Guruvayur Temple under Pilgrimage Rejuvenation and Spiritual Augmentation Drive (PRASAD) were also undertaken during this period.

Box 5.3.1 Kerala Tourism at a Glance

Domestic Tourist Arrival (Nos) in 2020	49,88,972
Domestic Tourist Arrival (Nos) in 2019	1,83,84,233
International Tourist Arrival (Nos) in 2020	3,40,755
International Tourist Arrival (Nos) in 2019	11,89,771
Total arrivals (Nos) in 2020	53,29,727
Total arrivals (Nos) in 2019	1,95,74,004
Total Earnings Generated (crore) in 2020	₹11,335.96 crore
Total Earnings Generated (crore) in 2019	₹45,010.69 crore
Foreign Exchange Earnings (crore) in 2020	₹2799.85 crore
Foreign Exchange Earnings (crore) in 2019	₹10271.06 crore
Earnings from Domestic Tourists (crore) in 2020	₹6025.68 crore
Earnings from Domestic Tourists (crore) in 2019	₹24785.62 crore

Source: Department of Tourism, GoK

The BRDC has actively promoted infrastructure development in the northern region, including infrastructure projects for developing basic amenities, information centres, and infrastructure for land and water-based adventure tourism. An innovative attempt of BRDC namely, the Small and Medium Industries Leveraging Experiential Tourism (SMiLE) project aimed at promoting and facilitating tourism-based small and medium entrepreneurial ventures, have resulted in attracting 93 new entrepreneurs including women entrepreneurs and opening of 50 units with an accommodation for 400 tourists.

The major initiatives by Kerala Tourism Infrastructure Ltd (KTIL) in the Thirteenth Five Year Plan period involves the construction of the Tourist Facility Centre and Convention Centre and conceptualisation of Urban Wetland Nature Park at Veli, Tourist Facilitation Centres in Guruvayoor under Centrally Sponsored Scheme 'PRASAD', the first phase of the project Development of Madavoorpara Tourism Zone and Development of Backwater Tourism Corridor at Kadinamkulam. The KTIL has also formulated a tourism infrastructure investment plan for North Malabar for systematic development of tourism infrastructure and investments for the next 30 years. It has also

been instrumental in planning eco-friendly and conservational tourism initiatives at Ponmudi in co-operation with the Forest Department.

"Jatayu Earth Centre", a unique combination of all aspects of tourism is the first major Built-Operate-Transfer (BOT) tourism project in the State which offers a complete Kerala, God's own country experience to every tourist. The project is spread over 65 acres of multiterrain landscape at *Jadayupara* near Chadayamangalam in Kollam District. The Jatayu Adventure Centre offers the largest adventure park within a natural terrain. Paintball, valley crossing, bouldering, zip line, trekking, archery, rappelling, jumaring, and wall climbing are among the myriad activities available in the centre. It is a unique combination of artistry, mythology, technology, culture, adventure, leisure, and wellness.

Human Resource (HR) Development

The major arms for HR development in tourism are Kerala Institute of Tourism and Travel Studies (KITTS), State Institute of Hospitality Management (SIHM), and Food Craft Institutes (FCIs). The institutes focus on producing skilled and quality human power in the tourism sector through academic activities as well as awareness and training programmes.

KITTS initiated diploma courses in adventure tourism, considering its growing opportunities in the State and conducted training programmes to tourist guides at regional and State level. Development of web portal for careers in tourism and hospitality helped to get employment to more than 80 per cent students from KITTS, SIHM, and FCI. The SIHM completed the construction of a building at Kozhikode and Food Craft Institute initiated construction of new buildings at Uduma and Kannur for improving the infrastructural capacity of the institute.

Marketing Initiatives

Kerala was the pioneer among Indian States to market tourism extensively in domestic and foreign markets. It has consolidated its efforts in marketing in recent years to retain market supremacy and launched innovative marketing campaigns like digital and social media campaigns that resulted in attracting more visitors and succeeded in branding Kerala. The “Human by Nature Campaign” to showcase the culture and daily life of the people of Kerala was acclaimed internationally and the strategy behind the campaign was the revival of the tourism sector that had suffered in the wake of 2018 flood and the outbreak of Nipah virus. About 3.10 crore people watched this campaign online. Advertisement campaign to promote tourism in the off-season “Come Out and Play”, Biennale Promotion Campaign and Kerala Blog Express are notable campaigns by the State.

More than 37 lakh people follow Kerala Tourism’s Facebook page and 3 lakh follow the Instagram account. Twitter account of Kerala Tourism with 19 lakh followers occupies the first position in India tourism twitter accounts. The Department also operates a YouTube channel with more than three crore subscribers. The Department prepared e-catalogue for Kerala tourism videos. Kerala tourism has also come up with resource mapping for selected destinations and geotagged mobile camera photographs for QR code. The post-flood campaign resulted in bringing 4.4 million visits from more than 15,000 cities around the world. The website of the Kerala Tourism provides a wide range information in systematic manner. The website has listed 1,575 accommodation units with an

independent page for each of the major properties and tour operators.

As part of a novel venture to protect and promote the tradition of the land, Kerala Tourism has launched the “Champions Boat League.” The main objectives of the event are conservation and promotion of Kerala’s traditional festivals and create a market for an annual event as a tourism product and to showcase backwaters of Kerala to the world. It has been conceived on the model of the Indian Premier League to transform the State’s legendary and historically-significant *vallamkali* (snake boat race) into a world-class sporting event.

Responsible Tourism (RT) Initiatives

Responsible Tourism (RT) was a unique initiative of the Department that has caught the attention of the world. It is a pro-poor tourism approach initiated by the Tourism Department in 2008. Various projects in the RT sector focuses on local livelihood and entrepreneurship. At present there are 20,000 individual or group units, out of which 13,567 are women owned or leading units and registered with RT Mission under various categories; 92,980 local community members are directly or indirectly linked with tourism and generating income. The registered units of RT Mission generated ₹25.50 crore as on January 1, 2020. 850 families are linked with the Experiential Tour Packages of RT Mission and operates 60 tourism packages. RT Mission also launched “Clean Kerala Initiative” to keep prime tourism spots across the State plastic free and garbage free.

Kuttanad Package is an integrated project implemented by the Government of Kerala converging the funds of various Departments for the rejuvenation of agriculture ecosystem and livelihood of Kuttanad. As part of the Kuttanad Package second phase, various tourism projects are getting expanded to the Kuttanad project area. *Aymanam* village, which comes under the Kuttanad project area, has been declared as the first Model RT Village. Model RT Village project of RT Mission aims to develop a village as responsible tourism village which practices responsible tourism with the 100 per cent support of local governments and local

community. Out of the 13 villages selected for the implementation of Model RT Village project, *Aymanam* is the one which successfully implemented all the activities for a Model RT Village as a convergence project. The activities of RT Mission also bagged various national and international awards including World Travel Mart (WTM) Grand, Gold, WTM Responsible Tourism Award and PATA Gold Awards.

Eco Tourism Development

Department of Tourism has identified 70 places having immense potential for ecotourism. These places are being developed as ecotourism destinations giving emphasis to conservation and environmental education. The products such as trekking and bird watching trails have been developed and operationalised through the constitution of Eco Development Committees (EDC) and Vana Samrakshana Samithies (VSS), thereby ensuring local community to benefit from ecotourism. The expansion of ecotourism activities at Silent Valley, Rodovalley, and Meeshapulimala in Munnar are completed. Improvement of facilities for visitors at Thekkady, upgradation of Deer Rehabilitation Centre at Thenmala, modernisation of tourism facilities at Eravikulam National Park and modernisation of Amphitheatre at Thenmala are also completed under eco tourism initiatives.

Hospitality Sector

The hospitality sector is completely a private owned activity in the State. The total number of tourist accommodation units in the State as on September 2021 is 6,923 with 88,560 number of rooms. Ernakulam is the District having highest number of accommodation units (1,119) and Kasaragod District has the lowest number (86) of accommodation units. Details are shown in **Appendix 5.3.8**. Kerala Tourism Development Corporation is also participating in the tourist hospitality sector, promoting sustainable tourism in the State.

Financial Performance

The details of Plan outlay and expenditure of tourism sector during the 13th Five Year Plan period is given in **Table 5.3.3**.

Table 5.3.3 State Plan outlay and expenditure, 2017-18 to 2021-22, ₹ in crore

Year	Outlay	Expenditure
2017-18	342.73	310.56 (96.6%)
2018-19	379.00	237.54 (62.7 %)
2019-20	372.37	177.698 (47.7%)
2020-21	320.14	325.63 (101.7%)
2021-22*	320.14	76.09 (23.8%)

Note: *Expenditure upto September 2021

Source: Plan Space Kerala

Recent Policy Initiatives

Tourism Policy 2017: The policy aims at ensuring tourist-friendly, secure and safe destinations, formation of Kerala Tourism Regulatory Authority (KTRA), development of tourism projects of international standards in selected destinations through Public Private Partnership (PPP) mode, addressing key issues of the tourism industry such as waste management, initiating concerted efforts to tackle issues of connectivity to Kerala from major parts of the domestic and international markets, formulation of Kerala Tourism Entrepreneurship Fund (KTEF), and preparation of action plan for sustainable tourism development.

Caravan Tourism Policy (2021): The Kerala Government has announced a Caravan Tourism policy promising safe, customised, and close-to-nature travel experience for visitors in tune with the preferences of tourists in the post-pandemic period. “Keravan Kerala” is developed on a PPP mode with private investors, tour operators and local communities being key stakeholders. The two major components of this activity are Tourism Caravans and Caravan Parks. While the first involves specially-built vehicles for travel, leisure and stay, the latter provides designated places to park the vehicles and enable the visitors to spend a night or a day or station for an extended period to explore the destination.

Caravan Tourism will also promote responsible tourism activities for sustainable growth and for the benefit of the local communities, promote eco-friendly practices and market for local products. There will be two types of caravans. Model 1 is intended for two guests and Model 2

for a family of four members. A major feature of Caravan Tourism is eco-friendliness. There is IT-enabled real-time monitoring of caravans assuring complete security of the guests. A caravan park will be a complete safe and secure zone offering a hassle-free and stress-free environment to tourists.

Recently, the Government has announced two new tourism circuit projects namely, “Biodiversity Circuit” and “Malabar Literary Circuit”, which will strengthen cultural, heritage and environmental tourism in the State and enhance tourist footfall. The Malabar Literary Circuit will link Thunchan Memorial at Tirur, Beypore, Thasrak, Ponnani, Thrithala and the banks of the Bharathapuzha. The Biodiversity Circuit will connect the Ashtamudi Lake, Mundrothuruthu, Kottarakara, Meenpidipara, Muttara-Maruthimala, Jadayu Rock, Thenmala and Achankoil in Kollam District. Further to this, the Government has also announced “One Panchayat-One destination” scheme, which aims at exploring at least 500 new destinations in the State and developing them on shared basis in the coming years.

Awards and Acclaims in 2019 and 2020

- Das Goldene Stadttor 2020 for both print and film campaign for Kerala Tourism “Human By Nature” Campaign
- UNWTO Accessible Tourism Destination Award 2019
- Asia Spa India Awards 2019-Best Wellness Destination.
- PATA Gold Award 2019 for Kerala Tourism Campaign “Come Out and Play”
- PATA Gold 2019 Award for Kerala Tourism website
- PATA Gold 2019 Award for Woman empowerment for the Ethnic Restaurant at Kumarakom.
- Digis 2019 digital award video campaign for Kerala tales - Gold award.
- Mcube 2019 award - video campaign for Kerala tales - Special mention
- “Second Best Mountain Destination Award” 2020 for Munnar
- PATA Grand Award 2020 for Marketing

Major Initiatives of GoI in 2020-21

The Central Government has introduced a few promotional legislations and schemes in the

tourism sector. The “All India Tourist Vehicles Authorisation and Permit Rules, 2021” permits a tourist vehicle operator to register online for All India Tourist Authorisation or Permit. The National Intergrated Database of Hospitality Industry (NIDHI) portal launched recently helps to understand the geographical spread of the hospitality sector, its size, structure and existing capacity in the country. The Government of India has also introduced a fresh category of Visa - the medical visa or M-visa to encourage medical tourism in the country.

The Indian Railway Catering and Tourism Corporation (IRCTC) runs a series of *Bharat Darshan* tourist trains aimed at taking people to various pilgrimages across the country. It was planned to boost tourism in India by leveraging on the lighthouses in the country. 71 lighthouses have been identified which will be developed as tourist spots. To provide information on the many destinations, *Dekho Apna Desh* webinar series was launched in April 2020.

The Union Government also introduced innovative programmes like System for Assessment, Awareness & Training for Hospitality Industry (SAATHI) by partnering with the Quality Council of India (QCI) Incredible India Tourist Facilitator (IITF) aims at promoting micro-tourism and Incredible India Tourist Guide (IITG) Certification programme aims at creating an online learning platform for well-trained tourist facilitators and guides across the country.

Way Forward

The tourism industry has been facing unprecedented losses because of the Covid-19 pandemic. After a long period of restrictions, the industry has started to receive tourists, especially from domestic markets. A challenge in reviving tourism is the competition from neighbouring States and countries, including Sri Lanka and other Asian countries. Although the industry in State has crossed many milestones, it has to go far to retain the markets. Problems with respect to inadequate infrastructure facilities, waste management and safety have to be given topmost priority in planning and managing tourism destinations and circuits. Improving

the connectivity within the State is a matter of concern for all sectors including the tourism sector. A continuous innovation in structured tourism products and experiences, and providing sufficient number of qualified and trained personnel are the challenges on the path of Kerala tourism.

Kerala, being a State with rich historical and cultural traditions, needs to focus on ensuring safe and eco-friendly tourism destinations that offer visitors world-class recreation facilities. Kerala is always marketed under a single brand. New brands and sub brands need to be developed. New products and lesser-known tourist destinations are to be explored and most importantly the scope of tourism for encouraging the development of non-traditional tourist destinations and products are to be utilised fully. The State Government has to continue its various initiatives to make Kerala a global tourism hub.

5.4 EXTERNAL TRADE

The World Trade Organisation's forecast released in October 2021 estimates a growth of 10.8 per cent in the volume of world merchandise trade in 2021.¹ Global merchandise trade in the second quarter of the year recorded a growth of 22 per cent compared to the corresponding previous period. In the third and fourth quarter, it has been projected to grow at 10.9 and 6.6 per cent respectively, though the impact differed significantly across regions. The services trade is likely to lag behind goods trade particularly in sectors related to travel and leisure.

External Trade in India

Indian overall exports (merchandise and services combined) in 2020-21 at US \$493.2 billion, registered a negative growth of (-)6.3 per cent as against previous year. India's merchandise export in 2020-21 was US \$ 290.6 billion registering a negative growth of (-)7.3 per cent in dollar terms as against US \$313.4 billion in 2019-20. Service exports in 2020-21 was US \$202.6 billion as against US \$213.2 billion in 2019-20 recording a negative growth of (-)5.0 per cent.

In April to September 2021-22, India's overall exports (merchandise and services combined) are estimated to be US \$312.5 billion, registering

a significant growth of 40.52 per cent over the same period in 2019-20. Out of this, merchandise and service exports are estimated to be US \$197.9 billion and US \$114.6 billion with a significant growth of 57.5 per cent and 18.4 per cent respectively.²

India's merchandise imports in 2020-21 were US \$389.2 billion as against US \$474.7 billion in 2019-20 recording a negative growth of (-)18 per cent. India's service imports were US \$116.7 billion in 2020-21 as against US \$128.3 billion in 2019-20 exhibiting a negative growth of (-)9.0 per cent. The overall imports of India (merchandise and services combined) in 2020-21 were US \$505.9 billion as against \$603 billion in 2019-20 registering a negative growth of (-)16.1 per cent.

Overall imports in April to September 2021-22 are estimated to be US \$341.1 billion, exhibiting a growth of 64.9 per cent over the same period in 2019-20. Out of this, merchandise imports are estimated to be US \$276.0 billion and service imports US \$65.1 billion registering a growth of 81.7 per cent and 18.5 per cent respectively as compared to corresponding period in 2019-20 (**Table 5.4.1**).

Table 5.4.1 India's Overall Exports and Imports: 2015-16 to 2020-21, Value in US \$ Billion

Year	Exports			Imports		
	Merchandise Exports	Services Exports	Overall Exports	Merchandise Imports	Services Imports	Overall Imports
2015-16	262.3	154.3	416.6	381.0	85.7	466.7
2016-17	275.9	164.2	440.1	384.4	95.5	479.9
2017-18	303.5	195.1	498.6	465.6	105.2	570.8
2018-19	330.1	208	538.1	514.1	126.1	640.2
2019-20	313.4	213.2	526.6	474.7	128.3	603.0
2020-21#	290.6	202.6	493.2	389.2	116.7	505.9
2021-22 (up to September 2021) #	197.9	114.6	312.5	276.0	65.1	341.1

Note: # Provisional

Source: Ministry of Commerce and Industry Gol

¹ Press Release 889, October 4, 2021, World Trade Organisation

² India's Foreign Trade, September 2021, Press Release dated October 14, 2021, Ministry of Commerce and Industry

External Trade in Kerala

In 2020-21, the total traffic, coastal and foreign, handled by Cochin Port witnessed a negative growth of (-)7.5 per cent and was 315.0 lakh MT as against 340.4 lakh MT in 2019-20. The decline in traffic has been recorded after a long period since the marginal decline of 1.2 per cent in 2012-13. Out of the total traffic in 2020-21, total coastal traffic was 111 lakh MT, the same as in 2019-20, while total foreign traffic decreased by 11.1 per cent to 204.0 lakh MT in 2020-21 as against 229.4 lakh MT in 2019-20. Decrease in foreign imports dragged down the overall traffic during 2020-21 (**Table 5.4.2**).

Total export, both coastal and foreign, through Cochin Port was 70.3 lakh MT in 2020-21 as against 67.3 lakh MT in 2019-20, recording a significant growth of 4.5 per cent compared to 1.2 per cent in the previous year. Out of this, coastal export accounts for 38.3 lakh MT in 2020-21 as against 39.2 lakh MT in 2019-20 recording a negative growth of (-)2.3 per cent. Tea, coffee, cashew kernels, sea foods, coir products and spices are the major items of export through Cochin port. Details are given in **Appendix 5.4.1**.

Export of commodities through Cochin Port showed an increasing trend in 2020-21 except tea and cashew kernels. There is significant increase in the export of coir products, spices and coffee during this period as compared to the previous year. Export of spices in 2020-21 was 1,00,429 MT, an increase of 33.1 per cent compared to the negative growth rate of (-)4.6 per cent in 2019-20. The year-wise export of coir products shows a fluctuating trend. There was a sharp drop of 47.6

per cent in 2019-20. In 2020-21, it registered a very impressive growth of 140.6 per cent. Even though export of cashew kernels had registered a marginal increase in 2019-20, in contrast to the negative growth in previous four years, drastic decline was recorded in 2020-21 which was (-)21.8 per cent.

Total import traffic, both coastal and foreign, through Cochin port decreased to 244.7 lakh MT in 2020-21 as against 273.1 lakh MT in 2019-20 registering a negative growth rate of (-)10.4 per cent compared to the positive growth of 7.6 per cent in the previous year. Out of total import traffic, coastal imports traffic increased to 72.7 lakh MT in 2020-21 as against 71.8 lakh MT in 2019-20 registering a marginal growth rate of only 1.3 per cent compared to 3.8 per cent in the previous year. Foreign imports traffic drastically decreased to 172 lakh MT in 2020-21 as against 201.3 lakh MT in 2019-20 recording a negative growth rate of (-)14.6 per cent compared to a positive growth rate of 9.1 per cent in 2019-20. Fertilisers and raw materials, iron, steel and machinery and miscellaneous items including Petroleum, Oil, and Lubricants (POL) were the major items of import in 2020-21. Details of major items of import through Cochin port are given in **Appendix 5.4.2**.

Export of Marine Products

Export of marine products from India shows a declining trend in 2019-20 and 2020-21. India exported 11.5 lakh MT valued ₹4,3721 crore of marine products in 2020-21 as against 12.9 lakh MT valued ₹46,662.9 crore in 2019-20 recording a negative growth of (-)10.9 percent and (-) 6.3 per cent in terms of quantity and value

Table 5.4.2 Cargo handled at Cochin Port, 2018-19 to 2020-21, quantity in lakh MT

Traffic	Export			Import			Total		
	2018-19	2019-20	2020-21	2018-19	2019-20	2020-21	2018-19	2019-20	2020-21
1	2	3	4	5	6	7	8	9	10
Coastal	40.2	39.2	38.3	69.2	71.8	72.7	109.4	111.0	111.0
Foreign	26.3	28.1	32.0	184.5	201.3	172.0	210.8	229.4	204.0
Total	66.5	67.3	70.3	253.7	273.1	244.7	320.2	340.4	315.0

Source: Cochin Port Trust

Table 5.4.3 Export of marine products in India and Kerala 2015-16 to 2020-21, quantity in MT and value in ₹ crore.

Year	India		Kerala		Kerala's share (%)	
	Quantity	Value	Quantity	Value	Quantity	Value
2015-16	9,45,892	30,420.8	1,49,138	4,644.4	15.8	15.3
2016-17	11,34,948	37,870.9	1,59,141	5,008.5	14.0	13.2
2017-18	13,77,244	45,106.9	1,78,646	5,919.0	13.0	13.1
2018-19	13,92,559	46,589.4	1,83,064	6,014.7	13.1	12.9
2019-20	12,89,651	46,662.9	1,48,226	5,020.3	11.5	10.8
2020-21	11,49,510	43,721.0	1,44,700	5039.9	12.6	11.5

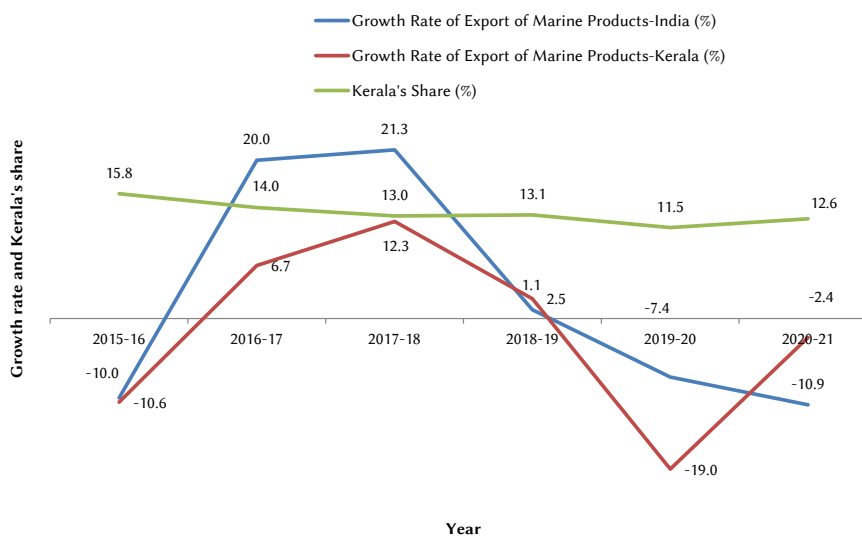
Source: The Marine Products Export Development Agency (MPEDA)

respectively. Export of marine products from Kerala also witnessed decline in 2019-20 and 2020-21. Kerala exported 1,44,700 MT valued ₹5039.9 crore of marine products in 2020-21 as against 1,48,226 MT valued ₹5020.3 crore in 2019-20 registering a negative growth of (-)2.4 per cent in quantity and 0.4 per cent increase in value (Table 5.4.3 and Figure 5.4.1).

The year-wise growth of export of marine products in quantity terms from India and Kerala shows a fluctuating trend from 2015-16 to 2020-21. In 2015-16, the export of marine products from India fell by (-)10.0 per cent while in 2016-17 and 2017-18, exports recorded a growth rate of 20.0 per cent and 21.3 per cent

respectively. In 2018-19, a marginal growth of 1.1 per cent was recorded. However, the growth declined to (-)7.4 per cent in 2019-20 and the decreasing trend continued in 2020-21 with a negative growth of (-)10.9 per cent. Kerala's marine exports also witnessed a fluctuating trend reflecting the all India trend. Exports recorded a negative growth (-)10.6 per cent in 2015-16 while in 2016-17, 2017-18 and 2018-19, it increased by 6.7 per cent, 12.3 per cent and 2.5 per cent respectively. However, export growth of Kerala declined to (-)19 per cent in 2019-20 and the decreasing trend continued in 2020-21 with a negative growth of (-)2.4 per cent.

Figure 5.4.1 Trend in the quantity of export of marine products, India and Kerala, 2015-16 to 2020-21

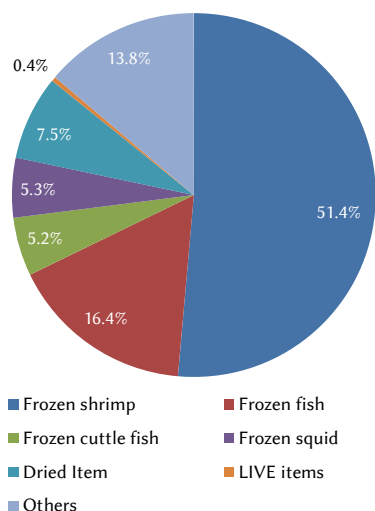


Source: The Marine Products Export Development Agency (MPEDA)

The share of exports from Kerala in export of marine products from India (in quantity terms) has increased to 12.6 per cent in 2020-21, compared to 11.5 per cent in previous year.

Frozen shrimp continued to be the top export item of marine products from India in 2020-21 with a market share of 51.4 per cent in quantity and 74.4 per cent in value, followed by frozen fish with a share of 16.4 per cent in quantity and 6.7 per cent in value. India exported frozen shrimp to the tune of 5.9 lakh tonnes valued ₹32,520 crore. There is a decline of (-)9.5 per cent in terms of quantity and (-)4.8 per cent in terms of value in 2020-21 compared to 2019-20 (Appendix 5.4.3). Figure 5.4.2 depicts the market share of item-wise export of marine products from India in 2020-21.

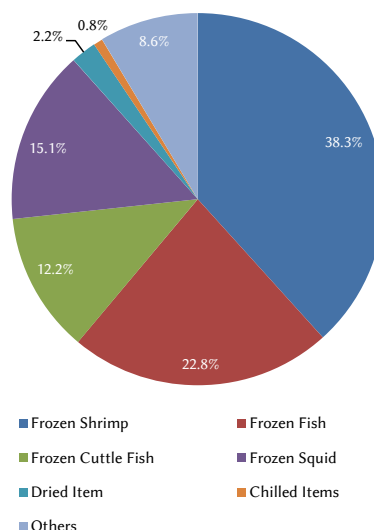
Figure 5.4.2 Market share of item-wise export of marine products from India in 2020-21, in per cent



Source: The Marine Products Export Development Agency (MPEDA)

In 2020-21, frozen shrimps maintained its position as a major item in the export basket from Kerala accounting for 38.3 per cent in quantity and 56.9 per cent for earnings. Compared to the previous year, there is an increase of 3.1 per cent in quantity and 10.6 per cent in value in 2020-21. Figure 5.4.3 shows the market share of item-wise exports of marine products from Kerala in 2020-21.

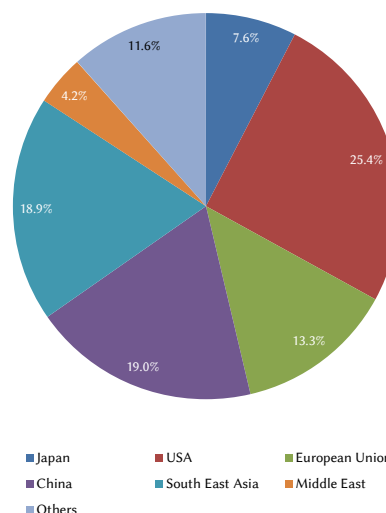
Figure 5.4.3 Item-wise export of marine products from Kerala 2020-21, in per cent



Source: Marine Products Export Development Agency (MPEDA)

In 2020-21, the largest market for India's marine products was USA (2.9 lakh MT) followed by China (2.18 lakh MT), South-East Asia (2.17 lakh MT), European Union (1.5 lakh MT), Japan (0.9 lakh MT), Middle East (0.5 lakh MT), and other countries (1.3 lakh MT). Major markets of India's marine products and their share are depicted in Figure 5.4.4.

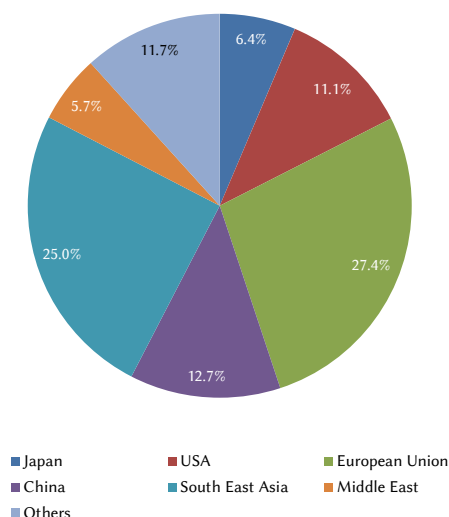
Figure 5.4.4 India's market-wise export of marine products in 2020-21, in per cent



Source: Marine Products Export Development Agency (MPEDA)

The largest market for Kerala's marine products in 2020-21 was European Union (39,618 MT) followed by South-East Asia (36,161 MT), China (18,307 MT), other countries (17,131MT), USA (16,054 MT), Japan (9,198 MT) and Middle East (8,231 MT). Major markets of Kerala's marine products and their share are depicted in **Figure 5.4.5**.

Figure 5.4.5 Kerala's market-wise export of marine products 2020-21, in per cent



Source: Marine Products Export Development Agency (MPEDA)

Export of Cashew

In 2020-21, export of cashew kernels from India declined to 49,992 MT (valued ₹2,907

crore) from 67,647 MT (valued ₹3,867.2 crore) in 2019-2020, recording a negative growth of (-)26.1 per cent in volume and (-)24.8 per cent in terms of value. India exported cashew kernels mainly to U.A.E, Saudi Arabia, Netherlands, Japan, Spain, USA, Germany, Singapore and Kuwait.

The export of cashew kernels from Kerala also decreased to 24,929 MT (valued ₹1,461.3 crore) in 2020-21 from 30,478 MT (valued ₹1,742.5 crore) in 2019-20, registering a negative growth of (-)18.2 per cent in volume and (-)16.1 per cent in value.

Kerala's share in total export of cashew kernels from India increased in 2019-20 and 2020-21, after a period of continuous decline since 2015-16. In 2020-21, it increased to 49.9 per cent in terms of quantity and 50.3 per cent in value compared to previous year (**Table 5.4.4**).

The export of cashewnut shell liquid from India is declining continuously since 2016-17. In 2020-21, it was 3,736 MT valued ₹19.7 crore as against 4,606 MT valued ₹23.1 crore in 2019-20, registering a sharp decline of 18.9 per cent in quantity and 14.7 per cent in value. Kerala did not export cashewnut shell liquid in 2020-21. The export was 699 MT valued ₹3.3 crore in 2018-19 and it declined to 1.00 MT in 2019-20 (**Appendix 5.4.4**).

Table 5.4.4 Export of cashew kernels, Kerala and India, 2014-15 to 2020-21, in ₹ crore

Year	Kerala		India		Share of Kerala (%)	
	Quantity (MT)	Value (₹ crore)	Quantity (MT)	Value (₹ crore)	Quantity	Value
1	2	3	4	5	6	7
2014-15	68,150	3,098.8	1,18,952	5,432.9	57.3	57.0
2015-16	50,652	2,579.5	96,346	4,952.1	52.6	52.1
2016-17	38,054	2,415.3	82,302	5,168.8	46.2	46.7
2017-18	36,930	2,580.4	84,352	5,871.0	43.8	44.0
2018-19	29,062	1,892.6	66,693	4,434.0	43.6	42.7
2019-20	30,478	1,742.5	67,647	3,867.2	45.1	45.1
2020-21	24,929	1,461.3	49,992	2,907	49.9	50.3

Source: Cashew Export Promotion Council of India

In 2020-21, India was the second largest producer of raw cashewnuts in the world as in 2019-20 followed by Ivory Coast. India produced 7,38,009 MT of raw cashewnuts as against 6,91,056 MT in 2019-2020, registering a growth of 6.8 per cent. The other main raw cashewnuts producing countries are Vietnam, Cambodia, Nigeria, Tanzania, and Guinea Bissau. The production of raw cashewnuts in Kerala also increased in 2020-21. It was 73,105 MT in 2020-21 as against 69,624 MT in 2019-20 recording a growth of 5.0 per cent. Maharashtra continued to be the major producer of Indian raw cashewnuts with a share of 25.8 per cent followed by Andhra Pradesh (16.4 per cent) and Odisha (15.7 per cent). Out of the total production of raw cashewnuts in India, Kerala's share was 9.9 per cent in 2020-21.

In 2020-21, India exported 19,832 MT of raw cashewnuts worth ₹199.8 crore as compared to 15,826 MT worth ₹140.5 crore, recording a growth of 25.3 per cent in volume and 42.2 per cent in value. Kerala did not export raw cashewnuts from 2018-19 to 2020-21.

India imported 8,31,231 MT of raw cashewnuts valued ₹7,331.3 crore in 2020-21 as against 9,38,038 MT valued ₹8,861.6 crore in 2019-20 recording a negative growth of (-)11.4 per cent in volume and (-)17.3 per cent in value. Out of the total import of raw cashewnuts into India, Kerala's share increased to 18,424 MT valued ₹166.3 crore in 2020-21 as against 13,202 MT valued ₹125.5 crore in 2019-20.

Export of Coir and Coir Products

In 2020-21, export of coir and coir products from India increased to 11,63,213 MT valued ₹3,779 crore in 2020-21 as against 9,88,996 MT valued ₹2,757.9 crore in 2019-20 registering a growth of 17.6 per cent in terms of quantity and 37 per cent in terms of value. It was the highest ever export from the country. The export of coir and coir products from Kerala through Cochin Port also showed an increasing trend in 2020-21. A total of 2,84,065 MT of coir and coir products were exported through Cochin Port in 2020-21 as against 1,18,079 MT in 2019-20.

In 2020-21, exports of coir pith, tufted mats, coir fibre, coir geo-textiles, coir other sorts, coir yarn, rubberised coir, handloom mats and power

loom matting from India registered growth both in terms of quantity and value, whereas coir rugs and carpets, coir ropes and curled coir showed decline in terms of quantity and value. Coir pith with export earnings of ₹1,919.7 crore constituted 59 per cent of the total export of coir products from the country. Tufted mats topped among the value added products. Tufted mats constituted 7.0 per cent in quantity and 21.4 per cent in terms of value and it is one of the major items of coir products exported from India. Coir fibre constituted 30.4 per cent in quantity and 16.6 per cent in value.

In 2020-21, 106 countries imported coir and coir products from India. USA topped among the importing countries with 31.1 per cent in value and 19.1 per cent in quantity. China was the second largest importer of coir products from India with a share of 20.7 per cent in value and 34.8 per cent in quantity. The other countries, which imported substantial quantities of coir and coir products were Netherlands, South Korea, UK, Spain, Australia, Italy, Germany, and Canada.

Export trend of coir and coir products from India and Kerala is given the **Figure 5.4.6**.

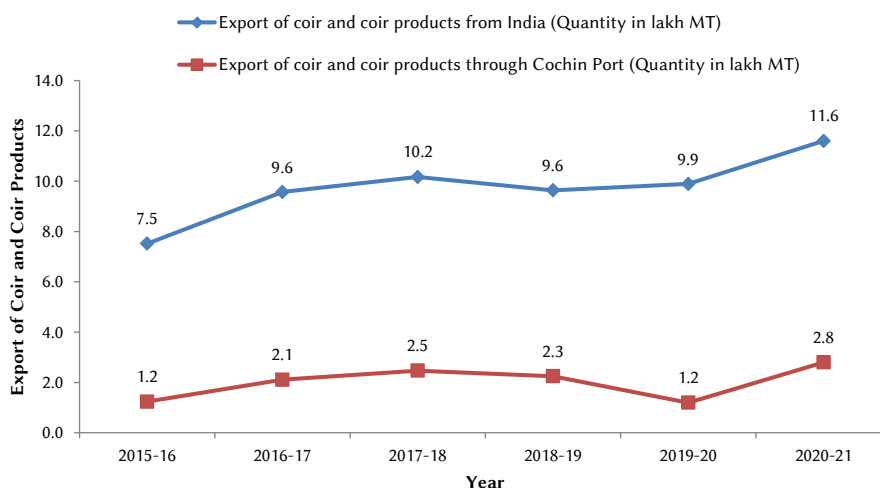
Export of Tea

Export of tea from India is continuously declining since 2016-17. In 2020-21 India exported 2,03,791 MT valued ₹5,311.5 crore of tea as against 2,41,344 MT worth ₹5,457.10 crore in 2019-20 registering a negative growth rate of (-)15.6 per cent in terms of quantity and (-)2.7 per cent in terms of value. Export of tea from Kerala ports in 2019-20 decreased to 76,983 MT worth ₹1,470.8 crore from 80,683 MT in 2018-19. The decreasing trend in quantity continued in 2020-21 with 70,398 MT of export worth ₹1,566 crore registering a negative growth of (-)8.6 per cent in terms of quantity and 6.5 per cent increase in terms of value (**Table 5.4.5**).

Export of Coffee

In 2020-21, export of coffee through Cochin Port showed a significant growth of 7.5 per cent to 34,134 MT compared to the negative growth of (-)21.9 per cent in the previous year. However, export of coffee through Cochin Port

Figure 5.4.6 Export trend of coir and coir products from India and Kerala (through Cochin Port), 2015-16 to 2020-21, quantity in lakh MT



Source: Coir Board and Cochin Port Trust

has declined continuously since 2014-15 except for a marginal increase in 2016-17. Export has declined to nearly half of the quantity exported in 2013-14 (75,631MT).

Export of Spices

Despite the continuance of Covid-19 pandemic, export of spices from India has continued its upward trend in 2020-21 and has crossed the 3.6 billion US\$ mark, attained all time record in terms of both volume and value. In 2020-21, spices and spices products of 15,65,000 MT worth ₹27,193.2 crore was exported from India

as against 12,08,400 MT worth ₹22,062.8 crore in 2019-20 registering a growth of 29.5 per cent in volume and 23.3 per cent in value.

The export of spices from Kerala through Cochin and Thiruvananthapuram ports was 1,21,383.7 MT valued ₹5,01,815.3 lakh in 2020-21 as against 1,00,195.8 MT valued ₹4,05,421.3 lakh in 2019-20 registering a growth of 21.1 per cent in volume and 23.8 per cent in value.

The share of Kerala in country's export of spices and spices products shows a fluctuating trend.

Table 5.4.5 Export of tea from Kerala ports and India, 2015-16 to 2020-21, quantity on MT, ₹ in lakh

Year	Kerala		India	
	Quantity (MT)	Value (₹ in lakh)	Quantity (MT)	Value (₹ in lakh)
2015-16	69,706	1,02,534	2,32,920	4,49,310
2016-17	67,431	1,13,935	2,27,634	4,63,250
2017-18	75,741	1,23,294	2,56,572	5,06,488
2018-19	80,683	1,43,440	2,54,502	5,50,684
2019-20	76,983	1,47,082	2,41,344	5,45,710
2020-21	70,398	1,56,595	2,03,791	5,31,153

Source: Tea Board

Table 5.4.6 Export of spices, India and Kerala, from 2015-16 to 2020-21, quantity in MT and value in ₹ lakh

Year	Kerala		India		Kerala's share (%)	
	Quantity (in MT)	Value (₹ lakh)	Quantity (in MT)	Value (₹ lakh)	Quantity	Value
1	2	3	4	5	6	7
2015-16	1,00,076.0	3,90,518.1	8,43,255.0	16,23,823.0	11.9	24.1
2016-17	84,418.8	4,27,120.1	9,47,790.0	17,81,223.6	8.9	24.0
2017-18	95,455.9	4,15,296.1	10,28,060.0	17,98,016.2	9.3	23.1
2018-19	89,590.8	3,78,560.4	11,00,250.0	19,50,581.1	8.1	19.4
2019-20	1,00,195.8	4,05,421.3	12,08,400.0	22,06,280.0	8.3	18.4
2020-21	1,21,383.7	5,01,815.3	15,65,000.0	27,19,320.0	7.8	18.5

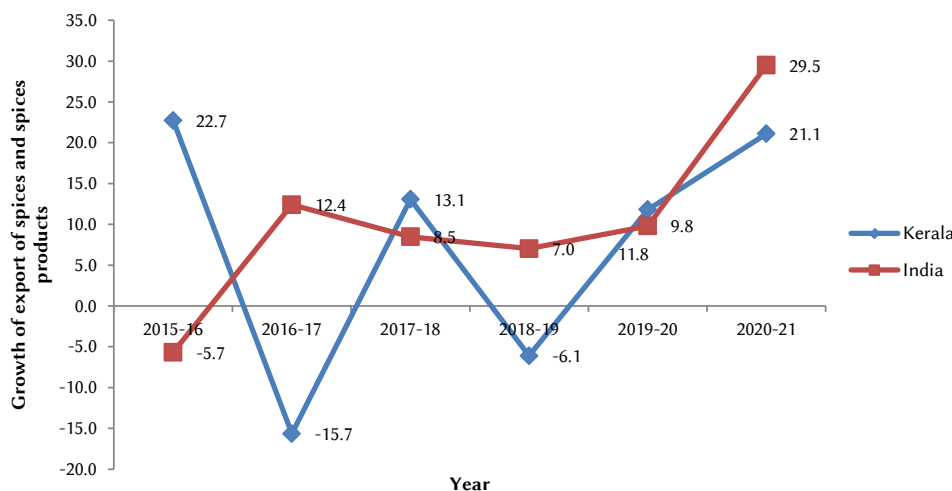
Source: Spices Board

In 2020-21, the share of Kerala decreased to 7.8 per cent as against 8.3 per cent in 2019-20 in terms of quantity. In terms of value, it marginally increased to 18.5 per cent in 2020-21 from 18.4 per cent in 2019-20 (Table 5.4.6).

The export of spices and spice products, in quantitative terms, from India showed an increasing trend since 2016-17. In 2016-17, 2017-18 and 2018-19 it increased by 12.4, 8.5 and 7.0 per cent respectively. In 2020-21, it showed a remarkable growth of 29.5 per cent compared to 9.8 per cent in previous year.

Kerala's export of spices and spice products, in quantitative terms, recorded a fluctuating growth. The exports of spices and spice products registered an increase of 22.7 per cent in 2015-16, declined by (-)15.6 per cent in 2016-17, increased by 13.1 per cent in 2017-18 and again recorded a negative growth of (-)6.1 per cent 2018-19. In 2020-21, export of spices and spice products showed a significant growth of 21.1 per cent as against 11.8 per cent growth in 2019-20. Figure 5.4.7 depicts the trend in growth of export of spices and spice products from India and Kerala.

Figure 5.4.7 Trend in growth of export of spices and spice products from India and Kerala, 2015-16 to 2020-21, quantity in per cent



Source: Spices Board

As far as individual spices are concerned, in 2020-21, export of chilli, turmeric, cardamom (small), ginger, coriander, cumin, fennel, fenugreek, garlic, nutmeg and mace from Kerala showed an increase both in volume and value as compared to previous year. Export of chilli increased from 24,059.7 MT valued ₹417.4 crore in 2019-20 to 27,977 MT valued ₹569 crore registering a growth of 16.3 per cent in volume and 36.3 per cent in terms of value. A total volume of 3,029.4 MT of cardamom (small) valued ₹586.3 crore was exported from Kerala through Cochin and Thiruvananthapuram ports in 2020-21 as against 1,090.2 MT valued ₹284.8 crore in 2019-20, registering a remarkable increase of 177.9 per cent in volume and 105.9 per cent in value. In 2020-21, export of pepper was 15,891.1 MT valued ₹487.9 crore as against 15,824 MT valued ₹522.2 crore in 2019-20 registering a marginal growth of 0.4 per cent in volume and a negative growth of (-)6.6 per cent in value.

In the case of value-added products, export of curry powder and paste, mint products and spice oils and oleoresins also showed an increase in volume and value in 2020-21 as compared to 2019-20. Export of curry powder and paste in 2020-21 was 14,517 MT valued ₹313.3 crore as against 11,717 MT valued ₹254 crore in 2019-20 recording an increase of 23.9 per cent in volume and 23.3 per cent in value. A total volume of 9,790 MT of spice oils and oleoresins valued ₹2,181.7 crore was exported in 2020-21 as against 9,494.3 MT valued ₹1,899.6 crore of previous year registering a growth of 3.1 per cent in volume and 14.9 per cent in value.

5.5 PUBLIC SERVICES

Survey and Land Records

The Department of Survey and Land Records has been constituted for completing the resurvey process of all land holdings in the State within a stipulated period. Along with this, the Department also works on land management, digitisation of land survey records, survey of land for facilitating distribution of *pattayam* (ownership deed of land), forest land survey, and survey of land in accordance with government policy for special projects and survey activities of the proposed locations by Waqf board. The Department had completed resurvey of land in 909 villages till 2021, with the resurvey work of 757 villages remaining to be completed. Details of resurvey from 2018 to 2021 (up to August 31, 2021) are given in **Appendix 5.5.1**. The digital resurvey has been completed in 87 villages and is progressing in 29 villages.

The Department also acts as the authority on resurvey appeals and Land Acquisition (LA) appeals. The District Collector takes final decision on the recommendation of the District survey superintendent on such appeals. In 2020,

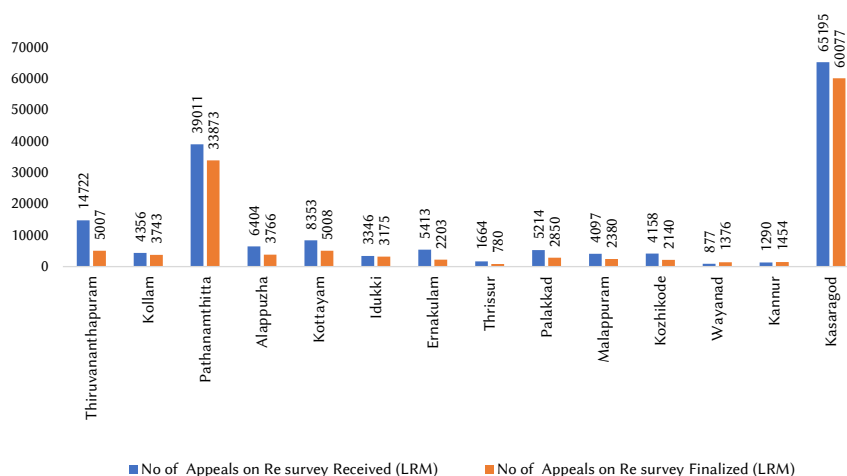
the District offices have finalised 1,27,832 cases (77.85 per cent) out of 1,64,200 appeals on resurvey. **Figure 5.5.1** shows the District-wise details of resurvey appeals received and finalised. It also finalised 29 cases out of 71 appeals received on LA. Details are shown in **Appendix 5.5.2**.

The Survey Department imparts training to IAS officers and officials of revenue department, survey department and forest department. Details are shown in **Appendix 5.5.3**.

Digitisation of Land Records

The Survey Department is entrusted with the work of the digitisation of Survey records. 408 block maps were prepared in 2020. Details are given in **Appendix 5.5.4**. The existing land records are scanned and kept in digital form. In 2018, 2019 and 2020 the number of Field Measurement Book (FMB) scanned are 78,485, 13,887 and 982 respectively. In 2021, 1,850 FMB was scanned upto August 31, 2021. During this period, the largest number of FMB was scanned in Palakkad District (36,244).

Figure 5.5.1 District wise number of Re-survey appeals received and finalised in 2020



Source: DSLR

Registration Department

The mandate of Registration Department is to facilitate registration of documents and preserving evidentiary records relating to deeds, special marriage, chits, societies and partnership firms. The Department had successfully implemented e-payment system for the collection of registration fee. In 2020, the department collected a total of ₹1,24,841.73 lakh as document registration fee. Out of this ₹86,835.25 lakh is for sale conveyance which is the major component. Details of documents registered and fee collected are given in **Appendix 5.5.5 and 5.5.6**. The major initiatives of the Registration Department during 13th Plan period are given in **Box 5.5.1**.

Excise Department

The Excise Department has 69 excise circle offices, 138 excise range offices, 41 check posts and 19 special squads. 'Vimukthi' is one of the important programmes being implemented by the Excise Department for the eradication of substance abuse. It detects cases related to Abkari Act 1950, Narcotic Drugs and Psychotropic Substance (NDPS) Act 1958 and Cigarettes and Other Tobacco Products (COTPA) (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act 2003. In 2021 (up to August 31, 2021), it registered 13,543 cases under Abkari act, 2,549 cases under NDPS Act and 46,952 cases on COTPA. It was 15,860, 3,667 and 52,222 respectively in 2020. District-wise

case details for the year 2019, 2020 and 2021 are in **Appendix 5.5.7**. The Excise Department has implemented e-payment and e-licensing facilities.

In the State, numbers of Abkari cases were 13,763 in 2019 and in 2020, it increased by 15.24 per cent to 15,860. The rate of increase is highest in Palakkad District (54.53 per cent). With respect to NDPS cases in 2020, there is an overall decline of 48.34 per cent from 2019. The number of cases has decreased in all Districts. The highest decline in cases was recorded in Kasaragod District (65.05 per cent). In case of COTPA cases, an overall decrease of 32.03 per cent was recorded in the State. Kannur District recorded 0.62 per cent increase and all other Districts shows decrease in COTPA cases. The highest decline was recorded in Kollam and Ernakulam Districts (48 per cent) in 2020. Details are given in **Appendix 5.5.8**.

The department seizes and destroys contrabands from various illegal sources. It includes spirit, arrack, IMFL, toddy, arista, ganja and ganja plants. District-wise details for the year 2020 are in **Appendix 5.5.9**.

Excise department conducts public awareness campaign for schools, colleges and for public. A total of 4,267 awareness campaigns were conducted up to August 31, 2021. It was 8,107 in 2020. District-wise and sector-wise details are in **Appendix 5.5.10**.

Box 5.5.1 Major initiatives of the Registration Department during 13th Plan Period

- E-Payment for transactions
- E-Stamping for all transaction above stamp duty of one lakh
- Online transfer of Registry implemented in 1645 villages spanning across 296 Sub Registry offices in the State
- Facilitated self preparation of documents by the buyer or seller
- Filling sheet resized from A3 to A4 for promoting self preparation of documents
- Digital form *Gehan* document (Mortgage) implemented in Sub Registry Offices
- Online registration of NRI Chits
- Integrated Swiping machines (POS) installed for collection of transaction fees in all the Sub Registry offices
- Anywhere Registration of Documents with in a district
- Scanning and Digitisation of old records for a digital archive
- System generated template based document and registering same with biometric data
- Online issue of certified copy with digital certificate

Police Department

Police Department is an important agency of State Government entrusted with the duty of maintaining law and order along with crime investigation. The Department has different wings, such as the General Executive Wing, Crime Branch, Armed Police, State Crime Record Bureau, Training Wing, Special Branch and 11 specialised wings. The specialised wings include Forensic Division, Women Cell, Traffic Police, Watch and Ward, Highway Police, Coastal Police, Temple Police, Tourism Police, Mounted Police, Dog Squad, and Police Band. The general executive wing works among the people and it has headquarters in Thiruvananthapuram, North and South Zones, four police ranges and 19 police Districts.

State Government implements several Plan schemes through the Police Department. The Department implements gender sensitive schemes. It has 14 Pink Control Rooms and 19 counselling centres. There are 566 Nirbhaya Volunteers working along with the Police Department. Details are in **Appendix 5.5.11**. The Department works along with people through community policing schemes. All the 522 police stations have been converted

as *Janamaithri* police stations. In the wake of Covid 19 pandemic, *Janamaithri* beat officers are exclusively engaged in the activities to alleviate the disease. Details are given in **Appendix 5.5.12**.

The Student Police Cadet (SPC) Project is a school-based initiative by Kerala Police, implemented jointly by the Departments of Home and Education, and supported by Departments of Transport, Forest, Excise and Local Self-Government. The project trains high school students in the fields of law, discipline and civic sense, and encourages students to develop empathy for vulnerable sections of society. It also strengthens commitment towards family, community, and the environment, enabling them to resist negative tendencies such as substance abuse, deviant behaviour, intolerance, and other social evils. The Project was launched on August 2, 2010 in 127 high schools and higher secondary schools across Kerala. Presently, there are 63,461 cadets in 803 schools in which SPC is implemented. Out of 803 schools, 515 are Government schools, 264 are aided schools and 24 are unaided schools. Details are in **Appendices 5.5.13 and 5.5.14**. The important campaigns of the Police Department is given in **Box 5.5.2**.

Box 5.5.2 Important Campaigns of Police Department

Emergency Response Support System-ERSS

ERSS project is to establish a Single Emergency Number “112” all over the country in place of all existing emergency numbers. It is designed to address distress signals from citizens in the form of voice call, SMS, e-mail, panic SOS request, web request etc to “112” and to provide assistance within the best possible time.

Student Police Cadet - SPC

Some of the innovative interventions of the SPC programmes is the following:

- *Padavukal* – Young Achievers Monday Interactive Series
- Pos-Poss Interactive Friday Series– for instilling positivity and exploring possibilities. This is attended by renowned personalities from various spectrums of the society
- *Chiryo Chiri* – for reducing stress and anxiety led by renowned comedians
- Daily Fitness Challenges.

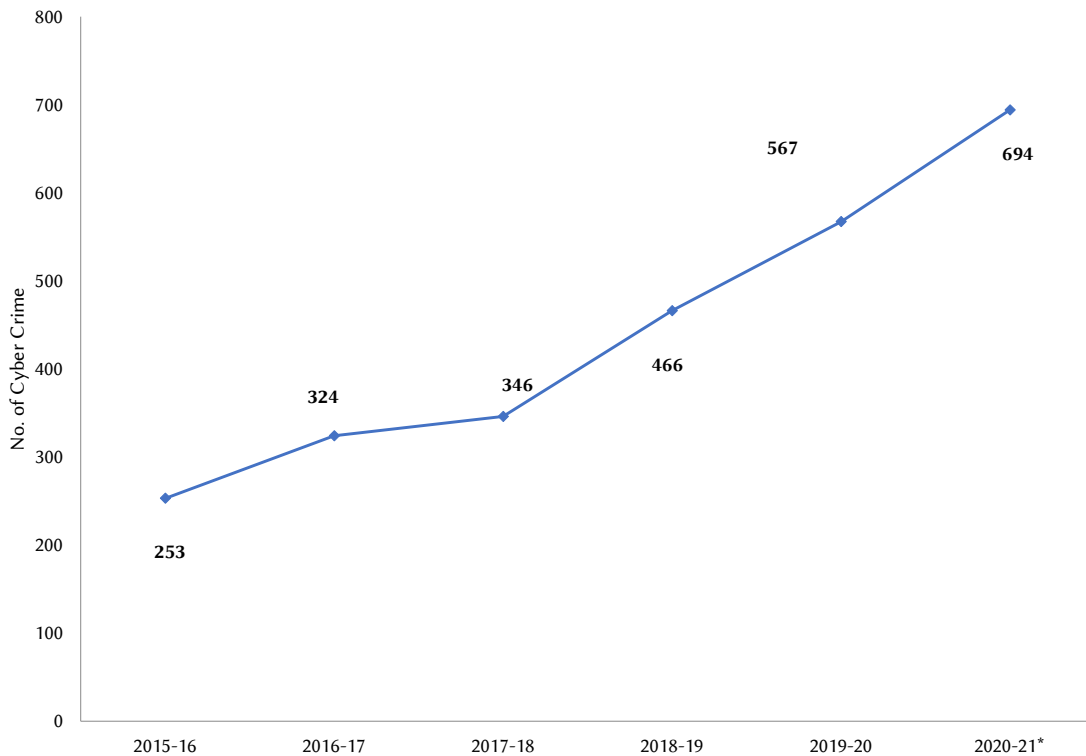
Moreover, senior cadets have been participating in various outreach programmes such as;

- “Feed a Stomach” programme, which distributed around 7 lakh cooked food to the needy during the lockdown
- “*Harithabhoomi*”, which resulted in the setting up of around one lakh kitchen gardens
- *Jeevadhara Blood Donors Bank* established for ensuring quality blood in hospitals and treatment centres during the lock down period.

The NRI Cell of police registered 26 cases in 2020-21. Details are in **Appendix 5.5.15**. The cyber and high-tech enquiry cell had registered 462 cases in 2021-22 (up to August 2021), it was 694 in 2020-21. **Figure 5.5.2** shows the increasing trend of cyber crimes reported during the period 2015-16 to 2020-21(August 31,2021).

Social media abuse, online cheating, cyber offences done through smart phones, hacking of bank accounts and e-mail ids, creation, publishing and sharing of child pornography are the major cyber-crime cases reported during the period under report. Details are given in **Appendix 5.5.16**.

Figure 5.5.2 No of Crimes Registered in Cyber Cell



Source: Police Department

Note: *Up to August 31, 2021

Box 5.5.3 2021-“Year of Children Safety and Security”

Police Department celebrated the year 2021 as the “Year of Children Safety and Security” to ensure safety of children both offline and online. 109 police stations were converted to child-friendly in 2021.

Box 5.5.4 E-Sevanam and M-Sevanam – All government services on a single portal and a single mobile app

Government of Kerala has launched a single window service delivery platforms, “e-Sevanam” portal and “m-Sevanam” mobile application on October 01, 2021.

Aimed at making Kerala a “Digitally Empowered” society, the State Government has now set in motion an ambitious policy framework that aims to bridge the digital divide by empowering the citizens to access all government services online.

Kerala e-Service Portal e-Sevanam (www.services.kerala.gov.in), launched as a Good Governance

initiative, has used technology to aggregate almost all online services (G2C Government to Citizens and G2B Government to Business) of the Government of Kerala, in a single platform for the citizens of Kerala. Further, the impact of the pandemic has accelerated the need for swift access to Government Services at the comfort of their homes which will also help to manage congestion in government offices. Before the launch of the portal, citizens could access online services of various departments only through the website of each department. In this context, e-Sevanam portal provides a centralised Kerala service portal incorporating the online services of all departments. The policy of the Government of Kerala, “Internet is my right,” is implemented through the Kerala service portal www.services.kerala.gov.in. This disabled-friendly portal aggregates 500 plus services from 50 plus departments in the initial phase.

In the first phase, more than 500 services of various departments are available through e-services. The portal categorises the services into two categories on the basis of department and customer segment.

In addition to universal search, portal segregates services based on target users (students, farmers, women and children, youth and skill development, social security and pensioners, public utility services and other services). In addition, the services of various departments are available in alphabetical order. Forthcoming releases of portal will include single sign-in for all online services. Service charter provides a brief description of service, documents required to upload and stipulated time limit for the department to render that service. Dashboard of services provides details like requests received, closed and pending.

In addition, a mobile application m-Sevanam has also been made available for mobile-friendly services. While e-sevanam provides the consolidation of more than 500 services of 60 departments in a single platform, m-Sevanam can render more than 450 mobile-friendly services. The m-Sevanam mobile app is available on Android and iOS platforms. In the context of the pandemic, this integrated system will help manage congestion in government offices and bring services to the people more easily and efficiently.

This will also be helpful to persons with disabilities, senior citizens and those facing various difficulties to get the services delivered right at their doorstep.

Major services provided:

- Business (81 services related to mainly the starting of new business),
- Citizens (227 services related to various kinds of certificates, registration, permits licences and approvals from land revenue, excise, registration, civil supplies, motor vehicles, police and Kerala Water Authority)
- Social security (4 services related to pension)
- Farmers (27 services related to purchase of machinery, insurance and financial assistance)
- Students (60 services related to scholarships, stipends, grants and mark lists), and
- Women and children (five services that include scholarships and financial support)
- Youth (five major services related to employment registration)
- Eight bill payment services related to the public utilities KSEB and KWA
- Miscellaneous services (93 services that cover various government departments)

The procedures for issuing various certificates and services to the citizens will be simplified. The procedures for approving applications will also be facilitated. This is in addition to the steps taken to make government services online as much as possible.

Self-certification of copies of documents / certificates is sufficient to avoid the requirement of

attestation of documents / certificates by the Gazetted Officer / Notary in order to avail various government services.

The official portal of the State government <https://kerala.gov.in/> has been upgraded in such a way that the public will be well informed of the various services, projects, and publications of the government in a single platform.

Jails

Kerala Prisons Department was formed in 1956. The earliest central prison was established at Kannur in 1869, the first District jail at Kozhikode in 1861, the first open prison at Nettukaltheri, Thiruvananthapuram in 1962 and the first women's prison was established at Neyyattinkara, Thiruvananthapuram in 1990. The administrative control of social welfare institutions and probation services which was earlier under the control of Prisons Department was transferred to Social Welfare Department in 1975.

Jails in Kerala were initially governed by the Indian Prisons Act, formulated by the erstwhile British rulers and later on by the Travancore Prison Act. Subsequently, Kerala Prison Rules were formulated in 1958. Kerala Prison Act was enacted in 2010 and rules were enacted in 2014. A model prison manual was framed in 2016, based on which Government of Kerala had constituted two committees – Dr. Alexander Jacob Committee and Justice Ramachandran Committee for further development of the Department.

The basic duty and responsibility of Prisons Department is to provide safe custody to all prisoners in jails. The jail inmates are provided with hygienic living conditions, adequate food, clothing and medical care, as envisaged in the law. The old school of thought on treatment of prisoners was replaced by modern concept of correction, reformation and rehabilitation.

The purpose and justification of imprisonment is correction and reformation of offenders and protection of society from crime. The ultimate aim is to reintegrate offenders into society so that they can live a dignified life and support themselves. The Prisons Department's endeavour is to achieve the objectives of correction, reformation and rehabilitation of prisoners, including effective vocational training.

The central prisons in the State are at Thiruvananthapuram, Thrissur and Kannur. In addition, there are three open prisons, three women prisons, thirteen district jails, fifteen special sub jails, sixteen sub jails, one borstal school and one high security prison.

The existing authorised capacity of all the jails in the State is 7,200. As on March 2021, there were 6,195 prisoners, of which 148 were women. Data since 2018 shows a decline in the number of inmates from 7,967 in 2019 to 7,663 in 2020 and to 6,195 in 2021. As on March 31, 2021 there were 437 inmates in the three open jails, 109 inmates in women jails and 847 inmates in special sub jails. Details of prisoners in jails are given in **Appendix 5.5.17. Table 5.5.1** shows number of prisoners from 2016 to 2021 (upto March 31, 2021).

Overview of Department Schemes in 2020-2021

The Department takes all efforts to achieve the mission of reforming their prisoners by enabling them to have a self-sustained life, once they are

Table 5.5.1 Number of prisoners as on March 31 for the period 2016 to 2021

Number of Prisoners	March 2016	March 2017	March 2018	March 2019	March 2020	March 2021
Total	7983	7613	7882	7967	7663	6195
Female	213	200	196	181	193	148

Source: Prisons Department, GoK

released from imprisonment. “Modernisation of Prisons” and “Welfare of Prisoners” are the two major schemes implemented by the Prisons Department.

1. Modernisation of Prisons

The duties of Prison and Correctional Institutes are to (1) ensure strict adherence to the rules and procedures (2) prevent the prisoners from escaping (3) regulate indiscipline in prisons (4) provide dignified living atmosphere to the inmates and so on. As part of providing better atmosphere to prisoners, various projects for infrastructure facilities and modernization were implemented under this scheme.

2. Welfare of Prisoners

A range of programmes aimed at improving basic education, vocational training, welfare and rehabilitation of the prisoners are included under the scheme. These are implemented with the objective of promoting and utilising the skills and interests of the prisoners in the field of arts and sports. Modern equipments for strengthening the security of jails also form part of the scheme.

Major Achievements

- **Rehabilitation of prisoners:** Various vocational training programmes were given to the prisoners as part of their rehabilitation process. Such trainings would not only enable them to engage productively during the period of imprisonment, but also equip them to have a vocation and a means of livelihood, once they are released from prison. The inmates were given trainings in various fields, such as, beautician course, driving, tailoring, fashion designing, electrical hardware, building construction, food processing, bakery food making, plumbing, screen printing, organic farming, computer hardware assembling and lift operation.
- **Installation of Video Conferencing System:** Video conferencing system, connecting courts and jails in 470 locations (383 studios in courts and 87 studios in 53 jails), was commissioned in February 2021 for a sanctioned amount of ₹24.24 crore. The introduction of this system had multiple advantages such as (1) speedy disposal of court cases (2) repositioning the services of police personnel deputed for escort duty (3) reduction in travel expenses of

prisoners and escort police (4) preventing the chance of escape while the prisoners are brought before the court and so on.

- **Establishing Indian Oil Corporation Petroleum Outlet in Jails:** The Department of Prisons, in tie up with Indian Oil Corporation Ltd had started 4 petroleum outlets – three at the premises of Central Prisons at Thiruvananthapuram, Viyur and Kannur and one at Open Prison and Correctional Home at Cheemeni. Except the outlet in Central Prison, Kannur which started functioning in December 13, 2020, others have been functioning since July 30, 2020. In these four fuel stations, named “Freedom Fuel Filling Stations”, sixty five inmates are employed. For having an effective and futuristic step in correction and rehabilitation of prisoners and also to equip them for re-employment, once they are released, the inmates themselves are deployed in these outlets unlike the deployment of ex-convicts in other States. The estimated annual income to the Prisons Department from these four fuel sites is around ₹350.00 lakh.
- **Preventive Measures Against Covid-19:** Following measures were adopted by the Prisons and Correctional Services Department of Kerala to restrict the spread of Covid-19 virus-
 - Fourteen Covid First Line Treatment centres were started and the prisoners who were remanded from courts were lodged at these centres as per Covid protocol.
 - Masks and sanitisers manufactured in jails were distributed to the public at low cost. More than 15 lakh masks and 15,000 litres of sanitisers were produced, thereby gaining a profit of around ₹60.00 lakh. Masks were supplied to prison personnel and inmates at free of cost.
 - Timely medical aid was provided to prisoners to ensure their general health, for which 11 full time medical officers and 35 paramedical staff were arranged in major prisons.
 - An isolation cell/block was set up at each prison. Newly admitted prisoners and those returning from parole were admitted in isolation blocks for a specific period.
 - Strict screening of visitors was arranged.

Video conferencing facility was utilised for prisoner's interviews.

- Cells/barracks, office and interview rooms of all prisons were disinfected on a weekly basis with the help of Fire and Rescue Services. Gathering of prisoners in common places like canteen, prayer hall, library, health club were banned.

Probation and After Care Services Implemented by Social Justice Department

Probation is considered as a reformatory intervention developed as a non-custodial alternative used by the judiciary where the guilt of the offender is established. But imposing of imprisonment would have drastic effects as it decreases the offender's capacity to readjust to normal social life after release. The Probation of Offenders Act was enacted in India in 1958. The Act stipulates that probation officers be appointed who would be responsible to give a pre-sentence report to the Magistrate and also supervise the convict during the period of his probation.

As per the Kerala Prisons Rules, the State Government may release certain life prisoners from prison through an executive order and order the concerned probation officer under the Social

Justice Department to supervise the convict for a stipulated period. The probation officer observes his/her daily living pattern and helps the person to reintegrate into the society. This system is called executive probation in Kerala. **Table 5.5.2** shows the total number of judicial probationers (adult) between 2015 and 2020.

Table 5.5.2 Distribution of total probationers in Kerala from 2015 to 2020

Distribution of Probationers	Number of Probationers
Present Probationers (as on January 1, 2021)	160
Sentenced to Probation without supervision	3
Past Probationers (from January 1, 2015 to December 31, 2020)	412
Total	575

Source: Social Justice Department, GoK

As part of the policy of the Government, the prisoners are released prematurely based on their good behaviour and they are under the supervision of probation officers for a certain period for their gainful

Box 5.5.5 Achievements of the Department in 13th Five Year Plan (2017-22)

- Buildings funded under the 13th Finance Commission Grant – (1) High Security Prison and District Jail, Palakkad and (2) new building for special sub jail Irinjalakkuda started functioning in July 2019 and July 2020 respectively.
- New building for District Jail at Alappuzha was inaugurated in February 2020
- In the three Central Prisons and in District Jails at Thiruvananthapuram, Kollam and Kozhikode, renovation works of CCTV system were done
- Started online delivery of food items in tie-up with “Swiggy” and “Uber”
- Reverse Osmosis plant (₹60 lakh) and Power laundry system (₹44.95 lakh) that were installed in Central Prison and Correctional Homes at Thiruvananthapuram, Viyyur and Kannur started functioning during 2019-20
- Sanction was accorded in 2019 for the establishment of a Model Cashew Garden at Open Prison and Correctional Home, Nettukaltheri with the financial and technical assistance of Kerala State Agency for the expansion of Cashew Cultivation (KSACC)
- With a view to ensure total literacy to prisoners, with the support of State Literacy Mission, the Department had started a mission “Jail Jyothi”. Inmates are also provided with the facilities for continuing education and higher education.
- Department had initiated the publication of a Newsletter. Handbooks were allotted to prisoners to make them aware of their rights and duties in jail
- Miyawaki model forests were set up in various jails

Source: Prisons Department, GoK

rehabilitation. The capacity development in probation system includes necessary training to judiciary, prison and police officials in co-operation with the Kerala Judicial Academy. District wise training and awareness regarding probation system is being given to all officials of the courts through District probation officers. For adopting successful innovative probation practices from other countries/states, a study has been initiated through Sanskrit University (Kalady) and Centre for Management and Development (Thiruvananthapuram). The study aims to understand the best practices abroad.

During the 13th Five-Year Plan period, following schemes were newly implemented under Probation and After care:

- Professional education assistance to the children of convicts.
- Education assistance to children of victims.
- Psychosocial rehabilitation programme for cured and controlled mentally ill ex-prisoners who were suffering in mental health centres for a long time.

Achievements of Aftercare Follow up Services and Victim Rehabilitation in 2020-21

Out of the total allocation of ₹2.50 crore in 2020-21, ₹1.52 crore was spent for the project. Major activities included the following.

- For providing financial assistance to the children of crime victims, ₹4.86 lakh was spent for 53 beneficiaries.
- Under the Education Assistance Scheme for the children of prisoners, ₹12.84 lakh was spent for 200 beneficiaries
- ₹7.21 lakh was spent for 40 beneficiaries under the self-employment scheme for the dependents of criminals.
- Under the scheme for self-employment of ex-offenders, ₹39.90 lakh was spent for 193 beneficiaries.
- An amount of ₹38,400 was spent for financial assistance for professional education to the children of prisoners.
- An amount of ₹3.552 lakh was spent for 50 beneficiaries under the Self-Employment Scheme for the victims of violence.
- For marriage assistance scheme for prisoner's daughters, ₹1.20 lakh was spent for 4 beneficiaries.

Nervazhi - Modernisation and Strengthening of Probation System

The project is implemented in the State to rejuvenate and modernise the probation system in Kerala. It aims for better and regular identification of offenders eligible for probation, to undertake comprehensive investigation reports to ascertain whether they are amenable to correction, to provide necessary psychological treatment whenever necessary, and to ensure effective supervision to enhance the likelihood that the probationers will be integrated back into the society. Through this process, the project aims to reduce recidivism, reintegrate the offenders back into the mainstream society, to reduce overcrowding in prisons and to increase the efficiency of the criminal justice system. Modernisation and strengthening of probation system is being implemented by the Social Justice Department since 2017. An amount of ₹3.56 crore has been spent for the project so far.

Thanalidam Probation Home

As per Section 20 (1) of the Kerala Probation of Offenders Rules, 1960, it is mandatory to operate institutions or homes which ensure a temporary place of residence for those offenders who are eligible for probation, parole, premature release and bail, if they do not have a fixed place of abode. After release, prisoners face many hardships and often stigmatised as an ex-offender. Due to this reason, many family members are not ready to accept them and it is a major cause of hindrance to successful community re-integration. Social Justice Department has devised a novel initiative known as "*Thanalidam*" Probation Home for such persons.

The first such home for men was started at Valakom, Kollam district in collaboration with Gandhi Bhavan International Trust on March 13, 2020. This institution provides a homely atmosphere and can accommodate 25 men from all districts of Kerala between the age group 18-70 years. The inmates would be engaged in various programmes like agriculture, gardening, aqua farm, soap and lotion making, mushroom culture and so on. They would also be engaged in sports and recreational facilities for their physical and mental health support. For this project, ₹12 lakh was utilised in 2020-21.

Way Forward

During the next plan period, the focus of the Department will be to increase the number of judicial and executive probationers under supervision, thereby decreasing the jail population. This would require collaborative efforts with judiciary and other stakeholders. Amendment of State Probation Rules 1960 for the effective implementation of the Act would also require consideration. There is also a need to generate awareness among various stakeholders and general public about social defense policy, probation system, vision, mission and guidelines of probation.

5.6 OUTREACH TO PUBLIC

The Information and Public Relations Department of a Government acts as a bridge between the government and the people and through its multi-media systems spreads awareness among all sections of the people on Government's policies and programmes. The Information and Public Relations Department (I&PRD) is the nodal agency of the Government of Kerala with respect to the dissemination information on the policies, programmes, initiatives and achievements of the Government of Kerala, through print, electronic, and social media. The Department also gathers feedback from the public through electronic and digital media, thereby maintaining a communication flow between the State Government and the citizens of the State. Social media campaigns and mobile journalism have changed the face of public relations and has helped in reaching out to a wider audience.

The media have the potential to play a major role in times of disaster by way of disseminating information on disaster awareness and also on disaster mitigation activities. Information and Public Relations Department (I&PRD) played a vital role in dissemination of information through various platforms when the State experienced several crises such as the natural disaster due to the unprecedented floods of 2018 and 2019. The Department also played a significant role during Covid-19 pandemic by way of sustained "Break the Chain" campaigns. I&PRD has also entered into a partnership with Facebook India for reaching out to the target audience in the State through their Covid alert posts.

Major Achievements and Initiatives of I&PRD during the 13th Five Year Plan

2017-18

1. Grass-root level awareness programmes were organized across the State as part of the launch of mission projects - Haritha Keralam, Pothuvidyabhyasa Samrakshna Yajnam, Aardram and LIFE.
2. Trade and cultural fairs were organised in Mumbai, Chennai, and Bengaluru as part of inter-state public relations activities. At the India International Trade Fair held in New Delhi, the Department had won silver medal. The Department also received the second prize for the best float in connection with the Onam celebrations.
3. Awareness programmes on immunisation and workshop for journalists on POCSO law were organized in collaboration with the Health Department and Social Justice Department respectively.
4. Published e-pub version of the book – "Sarkar Dhanasahaya Padhathikal" and released Hon'ble CM's letter to the students in the context of "Vision Nava Keralam".
5. National Theatre Festival was organized in Thiruvananthapuram during the year.

2018-19

1. Special campaigns were organized in connection with the 82nd anniversary of Temple-Entry proclamation.
2. Conducted an annual video-making competition for the public titled 'Mizhiv'. The public can produce videos based on any welfare or development programmes of the Government and can submit them online. 264 videos were received during the year.
3. Outdoor publicity campaigns were organised through KSRTC bus branding, advertisements in railway stations, airport, boats and hoardings.
4. The Department had developed three mobile apps – PRD Live, PRD Feed and PRD Media Handbook. PRD Live is a news app for the public to keep track of daily Government related news. Both Android and iOS versions are available. PRD Feed is an official app, used for sharing scrutinised news that appears in the media, to the offices of the Ministers and Government Secretaries. PRD Media Handbook is meant for the media personnel as a resource app for information on media establishments, personnel in the media field, and offices of Ministers and Government departments.

2019-20

1. Loka Kerala Sabha and LIFE Mission Projects were advertised through the hoardings erected in Thiruvananthapuram, Thrissur, Malappuram, Kozhikode and Kannur. Exhibitions and seminars were conducted on completion of 2 lakh houses under LIFE Mission.
2. For spreading awareness on Covid-19 and Break the Chain campaigns, GoK direct mobile app was launched. Results of Secondary School Leaving Certificate (SSLC) and Plus-Two examinations were published through 'PRD Live' mobile app, thereby reaching out to 41 lakh people using auto-scaling technology. This was used for the first time by a government agency to avoid peak user-load interruptions.
3. Publications during the period include (1) 42.5 lakh copies of 'Letter to School Students' by Hon'ble Chief Minister (2) 25,000 posters during Vayana Pakshacharanam (3) 20,000 booklets titled 'Janakeeyam Athijeevanam' (4) 50,000 booklets on week-long Onam celebrations (5) 50,000 copies of Sarkarinte Dhanasahaya Padhathikal (6) 70 lakh copies of the brochure titled 'Subhiksham, Bhadram, Surakshitham' marking the overall growth and development of the fourth anniversary of the Government.
4. 'Madhyama Charithra Yatra' and 'Aagola Madhyama Sanghamam' were organised by the Kerala Media Academy. The Academy had also launched Modern Media Skill Centre for training government officials in public relations.
5. Launched the Internet radio service named Radio Kerala during the period.
6. A Fact check division (IPRD Fact Check Kerala) was launched to counter fake news and messages in social media. More than 2000 messages/news were checked and 14 cases were reported to Cyber dome, Kerala Police for legal action.

Overview of the Department Schemes and their Achievements in 2020-21

The 'Web and New Media' division of I&PRD undertakes the content management of Government web portal www.kerala.gov.in and maintains the official websites of Hon'ble Chief Minister of Kerala www.keralacm.gov.in and Ministers of the State. Apart from these, the division also manages the exclusive news portal, www.keralanews.gov.in; website on personnel assets disclosure, www.pa.kerala.gov.in; and also the website on Sabarimala festival, www.sabarimala.kerala.gov.in. Publication of annual results of SSLC, Higher Secondary and Vocational Higher Secondary, release of election results, managing the social media accounts of I&PRD - Twitter, Facebook and YouTube are also undertaken by this division. Activities done by the division in 2020-21 were (1) Fact-checking measures to identify fake news and messages. The fact check wing of I&PRD countered more than 2,000 fake posts that appeared in various social media platforms and alerted the public with facts and explanations (2) Uploaded around 12,000 Government orders and cabinet orders including circulars, notifications, tenders, government reports and policies, news, videos, pictures and banner news in the government portal (3) Undertook social media campaigns on areas such as Chief Minister's Distress Relief Fund, fake news on Covid-19, Break the Chain activities, welfare programmes and elevation of government schools to international standards.

Press release division of the Department is entrusted with several activities such as covering of press meets, setting up media centres on special occasions, offering media accreditation services, providing facilities on special occasions to media reporters for coverage and reporting, organizing State media award function and so on. Central News Desk division of I&PRD is responsible for video coverage of government programs to

Box 5.6.1 *Satyameva Jayathe - a digital media and information literacy campaign,*

Satyameva Jayathe, a digital media and information literacy campaign, is part of the Chief Minister's 10 point programme. As part of this, four videos were prepared by C-DIT aiming at creating awareness among the general public on the false campaigns being unleashed in the social media. These videos were premiered in VICTERS TV from February 09, 2021 onwards. The campaign is now being undertaken in schools across the State by State Institute of Educational Technology (SIET).

television channels through its online service called “Clip Mail”. Through this, 4,293 news clippings, from all over the State, were released in 2020-21. The Press Facilities Division of I&PRD handled the coordination of the media coverage and publicity activities of the swearing in function of the new Government in May 2021 and also the media coordination on Covid-19 briefing by Hon’ble Chief Minister. The division had released 6,141 press releases and around 1000 multi-lingual press releases in 2020-21.

Visual Media Division focuses on programme production, audio-video documentation, news wing, and electronic media. Audio-Visual Documentation division of I&PRD produced and telecasted 42 episodes of Hon’ble Chief Minister’s weekly interactive television programme – *Naam Munnottu* which was aired through 14 channels. Other activities include telecasting of 42 episodes of television programmes viz - *Priya Keralam* and *Nava Keralam* and airing of 42 episodes of Janapadham radio programme on all FM stations of AIR. A digital as well as print documentation work on the yesteryears of Kerala, “Visual History of Kerala” is being done by the Department. Phase I works have been completed. The project is a digital depiction of Kerala’s history from pre to post independent period. The phase 1 work of this project features historical aspects of Kerala. A DVD of six-hour content, set of five books and five coffee-table books form part of the Phase 1 works of the project.

Photo Publicity wing is designated with the charge of photo coverage of various events. This division covered the swearing in function of the ministers of the new Government and also did the photo coverage of Hon’ble Chief Minister’s Kerala tour to nine districts. In 2020-21, this division also did the photo coverage of 350 events and had captured 36,476 images, of which 464 images were released to the media. Apart from this, as part of various documentation works, the department had also undertaken photo coverage of 375 events and captured 15,244 images.

Print advertisement needs of Government Departments are met through the Advertisement and Marketing division of IPRD. Through

this division, second stage development of advertisement release management software ‘ADMIRE’ had been completed. The ADMIRE software is primarily meant for the automated release order and billing management requirements which helps to create a paperless environment for issuing the release order from the division and also for accepting bills for payment from newspapers.

The periodicals Kerala Calling (English) and Samakalika Janapadham (Malayalam) are released by the Publications Division. This division also publishes newsletters, pamphlets, brochures and reports on various activities of the Government. Special issues of Kerala Calling published during the period under review are listed below.

- Kerala Model of Resistance on Covid-19 (April 2020)
- Covid Awareness (May 2020)
- Government’s 1st 100 Days Programme (September 2020)
- Government’s 2nd 100 Days Programme (January 2021)
- 5 years of the Pinarayi Vijayan Government (February 2021).

Two coffee-table books “Kerala’s Resistance against Covid” and “Achievements of Pinarayi Vijayan Government in 5 years” were also released by the Division. The Department had also published a special e-bulletin in April 2020 for 15 days following the first outbreak of Covid-19 in Kerala.

Special issues of ‘Samakalika Janapadham’ published by the Malayalam Editorial Wing were:

- Loka Kerala Sabha (January 2020)
- Covid-19 (April 2020)
- Development and Dream Projects (January 2021)
- Marriage and Dowry (July 2021)

The three folders published by the division during the period were (1) Kerala’s survival against various crises (2) Youth in Kerala and (3) Athijeevanam. Other publications during the period were (1) Books/brochures on Subiksha Keralam (2) Chief Minister’s speeches in the legislative assembly (3) Government’s progress report (4) Kadalolam Karuthal (5) Vakkinoppam

Sarkkar (6) Vikasanathinte Nerkazcha (7) Shariyude Anchu Varshangal (8) Shariyaya Kanakkukal (9) Nalloru Naalekku (10) Ente Kerala, Ente Abhimanam (2021).

As part of Modernisation of District Information Offices, I&PRD had completed a new office building for Kasaragod District Information Office and also the renovation works of Kannur District information Office.

Kerala Media Academy is an autonomous institution working under I&PRD. The Academy facilitates study and research programmes in the field of journalism and also conducts training programmes, workshops and seminars, apart from publication of books and periodicals, distribution of media awards and granting fellowships for conducting advanced research in journalism. In 2021, the Academy published 12 books on media related subjects, organised photo exhibition titled 'Jai Kisan' focusing on historic agrarian struggles in various districts, conducted 12 webinars for media persons and students, conducted media training workshop for the members of Kudumbasree and also launched T V R Shenoy Book Corner in the Kerala Media Academy library.

Way Forward

The Department should look forward to strengthen its network and resources through initiatives based on latest digital communication and network technologies. Enhanced online presence will be the key to the Department's overall functioning. This requires strengthening the Web and New Media and Internet Radio Divisions.

CHAPTER

6

HUMAN DEVELOPMENT

HUMAN DEVELOPMENT

6.1 EDUCATION

Kerala's achievements in the field of education – near total literacy, free and universal primary education, low dropout rate at the school level, easy access to educational institutions, gender equality in access are well known.

The State has adopted measures to address the needs and requirements of children from different sectors, particularly marginalised and vulnerable sections. Specifically designed programmes, with professional expertise and assistance, are being implemented to meet the requirements of children with disabilities. Special focus on extracurricular activities like sports and arts has also been given, though they need further improvements in terms of coverage and scientific assistance. “Pothu Vidyabhyasa Samrakshana Yajnam” (Education Mission) aimed at on bringing holistic changes in the system to meet the varying demands of all stakeholders of school education. The “Vidya Kiranam” project, a component of Navakeralam Mission, is a continuation of “Pothu Vidyabhasa Samrakshana Yajnam.”

The Covid-19 pandemic led to the adoption of new modes of learning and teaching. Multi-disciplinary topics related to pandemic, health care, and environment have become relevant to teaching and research in schools, universities and colleges in the State. All over the world Covid-19 led to a sudden spurt in demand for online teaching and learning. In Kerala, the expansion of ICT enabled education over the last three years in school education enabled smooth transition to the process of online teaching and learning during the pandemic. Through the

Vidyakiranam programme, Government has decided to provide digital devices to four lakh students in the State to ensure zero digital divide.

Literacy

The most essential indicator of the quality of a country's human capital is literacy. As regards literacy, Kerala ranks first in the country with literacy rate of 93.91 per cent closely followed by Lakshadweep (92.28 per cent) and Mizoram (91.58 per cent) (*Census of India, 2011*). Kerala's literacy rate, which was only 47.18 per cent in 1951, has almost doubled by 2011. The male-female literacy gap which was 22 per cent point in 1951 has narrowed down to 4.04 per cent in 2011. Kerala holds the first place in the country in female literacy with 92 per cent and Rajasthan records the lowest female literacy rate (52.66 per cent) (*Census of India, 2011*). Literacy rate of the State from 1951 to 2011 is shown in **Appendix 6.1.1**. Variation in literacy rate among the Districts of Kerala is not significant. While Pathanamthitta District (96.93 per cent) reports the highest literacy rate in the State followed by Kottayam (96.4 per cent) and Alappuzha (96.26 per cent), Palakkad District has the lowest literacy rate in the State (88.49 per cent). Literacy rate by sex for Districts in 2001 and 2011 are given in **Appendix 6.1.2**.

Kerala State Literacy Mission Authority (KSLMA) has been implementing innovative programmes in the field of literacy and continuing education. Literacy is not merely the ability to read and write, but in broad sense it is also the basic awareness of how to lead a healthy and progressive social life. Keeping

this in mind, KSLMA has launched social literacy programmes in the fields of health, environment, gender, renaissance of Kerala, Constitution of India and e-learning. KSLMA conducts focussed and specialised literacy programmes for persons belonging to Scheduled Caste and Scheduled Tribes, migrant workers and transgender which are more relevant in the context of Kerala. The adult learners under literacy and continuing education are the direct beneficiaries of these programmes.

Changathi: This project aims to make migrant labourers in Kerala literate. In 2018-19, the programme was implemented in 14 Local Governments and 2,256 migrant labourers became literate. It is expected that about 25 lakh migrant workers in Kerala will be benefitted in future. In 2020-21, 2031 people registered in this programme. Apart from imparting training for reading and writing, awareness on good health and hygiene practices is also given as part of the

programme. Number of persons registered in various special literacy programmes is given in **Table 6.1.1**.

The number of people who attended 4th and 7th standard equivalency examination has been rising in the last few years. But in 2021, the number decreased because of Covid-19 pandemic. Because of the focussed efforts of KSLMA, Preraks could identify the persons in need and enrol them into various levels of equivalency programmes. KSLMA is taking efforts to bring a large number of persons back to studies and to enrol them in 10th and Higher Secondary equivalency courses (**Table 6.1.2**). The details on the number of people benefitted from Equivalency programme of Kerala State Literacy Mission in 2021 are given in **Appendix 6.1.3**.

It is seen that out of the total number of persons benefitting from these programmes, SC and ST population constitutes a major portion.

Table 6.1.1 Status of special literacy programmes, 2020-21

Sl.No.	Name of the Programme	No. of persons registered
1	Basic Literacy programme	31,247
2	Special Project for Scheduled Tribe (Attapadi)	1,893
3	Special Project for Scheduled Tribe (Wayanad)	24,472
4	Special Literacy /Equivalency programme for Scheduled Caste (Navachethana)	2,018
5	Special Literacy programme for Migrant Labourers - (Changathi)	2,031
6	Special Project for continuing education for Transgender (Samanwaya)	100
7	Environment Literacy Programme	More than 5 lakh people participated in online literacy awareness campaign

Source: KSLMA

Table 6.1.2 Number of persons who enrolled in higher secondary and 10th equivalency courses in 2020 and 2021

Course		Female	Male	Transgender	SC	ST	Differently abled	Total
Higher Secondary	2020	9,524	14,252	30	5,273	759	371	23,806
	2021	11,670	6,739	25	4,346	709	211	18,434
10th	2020	10,898	11,026	22	5,148	839	613	21,946
	2021	10,599	7,746	17	4,148	673	506	18,362

Source: KSLMA

Because of the special efforts of KSLMA for the last few years to include transgenders into the programmes, a total number of 42 transgenders could benefit from the 10th and higher secondary equivalency programmes in 2021. Likewise, a significant participation of persons with disabilities can also be seen.

School Education

Directorate of General Education co-ordinates all the activities of public education from class 1 to 10, higher secondary and vocational higher secondary education. Earlier, classes from 1 to 10 were under the administrative control of Directorate of Public Instruction. Also there existed separate directorates for higher secondary and vocational higher secondary education. But now these three sections are merged to Directorate of General Education.

There were 12,986 schools in Kerala in 2020-21, out of which 4,697 (36.17 per cent) are Government schools, 7,214 (55.55 per cent) are aided schools and 1,075 (8.28 per cent) are unaided schools. More government schools are functioning in lower primary (LP) section than in upper primary (UP) or high school (HS) sections. Aided schools outnumber government schools in all sections.

In 2020-21, Malappuram District had the largest number of schools (1,570) in the State followed

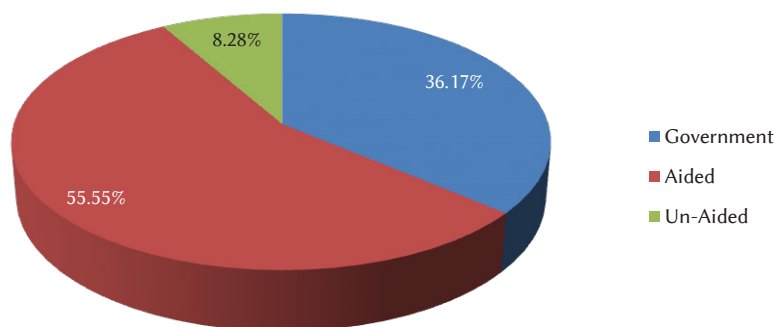
by Kannur (1,311) and Kozhikode (1,281). Malappuram also has the largest number of government (556) and unaided schools (208) in the State. But the largest number of aided schools is functioning in Kannur District (963). Details of District-wise, management-wise and stage-wise number of schools in Kerala in 2020-21 are given in **Appendix 6.1.4**.

In 2020-21, there are 1,534 schools in the State which are offering syllabi other than the one prescribed by the State Government. These include 1,320 CBSE schools, 164 ICSE schools, 36 Kendriya Vidyalaya and 14 Jawahar Navodaya Vidyalayas. One Jawahar Navodaya Vidyalaya school each is functioning in all the Districts. District-wise details of schools with syllabi other than State syllabus in the year 2020-21 are given in **Appendix 6.1.5**.

Physical Infrastructure and Facilities in Government Schools

Most of the governments schools in Kerala are functioning in pucca buildings. Ninety five government schools are working in rented buildings. district-wise details of government schools having building facilities are given in **Appendix 6.1.6**. Local Governments and programmes like Sarva Shiksha Abhiyan (SSA) have contributed much to the overall development and improvement of physical infrastructure and common facilities in

Figure 6.1.1 Management-wise percentage of schools in the State, 2020-21



Source: Directorate of General Education

government schools in the State. An amount of ₹5 crore, ₹3 crore and ₹1 crore each has been allotted for the infrastructural development of 141, 386 and 446 number of schools, respectively under KIIFB. Under ₹5 crore category construction of building has been completed in 120 schools and in the ₹3 crore category construction of buildings has been completed in 96 schools. The construction of building of 52 schools has been completed, with the aid of NABARD, by utilising ₹104 crore. It is seen that 99.64 per cent of government schools have access to drinking water and almost all schools have urinals/latrines facilities. District-wise details of government schools having drinking water/latrines/urinal facilities in Kerala in 2019-20 are given in **Appendix 6.1.7**. (As schools remains closed, data for 2020-21 is not available because of Covid-19).

Enrolment of Students

There is an increase in the enrolment of students in 2021-22 (provisional) to 38.68 lakh from 37.58 lakh in 2020-21. The increase is more prominent in LP and UP sections. The stage-wise enrolment of students in schools in Kerala from 2015-16 to 2021-22 are is given in **Appendix 6.1.8**. The stage-wise enrolment of students shows a large increase of students from 2020-21 to 2021-22. Details of management-

wise and standard-wise enrolment of students in schools in 2021-22 (provisional) are given in **Appendix 6.1.9**. In all sections, the students in government aided schools outnumber the students in Government and unaided schools (**Figure 6.1.2**). District-wise, stage-wise and sex-wise enrolment of students in schools in the State in 2021-22 is given in **Appendix 6.1.10**. Boys outnumber girls in all sections and Districts.

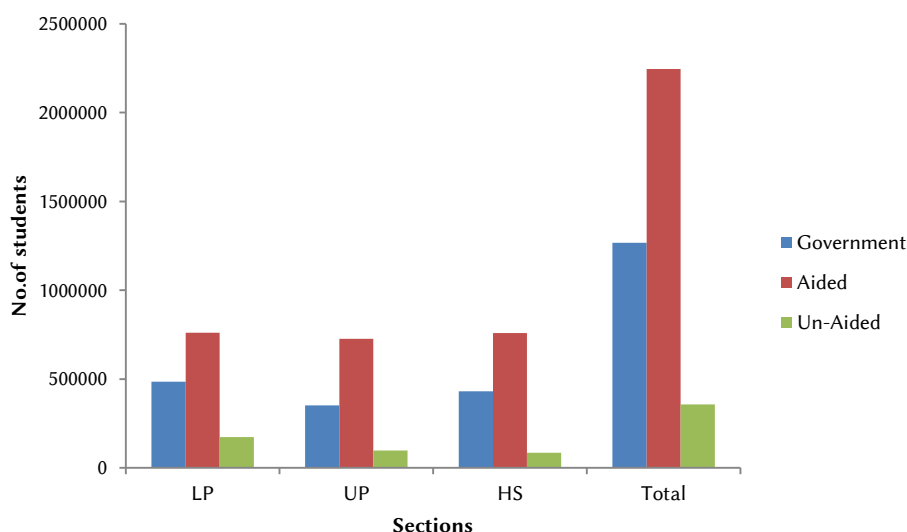
Compared to previous years, around 1,28,504 new students sought admissions in government and government aided schools in Kerala during the academic year 2020-21. The corresponding number for the year 2021-22 is 2,56,448. It is seen that during Covid-19 pandemic, students preferred public funded schools and compared to previous years more students have been enrolled in government schools. The total number of new students sought admission in government and aided schools for the last five years is 8,91,046. (**Table 6.1.3**).

Enrolment of Girls in Schools

In 2021-22, girls constitute 48.38 per cent of the total student enrolment in schools. Boys outnumber girls in all the Districts. But the gender gap is very narrow in Kerala in terms of enrolment.

Strength of Scheduled Caste and Scheduled

Figure 6.1.2 Management-wise and section-wise enrolment of students in Kerala in 2021-22



Source: Directorate of General Education

Table 6.1.3 *New students who sought admission in public funded schools in Kerala, from 2016-17 to 2021-22*

Management	Standards			Total I-X
	I-IV	V-VII	VIII-X	
From 2016-17 to 2017-18				
Government	15,588	5,475	38,789	59,852
Govt. aided	25,199	58,670	12,844	96,713
Total	40,787	64,145	51,633	1,56,565
From 2017-18 to 2018-19				
Government	22,931	12,229	35,484	70,644
Govt. aided	29,186	67,483	18,658	1,15,327
Total	52,117	79,712	54,142	1,85,971
From 2018-19 to 2019-20				
Government	16,223	12,616	36,376	65,215
Govt. aided	19,412	63,312	15,619	98,343
Total	35,635	75,928	51,995	1,63,558
From 2019-20 to 2020-21				
Government	21,339	9,659	3,859	34,857
Govt. aided	32,493	57,844	3,310	93,647
Total	53,832	67,503	7,169	1,28,504
From 2020-21 to 2021-22				
Government	50,124	20,018	37,316	1,07,458
Govt. aided	56,196	77,094	15,700	1,48,990
Total	1,06,320	97,112	53,016	2,56,448
Total new students during the last 5 years				8,91,046

Source: Directorate of General Education

Tribe Students

In 2021-22, Scheduled Caste (SC) students constitute 9.90 per cent of total students in the State. The percentage of SC and ST students in government schools is higher than that of government aided and private unaided schools. The percentage of SC students in government schools, private aided schools and private unaided schools are 12.29 per cent, 9.49 per cent, and 3.95 per cent respectively. (Table 6.1.4).

ST students constitute 1.85 per cent of total enrolment in schools in 2021-22. The percentage of ST students in government schools, private aided schools and private unaided schools are 3.33 per cent, 1.23 per cent, and 0.47 per cent respectively in 2021-22. The standard-wise strength of SC/ST students in the State in 2021-22 is given in Appendix 6.1.11. Out of the total number of SC/ST students in the State, only 3.67 per cent of SC and 2.32 per cent of ST students

are enrolled in private unaided schools. The rest are admitted in government and private aided schools. Out of the total ST students, 59 per cent is enrolled in government schools.

Table 6.1.4 *Proportion of SC/ST students in schools in Kerala, 2021-22 (provisional)*

Management	Others	SC	ST
Government	84.38	12.29	3.33
Government aided	89.28	9.49	1.23
Private unaided	95.57	3.95	0.47
Total	88.25	9.90	1.85

Source: Directorate of General Education

Dropout Rate

Kerala has achieved the distinction of having the lowest dropout rate of school students among the Indian States. In the year 2019-20, dropout

ratio among school students in Kerala was 0.11 per cent. As per the Ministry of Human Resource Development (MHRD) report on Educational Statistics at a Glance, 2018, the all India average dropout rate of primary students is 4.13 per cent while it is 4.03 per cent in upper primary and 17.06 per cent in secondary levels. In Kerala the dropout ratios in lower primary stage and high school stages are higher compared to that of the UP stage. Dropout rate is highest among high school students. Drop-out ratio of high school has declined from 0.33 per cent in 2016-17 to 0.15 per cent in 2019-20 (**Table 6.1.5**). The decline is seen at all stages of school education. (Data for 2020-21 is not available because of Covid-19).

Table 6.1.5 Stage-wise dropout ratio in schools in Kerala

	2016-17	2017-18	2018-19	2019-20
Total	0.22	0.16	0.12	0.11
L.P	0.2	0.15	0.12	0.10
U.P.	0.11	0.1	0.07	0.06
H.S.	0.33	0.22	0.17	0.15

Source: Directorate of General Education

Among the Districts, Idukki has the highest

Table 6.1.6 District-wise Dropout Ratio among SC and ST students in Kerala in 2019-20

District	SC	ST	Others	Total
Thiruvananthapuram	0.17	0.52	0.14	0.15
Kollam	0.04	1.04	0.06	0.06
Pathanamthitta	0.00	0.11	0.00	0.00
Alappuzha	0.02	0.00	0.02	0.02
Kottayam	0.12	0.50	0.10	0.11
Idukki	0.44	1.58	0.18	0.30
Ernakulam	0.14	1.04	0.19	0.19
Thrissur	0.02	0.15	0.02	0.02
Palakkad	0.19	1.03	0.12	0.15
Malappuram	0.04	2.32	0.06	0.07
Kozhikode	0.10	1.57	0.09	0.10
Wayanad	0.06	1.77	0.11	0.50
Kannur	0.01	0.34	0.05	0.06
Kasaragod	0.28	0.32	0.10	0.12
Total	0.11	1.17	0.08	0.11

Source: Directorate of General Education

dropout ratio in lower primary (0.33 per cent) section followed by Ernakulam (0.30 per cent). Wayanad has the highest dropout ratio in upper primary (0.25 per cent) section followed by Idukki, Kasaragod and Ernakulam (0.10 per cent). In high school section, Wayanad has the highest dropout ratio with 1.14 per cent followed by Idukki (0.45 per cent) and Kasaragod (0.21 per cent), respectively. District-wise/stage-wise dropout ratio in schools in 2019-20 is given in **Appendix 6.1.12**.

The dropout ratio of SC and ST students has significantly declined over the years. The dropout ratios of SC and ST students are still higher than that of students from 'others' category (**Table 6.1.6**). Drop-out ratio among SC students in Kerala in 2019-20 has slightly decreased to 0.11 per cent from 0.12 per cent in 2018-19 and that of ST students has slightly declined to 1.17 per cent from 1.29 per cent.

The dropout ratio of SC students is highest in Idukki District (0.44 per cent) followed by Kasaragod District (0.28 per cent), whereas the dropout ratio of ST students is highest in Malappuram District (2.32 per cent) followed by Wayanad District (1.77 per cent). District-wise and management-wise details of

dropout among SC and ST students in Kerala in 2019-20 are given in **Appendices 6.1.13** and **6.1.14**. The situation of ST students in Malappuram and Wayanad has to improve much to reach to the level of all Kerala average.

Number of Teachers

The number of school teachers in Kerala in 2019-20 was 1,60,379. Out of this 93,727 (58.44 per cent) teachers are working in aided schools and 13,799 (8.60 per cent) teachers are working in private unaided schools. The remaining 52,853 (32.96 per cent) teachers are working in Government schools. 50.41 per cent of total teachers in the State are teaching in high schools, 24.78 per cent in upper primary schools and 24.81 per cent in lower primary schools. 72.20 per cent of total teachers in the State are women. Stage-wise and management-wise number of teachers in Kerala in 2019-20 is given in **Appendix 6.1.15**.

Inclusive Education in Schools

As per the statistics given by Directorate of General Education, there were 45 special schools functioning in Kerala in 2019-20. Total number of students in these special schools during the period was 3,212 and the number of teachers was 661. Out of the total 3,212 students, 563 are visually impaired and 2,649 are hearing impaired. Apart from this 328 special schools are functioning under various NGOs and LSGD in the State. Out of these 328 schools, 40 schools are receiving grant in aid from central Government Scheme known as Deendayal Disabled Rehabilitation Scheme (DDRS). The remaining 288 schools are receiving financial assistance from State schemes. Also, 61,258 students with disabilities are studying in Govt. and aided schools all over Kerala. Out of this 36,769 are boys and 24,489 are girls. Apart from free uniform and mid-day meal, financial assistance is given for meeting the expenses towards travelling, hostel facilities, excursion for students etc.,. Various disabled friendly programmes such as barrier free campus, equipment, services from resource centres, services of resource teachers etc are also provided for ensuring inclusive education in schools.

Schools with Less Number of Students

In 2021-22, the total number of schools with average strength of less than 25 students was 947 and out of these 370 were in government sector and 577 were in the aided sector. There were 52 government lower primary schools having average number of students with less than 10 while the number of schools in this category was 84 in aided sector. District-wise analysis shows that highest number of schools with less number of students was in Pathanamthitta (182) followed by Kottayam (125), Kannur (97), and Alappuzha (89). The highest number of schools with less students in aided sector was in Pathanamthitta (136) followed by Kannur (81). In the Government sector, Kottayam has the largest (49) number of schools with less number of students followed by Alappuzha (46) and Pathanamthitta (46). Lower primary schools constitute large chunk of the schools with less number of students. Among the government schools with less number of students, majority (94.86 per cent) are lower primary schools. In the aided sector also 86.13 per cent of uneconomic schools are from lower primary section. District wise details of schools with less number of students in the State in 2021-22 are given in **Appendix 6.1.16**.

Kerala Infrastructure and Technology for Education (KITE)

Kerala Infrastructure and Technology for Education (KITE) is a State Government enterprise, set up to foster, promote and implement modernisation of educational institutions in the State of Kerala. KITE has revolutionised the education system of the State with its decade long operations and its spectrum include information and communication technology, capacity building, content development, connectivity, e-Learning, satellite based education, support and maintenance mechanism, e-Governance and also physical infrastructure upgradation of schools. With the efforts of KITE, schools in the State are now equipped with latest ICT gadgets supported by high speed broadband connectivity, necessary digital resource portals and trained teachers and thereby having a total ICT enabled ecosystem.

Achievements/ Highlights of KITE during 13th Five-Year Plan

In terms of infrastructure projects, KITE has set forth the transition of government schools to international standards. KITE has successfully completed the implementation of ₹493.50 crore hi-tech school project in 4,752 secondary schools and ₹300 crore Hi-Tech lab project in 11,273 primary schools. By virtue of this project, over 45,000 classrooms of standard 8 to 12 have been made hi-tech. Each hi-tech classroom is equipped with a laptop, ceiling mounted projector, USB speakers, high speed broadband internet connectivity, networking and access to SAMAGRA resource portal. 59,532 laptops, 43,739 multimedia projectors, 42,055 projector mounting accessories, 21,841 projector screens, 43,004 USB speakers, 4,578 DSLR cameras, 4,545 LED televisions, 4,720 Full HD webcams and 4,609 multi-function printers have been deployed to schools as part of this project. As part of hi-tech lab project for primary schools, 56,248 laptops, 24,382 multimedia projectors and 56,248 USB speakers have been deployed along with broadband internet connectivity. A total of 4,751 secondary schools and 7,887 primary schools stands equipped with broadband connectivity which fuel ICT enabled learning.

In 2018, KITE developed the SAMAGRA resource portal (www.samagra.kite.kerala.gov.in) with digital resources for all subjects for classes 1 to 12. In terms of ICT content, the SAMAGRA resource portal provides access to a variety of multimedia materials, linked to the curriculum and syllabus for teachers and students alike. Till date, the resource portal features 46,834 digital contents comprising 6,695 videos, 859 audios, 9,343 pictures, 7,578 interactive and 22,359 supporting files spread across Malayalam, English, Tamil and Kannada languages.

The Little KITES programme was initiated by KITE in 2018 with the aim of handpicking the skillful and talented students who excel in various domains, to be the leaders in schools for bringing in massive changes using ICT in the school environment. Little KITES IT Clubs setup by KITE in 2,060 schools has been seen over 1.80 lakh members till date. These Little KITES were given specific trainings in animation, cyber

safety, electronics, language computing, artificial intelligence, robotics and 3D animation.

Sametham is an initiative from KITE to share the authentic data of academic and infrastructural details of government, aided and recognized un-aided schools in Kerala. (www.sametham.kite.kerala.gov.in) Sametham opens the doors to view the basic details of schools including its physical infrastructure, governing mechanisms etc.

In 2017, KITE revived School Wiki (www.schoolwiki.in) which was launched in 2009, to foster a culture of collaborative learning in Kerala schools. The unique portal which was developed on the lines of Wikipedia, has details of 15,000 schools in the State ranging from standard 1 to 12 and has over one lakh pages, 34,931 users and 86,795 articles. As many as 10,74,591 updations have been made in the portal till date.

KITE VICTERS (www.victers.kite.kerala.gov.in) is the only complete educational channel of the State which telecasts programmes of educational value, general awareness programmes and content on general interest and is fast becoming the most sought after channel by students, parents, teachers and general public. In 2020, when Covid-19 stuck and brought all systems including education to a standstill, KITE through its First Bell Digital Classes (www.firstbell.kite.kerala.gov.in) ensured continuance of education for over 43 lakh students in the State. KITE enabled the Government to start the academic year on 1st June itself, as in early years, through its First Bell Digital Classes which was aired through KITE VICTERS educational channel. During 2020-21, a total of 7,500 classes were developed and aired as part of First Bell programme. This year as a continuance, the First Bell 2.0 Digital Classes started on 1st June 2021 itself.

Akshara Vrisksham is a unique programme implemented by KITE during the Covid-19 pandemic days in April -May 2020. As part of this programme, students were given an opportunity to create digital contents by using ICT, which were then showcased on a larger platform.

Avadikala Santhoshangal (Happy Vacation times) was a special programme conducted for kids during the lockdown period in 2020, to recoup the lost class days in schools, with the intention to provide an opportunity for enabling a creative and intellectual environment for kids at homes. KITE has enabled Kerala to become Completely Digital in Education, the first State in the country to achieve this milestone. The announcement was made in October 2020 by the Hon'ble Chief Minister.

Samagra Shiksha, Kerala (SSK)

The Samagra Shiksha is an integrated scheme on school education that envisages the 'school' as a continuum from pre-school to senior secondary levels. The creation of such a single administrative structure assists in developing a school sector-wide strategy stressing on improvement in quality of education. The common objectives of the scheme are to enhance access through the expansion of quality school education; to promote equity through the inclusion of disadvantaged groups and weaker sections, to improve the quality of education for all, to bridge social and gender gaps in school education, to ensure equity and inclusion at all levels of school education, and to promote vocationalization of education.

All the activities by the SSK are undertaken in order to achieve the broader objectives of Pothu

Vidyabhyasa Samrakshana Yajnam and to bridge the academic lacuna for ensuring age appropriate education as envisaged in the Right to Education Act.

The State Council of Educational Research and Training (SCERT)

SCERT, Kerala is an autonomous body entrusted with planning, implementation and evaluation of all academic programmes from pre-school to higher secondary levels. SCERT (Kerala) functions as an R&D institute at the State level by providing guidance, support and assistance to the State Education Department in its endeavour to improve the quality of elementary and secondary education and teacher education. To achieve this goal, the SCERT conducts research studies, develops information systems, curricular policies, and instructional materials and co-ordinates in-service education for teachers at all levels. SCERT is concerned with the academic aspects of school education including formulation of curriculum, preparation of textbooks, teachers' handbooks and teacher training. It advises the Government on policy matters relating to school education.

Curriculum reformation, preparation of guidelines for 'Pothu Vidyabhyasa Samrakshana Yajnam', development of 'Samagra' online education portal with the technical support

Box 6.1.1 KOOL (KITE's Open Online Learning) platform for teachers

KITE introduced a MOOC model training platform for teachers namely, KOOL (KITE's Open Online Learning) in which the teachers can select the training course of their choice without actually losing academic days and by availing the services of an expert faculty. The idea of KOOL arose with the State's schools becoming hi-tech, requiring teachers and students to be trained on different domains simultaneously. KOOL uses the Samagra portal for registering for the courses. There would be a mentor from KITE for every 20 learners. KOOL has an array of features for the learner, in the form of animated learning assistants, video tutorials, checklists etc for practicing the activities. The six week course includes creation of word documents, spreadsheet, presentation, image editing, video-audio editing, development of digital resources, malayalam typing, internet, educational applications etc.. Teachers who successfully complete the course would be awarded with certificates. Till date, a total of 24,000 teachers were trained through 11 batches of KOOL conducted so far comprising 220 mentors. In addition to this, maths lab training was provided to 2,783 higher secondary teachers through the platform, thus totalling to 8,540 in the year.



Source: KITE, 2020

of KITE for online classes from Standard 1 to 12, inclusion of Quick Response Code (QR Code) in text books from class 8 to 12 as part of DIKSHA (Digital Infrastructure for Knowledge Sharing), implementation of NSQF programme for students studying in class 11 and 12 were some of the achievements/initiatives of SCERT during the period 2016-2021.

Higher Secondary Education

Higher secondary courses were introduced in the State in 1990-91 to reorganise the secondary level of education in accordance with the National Education Policy 1986. There are 2,077 Higher Secondary Schools (HSS) in 2021 in the State. Out of these 819 (39.4 per cent) are Government schools, 846 (40.7 per cent) are aided schools and

the remaining 412 (19.9 per cent) are unaided schools. Among the Districts, Malappuram has the largest number of Higher Secondary Schools (248) in the State followed by Ernakulam (209) and Thrissur (203).

There are 7,232 batches of higher secondary classes in 2021. The total enrolment in Higher Secondary Schools was 3,68,283 in 2021. Malappuram had the largest number of batches (1,065) with highest enrolment of 56,461 students. District wise/Management-wise number of HSS and number of batches are given in **Appendix 6.1.17** and District wise enrolment of students in HSS are given in **Appendix 6.1.18**.

Box 6.1.2 Major Initiatives/activities of Samagra Siksha Kerala during 13th Five Year Plan

Free uniform

₹ 600 per child per annum is allotted for providing two pairs of free uniforms to all girls from classes one to eight in government schools, including all SC/ST students and all boys below poverty line. During 2017-2022, 30,38,323 children were provided with uniforms free of cost. An amount of ₹11,851.94 lakh was spent for this.

Free Textbooks

As part of strengthening compulsory and free primary education, free textbooks were distributed to all children in classes 1 to 8 in schools. Braille books and large print books were also provided free of cost for differently-abled children. During the period 2017-2022, a number of 90,33,765 children were provided with free textbooks. An amount of ₹15,818.18 lakh was spent for this.

LEP (Learning Enhancement Programme) aims to bring the child to a higher level in various fields. The following programmes were implemented to address the learning difficulties of the children. Malayala Thilakkam, Hello English, Hello World, Sureeli Hindi, Kunjuvayana, Shashtra Kauthukam, Geography Lab, Science Park, Shasthrapadam, Nattarang, Ullasaganitham, Ganitholsavam etc.

Innovative Activities such as Local Talent Centers, Ooruvidya Kendras, Sargavidyalayam, Sasthrolsavam were undertaken.

The Rashtriya Avishkar Abhiyan campaign involves programmes at the elementary/secondary level to make learning of science, mathematics and technology enjoyable.

During 2017-18 to 2021-22, various programmes were organized for 5,82,547 children with disabilities. An amount of ₹25,458.19 lakh was spent in this sector.

As part of empowering school libraries, age-appropriate books for each class were made available at government agencies such as NCERT, SCERT, NBT, Institute of Children's Literature, Kerala Language Institute and Bookmark. Grants were given to schools to purchase the books.

Samagra Shiksha Kerala implemented various programmes like Jwala-Girls Theatre, defensive training and career guidance programme for girls studying in 4,723 government schools.

Source: SSK

The pass percentage of students in higher secondary courses has increased from 85.14 per cent in 2019-20 to 85.56 per cent in 2020-21. In 2021, 3,61,740 students were eligible for higher studies, out of which 1,97,797 were girls and 1,63,943 were boys. The details are given in **Appendix 6.1.19**. The pass percentage of SC students slightly decreased from 68.03 per cent to 66.05 per cent and that of ST students also decreased from 63.59 per cent to 58.01 per cent in 2020-21. Details are given in **Appendices 6.1.20 and 6.1.21**.

Vocational Higher Secondary Education

Vocational higher secondary education was introduced in the State in 1983-84. Vocational higher secondary education in the State imparts education at plus two level with the objective of achieving self/wage/direct employment as well as vertical mobility. In 2021-22, there are 389 Vocational Higher Secondary Schools (VHSS) in the State with a total of 1,101 batches. Out of these 261 are in the government sector and 128 in the aided sector. Kollam (52) followed by Thiruvananthapuram (41) has the largest number of Vocational Higher Secondary Schools in the State. District wise details of VHSS and courses in 2021-22 are given in **Appendix 6.1.22**.

79.62 per cent of students were eligible for higher education in the VHS examination in March 2021. The number of students who appeared and those who passed vocational higher secondary examination from 2012 to 2021 and the results of school going students (2014-2021) are given in **Appendices 6.1.23 and 6.1.24**.

University and Higher Education

There are 14 State universities in Kerala. Out of these, four universities namely, Kerala, Mahatma Gandhi, Calicut and Kannur are general in nature and offer various courses. Sree Sankaracharya University of Sanskrit, Thunchath Ezhuthachan Malayalam University, Cochin University of Science and Technology, Kerala Agricultural University, Kerala Veterinary and Animal Science University, Kerala University of Health Sciences, Kerala University of Fisheries and Ocean Studies and Kerala Technological University offer specialised courses in specified subject areas. Sree Narayana Guru Open University, the only Open University in Kerala,

established in 2020 with headquarters at Kollam city and the Digital University established in 2020 are the newly founded universities in the mandates of education and research on cutting edge knowledge domain. Besides these, the National University of Advanced Legal Studies (NUALS) established in 2005 and a Central University incepted in Kasaragod District are also functioning in the State.

Arts and Science Colleges

In 2020-21, there are 229 arts and science colleges in the State which comprise 163 Government Aided colleges and 66 government colleges. Apart from these, various un-aided/self-financing arts and science colleges are also functioning in the State with the affiliation of universities. Ernakulam and Thiruvananthapuram (26) have the largest number of arts and science colleges in the State followed by Kottayam (24). Thiruvananthapuram and Kozhikode have the largest number of government colleges (10) in the State. District-wise details of arts and science colleges in the State in 2020-21 are given in **Appendix 6.1.25**. The details of self-financing and autonomous colleges in the State are given in **Appendix 6.1.26**.

Enrolment of students

A total of 3.39 lakh students had enrolled in various arts and science colleges (excluding unaided colleges) under the four general universities in Kerala in 2020-21. Of this 2.21 lakh (65.3 per cent) are girls. (**Table 6.1.7**)

Out of the total students enrolled for degree courses, 47.9 per cent are enrolled for B.A degree courses, 36.2 per cent enrolled for B.Sc and 16 per cent enrolled for B.Com degree courses. Girls constitute 65.4 per cent of total enrolment for degree courses. Gender-wise distribution of enrolment reveals that proportion of boys in B.Com course is higher than that in B.Sc and B.A courses. (**Figure 6.1.3**)

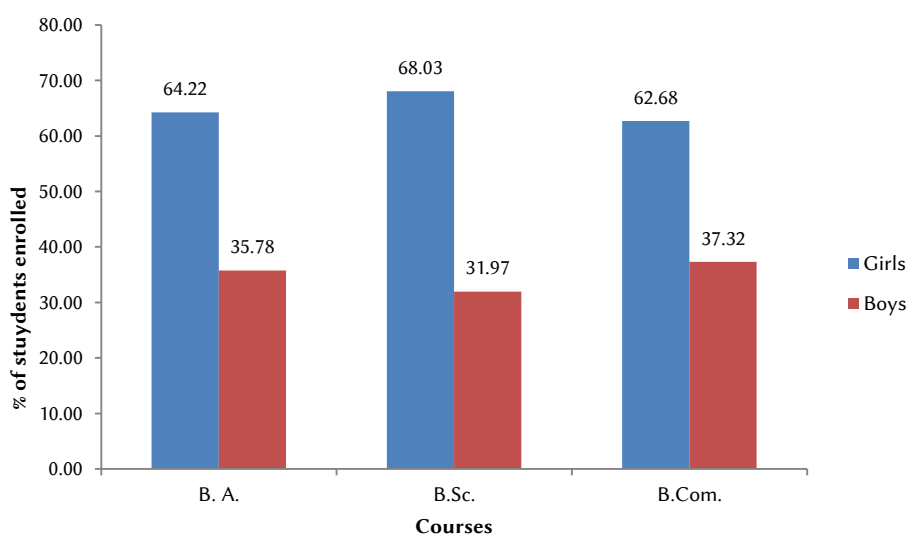
As regarding courses 27 subjects are offered for BA degree programmes. Among them, English has the largest enrolment of students followed by Economics. In B.Sc programmes 31 subjects are offered and Physics has the largest student enrolment followed by Mathematics. Details

Table 6.1.7 Enrolment of students in arts and science colleges in number and per cent

Course	Total	Girls	Boys	Per cent of girls
B. A.	1,41,358	90,784	50,574	64.2
B.Sc.	1,06,972	72,774	34,198	68.0
B.Com.	47,087	29,512	17,575	62.7
Total	2,95,417	1,93,070	1,02,347	65.4
M.A.	16,575	10,706	5,869	64.6
M.Sc.	20,515	12,938	7,577	63.1
M.Com.	7,070	4,924	2,146	69.7
Total	44,160	28,568	15,592	64.7
Grand Total	3,39,577	2,21,638	1,17,939	65.3

Source: Directorate of Collegiate Education

Figure 6.1.3 Gender-wise proportion of students in degree courses in 2020-21



Source: Directorate of Collegiate Education

of enrolment of students in arts and science colleges for B.A, B.Sc and B.Com are given in **Appendices 6.1.27, 6.1.28 and 6.1.29**. In post graduate courses, 22,723 students were admitted to in the State in 2020-21. As much as 65.6 per cent of the students enrolled in PG courses are girls. Details of enrolment of students in arts and science colleges for M.A, M.Sc and M.Com courses are given in **Appendices 6.1.30, 6.1.31 and 6.1.32**.

Scheduled Caste/Scheduled Tribe Students

The enrolment of Scheduled Caste (SC) students in degree and post graduate course in the State in 2020-21 is 31,337 which constitute 9.23 per cent of total students. The number of Scheduled Tribe students admitted to degree and post graduate courses in the State in 2020-21 is 7,358, which constitute 2.17 per cent of total enrolment.

Enrolment of SC and ST students in arts and science colleges in Kerala in 2020-21 is given in

Appendix 6.1.33. Percentage wise distribution of SC/ST students is shown in **Table 6.1.8** and **Figure 6.1.4**.

Scholarships

Central and State sector scholarships of 16 types are given to students. Various scholarships including post matric scholarships (67,563), District Merit Scholarship (19,268) and Kerala State Suvarna Jubilee Scholarship (2,146) etc, were given in 2020-21. The details of different types of scholarships offered from 2016-17 to 2020-21 are given in **Appendix 6.1.34**.

Teachers

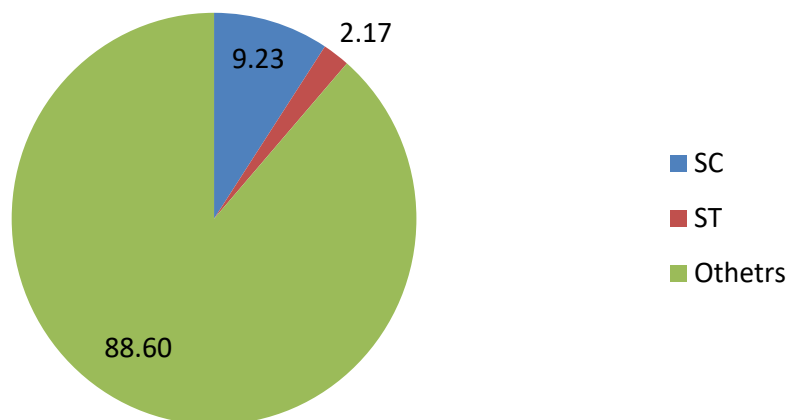
The number of teachers in arts and science colleges in the State in 2020-21 was 10,136, of whom 57.4 per cent are women. University-wise number of teachers in arts and science colleges from 2016-17 to 2020-21 is given in **Appendix 6.1.35**. It is estimated that 4,201 (41.4 per cent) teachers in arts and science colleges in the State have Ph.Ds. Details are given in **Appendix 6.1.36**. A total of 3,866 guest lecturers were working in arts and science colleges of the State in 2021. Details are given in **Appendix 6.1.37**.

Table 6.1.8 Percentage of SC and ST students in higher education in Kerala in 2020-21

Course	Total	% of SC	% of ST	% of Others
B.A	100	7.79	2.36	89.85
B.Sc	100	11.82	0.96	87.22
B.Com	100	8.06	1.90	90.04
Total	100	9.29	1.78	88.93
M.A	100	8.69	5.89	85.42
M. Sc	100	8.06	3.67	88.27
M.Com	100	11.22	5.28	83.51
Total	100	8.80	4.76	86.44
Grand Total	100	9.23	2.17	88.60

Source: Directorate of Collegiate Education

Figure 6.1.4 Percentage of SC/ST students in degree and PG courses



Source: Directorate of Collegiate Education

Kerala State Higher Education Council

Recognizing the importance of State-level planning and co-ordination for the effective implementation of national level policies in higher education, the National Policy on Education, 1986 suggested that State Council of Higher Education be set up in all States. Accordingly, the Kerala State Higher Education Council came into existence on March 16, 2007. The Council is the principal higher education think tank of the State and it provides policy advising to bring about equity, access and excellence in higher education sector. The major responsibilities of the Council are:

- Act as an agency for formulating higher education policies of the State
- Render advice to the Government, universities and other institutions of higher education in the State
- Co-ordinate the activities of various agencies of higher education in the State
- Initiate new concepts and programmes in higher education
- Provide common facilities in higher education without impinging upon the autonomy of other institutions of higher education

The Major Initiatives of the Higher Education Council during the 13th Five Year Plan SAAC

The council has formulated the concept of state level accreditation mechanism namely SAAC, in line with the suggestions of National Assessment and Accreditation Council and University Grants Commission with the objective of accomplishing the task of assessing and grading the institute affiliated/educational institutions.

Community Higher Education (Prabudhatha)

This is an initiative formulated to help the larger public to be aware of how advanced knowledge impacts the quality of life and conditions of human existence.

e-Journal Consortium

It is the facility to provide the academic community with free access to e-journals across institutions in the country. This is done by Information and Library Network Centres through which expenditure can be reduced considerably. Almost all the journals and database in the relevant disciplines can be subscribed at a negotiated cost fully funded by the Government/

Universities. Kerala State Higher Education Council acts as a nodal agency in the State with the participation of all the Universities in the State.

Kerala Academic Libraries Network (KALNET)

This initiative ensures the co-operation of the libraries attached to the Higher Education Institutions by forming a network in the State which would enable sharing of resources among them. KALNET consists of two levels;

- Libraries of a University to be networked and to be known by the name of the University.
- The network of the affiliated college libraries which in turn would be linked to KALNET

Digital Enablement of Higher Education Institutions in Kerala

This has been envisaged as one of the measures in the higher education sector to mitigate Covid-19. This scheme was formulated to digitalize the teaching/learning process in higher education. It plans to establish Moodle Learning Management System (LMS) in all the higher education institutions in the State, especially colleges and universities, in 100 days.

Kerala Council for Historical Research (KCHR)

KCHR is an autonomous academic institution, established in 2001, committed to scientific research in archaeology, history and social sciences. It is a recognised research centre of the University of Kerala and has bilateral academic and exchange agreements with leading universities and research institutes in India and abroad.

Major Initiatives of KCHR during the 13th Five Year Plan

Various research projects such as flood archives and memories, digitising Kerala's past, the visibility, cityscapes, public history: ways of thinking contemporary Kerala etc have been initiated by KCHR. Another area of focus is post excavation research on Pattanam archaeological finds. KCHR has taken efforts to initiate the Cosmos Malabaricus project, in collaboration with the Leiden University, Netherlands that focuses on the study of early modern Dutch Script.

Kerala State Skill Development Project and Additional Skill Acquisition Programme (ASAP)

ASAP, a part of the State Skill Development Project (SSDP) was launched in 2012 jointly by the Higher and General Education Departments. It aims at tackling the problem of educational unemployment by introducing market-oriented foundation training, vocational training and career counseling alongside the general curriculum at the higher secondary and under graduate levels. The conducive environment set by ASAP has scaled up students employability and honed their professional skills. In 2019-20, ASAP focused upon strengthening the Advanced Skill Development Centres (ASDCs) established in Engineering Colleges and Polytechnic Colleges to close the skill gap of technical students and make them ready for the future industry. Advanced multi skill training centres and Community Skill Parks (CSPs) were also operationalized for equipping community in demand based job roles in the industry.

Major Achievements/ Initiatives of ASAP during the 13th Five Year Plan Period- Best Practice in Skilling

In 2017, ASAP was recognised nationally by Niti Aayog, as a best practice in skill development. The Asian Development Bank (ADB) has selected ASAP as the best project in India that effectively implemented the Gender Action Plan (GAP) among ADB projects.

Community Skill Park is ASAP's path-breaking concept to impart training on different type of skill acquisition to the community at large. CSPs operate on a hub and spoke model and connect with academic institutions, vocational training institutions and the local industry to foster a skill development ecosystem. A total of 16 Community Skill Parks are operationalized by ASAP in various parts of the State. These multi-skill development hubs are equipped with modern training facilities that facilitate skill-enhancing opportunities for all ages and social groups.

Advanced Skill Development Centres are equipped with training facilities aimed at creating a unique skill development ecosystem to equip the youth for the emerging technology-intensive job roles. ASAP Kerala also offers

foreign language training through its multi-language training centres established in selected Community Skill Parks.

SHE SKILLS is a training programme conducted by ASAP in 2019 exclusively for women in Kerala above the age of fifteen. The initiative is aimed to improve the living standards of women by facilitating them to acquire skills, assist women to become economically self-sufficient and connect them with opportunities of employment. The programme has trained 5,529 women above the age of 15 years.

Reboot Kerala Hackathon 2020 - Kerala's Biggest Hackathon Series was organized by ASAP in the year 2020 to provide college students of the State an opportunity to find innovative solutions to some of the pressing problems faced by various government departments. The first phase of Reboot Kerala Hackathon 2020 had 10 regional hackathons in which 1,608 students participated, followed by a Grand Finale.

Samathwa 2019-Gender Workshop was organised by ASAP in 2019 on the theme "Enhancing Gender Equity in Employment in Industries and Businesses in Kerala" to understand the issues leading to low participation of women in the economic activities of the State.

Rashtriya Uchathaar Shiksha Abhiyan (RUSA) The key objectives of RUSA are to improve access, equity and quality in higher education through planned development of higher education at the State level. Objectives include creating new academic institutions, expanding and upgrading the existing ones, developing institutions that are self-reliant in terms of quality education, professionally managed, and characterized by greater inclination towards research and provide students with education that is relevant to them as well as the nation as a whole.

Under RUSA Phase-I, ₹170.00 crore was approved and out of this ₹146.97 crore was released. As part of the first phase of RUSA, infrastructure grants to six universities and 26 colleges and faculty improvement and

equity initiatives for several other colleges were approved. As part of RUSA I project, video conferencing facilities has been built in all colleges.

Under RUSA Phase-II, ₹355.00 crore has been approved and out of which ₹138.00 crore was released. A RUSA Model Degree college, five autonomous colleges for enhancing quality and excellence, 112 colleges for infrastructure grants and two Universities for research, innovation and quality improvement have been approved.

Technical Education

Technical education aims at human resource development by way of application of technology for the benefit of society, in terms of improving the quality of life, enhancing industrial productivity and improvising technologies for the overall development of the community. Technical education imparts education to young generation enabling them to contribute to the sustainable development and improvement of quality of life of the society. Emphasis was given to promote innovative thinking and entrepreneurship development among students.

Directorate of Technical Education is the nodal department for technical education in the State. The details of technical institutions under the administrative and financial control of Directorate of Technical Education are given in **Appendix 6.1.38**

Engineering Colleges

There are 175 engineering colleges in the State with a sanctioned intake of 47,025 in 2020-21. Out of these engineering colleges, 163 (93.1 per cent) are self-financing colleges (unaided), 9 (5.1 per cent) are government colleges and 3 (1.7 per cent) are government aided colleges. Highest number of the unaided engineering colleges are functioning in Ernakulam (30) followed by Thiruvananthapuram (26). There is no government engineering college in Kollam, Pathanamthitta, Alappuzha, Ernakulam, Malappuram and Kasargod Districts. District wise and management wise details of engineering colleges and sanctioned intake are given in **Appendix 6.1.39**. The sanctioned intake of

government colleges in 2021 was 3,570 (7.6 per cent), aided colleges 2,030 (4.3 per cent) and unaided colleges 41,425 (88.1 per cent).

Of the engineering colleges in Kerala, the highest number of branch wise seats in 2021-22, was in Computer Science and Engineering (9,335) followed by Mechanical Engineering (9,030), Civil Engineering (8,169) and Electronics and Communication Engineering (7,134). But in 2020-21, highest number of seats was in mechanical engineering branch (9,780). Branch-wise distribution of seats in engineering colleges in 2021-22 is given in **Appendix 6.1.40**. At graduate level, the proportion of girls' intake was 41.8 per cent in 2020-21 in government and aided colleges. 1,700 students have been admitted in government and aided engineering colleges for post graduate courses in 2020-21. Girl students constitute 67 per cent of total students in government and aided engineering colleges studying for post graduate courses. Details are given in **Appendices 6.1.41 and 6.1.42**.

Academic Excellence in Engineering Colleges

The academic excellence in government engineering colleges is high and appreciable and this was due to the high pass percentage and increasing placement of students in reputed firms. Government aided colleges performed better than others (Government, Govt. Self-financing, Private Self-financing) with 77.65 pass percentage followed by government engineering colleges with 72.95 per cent. The pass percentage of government self-financing colleges (59.69 per cent) is above the private self-financing engineering colleges which secured 51.10 per cent. Compared to boys, girls performed better with a pass percentage of 70.34. It is to be noted that though the registered number of boys are more than girls, the number of boys passed are lesser than girls (**Table 6.1.9**). It is disturbing that the pass percentage of SC/ST students (32.54 per cent and 23.33 per cent respectively) is far below the State average (**Table 6.1.10**).

The placement record of the students in various government institutions is also relatively high. A large number of students are also being qualified for higher studies through competitive examinations like GATE and CAT. Most of the students get placement in multinational firms like WIPRO, MAHINDRA, TCS and BOSCH etc.

Table 6.1.9 Details of B.Tech result, 2021

Management	Boys			Girls			Total		
	Registered Students	Passed Students	Pass Percentage	Registered Students	Passed Students	Pass Percentage	Registered Students	Passed Students	Pass Percentage
Government	2,034	1,373	67.5	1,293	1,054	81.52	3,327	2,427	72.95
Govt. Aided	1,236	919	74.35	648	544	83.95	1,884	1,463	77.65
Govt. Self Financing	2,402	1,218	50.71	1,981	1,398	70.57	4,383	2,616	59.69
Private Self Financing	11,564	4,749	41.07	7,264	4,873	67.08	18,828	9,622	51.10
Total	17,236	8,259	47.91	11,186	7,869	70.34	28,422	16,128	56.74

Source: Kerala Technological University, 2021

Table 6.1.10 Pass percentage of SC and ST B.Tech students, 2021

Management	SC			ST		
	Registered Students	Passed Students	Pass Percentage	Registered Students	Passed Students	Pass Percentage
Government	239	109	45.6	32	8	25
Govt. Aided	119	51	42.85	17	4	23.52
Govt-Self Financing	157	30	19.1	6	1	16.67
Private Self Financing	364	96	26.37	5	1	20
Total	879	286	32.54	60	14	23.33

Source: Kerala Technological University, 2021

Details of visiting faculty programmes and placement details of students of various government engineering colleges in 2020-21 are given in **Appendices 6.1.43 and 6.1.44**. (Due to Covid-19 Pandemic, the admission process and timely conduct of examination and result announcement are delayed. So the details are available only for the year 2020-21).

Polytechnics and Technical High Schools

There are 45 government polytechnics and 6 government aided polytechnics in Kerala in 2020-21. The annual intake of students in government polytechnics and government aided polytechnics in 2020-21 are 11,727 and 1,553 respectively. The total number of students in government polytechnics in 2020-21 is 31,285

and that in government aided polytechnics is 4,458. Details of annual intake and student strength in polytechnics for the year 2016-17 to 2020-21 are given in **Appendices 6.1.45 and 6.1.46**. Details of trade-wise annual sanctioned intake of students in polytechnics of the State in 2021-22 are given in **Appendix 6.1.47**. Student intake is highest in the trade of Computer Engineering (2,030) followed by Electronics Engineering (2,020), Mechanical Engineering (1,740) and Civil Engineering (1,420).

Girls constitute only 28.1 per cent of the total strength in polytechnics while their proportion in government and aided polytechnics are 28.2 per cent and 27.5 per cent respectively. Total number of teachers working in polytechnics of

Box 6.1.3 Scheme for Her Empowerment in Engineering education (SHE)

The programme, ‘Scheme for Her Empowerment in Engineering education’ (SHE), initiated at Government College of Engineering, Kannur during 2020-21, proposes to enable girl students to realize how much potential and support they require to become great leaders in technical fields. The contributors to the programme are the alumni, teaching fraternity of Government College of Engineering, Kannur, resource persons from external agencies and experts from different walks of life. The programme also seeks support from PTA and the HRD cell of Government College of Engineering, Kannur.

Major initiatives under this programme

THE LOCKDOWN TALK SERIES consisted of 13 online sessions that covered a variety of topics, right from competitive exams to general topics like mental and physical health, with the sessions handled by various domain experts.

The online group SHE CODERS currently has over 100+ active members further divided into 18 subgroups. Each group is given separate peer mentors to ensure individual attention. Apart from regular online discussions, the forum also has a dedicated Youtube Channel.

“Mission: Build Website” was an online WEBSITE DEVELOPMENT BOOTCAMP held for the female student community.

‘WE FOR WE - WOMEN ENGINEERS FOR WOMEN ENTREPRENEURS’ was organized in association with Kerala Startup Mission. This virtual makeathon was held exclusive for girls of engineering colleges across the State, to help bring together budding women engineers to present solutions to some of the challenges that women, especially newbie entrepreneurs, face.

The SHE initiative also conducted an inter-collegiate debate competition for the female engineering students of the State on whether the pandemic work culture is detrimental to women in tech. Mentor groups were also formed. Webinars and talks were held on women empowerment.

The scheme is proposed to be extended to all higher education institutions under DTE from 2022-23 onwards.

Source: Directorate of Technical Education, Kerala

the State in 2020-21 is 1,531. The proportion of female teachers is also less (40.8 per cent). In government aided polytechnics, female teachers constitute 23.2 per cent while the respective proportion in government sector is 44.7 which is comparatively high.

Details of number of students and teachers in polytechnics are given in **Appendix 6.1.48**. Number of SC/ST students and SC/ST teachers in polytechnics from 2018-19 to 2020-21 (**Table 6.1.11**) are given in **Appendix 6.1.49**.

Thirty nine government technical high schools are functioning in the State. Total number of students and teachers in technical high schools in 2021-22 is 7,834, and 522, respectively. Women teachers constitute 33.3 per cent of teachers in technical high schools. Number of students

and teachers in technical high schools from 2016-17 to 2021-22 are given in **Appendix 6.1.50**. Like the previous year, the percentage of SC and ST students in technical high schools has remained almost same at 10.4 per cent 0.8 per cent respectively. Details are given in **Appendices 6.1.51 and 6.1.52**.

Kerala’s performance in the area of education has got wide recognition and has been intensely researched. As far as school education is concerned, Kerala is recognised as one of the highly advanced States in India in education. Even though the enrolment ratio in secondary education are considerably high, the performance of the State in higher education is not as impressive as in the case of school education. Initiatives are needed to improve the quality of education, equity, better enrolment, better

Table 6.1.11 *Percentage of SC and ST students in Polytechnics*

Type of Institution	2018-19				2019-20				2020-21			
	SC	ST	Others	Total	SC	ST	Others	Total	SC	ST	Others	Total
Government	7.1	1.0	91.9	100	8.0	1.1	91.0	100	7.46	0.83	91.7	100
Govt. Aided	4.6	0.5	94.9	100	5.1	0.5	94.4	100	6.5	0.40	93.1	100
Total	6.8	1.0	92.3	100	7.6	1.0	91.4	100	7.3	0.80	91.9	100

Source: Directorate of Technical Education

standards of research, publishing IPR etc., to uplift the higher education sector to international standards.

The higher education sector needs to change in response to the emerging changes in the sector across the globe. Due to increase in automation and use of artificial intelligence in every field, some jobs will become redundant while new jobs with entirely different skill requirements will emerge. Hence the vocational stream has to align itself to the demands of the changing economy. In order to ensure the quality of higher education, serious and focussed attempts have to be taken to increase the number of arts and science colleges with accreditation of National Assessment and Accreditation Council (NAAC) and engineering colleges with accreditation of National Board of Accreditation (NBA). The integration of online sessions with active student-teacher interactions and other active learning methods is the need of the hour in Kerala's higher education sector.

As far as technical education is concerned, the mismatch between demand and supply is more pronounced. The technical education in Kerala has a very narrow base. Many of the courses under technical education with good potential for employment are not available in Kerala. Another major missing link is the absence of more national level educational institutions in Kerala. The main problems related to higher education in Kerala are quality, cost and graduate unemployment level.

Post-Covid educational scenario would be radically different from pre-Covid scenario. But our basic objective would remain the same, namely democratization of higher education

ensuring equity, access and quality. Though online learning can provide the learners exposure to the virtual as a supplementary to the traditional classroom learning, issues like availability of digital gadgets and serious health hazards for both teachers and learners in online education have to be addressed. Hence, a blend of traditional and online learning strategy would be more effective than either traditional or online mode exclusively for ensuring greater access, equity and quality.

Way Forward

Higher education in Kerala has been subject to significant policy shifts. The Government of Kerala has placed special emphasis on improving the quality of higher education in the State as part of its policy to build and nurture a knowledge economy. Three Commissions have been constituted at the State level to explore reform initiatives in Higher Education System of the State. Their objectives are: (i) to examine important aspects of the existing system of higher education in the State, particularly keeping in view the larger objectives of transforming the State into a knowledge society and developing a knowledge economy, (ii) to review the present state of examination in the Universities and higher education Institutions of Kerala, and (iii) to examine the laws, statutes, regulations and ordinances of universities, particularly in the context of the regulations of U.G.C., A.I.C.T.E. and N.C.T.E., and to formulate proposals for revising them, keeping in view the larger objectives of transforming the State into a knowledge society. These reforms in higher education would definitely improve the quality of research, education and outreach and functions of higher education institutions.

6.2 MEDICAL AND PUBLIC HEALTH

Improvement in the health status of the people is one of the crucial indicators of human development in a community. Kerala's health sector has been a model for other States of India not only in terms of gains in the sector but also in dealing with public health exigencies. The health system rose to the occasion in dealing with the present Covid-19 pandemic situation. In fact, it is the strong public health system in the State that made it possible to deal with the Covid-19 pandemic.

It is well known that the State has made significant gains in health indices such as high life expectancy, infant mortality rate, birth rate, and death rate. The health standards in the State are comparable with countries of the developed world and the responsibility of the State is to ensure that the gains made in the health sector are sustained. During the 14th Five-Year Plan period, the State aims to make the best possible preventive, curative, and palliative care available in the public sphere. The objective of the Government is to establish a people-friendly health-care delivery system.

Health Indicators of Kerala

Various health and demographic indices reflect the achievements in Kerala's health sector as compared to national scenario. Maternal Mortality Ratio (MMR) is only 43 in Kerala whereas the all India ratio is 113. Kerala has brought down IMR from 7 in 2018 (reference year) to 6 in 2019 (reference year). Expectancy of life at birth in Kerala is much higher than the figure for India. Percentage of death not receiving medical attention of qualified professionals is only one-fourth of the national average. However, still birth rate in Kerala is slightly higher than that of all India. This may be attributed to the fact that institutional birth in Kerala is high compared to national level. Hence the cases of still birth are registered. Fertility rates are lower than that of national figure except for total Marital Fertility Rate. Percentage of live births without medical attention of qualified professionals received by mothers in Kerala is only 0.1 against 7.8 at national level.

Child Mortality at Different Levels

Infant Mortality Rate (IMR) in Kerala is only one fifth of national average figure of 30. Kerala is the only large State in India with a single digit IMR of 6. Neo Natal Mortality Rate (NNMR) in the State is less than one-fifth of the national average. Under-five mortality (under 5 MR) rate is less than one-third compared to all India figure. Perinatal Mortality Rate (PNMR), Early Neonatal Mortality Rate (ENMR), Late Neo-natal Mortality Rate (LNNMR) and Post Neo-natal Mortality Rate (PNNMR) are far below than the all India figure. Child Mortality Rates at different levels are far better than the national figures. One of the main reasons for these achievements is the medical attention received by mothers in Kerala. Percentage of live births getting medical attention of qualified professionals received by mothers in Kerala is 99.9 per cent against 92.2 per cent at national level. Details of child mortality rate at different levels and percentage of live births getting medical attention of qualified professionals received by mothers in Kerala are given in the **Table 6.2.1.**

Fertility

As per National Family Health Survey 2019-20 (NFHS-5), the median age at first marriage in Kerala is 21.5 years among women aged 25-49 years. Six percent of women aged 20-24 years got married before attaining the legal minimum age of 18 years. Only 10.2 percent of women aged 20-49 years have never married compared with 35.9 percent of men aged 20-49. Total fertility rate expressed per women (TFR 15-49) is 1.79 as per NFHS-5. It was 1.56 and 1.93 as per NFHS-4 and NFHS 3 respectively. Fertility rate has increased between NFHS-4 and NFHS-5. Crude birth rate expressed per 1000 population (CBR) is 11.8 as per NFHS-5. It was 11.2 and 16.4 as per NFHS-4 and NFHS-3 respectively. Comparative figures of major health and demographic indicators at the State and National level are given in **Table 6.2.2.**

Aardram Mission

The Aardram Mission was started during the 13th Five Year Plan period in order to make government hospitals people-friendly

Table 6.2.1 Details of child mortality rate at different levels and percentage of live births getting medical attention of qualified professionals received by mothers in Kerala and India

Sl. No.	Indicators	Kerala	India
1	Natural Growth Rate #	6.4	13.8
2	Infant Mortality Rate #	6	30
	Male	6	30
	Female	7	31
3	Neo Natal Mortality Rate*	5	23
4	Perinatal Mortality Rate*	10	22
5	Child Mortality Rate*	2	9
6	Under 5 mortality Rate*	10	36
7	Early Neo-natal Mortality Rate*	5	18
8	Late Neo-natal Mortality Rate*	1	6
9	Post Neo-natal Mortality Rate*	2	9
10	Crude Death Rate*	6.9	6.2
11	Percentage of live births by type of medical attention received by mothers*		
	Government	44.9	54.5
	Private	54.9	28
	Qualified professional	0.1	9.7
	Untrained/others	0.1	7.8

Source: # SRS 2021 October
* SRS Statistical Report 2018

by improving their basic infrastructure and capacity to provide services. The mission aims to improve the efficiency of services and facilities in the government hospitals with a view to extend treatment at a reasonable cost, time and satisfaction. The major objectives of the mission are the following – (i) Patient friendly transformation of the outpatient (OP) wings of medical college hospitals and other government hospitals, (ii) Standardisation of the district and taluk level hospitals, (iii) Developing the PHCs into FHCs in a phased manner and (iv) Ensuring protocol based treatment guidelines in the management of patients in hospitals.

Aardram Mission is implemented in three stages in Government medical college hospitals, district hospitals, taluk hospitals and primary health centres (PHCs). The conversion of PHCs as family health centres (FHCs) with adequate supply of drugs and assured treatment protocols would ensure better health among people and enhance their trust in the public health system.

Family Health Centres

In the first phase in 2017-18, Government identified 170 PHCs covering all 14 districts for developing into Family Health Centres. Out of this, 166 FHCs are already made functional and the rest is progressing. In the second phase in 2018-19, 504 PHCs were selected for developing into FHCs in which 329 are completed and works are progressing in other PHCs in different stages. Transformation of the PHCs into FHCs has evoked encouraging community response. In the third phase 212 PHCs were selected for developing into FHCs using fund under National Health Mission in which 6 are completed. In addition to this 76 Community Health Centres (CHCs) were selected as first phase to convert into Block Family Health Centres during 2019-20 and another 76 Community Health Centres (CHCs) were selected as second phase to convert into Block Family Health Centres during 2021-22.

Table 6.2.2 Demographic, socio-economic and health profile of Kerala as compared to India, in number and per cent

Sl. No.	Indicators	Kerala	India
1	Total population (in crore) (Census 2011)	3.34	121.06
2	Decadal Growth (per cent) (Census 2011)	4.90	17.7
3	Sex Ratio (Census 2011)	1084	943
4	Child Sex Ratio (Census 2011)	964	919
5	Birth Rate [#]	13.5	19.7
6	Death Rate*		
	(a) Children (0-4)	2.1	8.9
	(b) Children (5-14)	0.2	0.5
	(c) Persons (15-59)	2.1	2.9
	(d) persons (60 and above)	41.2	42.6
7	Per cent of death receiving medical attention*		
	Government	42.8	29.4
	Private	36.8	18.5
	Qualified professional	15.4	33
	Untrained/others	5	19.2
8	Still Birth Rate*	5	4
9	Crude Birth Rate*	13.9	20
10	Total Fertility Rate*	1.7	2.2
11	General Fertility Rate*	48.6	70.4
12	Total Marital Fertility Rate*	5.1	4.9
13	General Marital Fertility Rate*	69.5	109.2
14	Gross Reproduction Rate*	0.9	1
15	Female mean age at effective marriage*		
	(a) Below 18	17	16.8
	(b) 18-20	19.1	19.2
	(c) Above 21	24.6	24
	(d) All age	23.2	22.3
16	Maternal Mortality Ratio**	43	113
17	Expectancy of Life at Birth***	75.3	69.4
	Male	72.5	68.2
	Female	77.9	70.7

Source: # SRS 2021 October

* SRS Statistical Report 2018

**Special Bulletin on MMR 2016-18

***SRS Life Table 2014-18

For implementing the Mission activities, additional posts of one medical officer, two staff nurses and one lab technician each were created. These posts were filled in order to ensure that there will be a minimum of 3 doctors and 4 nurses in the FHCs. In the first phase of Aardram Mission, 830 posts were created consisting of medical officers (170), staff nurse (340), pharmacist (150) and lab technician (170). In the second phase 1,000 posts have been created consisting of medical officers (400), staff nurse (400), pharmacist and lab technician (200).

Service delivery of these institutions in terms of clinical care and public health activities have been augmented and outpatient care is provided in the afternoon upto 6.00 PM. Through the implementation of e-health project, it is expected to further develop individual patient care plan and family health plan based on family health register data. Ward and Panchayat level health plan focusing on preventive, promotive and rehabilitative healthcare services would be developed in association with Panchayats and with public participation. A new health volunteer system called Arogyasena has been launched as part of Aardram mission. One volunteer is working for each 15-20 houses with a total number of 1,05,211 volunteers in the State. In addition to this 'Oorumitram' ASHA programme is implemented in tribal areas. One ASHA is placed in each tribal colony. A total number of 501 ASHAs are working all over Kerala which include Wayanad (241), Kannur (12), Idukki (14), Thiruvananthapuram (80), Kollam (25), Kottayam (19), Kozhikode (42), Ernakulam (20) and Thrissur (24). Public health interventions focusing on the re-organisation of the primary healthcare system based on the epidemiological needs of the Kerala society especially combating the challenge of non-communicable diseases constitute the focus areas of the programme. Treatment guidelines for 53 common medical conditions to be managed at PHC level have been prepared and made available for Medical Officers.

New initiatives started as part of Aardram Mission in FHCs

- 'ASWASAM' depression management clinics in Primary Care were started in 224 Family Health Centres across the State.

- Chronic Obstructive Pulmonary Disease (COPD) control programme called 'SWAAS' is implemented from Family Health Centre level onwards in Kerala as part of Aardram Mission.
- Conversion of 3,113 sub centres into health and wellness centres is progressing. In 1,603 centres middle level healthcare providers – staff nurses are posted on temporary basis.
- Patient friendly hospital environment in all hospitals.
- OP facilities extended in all PFHCs up to 6.00 pm every day.
- Nurses' pre check-up facilities started in FHCs.
- Laboratory facilities started in FHCs.
- Life style diseases clinic will function in all FHCs in all days.
- Sampoorana Manasika Arogyam Programme (SMAP) started in FHCs.
- Comprehensive sub centre services initiated.

Patient Friendly Transformation of the Outpatient Wings of Government Hospitals

Considering the fact that medical college hospitals and district level hospitals are larger institutions providing outpatient care for a large number of patients every day, patient friendly transformation of the outpatient wings of these hospitals was taken as a priority item under Aardram Mission. Outpatient transformation with adequate OP registration counter, patient waiting area, adequate seating facilities, token system and other amenities like drinking water, toilet facilities, public address system, information education and communication arrangements and signage systems are being incorporated. Support of patient care coordinators for larger institutions on a temporary basis would also be provided. For ensuring quality medical care, OP computerisation, providing adequate facilities in the consultation rooms and a guideline based case management are planned. These are being implemented in government medical college hospitals and district level hospitals.

People Friendly OP Transformation of General/District/Taluk Hospitals

There are a total of 18 General hospitals and 18 District hospitals in the States. Out of this only 15 institutions have been selected for OP transformation (one hospital each in 11

Districts and two hospitals from Kasaragod and Wayanad Districts). The construction work of 10 hospitals has been completed. The work in other hospitals is progressing well. Out of the total 86 Taluk hospitals, 36 institutions are selected for standardisation in a phased manner in which one is completed. Post creation in District/General/Taluk hospitals as part of ArDRAM was 891 consisting of 14 Super Specialists, 252 Specialists and Casualty Medical Officers, 197 Staff Nurse, 84 Lab Technicians and 344 Paramedical Staff.

New Initiatives taken in Medical Colleges

Aardram Mission is aimed to provide patient friendly and quality care services to the outpatient wing of Medical Colleges. As a first step, Medical Colleges at Thiruvananthapuram, Paripally, Alappuzha, Kottayam, Ernakulam, Thrissur, Malappuram and Kozhikode were selected for the implementation of OP Transformation. Presently the works in these 8 Medical Colleges have been completed. The main components of the projects are making available online registration facility for reducing waiting time of patients at hospitals, constructing new OP waiting areas, providing drinking water facilities, renovation/reconstruction of toilet blocks, OP rooms for all departments, proper signage to different services, TV and display board, airport chairs, public address system, providing air conditioners in OP rooms, and providing ramp. Status of

infrastructural development in hospitals under ArDRAM Mission is given in **Table 6.2.3**.

National Quality Assurance Standards (NQAS)

Even though NQAS was started in 2013, Kerala was not able to accredit many institutions with NQAS as certain check points in the NQAS check lists were not applicable to Kerala. The NQAS check lists were customised according to Kerala standards in 2017 with the help of National Health Systems Resource Centre. This was done by removing some items irrelevant to Kerala conditions and by adding palliative care into the check list. After customising the check list, Kerala has made tremendous progress in NQAS accreditation. Up to October 2021, 131 institutions out of 1284 institutions [districts hospitals (3), taluk hospitals (4), Community Health Centre (7), Family Health Centre (83) and Urban PHC (34)] of DHS from the State have already completed national level certification. Number of KASH (Kerala Accreditation Standards for Hospitals) accredited institutions in Kerala is 128.

e-Health Project

The e-Health project targets to link health institutions all over Kerala. The project aims to build a database of individual medical records easily accessible to the medical practitioners. It includes unique patient identification in

Table 6.2.3 Status of infrastructural development in hospitals under ArDRAM Mission

Type of Hospitals	Phases	Total Institutions	AS Issued	Work Completed	Work Progressing
PHCs into FHCs	1st Phase	170	170	166	4
	2nd Phase	504	445	329	61
	3rd Phase	212	40	6	9
	Total	886	655	501	74
CHC to Block FHCs	1st Phase	76	28	0	0
	2nd Phase	76	0	0	0
OP's of District / General Hospitals	1st Phase	15	15	10	5
OP's of Taluk Hospitals	1st, 2nd and 3rd Phases	86	36	1	35
Medical Colleges	1st Phase	8	8	8	0

Source: Directorate of Health Services

different settings and exchange of data between different healthcare delivery units at primary, secondary and tertiary level across State. This could avoid the repeated medical tests and can thereby reduce out of pocket expenses arising out of rush to clinics and labs. The scheme is being implemented in all the fourteen districts of Kerala with Thiruvananthapuram as the pilot district. e-health is completed in 326 hospitals in which 71 are working as paperless hospitals. Niti Aayog has appreciated the e-health project of the State. Kerala is the only State in the country where the data base of 2,62,96,323

people has been collected and stored as electronic records. The details are given in **Table 6.2.4**.

Health Sector Financing during Plan Periods

Health has been a major area of allocation in the State Budget in the past years. Government healthcare expenditure has been showing a steady increase in recent years. Kerala invests approximately five per cent of its total State Plan outlay on healthcare excluding the contribution of LSGs and other line departments. In addition to this, the Government is investing large amounts in this sector through KIIFB and

Table 6.2.4 District wise demographic data surveyed under e-health programme

Sl. No.	District	Demographic Data Surveyed	Sl. No.	District	Demographic Data Surveyed
1	Thiruvananthapuram	25,03,294	8	Thrissur	23,47,761
2	Kollam	22,03,518	9	Palakkad	23,65,908
3	Pathanamthitta	10,71,531	10	Malappuram	38,48,964
4	Alappuzha	15,50,283	11	Kozhikode	25,19,231
5	Kottayam	15,23,497	12	Wayanad	6,31,856
6	Idukki	8,80,329	13	Kannur	19,58,794
7	Ernakulam	18,74,357	14	Kasaragod	10,17,000
Total		2,62,96,323			

Source: e-health Kerala, DHS as on December 24, 2021

Table 6.2.5 Department-wise outlay and expenditure, 13th Plan 2017-22, in ₹ crore

Department	Annual Plan 2017-18		Annual Plan 2018-19		Annual Plan 2019-20		Annual Plan 2020-21		Annual Plan 2021-22 (Exp. upto October 31)	
	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.
Health Services	724.02	98	789.21	84	783.29	82	991.40	135	991.40	48
Medical Education	470.09	82	494.14	56	484.25	72	420.60	77	420.60	18
Indian Systems of Medicine	43.20	82	48.20	70	47.55	67	41.95	120	41.95	25
Ayurveda Medical Education	46.00	48	50.60	51	49.75	41	43.20	39	43.20	4
Homeopathy	23.00	88	27.00	100	26.60	65	23.75	85	23.75	39
Homeo Medical Education	8.64	43	10.15	100	10.00	68	8.65	170	8.65	91
Total	1314.95	89	1419.30	73	1405.94	76	1529.55	115	1529.55	38

Source: Plan Space

NABARD assistance for construction of building and purchase of high end equipment. The outlay earmarked for the implementation of schemes during 12th Five-Year Plan was ₹3,31,888 lakh (BE). The total expenditure reported during the Plan period was ₹3,00,600.50 lakh (90.57 per cent). In the 13th Five Year Plan, ₹718463 lakh was allocated to the health sector. Department-wise Plan outlay and expenditure during the last four Annual Plan periods of 13th plan and total outlay and expenditure upto October 2021 (2021-22) is given in **Table 6.2.5**.

Both plan as well as non-plan expenditure on health have increased over these five years and in 2020-21, government has spent more than what was estimated in the budget due to unexpected huge demand during the pandemic. Plan and non-plan investment in Health and Family Welfare from 2017-18 to 2021-22 both in revenue and capital expenditure are given in **Table 6.2.6**.

MAJOR HEALTH PROBLEMS IN KERALA

Communicable Diseases

Kerala is witnessing an increasing burden of communicable and non-communicable diseases. Although the State has been successful in controlling a number of communicable diseases earlier, the prevalence of dengue, leptospirosis, malaria, hepatitis, H1N1, scrub typhus, Covid-19 in recent years has led to considerable morbidity and mortality. Instances of vector borne diseases like dengue, malaria and scrub typhus incidents have been seen in many districts. Water borne infections like different kinds of diarrhoeal diseases, typhoid and hepatitis are also reported in many districts.

Prevalence of Major Communicable Diseases

A comparative analysis of the prevalence of major communicable diseases is given in **Table 6.2.7**.

Dengue

Dengue fever, which surfaced in Kerala as early as 1998, has now become the single largest vector borne disease in the State. Till 2015, the disease was more prevalent in districts like Thiruvananthapuram, Kollam, Kottayam, Pathanamthitta, Kozhikode and Malappuram. But in 2017, all the districts reported dengue and that too in large numbers. Districts located at higher altitudes were having low prevalence, but all others showed high incidence of the disease. These mosquitoes, which in the earlier days were seen more in rural settings, have now spread to urban areas also. Details of cases and death from 2017 to 2021 (till August 2021) are given in **Table 6.2.7**.

Leptospirosis

Leptospirosis is another public health challenge faced by the State. Considered as a rare disease in early 1980, later spread to all districts. The disease was seen initially as a rodent borne infection, spread through urine of the infected rodents and the consequent contamination of the environment. Over the years, the disease has been reported in many domestic animals like cows, dogs and pigs and thus has become an occupational risk for those engaged in agriculture works. People, who have been involved in cleaning of stagnant canals and drains, were reported to have contracted the disease. More recently the mortality due to leptospirosis is also on the rise and joint efforts of veterinary and animal husbandry departments are essential for effective control of this disease. District wise

Table 6.2.6 Investment in Health and Family Welfare, ₹ in crore

Year	Revenue Expenditure			Capital Expenditure			Total Expenditure		
	Plan	Non Plan	Total	Plan	Non Plan	Total	Plan	Non Plan	Total
2017-18(ACC)	1593.55	4580.85	6174.4	269.4	38	307.39	1862.95	4618.85	6481.79
2018-19(ACC)	1640.16	5206.89	6847.05	222.6	28.91	251.51	1862.76	5235.8	7098.56
2019-20(ACC)	2024.97	5269.62	7294.58	221.64	22.59	244.23	2246.61	5292.21	7538.81
2020-21(RE)	2476.33	5289.98	7766.62	138.53	65.68	204.19	2614.86	5355.66	7970.81
2021-22(BE)	2261.72	6283.21	8544.94	151.42	85.18	236.6	2413.14	6368.39	8781.54

Source: Budget in Brief

Note: ACC is Accounts, RE is Revised Estimate and BE is Budgeted Estimate

number of patients treated and death reported affecting Leptospirosis in 2020 and 2021 (upto August 2021) are given in **Appendix 6.2.1** and number of cases and death reported from 2017 to 2021 (upto August 31, 2021) are given in **Table 6.2.7**.

Chikungunya

Chikungunya is a newcomer among the vector borne infections. This disease believed to have originated in the remote islands in Arabian Sea in 2005-06 spread rapidly over whole of Kerala within the next two years, affecting more than 80 per cent of our population. This has resulted in life long immunity for the affected population. The past five years have seen no deaths due to chikungunya. But in 2020, 558 cases were reported in Kerala. Here again the vector responsible for disease transmission is the Aedes mosquitoes. Since both dengue and chikungunya are transmitted by same mosquito and as the same mosquitoes are responsible for transmission of the potential threat of Zika virus disease and

Yellow fever, the health system should be vigilant. In 2020, 558 cases were reported in which 548 cases were from Thiruvananthapuram District. In 2021 (upto August 31), 279 cases reported, of which 262 were from Thiruvananthapuram only. The details of District-wise patients treated for chikungunya in 2020 and 2021 (upto August 31) is given in **Appendix 6.2.2** and number of cases and death reported from 2017 to 2021 (upto August 31) are given in **Table 6.2.7**.

Fever

Fever is a body temperature that is higher than normal. A number of infections can affect humans. Even a fever may be a symptom of many infections. A viral fever is a fever caused by an underlying viral illness. Some viral infections may cause a fever like dengue. A total of 12,65,782 viral fever cases were reported in Kerala in 2020. In 2021 (upto August 31), the number of reported cases were 7,85,452. The details of District-wise patients treated for viral fever in 2020 and 2021 (upto August 31) is given in

Table 6.2.7 Prevalence of communicable diseases in Kerala

Sl. No.	Name of Diseases Case	2017		2018		2019		2020		2021 (Aug 31)		
		Death	Case	Death	Case	Death	Case	Death	Case	Death	Case	
1	Dengue Fever	21993	165	4090	32	4651	14	2722	22	2286	4	
2	Malaria	1194	2	908	0	656	1	267	1	131	1	
3	Chikungunya	54	0	76	0	109	0	558	0	279	0	
4	Japanese Encephalitis (JE)	1	0	5	2	11	2	0	0	0	0	
5	Leptospirosis	1408	80	2079	99	1211	57	1039	48	745	19	
6	Scrub Typhus	340	5	400	6	579	14	423	8	224	4	
7	Kala Azar	0	0	6	1	4	0	1	0	0	0	
8	Kysanur Forest Disease	0	0	0	0	8	2	29	3	4	0	
9	H1N1	1411	76	823	50	853	45	58	2	0	0	
10	Fever	OP	3417968	76	2935627	63	2862375	51	1265782	0	785452	25
		IP	109974		59983		60080		18879		8148	
11	Measles	508	1	190	0	199	1	76	1	1	0	
12	C.pox	27856	20	30154	17	29583	20	14959	3	2500	1	

Source: Directorate of Health Services

Appendix 6.2.2 and number of cases and death reported from 2017 to 2021 (upto August) are given in **Table 6.2.7**.

Malaria

Malaria, a vector borne disease transmitted by Anopheles mosquitoes, has been a major public health challenge for our country for the past many decades. Various national programmes targeting its elimination have met with limited success. Though Kerala had eliminated the disease in early 1970s, Malaria incidents still exist as a public health challenge. The problem has recently aggravated because of the presence of large scale population movement from malaria endemic States. Proportion of falciparum malaria, the more severe form of the disease also exists in Kerala. Though elimination of indigenous form of Malaria has been included in the SDG targets by the State, the issues in its fulfillment are many. Rapid urbanisation, extensive infrastructure development in many districts, uncontrolled construction works in urban area and climate related changes in life cycle of mosquitoes are all big hurdles in the attainment of the SDG goals. Annual cases of malaria in Kerala are less than 500 and the number of deaths reported is also very low. Kasaragod District is persistently having high number of malaria cases, over many years, because of its proximity to the highly endemic Districts of Karnataka. Movement of fishermen along the western coast of our State is a potential threat for spread of malaria along the coastal districts. In 2020 number of cases reported was 267 and death reported was 1. In 2021, upto August, 131 cases and 1 death were reported. Number of cases and death from 2017 to 2021 (August 31) is given in **Table 6.2.7**. There is a declining trend in number of malaria cases in the State.

Japanese Encephalitis (JE)

This is a form of encephalitis, an inflammatory disease of brain and its coverings, and is also a mosquito borne infection. Kerala is more prone to this disease because of the presence of large paddy fields as the virus responsible for the disease is spread by Culex mosquitos, which breeds abundantly in water logged areas like paddy fields. The peculiar nature of the Culex mosquito to breed in contaminated water also, increases the potential threat in other areas as

well. Role of migratory birds in transmission of JE is an extra risk for Kerala, because our State has many sanctuaries for migratory birds. But since there is an effective vaccine against JE, we can be optimistic in its control programme, by strengthening the JE vaccination. In 2019, the number of cases reported was 11 and death reported was 2. No cases have been reported in 2020 and in 2021 (up to August 31). Details of cases and death from 2017 to August 31, 2021 are given in **Table 6.2.7**.

Water Borne Diseases

The main reason for waterborne diseases is attributed to the unavailability of safe drinking water in many parts of the district especially in tribal and coastal areas. Unhygienic drinking water sources like wells, pump houses, water supplied through tanker lorry, leaks in public water supply pipes and the consequent mixing of foul water with drinking water, dumping of wastes including sewage in water sources, use of commercial ice in preparation of cool drinks and using unsafe water in preparation of welcome drinks are some reasons for spread of water borne diseases. Health Department is implementing a programme called “Jagratha” from November 2017 for prevention and control of communicable diseases. There was a considerable decrease in incidents of typhoid in Kerala from 2015 onwards. Details of cases and death due to water borne diseases like Acute Diarrhoeal Diseases (ADD), typhoid and Hepatitis from 2017 to 2021 August 31 are given in **Table 6.2.8**.

HIV/AIDS

Kerala State Aids Control Society is the pioneer organisation in the State working with the objective of controlling the spread of HIV as well as strengthening the State’s capacity to respond to HIV/AIDS. The society was formed to implement National Aids Control Programme in the State. The prevalence rate in the State has declined from 0.21 per cent in 2008-09 to 0.13 in 2010-11 and 0.08 per cent in 2019. The prevalence rate in India in 2019 is 0.22 per cent. In Kerala, the prevalence of HIV/AIDS is 0.41 per cent (4.95 per cent in 2011) among injecting drug users (IDU) which is 6.26 per cent at the national level. It is 0.23 per cent (0.36 per cent in 2011) among men having sex with men

Table 6.2.8 Prevalence of water borne diseases in Kerala

Sl. No.	Name of Diseases	2017		2018		2019		2020		2021 (Aug 31)	
		Case	Death	Case	Death	Case	Death	Case	Death	Case	Death
1	Hepatitis - A	988	24	1369	5	1620	7	464	2	67	0
2	Cholera	8	1	9	0	9	0	2	0	0	0
3	Typhoid	314	1	109	0	27	0	16	0	11	0
4	ADD (Diarrhoea)	463368	8	540814	12	544027	6	250788	1	146763	2

Source: Directorate of Health Services

(MSM) which is 2.69 per cent at the national level and 0.10 per cent (0.73 per cent in 2011) among Female Sex Workers (FSW) which is 1.56 per cent in India in 2017. Among transgender, HIV prevalence rate in Kerala is 0.16 per cent which is 3.14 per cent at the national level. HIV prevalence among migrants in India is 0.51 per cent (Source: Kerala State Aids Control Society). HIV estimates in India and Kerala based on India HIV Estimates 2019 are given in **Table 6.2.9**.

Coronavirus Disease (Covid-19)

The first case of Covid-19 in India was reported in Kerala on January 30, 2020. Kerala adopted a multi-pronged strategy in dealing with the pandemic even before the first Covid-19 confirmed case was reported. In fact, Kerala's response to Covid-19 started much earlier than March 11, 2020, when the Director General

of the World Health Organisation (WHO) characterised Covid-19 as a pandemic. The containment strategies were well in place when the first case was reported. The Health department activated its emergency response mechanism.

A detailed evaluation of all the healthcare facilities in the State in both government and private sectors was done. A detailed action plan on how to use these facilities was prepared at the State level by conducting a series of meetings in all the districts. Covid Care Centres (CCCs) were created for the quarantine of all international passengers, inter State travellers and contacts who do not have facility for quarantine at home as per guidelines. Covid Hospitals were designated for management of symptomatic patients and Covid First Line Treatment Centres (CFLTCs) were

Table 6.2.9 HIV estimates in India and Kerala

Sl. No.	Particulars	Kerala	India
1	Percentage of adult HIV prevalence (15–49 yrs), 2019	0.08	0.22
2	Total number of People Living with HIV, 2019 (in thousand)	24.21	2,348.86
3	HIV incidence per 1,000 uninfected population, 2019	0.02	0.05
4	Total number of annual new HIV infections, 2019 (in thousand)	0.80	69.22
5	% change in annual new HIV infections, 2010–2019	-24.20	-37.38
6	AIDS-related mortality per 100,000 population, 2019	1.50	4.43
7	Total number of annual AIDS related deaths, 2019 (in thousand)	0.53	58.96
8	% change in annual AIDS related deaths, 2010–2019	-53.37	-66.07
9	Prevention of Mother-to-Child Transmission needs (in thousand)	0.16	20.52

Source: India HIV Estimates 2019, NACO, MH&FW

designated for management of asymptomatic Covid positive patients. Provision of adequate staff and biomedical waste management supported are provided by LSGs.

From the beginning of Covid control activities, the private hospital engagement team was working in close liaison with the district private hospital engagement nodal officers, private hospital managements and Indian Medical Association. Kerala Medical Services Corporation Limited has played the most critical role in the ambulance services by managing the Kaniv-108 ambulances to mobilise the Covid-19 suspects/patients from their houses/exit points to the isolation facilities. During the corona virus outbreak in Kerala, it was decided to provide psycho social support 'Ottakkalla Oppamundu' to the persons in quarantine/isolation and their family members. State level trainings were conducted exhaustively and elaborately covering all staff working in the health sector. Ward level teams are active in all Panchayat and are ensuring daily calls and visits to the homes of the elderly. A series of mass media campaigns are being conducted for Covid-19 awareness from the beginning of 2020 itself. Health Department launched e-Sanjeevani telemedicine services in Kerala on June 10, 2020. They are providing services in a centralised manner and DISHA is the States hub managing the telemedicine activities for the State. The Covid-19 data is made available to public via the GoK dashboard

available in the web address www.dashboard.kerala.gov.in. Major highlights of the Covid-19 disease and its containment activities are given in **Table 6.2.10**.

Non-Communicable Diseases (NCD)

Common non-communicable diseases causing great threat to a healthy life are diabetes, hypertension, cardio vascular diseases, cancer and lung diseases. Unless interventions are made to prevent and control non-communicable diseases, their burden is likely to increase substantially in future because of ageing population and changes in life style. Considering the high cost of medicines and longer duration of treatment, this constitutes a greater financial burden to low income groups. Rampant modernisation and urbanisation, drastic lifestyle changes, heavy dependency on alcohol and tobacco, affinity for white collar jobs, unhealthy eating patterns, low priority for physical exertion, high levels of stress in all strata of population are some of the reasons contributing to the prevalence of non-communicable diseases in the State.

Incidents of obesity, hyper lipedemia, heart attack and stroke are also high. Cancer mortality is extremely high among males in Kerala compared to national average. In the survey conducted by Achutha Menon Centre for Health Science Studies, Thiruvananthapuram, the NCD scenario in the State has further worsened. The survey reveals that one out of three has hypertension

Table 6.2.10 Major highlights of the Covid-19 disease and its containment activities*

Total number of cases confirmed	5225712
Total number of cases recovered	5151632
Total number of active cases	27842
Total number of death reported	45538
Total dose vaccination done	4,62,48,106
Total number of first dose vaccination done (97.56%)	2,60,43,638
Total number of double dose vaccination done (76%)	2,03,11,901
Total number of Social Volunteer Force	375123
Total number of Psycho Social Support and Counseling calls	1,31,99,475
Number of LSGIs in Kerala with Community kitchen	1034/1034
Total Number of Destitute Rehabilitated	3766

Source: www.dashboard.kerala.gov.in

Note: *Data as on December 24, 2021

and one out of five has diabetes. The study also revealed that the level of normalcy attained for blood sugar and blood pressure even after early detection and management is significantly low compared to the standards.

Kerala COPD Prevention and Control Programme – SWAAS

Chronic Obstructive Pulmonary Disease (COPD) is one of the leading causes of mortality and morbidity worldwide. As per the ‘Global Burden of Diseases’ (Institute for Health Metrics and Evaluation (IHME) at the University of Washington) estimates for India, COPD is the second leading cause of mortality in India. Recently the NCD programme has included COPD and Chronic Kidney Disease among the priority NCDs in India. Assuming that the national estimates for Asthma and COPD reflect the situation in Kerala too, the number of COPD cases in Kerala is estimated to be 5,30,000 and the number of asthma patients among adults is estimated to be 4,80,000 (Source: DHS). SWAAS is a specific public health programme for COPD in Kerala which is implemented from Family Health Centres (FHC) level as part of Aardram Mission. SWAAS clinics started in 378 Family Health Centres and 49 Sub Districts/ District Hospitals. Number of COPD diagnosed in 2020-21 was 3709 and number of asthma diagnosed was 4371. Details of SWAS clinics, screening and diagnosis of COPD and asthma are given in **Table 6.2.11**.

Cancer

Cancer is a major non communicable disease in Kerala. Apart from Medical Colleges, Regional Cancer Centre, Malabar Cancer Centre and

Cochin Cancer Research Centre are the major hospitals in Government sector which offer treatment for cancer patients. Apart from these institutions all the major government hospitals provide cancer treatment. Delay in early detection, huge treatment cost, minimal treatment centres and lack of awareness contribute to high mortality of the disease.

Malabar Cancer Centre

Malabar Cancer Centre, Kannur, an autonomous centre under the GoK, was established with the aim of providing oncology care to the people of north Kerala. The Centre has bed strength of 204 and has many latest facilities for the treatment of cancer patients. In 2020-21, a total of 4,612 in patients and 58,401 out patients were treated in Malabar Cancer Centre in which new cases is 5,384. During 2021-22 (upto August 31, 2021), the number of IP and OP are 3,337 and 51,219 respectively and new cases are 5,044. The average number of new cases detected every year in the centre is 4,494.

Cochin Cancer Research Centre (CCRC)

Growing concerns over the alarming increase in rates of cancer incidence together with the need of a dedicated tertiary cancer care and research centre in government sector in central Kerala necessitated the birth of Cochin Cancer Research Centre. CCRC is a society registered under Societies Act. The Centre has bed strength of 20. Average number of new cases detected every year is 1,100. Numbers of outpatients treated in 2020-21 were 13,796, IP were 400 and new cases were 1,838.

Table 6.2.11 Details of SWAAS clinics, screening and diagnosis of COPD and asthma

	2018-19	2019-20	2020-21	2021-22	Total
Symptomatic Screening	47601	63206	45444	3750	160001
Swaas clinic-FHC	89	90	91	108	378
Swaas clinic- DH/GH/THQH	14	25	10		49
Spirometry Screening	9147	18428	1952	299	29826
COPD Diagnosed	4677	11557	3709	737	20680
Asthma Diagnosed	4145	7081	4371	359	15956

Source: Directorate of Health Services

Regional Cancer Centre (RCC)

RCC, Thiruvananthapuram is the premier comprehensive dedicated centre for diagnosis, treatment and control of cancer in Kerala. RCC is rated amongst the top 28 RCCs in the country and maintains a working relationship with international bodies. Daily average patient visits in RCC in 2020-21 are 525. Over the past thirty nine years, RCC has been able to contribute significantly to the increasing needs of cancer care to the people of Kerala and adjoining areas of Tamil Nadu and Karnataka at the lowest possible cost. In 2020-21, 11,191 new cases, 1,50,330 review cases and 6,807 in-patient admissions were done in RCC. Further details on RCC is covered in section 5.2 of this review.

Mental Health

As per Census of India 2011, 0.20 per cent of the population of Kerala suffers from mental illness and 0.20 per cent suffers from intellectual disability compared to a national average of 0.06 per cent and 0.12 per cent respectively. Although Kerala reports higher levels of mental illness compared to all India average, enough attention has not been given to the field of mental health in Kerala. A mental health policy was approved by the State Government in May 2013. The policy suggests that the treatment for mental illness should be started from the PHCs making the mental hospitals and the department of psychiatric medicines as referral centres by upgrading them. As part of Aardram Mission 'Aswasam' depression management in primary care was started in 224 Family Health Centres across the State.

In Kerala, three mental health centres are functioning with bed strength of 1,366. District mental health programme is functioning in all the districts with a total of 10,000 out patients per month. Rehabilitation facilities are offered through these centres. Lack of awareness, attitude of general public, neglect of family members and lack of proper follow up are the major problems noticed in this regard. State Government has started 26 day care homes through which 506 cured mentally ill patients are being given day care.

District Mental Health Programme (DMHP)

DMHP is functioning in all the 14 Districts of the State. Mental health clinics are being

conducted in all PHCs and CHCs in the District by trained doctors of the concerned institutions and medicines are made available to patients from their nearest PHCs. More than 10,000 patients are receiving treatment every month, from DMHPs in the State. Other activities include information, education and communication (IEC) for general public to create awareness and reduce stigma, training for doctors, nurses, pharmacists and health workers for integration of mental health into primary care and targeted interventions like substance abuse prevention, suicide prevention, geriatric mental health and stress management. Day care centres were started for mentally ill in remission under Comprehensive Mental Health Scheme. Now 30 day care centres are functioning in the State under the scheme. School mental health programme is implemented in the State in association with National Health Mission (NHM). Total number of clinics conducted under DMHP in 2020-21 was 2749 and number of new cases was 10,500.

Institute of Mental Health and Neurosciences (IMHANS)

The Institute of Mental Health and Neurosciences (IMHANS), Kozhikode is an autonomous institution established by the Government of Kerala in 1982. The institute is functioning in the Government Medical College campus, Kozhikode. The institute now runs M.Phil courses in psychiatric social work (8 seats) and clinical psychology (8 seats) and post basic diploma in psychiatric nursing (10 seats). In clinical services, the Institute currently focuses on community psychiatry, child psychiatry and rehabilitation services. IMHANS has no inpatient facility at present. During 2020 number of new OP cases was 2,992 and follow up cases were 6301. It was 3,314 and 6,012 cases respectively during 2021 (up to August 31).

Indian Institute of Diabetes

The Indian Institute of Diabetes (IID) at Thiruvananthapuram is an autonomous institution under the Government of Kerala. It is the only institution under the Government offering services exclusively for Diabetes Mellitus and its complications. IID, made operational in the year 2001, functions with main centre at Pulayanarkotta near Akkulam

in Thiruvananthapuram city and one sub centre at Public Health Laboratory Campus, Thiruvananthapuram. The major activities of this institute are to investigate the genetic basis of diabetes, to provide adequate training for physicians and paramedical staff, provides research support to develop novel methods of treatment, endow academic chairs in diabetes and organise state-of-the-art conferences on various aspects of the disease. Total bed strength of the IID is 40. Average number of new cases detected every year is nearly 6,000. Out Patients treated in 2020-21 were 34,191, IP were 236 and new cases were 5,751.

Modern Medicine

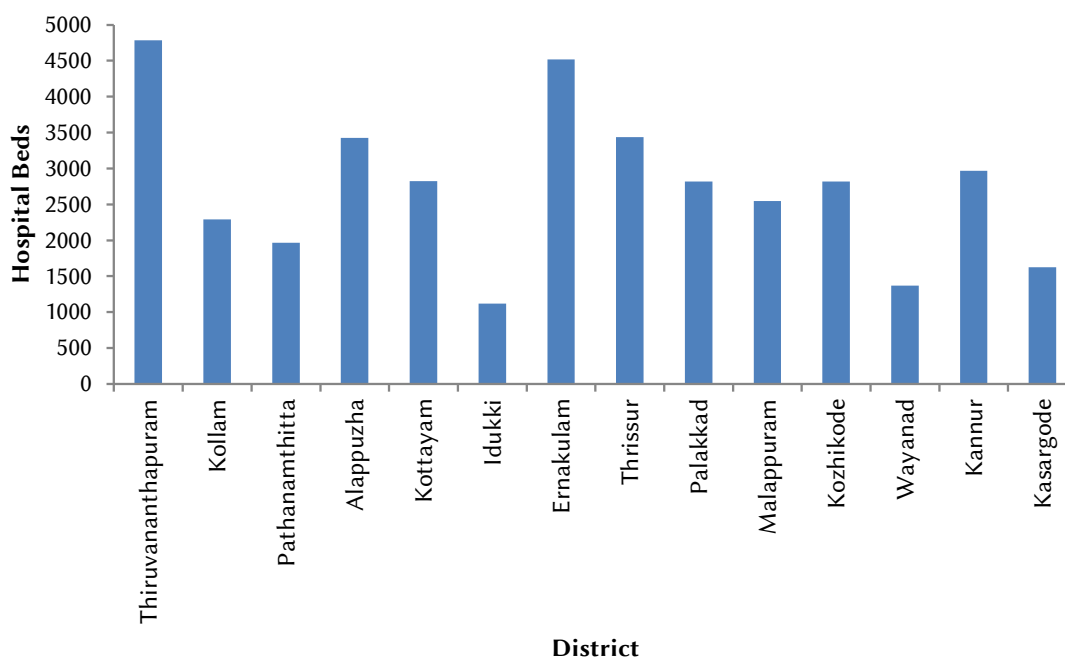
In Kerala modern medical services are offered by the Directorate of Health Services (DHS) and the concerned education sector is dealt by the Directorate of Medical Education (DME).

Healthcare Institutions under DHS

At present there are 1,284 health institutions with 38,506 beds, 6,355 doctors and 21,421 paramedical staff under Health Services Department consisting of 108 (24*7) PHCs,

740 PHC/FHCs, 226 CHCs/Block FHCs, 87 taluk headquarters hospitals, 18 District hospitals, 18 general hospitals, 3 mental health hospitals, 8 women and children hospitals, 3 leprosy hospitals, 14 TB clinics, 11 other speciality hospitals and 48 other hospitals. PHCs/FHCs are institutions providing comprehensive primary care services including preventive care and curative care. CHCs/ Block FHCs and taluk level institutions form the basic secondary care institutions. District hospitals, general hospitals and maternity hospitals provide speciality services and some super speciality services. The 13th Five-Year Plan focused on the implementation of speciality cadre in all healthcare institutions up to the level of community health centres and modernisation of the functioning of the PHCs as FHCs. The bed population ratio is 1.09/1000 and the average doctor bed ratio is 6. Category-wise major medical institutions and beds in Kerala, details of IP and OP cases, major and minor surgeries conducted and medical and paramedical personnel under DHS in 2020 and 2021 are given in **Appendix 6.2.3, 6.2.4 and 6.2.5.**

Figure 6.2.1 District wise distribution of hospital beds in Kerala under DHS



Source: Directorate of Health Services

District Wise Distribution of Hospital Beds in Kerala Under DHS

District wise distribution of hospital beds in Kerala under Directorate of Health Services is given in **Figure 6.2.1** Thiruvananthapuram and Ernakulam Districts have higher number of beds as compared to other Districts. Kasaragod, Idukki and Wayanad Districts have lesser number of beds in comparison to other Districts.

Health Insurance

Karunya Arogya Suraksha Padhathi (KASP)

GoK has decided to implement the Pradhan Mantri Jan Arogya Yojana (PM-JAY) as a new scheme called Karunya Arogya Suraksha Padhathi (KASP). KASP converges all the Government sponsored health insurance schemes namely, Rashtriya Swasthya Bima Yojana (RSBY), Comprehensive Health Insurance Scheme (CHIS) and Senior Citizen Health Insurance Scheme (SCHIS).

Initially, the scheme was implemented in the State from April 1, 2019 to June 2020 under insurance mode for the entire ₹5 lakh coverage. From July 1, 2020, the scheme is implemented under assurance mode for the entire ₹5 lakh coverage. A total of 41.66 lakhs families are covered under the KASP scheme out of which only 22.03 lakhs families covered under PMJAY and SECC category. Central assistance is limited to the families covered under PMJAY and SECC. The Central Government has fixed premium ceiling of ₹1052 for each family and 60 per cent of that will be given to the State as Central share. The Central Government, therefore, provides ₹631.2 for each enrolled AB-PMJAY (RSBY) family. About 755 hospitals are so far empanelled, which includes 563 private hospitals and 192 Public hospitals.

Karunya Benevolent fund (KBF) scheme is also running separately in the State under the same Mission.

Progress of AB PM-JAY/KASP is given in **Appendix 6.2.6**. Utilisation of AB PM-JAY/KASP by sector is given in **Appendix 6.2.7**.

Karunya Benevolent Fund (KBF)

The Karunya Benevolent Fund (KBF) scheme was started in February, 2012 by the Government

of Kerala to give financial assistance to the members of families from financially backward sections for the treatment of certain chronic diseases. Every family whose annual income is below ₹3 lakhs as per the Ration Card irrespective of their APL Status can avail for financial assistance under this scheme. However, this income limit is not imposed on the treatment of haemophilia. Every family can avail financial assistance upto ₹3 lakhs for the treatment of kidney diseases and upto ₹2 lakhs for other prescribed diseases. One or more people can benefit from the same ration card subject to the limit prescribed above. The scheme was implemented through the Department of State Lotteries. From September 1, 2020, it is being implemented by State Health Agency (KASP). In 2020-21, financial assistance of ₹43.39 crore was received by State Health Agency for KBF and the entire amount is fully expended. In 2021-22 (upto October 31) ₹24.22 crore were received by SHA and fully expended.

Arogyakiranam

Arogyakiranam is one of the flagship health programmes of the GoK. The programme provides free treatment and related medical services to all patients from birth to 18 years, as an entitlement. Expenses covered by this entitlement include costs incurred for OP registration, investigations, drugs/implants/materials used in treatment and procedures. The fund for coverage of treatment expenditure was allotted to districts, to be maintained as corpus fund, from which all expenses were debited. The out patients treated in 2019-20 were 98,02,805 and inpatients were 2,11,372. This is 27,64,301 and 88,611 respectively in 2020-21.

National Health Mission (NHM)

National Health Mission is a Centrally Sponsored Scheme which includes two sub missions NUHM and NRHM. NHM has five financing components to the States, namely (i) NRHM/RCH Flexi-pool, (ii) NUHM Flexi-pool (iii) Flexible pool for communicable diseases, (iv) Flexible pool for non-communicable diseases including injury and trauma and (v) Infrastructure Maintenance. Under the infrastructure maintenance component, support has been given over several Plan periods, to States to meet salary requirement of schemes

namely, Direction and Administration (Family Welfare Bureaus at State and District level), Sub Centres, Urban Family Welfare Centres, Urban Revamping Scheme (Health Posts), ANM/LHV Training Schools, Health and Family Welfare Training Centres and Training of Multi-Purpose Workers (Male).

NHM is implemented in the State for the development of healthcare delivery with Central Government funding. 40 per cent of the total fund is given to the NHM by the State Government as state share. NHM supports the Health Services Department, Directorate of Medical Education and AYUSH Departments. National Rural Health Mission aims to provide accessible, affordable and accountable quality health services to the poorest households in the remote rural regions. Under NRHM, the focus is on a functional health system at all levels, from the village to the district. There are 94 urban PHCs under NHM. Total GoI release to the State from 2016-17 to 2021-22 is given in **Table 6.2.12**. Total staff strength of NHM is 12,003 (upto August 2021) under medical, paramedical and other categories.

Pradhan Manthri Swasthya Suraksha Yojana (PMSSY)

PMSSY is a GoI supported scheme to improve infrastructure facilities and technology in Government Medical College, Thiruvananthapuram (Phase-I), Kozhikode and Alappuzha (Phase-III) with a total outlay of ₹150 crore each, of which ₹30 crore is the State share. The project for super speciality block in Government Medical College, Thiruvananthapuram

(Phase-I) has been completed and the rest of the projects will be completed in 2021-22.

State Institute of Medical Education and Technology (SI-MET)

SI-MET was established in the State in 2008 to promote medical education and research. There are four nursing colleges functioning under SI-MET with an annual intake of 340 students. A total of 1050 students are studying in the Nursing Colleges of SI-MET as on October 2021.

Public Health Laboratories

At present there are 9 Public Health (PH) Labs in the State. There is State Public Health Lab at Thiruvananthapuram, Regional Public Health Labs at Ernakulam, Kozhikode, Pathanamthitta, Kannur, and Public Health Labs at Alappuzha, Malappuram, Wayanad and Kollam. Technical guidance and material supply to all the PH labs are provided by Director, State Public Health and Clinical Lab. An average of 200 patients attend the laboratories every day for various lab investigations. An average of 1,300 lab tests are performed every day. The New Born Screening (NBS) Programme started in March 2013 was extended to all the delivery conducting Government hospitals in September 2017. The blood samples of newborns are tested through State Public Health and Clinical Laboratory, Thiruvananthapuram and three Regional Laboratories at Ernakulam, Kozhikode and Kannur. The screening test is done for four selected disorders namely Congenital Hypothyroidism, Congenital

Table 6.2.12 Release of central assistance for NHM from 2016-17 to 2021-22 (up to October 31)

Year	Central share for NHM activities	Central release for Covid activities	Central release for Infrastructure Maintenance	Total Central release	State share received from state (includes previous year arrears)
2016-17	191.95		252.49	444.44	302.8
2017-18	241.31		255.4	496.71	258.11
2018-19	271.06		574.6	845.66	226.9627
2019-20	299.12	74.21	430.26	803.59	430.29
2020-21	341.95	583.04	404.69	1329.68	957.51
2021-22	174.04	86.94	299.62	560.6	313.88
Total	1,519.43	744.19	2,217.06	4,480.68	2,489.55

Source: NHM Kerala

Adrenal Hyperplasia, Phenyl Ketonuria and G6PD deficiency. Director, State PH Lab is the State Nodal officer for newborn screening programme of Kerala. Cumulative total number of samples received for NBS in four PH Labs comes to a total of 8,48,205 babies of which positive Congenital Hypothyroidism (417 cases), Congenital Adrenal Hyperplasia (82 cases), G6PD deficiency (184 cases) and Galactosemia (3 cases) were detected.

Child Development Centre (CDC)

Child Development Centre (CDC) established by the GoK is an autonomous centre of excellence in early child care and education, adolescent care and education, pre-marital counseling, women's welfare and other related fields to reduce childhood disability through novel scientific initiatives and create a generation of prospective and responsive parenthood through healthy children and adolescents. The number of patients treated in 2020-21 was 5,246. Only out-patient services are available and there is no facility for admitting patients. Training programmes, conferences and community extension programme conducted by CDC for 627 participants in 2020-21.

Drugs Control Department

The responsibility of the drugs control department is to ensure the availability of quality drugs to the public and see that the market is free from counterfeit, spurious and substandard drugs and no drugs are sold at a price higher than the retail price marked on the container. The department has 6 Regional Offices, 11 District Offices, 4 ayurveda wing offices and 3 drugs testing laboratories. NABL accredited

drug testing laboratories are functioning at Thiruvananthapuram and Ernakulam with an analytical capacity of 11,500 samples per annum. Establishment of two more laboratories at Pathanamthitta and Kannur is in progress. Major achievements of the Department in 2020-21 are given in **Table 6.2.13**.

Programme for Removal of Unused Drugs (PROUD)

Programme for Removal of Unused Drugs (PROUD) is a joint initiative of the State Drugs Control Department in association with the All Kerala Chemists and Druggists Association (AKCDA) to promote scientific disposal of unused or expired drugs. This project was based on the study reports published by World Health Organization, which points on antibiotic seepage in water bodies and soil due to unscientific disposal of unused drugs. This pilot project was started in Thiruvananthapuram district by placing sealed collection bins in front of 200 retail shops with appeal to the public not to discard the unused medicines carelessly and to use the facility provided. These bins were specifically designed for easy disposal of strips, bottles and containers. Special bins/safe drug collection boxes were kept at selected pharmacies where people can deposit the expired or waste drugs, empty strips, glass and plastic containers and ointment tubes. As the pilot project has gained wide acceptance among the public, the same can be implemented in all the 14 districts of Kerala, thereby aiding the reduction in antimicrobial resistance to a large extent. The running cost of the project (cost of collection boxes, labour charges for sorting and transportation, incineration

Table 6.2.13 Major achievements of the Drugs Control Department in 2020-21

Number of inspections conducted	12,749
Number of prosecutions initiated	64
Number of sale licences suspended as deterrent measure	186
Number of samples tested	6,626
Number of new manufacturing licenses issued (Allopathy and Cosmetics)	98
Number of price violations detected and reported to National Pharmaceutical Pricing Authority	55
Number of new Blood Bank licenses issued	6
Number of new blood storage centers	6

Source: Drugs Control Department

charges) is high. Around 5 tonnes of unused or expired drugs collected in a span of 6 months from the district were sent to the incinerating station at Mangaluru in Karnataka, as the only incinerating agency in Kerala is overburdened with hospital based waste disposal. The medicines will be scientifically disposed in accordance with the provisions of Biomedical waste Management Rules. The project is approved by the Government of Kerala under the Kerala Antibiotic Resistance Strategic Action Plan (KARSAP).

Commissionerate of Food Safety Kerala

Food Safety and Standards Authority of India has been established under the provisions of Food Safety and Standards Act, 2006 as a statutory body for laying down scientific based standards for articles of food and to regulate manufacture, storage, distribution, sale and import of food so as to ensure availability of safe and wholesome food for human consumption. The department aims to ensure safe and healthy food and water to the citizens of Kerala and to develop healthy food habits. Government Analyst's laboratory at Thiruvananthapuram, two Regional Analytical laboratories at Ernakulam and Kozhikode and State Food Testing Laboratory at Pathanamthitta are under Commissionerate of Food Safety. Testing of water, milk, common adulterants like colour, artificial sweetener, extraneous matter, and fungal growth are carried out in these laboratories. Three analytical laboratories viz., Government Analysts' Laboratory, Thiruvananthapuram, Regional Analytical Laboratories at Ernakulam and Kozhikode have got NABL accreditation. Major achievements

of the Department in 2019-20 and 2020-21 are given in **Table 6.2.14**.

Aardram People's Campaign aims to check the rising incidences of both lifestyle and communicable diseases through awareness programmes. The focus of the campaign is 'Our Health, Our Responsibility'. The Aardram People's Campaign envisages taking the achievements of the State's health sector to the people directly and getting the community to lead the State's movement towards total health. As part of the programme, massive IEC and inspection activities conducted throughout the State. 522 programmes conducted across the State since November 2019.

Medical Education

In Kerala, medical education is imparted through 10 medical colleges at Thiruvananthapuram, Alappuzha, Kozhikode, Kottayam, Manjeri, Ernakulam, Kollam, Thrissur, Kannur and Idukki districts. Nursing education is imparted through seven Nursing Colleges in Thiruvananthapuram, Kozhikode, Kottayam, Alappuzha, Ernakulam, Kannur and Thrissur districts. Six Dental Colleges are functioning at Thiruvananthapuram, Kozhikode, Alappuzha, Thrissur, Kannur and Kottayam districts. Besides, four colleges of Pharmacy and one Paramedical Institute are also functioning under the Department. Works for establishing new medical colleges are progressing in Wayanad, Konni and Kasaragod.

Total number of faculties under DME as on August 31, 2021 is 3,226. Total number of medical and paramedical seats in 9 medicals

Table 6.2.14 Major achievements of the Commissionerate of Food Safety in 2019-20 and 2020-21

Programmes	2019-20	2020-21
Number of Inspections carried out by Quick Response Team	10,527	15,967
Number of Food Poison cases attended by Quick Response Team	68	41
Registration Certificates issued	90,620	1,34,759
Sampoorna Bhakshya Suraksha Grama Panchayat programme (No. of GPs)	126	397
Safe and Nutritious Food at School programme (No. of schools)	420	1137
Food Safety Training and Certification to food business operators	15,763	10,889
Number of food samples analysed	5,786	7,730

Source: Commissionerate of Food and Safety

Box 6.2.1 State Food Safety Index – Kerala tops with 2nd Rank 2020-21

The State of Kerala has been awarded 2nd Rank with 70 points (in the category of larger States) in State Food Safety Index 2020-21 released by FSSAI in recognition of overall performance on various parameters viz. human resources and institutional data, food safety compliance, food testing infrastructure and surveillance, training and capacity building and consumer empowerment. Gujarat is ranked first in the category of larger States with 72 points and Bihar is ranked last (20th) position in the category of larger States. Every year, FSSAI releases the State Food Safety Index based on the overall performance of the States/ UTs in the previous financial year to create a positive competitive environment across the States/ UTs to meet the objectives of the Food Safety and Standards Act to provide safe food to general public at large.

colleges in 2021-22 is 5062 which was 4,726 in 2020-21. Medical and Para medical courses conducted in Government medical colleges with annual intake of students, details of clinical and non-clinical personnel in Medical Colleges under DME, in 2021-22 are given in **Appendix 6.2.8** and **6.2.9**. A comparative analysis of the status of medical college hospitals and attached institutions in 2020-21 and 2021-22 is given in **Appendix 6.2.10**. The bed strength has increased by 301 in 2021-22 in Medical College institutions as compared to the previous year figure of 12,884. Total number of posts created during 2016-21 under DME was 4,763.

Kerala University of Health and Allied Sciences (KUHS)

Kerala University of Health Sciences was established as per the Kerala University of

Health Science Act, 2010 with the aim of ensuring proper and systematic instructions, teaching, training and research in modern medicine, homeopathy and Indian system of medicine and allied health sciences in Kerala. Academic activities of the University commenced in academic year 2010-11. The number of institutions affiliated to University (upto October 2021) is 322 with 43 Government colleges, 6 Government aided colleges 13 self-financing co-operative colleges and 260 self-financing colleges. The colleges fall under all systems of medicine such as modern medicine, ayurveda, homeopathy, sidha, unani, yoga, naturopathy, nursing, pharmaceutical science and paramedical courses. Details of the Government, aided and unaided colleges affiliated under various streams are given in **Table 6.2.15**.

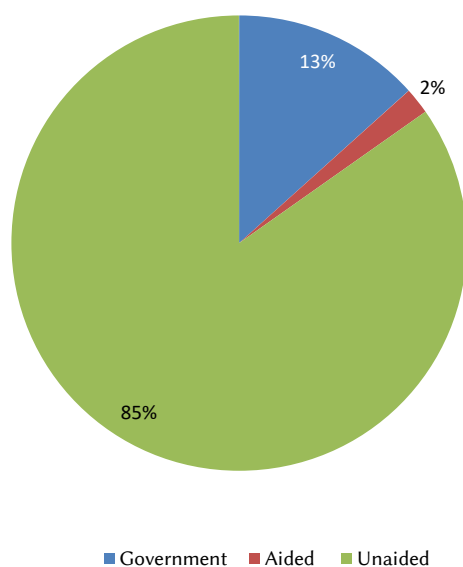
Table 6.2.15 Details of the Government, aided, and unaided colleges affiliated under various streams, number as on October 2021

Stream	Government	Aided	Self-financing (Co-operative)	Self-financing (Pvt.)	Total
Medicine	12	0	0	21	33
Dental	6	0	0	19	25
Ayurveda Medicine	3	2	0	12	17
Homeo Medicine	3	3	0	0	6
Sidha Medicine	0	0	0	1	1
Nursing	6	0	11	109	126
Pharmacy	5	0	0	53	58
Paramedical	8	1	2	44	55
Unani Medicine	0	0	0	1	1
Total	43	6	13	260	322

Source: Kerala University of Health and Allied Sciences

Graphical representation of the Government, aided and unaided colleges affiliated to Kerala University of Health and Allied Sciences (KUHS) as on October 2021 is given in **Figure 6.2.2**. Government and Government aided colleges constitute only 15 per cent of the total number of colleges affiliated to KUHS.

Figure 6.2.2 Government, aided, and unaided colleges affiliated under KUHS, in per cent



Source: Kerala University of Health and Allied Sciences

Table 6.2.16 Details of annual intake of students in each discipline and male / female count of students in each discipline, number as on October 2021

Stream	Male	Female	Total
Medicine	1792	3439	5231
Dental	292	1804	2096
Ayurveda Medicine	159	1132	1291
Ayurveda Nursing	4	33	37
Ayurveda Pharmacy	6	33	39
Homeo Medicine	40	348	388
Sidha Medicine	12	25	37
Nursing	648	6253	6901
Pharmacy	914	3486	4400
Paramedical	415	2137	2552
Unani Medicine	6	25	31
Total	4,288	18,715	23,003

Source: Kerala University of Health and Allied Sciences

The total intake of students in 2021-22 is 23,003 (4,288 male and 18,715 female) under various health sciences stream. The details of annual intake of students in each discipline and male / female count of students in each discipline are given in **Table 6.2.16**.

Indian System of Medicine (ISM)

Ayurveda is science dealing not only with treatment of disease but also a complete way of life. The department of Indian System of Medicine renders medical aid to the people through the network of ayurveda, sidha, unani, visha, netra and naturopathy institutions. Speciality hospitals such as mental hospital (1), panchakarma (1), nature cure (1), siddha (1), visha (3), sports ayurveda (1) and marma (1) are functioning under this Department. At present there are 130 hospitals and 818 dispensaries under the Department which includes Ayurveda (806), visha (4), siddha (6), nature cure (1) and unani (1). Total bed strength of these hospitals is 3,154. The State Medicinal Plants Board co-ordinates matters relating to cultivation, conservation, research and development and promotion of medicinal plants in the State. District-wise distribution of institutions, beds, IP, OP and doctors under ISM department in 2019-20 and 2020-21 is given in **Appendix 6.2.11**.

Special projects were implemented by the ISM department in 2020-21 in addition to the normal medical treatment. They are Ritu, Prasadam, Drishti, Jeevani, Punarnava, Snehadhara, Geriatric Care, Yoga, Sports Medicine, Panchakarma, Ksharasutra, Manasikam, koumarabhrithyam, prosoothithantra, sickle cell, Nirvisha, siddha, Child and adolescent care and Kshemajanani. Details of special projects, districts implemented and number of beneficiaries is given in **Appendix 6.2.12**.

AYUSH (Ayurveda, Yoga and Naturopathy, Siddha, Unani and Homoeopathy)

GoI has set up two regulatory bodies to set standards of medical education. The Central Council of Indian Medicine (CCIM) under Indian Medicine Central Council (IMCC) Act, 1970 regulates educational institutions and practitioners in respect of Ayurveda, Unani and Sidha systems of medicines. The Central Council

of Homeopathy (CCH) under Homeopathy Central Council Act, 1973 regulates educational institutions and practitioners in respect of Homeopathy system of medicines. At present Yoga and Naturopathy, being drugless systems, are not regulated.

National AYUSH Mission

Department of AYUSH, Ministry of Health and Family Welfare, GoI has launched National AYUSH Mission (NAM). The basic objective of NAM is to promote AYUSH medical systems through cost effective AYUSH services, strengthening of educational systems, facilitate the enforcement of quality control of ayurveda, sidha, unani and homeopathy drugs and medicinal plants. The funding pattern is 60:40 by Centre and State. GoK started the Ayush Department in the State on August 8, 2015. GoI release in 2017-18 was ₹2,096.20 lakh and in 2018-19 it was ₹2,597.84 lakh. In 2019-20 and 2020-21 GoI released an amount of ₹1,540.54 lakh and 2337.58 lakh respectively.

Ayurveda Medicine Manufacturing – OUSHADHI

OUSHADHI is the largest manufacturer of ayurvedic medicines functioning in India in the public sector. It is one among the few profit making public sector undertakings. Oushadhi is the exclusive supplier of ayurvedic medicines to Government Hospitals and dispensaries of Ayurveda Department. In Kerala, Oushadhi supplies medicines to State ISM department at 30 per cent less than the market price and ISM Department supplies this medicine to the poor patients in the State free of cost. The company also caters to the demand of the public through a network of 966 exclusive agencies spread in and outside the State. The profit of the firm before tax in 2019-20 was ₹2,686.63 lakh which has slightly declined to ₹2,684.00 lakh in 2020-21.

Ayurveda Medical Education – Ayurveda Colleges

There are 3 Government Ayurveda colleges situated at Thiruvananthapuram, Thrissur and Kannur having bed strength of 1,361. Total number of inpatients treated in 2019-20 were 10,441 and outpatients treated were 4,34,085 in which new cases were 91,613. It is 3,987 and 2,34,089 respectively in 2020-21 in

which new cases were 1,03,888. Panchakarma hospital and women and children hospital are also functioning under the Government Ayurveda College Thiruvananthapuram. There are two aided Ayurveda colleges, 12 self-financing Ayurveda colleges, one self-financing sidha college, one self-financing Unani college and 6 paramedical self-financing colleges for imparting medical education in the State. Annual intake of students for UG Degree is 1,080, PG Degree is 186 and Paramedical Courses is 482. A total of 77 permanent posts and 37 temporary posts were created in ayurveda colleges to achieve CCIM regulation.

Homoeopathy

There are 669 homoeopathic dispensaries, 14 District hospitals, 17 taluk hospitals, 2 ten-bedded hospitals and one hospital with total bed strength of 1000 under Homeopathy Department in the State. In addition, Kerala State Homoeopathic Co-operative Pharmacy (HOMCO) Alappuzha, a medicine manufacturing unit is also functioning under the Homeopathy Department. HOMCO is running in profit for the last 30 years. In 2020-21, net profit of Homco amounts to ₹9.51 crore. District-wise distribution of institutions, beds and patients treated under homeopathic department in 2020 and 2021 is given in **Appendix 6.2.13.**

Homoeo Medical Education

Homoeo medical education is imparted through two Government homoeopathic medical colleges at Thiruvananthapuram and Kozhikode. In addition to this 3 aided colleges and one unaided paramedical institute are functioning under this Department. Total bed strength of the Government homoeopathic medical college at Thiruvananthapuram is 118 and Kozhikode is 100. Patients treated in these two Medical Colleges in 2019-20 in IP were 3,022 and OP was 2,80,180. Patient treated in 2020-21 in IP was 116 and OP was 37,988. The number of IP in 2020-21 has declined as the district administration took over these colleges as Covid first line treatment centers. Annual intake of students and courses in the five Homoeo Medical Colleges and one paramedical institute are given in **Appendix 6.2.14.**

Immunisation Coverage

Immunisation is one of the most successful and cost effective health interventions and prevents debilitating illness, disability and death from vaccine preventable diseases such as diphtheria, hepatitis A and B, measles, mumps, pneumococcal disease, polio, rotavirus diarrhea, tetanus etc. The coverage of immunisation programmes in Kerala during five years from 2017-18 is given in **Appendix 6.2.15**.

The Way Ahead

Good health is of intrinsic importance, and a society can contribute more significantly and effectively to economic development. Kerala's strength lies in its strong public healthcare system. Health facilities have to be continuously upgraded to meet new and existing challenges. There are issues to be addressed specifically in the areas of general health, rural health, tribal health, women health, mother-child healthcare, health insurance and medical tourism, in the 14th Five-Year Plan period. The public healthcare system has to be strengthened further to face these challenges.

6.3 IMPACT OF CHANGING DEMOGRAPHIC PROFILE

Population ageing refers to a shift in the age distribution of population towards older ages. The causes of upward shift in the age distribution are reduction in fertility and improvements in survival. The Old Age Dependency Ratio (OADR), defined as the number of persons aged 65 years or over per 100 persons of working age (20 to 64 years), is the most commonly used indicator for monitoring changes in the age structure of population. With declining fertility and increased longevity, the relative size of older age groups increases while that of younger age groups declines. The Old Age Dependency Ratio is projected to increase in all regions of the world.

Understanding global population trends and anticipating the demographic changes to come are crucial to the achievement of the 2030 Agenda for Sustainable Development. The world's population is increasing at a faster pace, especially the number and proportion of the elderly population, and this demographic transition will have an impact on almost all aspects of the society. These may be due to the longevity of life achieved by economic well-being and better healthcare facilities. The global population is expected to reach 8.5 billion in 2030 and 9.7 billion in 2050, as per *World Population Prospects 2019* of United Nations. As per the data, by 2050, one in six people in the world will be over the age of 65 years, which was one in 11 in 2019.

Not only has the absolute number of older persons increased globally, but also the share of older persons in the total population has increased and is projected to grow. The percentage of persons aged 65 or over, worldwide, has grown from 6 per cent in 1990 to 9 per cent in 2019 and is projected to increase further to 16 per cent in 2050. In most parts of the world, survival beyond 65 years of age is increasing. While life expectancy at birth has improved, the improvement in life expectancy at older ages has been even more rapid (*Source: World Population Ageing, 2019*)

The United Nations *Decade of Healthy Ageing (2021-2030)* is a global collaboration that brings together governments, civil societies,

international agencies, professionals, media and private sector to improve the lives of older people, their families and the communities in which they live. Healthy ageing is more than merely the absence of diseases. Living arrangements of older people are an important determinant of their well-being. *World Population Ageing, 2020* highlights the need to understand the interconnections between the living arrangements of older persons, their socio economic status and their health and well-being.

Demographic Transition - India and Kerala

According to Census 2011, there are nearly 104 million elderly persons (aged 60 years or above) in India with 53 million females and 51 million males. The percentage of elderly has been increasing at an increasing rate in the country in recent years and the trend is likely to continue in the coming years. The share of population over the age of 60 is projected to increase from 8 per cent in 2015 to 19 per cent in 2050. By the end of the century, the elderly will constitute nearly 34 per cent of the total population in the country (*India Ageing Report, 2017*).

The ageing population of the State has also been increasing rapidly in the recent decades. The percentage of population in the age group 60 years and above to the total population was 12.6 for Kerala against the national average of 8 per cent, as per Census 2011. Whereas, the old age dependency ratio was 19.6 per cent for Kerala, the same was 14.2 per cent for the nation.

Health and Social Status

Old age is characterised by a broad spectrum of health conditions. It includes chronic diseases, mental health issues, mental and physical health issues arising from senility, physical disabilities, and other comorbidities.

Elderly in India Report 2021 highlights the health status of the elderly population based on the findings of NSS 75th Round (July 2017 to June 2018) Social Consumption on Health in India. Among the elderly persons, it is observed that, despite illness, more men (64 per cent) seemed to have a feel of having fairly good

health as compared to women (60 per cent). The proportion of physically mobile elderly persons in the age group 60-64 years is almost the same in rural and urban areas in 2004 and 2017-18. In 2004, it was 94.7 per cent (rural and urban) and 96.4 per cent in 2017-18. In Kerala, the percentage distribution of aged persons by state of physical mobility is 92 for male and 87 for female. Based on urban – rural classification, the distribution is 91 per cent for urban and 88 per cent for rural.

At the national level, the most prevalent disability among elderly persons is locomotor disability (4.9 per cent), followed by hearing disability (1.2 per cent) and visual disability (1.1 per cent). On examining region wise, in the broad category of disabilities, such as blindness, low vision, visual disability and hearing disability, it is observed that the percentage of elderly disabled persons is slightly higher in rural areas as compared to urban areas (NSS 76th Round (July to December 2018)-Persons with Disabilities in India).

Box 6.3.1 Elderly in India Report, 2021- Highlights

Population and Vital Statistics

India's elderly population is estimated to be nearly 138 million in 2021, comprising of 67 million males and 71 million females and is projected to touch 194 million in 2031.

- High growth rate in elderly population is seen vis-a-vis the general population. The rate of growth of general population was 12.4 per cent during 2011-2021, whereas the growth rate was 36 per cent for the elderly during the period.
- There is an increasing trend in the percentage share of elderly persons to the total population in India. The proportion of elderly persons is increasing and is projected to reach 13.1 per cent in 2031 from 10.1 per cent in 2021. On examining state wise details, as per 2021 figures, Kerala has the maximum proportion of elderly people in its population (16.5 per cent) and it is projected to reach 20.9 per cent in 2031. Kerala will be followed by Tamil Nadu (18.2 per cent), Himachal Pradesh (17.1 per cent), Andhra Pradesh (16.4 per cent) and Punjab (16.2 per cent), as per 2031 projections.
- In comparison with the population Census 2011 and projected population for 2021, the annual percentage growth rate of elderly population is 3.28 per cent at the national level, whereas it is 3.96 per cent for Kerala. Maximum average increase is observed in Delhi (6.60 per cent) followed by Gujarat (4.88 per cent).
- The number of elderly females are projected to exceed males in 2031. Out of the projected total population of 194 million in 2031, 101 million will be females and 93 million will be males.
- Data on sex ratio of the elderly population is in tandem with the general population. As per the projected population of 2021, the sex ratio for general population is 948 where as it is 1065 for elderly population. For 2031, the ratio is projected to be 955 and 1085 respectively.

Economic Status of Elderly Population

- An increasing trend is observed in the old- age dependency ratio. The ratio has increased from 14.2 per cent in 2011 to 15.7 per cent in 2021 and is projected to be 20.1 per cent in 2031, at the all India level. Among the States, the old age dependency ratio of Kerala which was 19.6 per cent as per 2011 census, has risen to 26.1 per cent in 2021 and is projected to be 34.3 per cent in 2031.
- Dependency ratio for females and males has an increasing trend and the projected ratio for 2031, for female and male, is 21.5 per cent and 18.8 per cent respectively.
- Female old age dependency ratio, as compared to male, is significantly higher in States like Kerala, Tamil Nadu, Himachal Pradesh and Punjab in 2021
- As per NSS 75th Round, Social Consumption on Health in India conducted during 2017-18, there is a wide variation in the economic status of elderly female as compared to that of elderly male. While only 10 per cent and 11 per cent of elderly female were economically independent in rural and urban areas respectively, the corresponding percentages were 48 and 57 for elderly male.

Source: Elderly in India Report, 2021

Crime Against Elderly Population

As per the National Crime Records Bureau, the rate of total crime (per one lakh of population) against senior citizens at the all India level is 23.9 per cent in 2020, whereas the crime rate recorded in Kerala is 16.7 per cent during the period.

Interventions by Government of India for the Welfare of Elderly

The Ministry of Social Justice and Empowerment is the nodal ministry for the welfare of senior citizens which develops and implements programmes and policies for the senior citizens in close collaboration with State Governments, Non-Governmental Organisations and Civil Society.

National Action Plan for the Welfare of Senior Citizens (NAPSrC)

This is an action plan of GoI for the welfare and well being of senior citizens of the country, by taking care of the top four needs of senior citizens viz – financial security, food, health care and human interaction/ life of dignity. This umbrella scheme, effective since April 1, 2020 has four sub schemes-

- Scheme of Integrated Programme for Senior Citizens
- State Action Plan for Senior Citizens
- Convergence with initiatives of other Ministries/ Departments in GoI in the field of Senior Citizens Welfare
- Media, advocacy, capacity building, research and study, pilots and any other project aimed towards the welfare of senior citizens and falling under the scope and coverage of NAPSrC

Major Schemes Implemented through Government of India for the Welfare and Protection of Rights of the Senior Citizens

Pradhan Mantri VayaVandanaYojana - This is a pension scheme launched by GoI in May 2017 to provide social security exclusively for the senior citizens aged 60 and above. The scheme is now extended up to March 31, 2023.

Indira Gandhi National Old Age Pension Scheme (IGNOAPS)- The scheme is being implemented by the Ministry of Rural Development since 2007 for senior citizens above

the age of 60 years and are below the poverty line, according to the guidelines prescribed by the Government of India.

National Programme for the Health Care of Elderly (NPHCE)- This was launched by the Ministry of Health and Family Welfare in 2010-11 to address various health related problems of elderly people. The basic thrust of the programme is to provide dedicated health care facilities to the senior citizens at various levels of primary, secondary and tertiary health care.

Rashtriya Vayoshri Yojana- The scheme provides physical aids and assistive devices for elderly above 60 years of age suffering from age related disabilities/infirmities, and those who belong to BPL category. The scheme aims to address disability/infirmity, low vision, hearing impairment, loss of teeth and locomotor disability.

Pradhan Mantri Jan Arogya Yojana (PM-JAY)- Launched by the Ministry of Health and Family Welfare in 2018, this health insurance scheme provides a health cover of ₹5 lakh to poor and vulnerable families, per family per year for secondary and tertiary care hospitalisation across public and private empanelled hospitals.

Interventions by Government of Kerala

Vayojana Nayam 2013 (The Old Age Policy) of Government of Kerala acts as a guideline to prepare Action Plan to frame schemes and projects for the welfare of all citizens above the age of 60, especially for the elderly women. The policy aims to provide better social, economic and healthy life to the senior citizens of the State. Institutions run by the Department of Social Justice and various schemes being implemented for the elderly are detailed below:

Institutions for Elderly Care in Kerala

Old Age Homes and Day Care Centres provide protection to those senior citizens who are left unattended. There are 16 Government old age homes functioning under the control of Social Justice Department. “Sayamprabha Home” project is an initiative of Social Justice Department for providing day care facilities

to the elderly, in cooperation with LSGD institutions. It was initiated in 82 LSGIs in 2018.

The day care centres functioning under the Local Self Government Department have been revamped as “Sayamprabha Homes”, wherein all the recreational, social support and nutritional need of the elderly are addressed. “Model Sayamprabha Homes”, functioning in Thiruvananthapuram and Kozhikode districts function as Multi Service Day Care Centres for various old age needs, through which around 80 people are benefited daily. With a view to upgrade the status of Government old age homes to the national level, the Department had launched “Second Innings Project”. After the success of the pilot project in Kannur, the scheme was extended to Kollam and Malappuram Government old age homes.

Apart from the old age homes run by the Department, there are nearly 619 registered old age homes under Orphanage Control Board, of which 82 are funded by Government. Monitoring the functioning of these old age homes is very essential to protect the rights of the elderly occupants. In Kerala, the elderly inmates in old age homes are increasing as seen in **Table 6.3.1**.

Table 6.3.1 Number of inmates in old age homes in Kerala, 2016-17 to 2020-21

Year	No. of inmates
2016-17	19149
2017-18	27272
2018-19	28029
2019-20	28021
2020-21	28788

Source: Social Justice Directorate, GoK

Old Age Pension Scheme

The Government of Kerala had developed an online application system, Sevana Pension, through Information Kerala Mission for the distribution of social security pensions to beneficiaries of Kerala. The eligible beneficiaries are identified and pensions are distributed through the local bodies. The State has

successfully introduced the system of Direct Benefit Transfer.

The Indira Gandhi National Old Age Pension Scheme (IGNOAPS) is a non-contributory pension scheme by Government of India for citizens aged 60 years and above belonging to BPL category. Presently, the beneficiaries of social security pensions, including IGNOAPS, receive monthly pension of ₹1600 of which, greater share is met by the State Government. The central share contribution is ₹200 per month for persons aged 60-79 years and ₹500 for 80 years and above. Amount over and above this is met by the State Government. As on November 2021, there are 28.23 lakh beneficiaries for IGNOAPS, constituting 54.98 per cent of the total social security pensioners in the State. The beneficiaries of old age pension, LSGI wise, as on November 2021 is given in **Table 6.3.2**.

Table 6.3.2 Pension beneficiaries (LSGI wise)

IGNOAPS (LSGI wise)	No. of Beneficiaries as on 08.11.2021 (in lakh)
GramPanchayath	22.57
Municipality	3.56
Corporation	2.09
Total	28.23

Source: Sevana Pension, IKM

Schemes for the Elderly Implemented by Government of Kerala

Kerala has the highest percentage of elderly population in the country. One of the major challenges faced by the elderly population is the lack of social support as age advances. As the elderly population is not a homogeneous group, it is crucial to understand the demography of ageing in Kerala, the factors influencing their health, disability, living arrangements, and economic independence to form a strategy to address the problems they face. There are many intersections to be considered such as specific needs and challenges faced by those above 80 years of age, widow/unmarried/childless women, persons with disability and weak, those with no living immediate relatives, those living alone, destitute, and those who suffer from serious and deadly illnesses.

Social security and social protection schemes for the elderly population also fall under the responsibility of the State Government. Social Justice Department and Kerala Social Security Mission are the two agencies at the forefront in implementing schemes for the elderly. The Social Justice Department is the nodal department for the implementation of schemes for the elderly. Apart from the Department, LSGIs and elderly self - help groups have a major role to play in elderly care. Similarly, several NGOs and charitable organizations are at the forefront to serve elderly people. Recognising the importance of care for the elderly, Kudumbashree also plays a pivotal role through its involvement in (i) elderly inclusion programme, (ii) destitute rehabilitation programme (Asraya), and (iii) palliative care.

Some of the programmes formulated by the State Government for the welfare of elderly persons in Kerala are given below:

1. Sayamprabha - This is a comprehensive package, implemented by the Social Justice Department, for the creation of an old age-friendly environment, facilitating aged people to withstand the challenges and achieve overall physical as well as mental health in the most meaningful way and in a sustainable manner. Following programmes are implemented under Sayamprabha scheme:

- *Model Sayamprabha Homes* are multi-service day care centres for elderly, benefitting around 80 people
- *Vayoposhanam* supplies nutritional kits to the elderly persons registered at Sayamprabha homes. Around 4,100 beneficiaries were covered under the scheme in 2021-22.
- *Mandahasam* provides free tooth set for the senior citizens. 1,692 and 1,400 persons were benefitted through the scheme during 2018-19 and 2019-20 respectively.

- *Vayoamrutham* project is implemented with the support of Indian System of Medicine for Ayurveda treatment for inmates of Government old age homes. Every year around 800 inmates of 16 Government old age homes are availing the benefits of the scheme.
- Psycho-Social Care in Old Age Homes is provided in association with NIMHANS, Bengaluru
- *Vayomadhuram* scheme supplies glucometer for old age people under BPL category free of cost.
- Music Therapy and Yoga Therapy provided in old age homes.

2. Dementia Care Programme— Smruthipadham The Kerala State Initiative on Dementia has initiated a programme called ‘Smruthipadham’. The initiative is undertaken by the Social Justice Department and Alzheimer’s and Related Disorders Society of India. Under the project, a day care facility is available at Kunnankulam and a full-time day care centre at Edavanakkad, Ernakulam. Every year around 40 inmates get the benefits through the dementia centres in Ernakulam and Thrissur.

3. Vayomithram - Vayomithram project, a social safety net programme implemented by Kerala Social Security Mission, provides health care and support to elderly above the age of 65 years residing at corporation/ municipal areas in the State. Currently, 95 Vayomithram units are functioning effectively in the State, and are being operational in 42 Corporation areas, 85 Municipal areas and 4 Block Panchayaths. The project provides health care and support by conducting free medical checkup and treatment through mobile clinics. The details of the beneficiaries of Vayomithram scheme during 2017-18 to 2021-22 are given in **Table 6.3.3**.

Table 6.3.3 Beneficiaries of Vayomithram during 2017-18 to 2021-22

Year	2017-18	2018-19	2019-20	2020-21	2021-22
No. of old age beneficiaries	253503	262845	279635	280165	280178

Source : Kerala Social Security Mission

4. Navajeevan- The scheme, being implemented by the Department of Employment, provides assistance to senior citizens within the age group of 50-65 years for starting self employment units, thereby enabling their upliftment from the social and economic backwardness. The scheme is intended to provide self-employment loans to senior citizens, by way of bank loan up to ₹50,000 for starting self-employment ventures, of which 25 per cent would be reimbursed as Government subsidy, subject to a maximum of ₹12,500.

Institutional mechanisms need to be strengthened to improve service delivery. There needs to be avenues for utilising the expertise of the senior citizens in the development process.

5. Empowerment of Special Neighbourhood Groups by Kudumbashree -

Kudumbashree has initiated the formation of special neighbourhood groups for persons with physical and intellectual disabilities, transgender persons and also for the elderly along with the mainstream neighbourhood groups. Currently, 25,992 geriatric neighbourhood groups, consisting of 3,12,280 members are functioning. 525 micro enterprises have been set up through them. In 2017-18, ₹90.30 lakh was released as corpus fund to 1720 neighbourhood groups. In 2018-19, 1168 medical camps were organised for the elderly thereby benefiting 65,771 senior citizens. A special campaign called “Grant Care for the Elderly” was organised in connection with Covid-19, through which awareness on reverse quarantine was given to the elderly population (17,68,929 numbers) over phone and they were also supported with food (19,933) and medicines (82,632 numbers). In 2020-21, 4,700 elderly neighbourhood groups were provided revolving fund at the rate of ₹5,000.

Way Forward

Every person should have the opportunity to good health as they grow older. The elderly population is steadily increasing and the problems faced by this expanding group need to be addressed through more innovative and sustainable approaches. To effectively plan the strategy, there has to be a reliable and updated database on the characteristics of the population. Such a database would help convergence of activities of various departments in this sector.

CHAPTER

7

LABOUR AND EMPLOYMENT

LABOUR AND EMPLOYMENT

7.1 LABOUR AND LABOUR WELFARE

The free and safe working conditions in the State can be attributed to labour movements and Government interventions in the form of policies to expand rights and social security networks in the State. Reported wage rates of workers in both agricultural and non-agricultural sectors in Kerala are higher than in the rest of India. The average daily wage rates in Kerala attract migrants into the State, especially from States where wage rates are low. The State now needs to create additional employment opportunities and employment-intensive growth for which the labour force has to move from low-value-added to high-value-added activities. The State aims to achieve job-induced inclusive growth in the economy to create new jobs in urban and rural Kerala.

As in other sectors, Covid-19 pandemic has adversely affected the labour market. As per the Periodic Labour Force Survey (PLFS) carried out by the National Sample Survey Organisation of the Ministry of Statistics and Programme Implementation, in the year 2017-18, the total employment in both organized and unorganized sector in the country was around 47 crore. Out of this, around nine crore are engaged in the organized sector and the balance 38 crore are in the unorganized sector. The workers in the unorganized sector constitute more than 81 per cent of the total employment in the country. But this number is expected to have gone up due to Covid-19 and lockdown thereon.¹

The pandemic ravaged the labour market in India, with self-employed and casual labourers suffering the biggest hits. With the easing of

lockdowns and the return of migrant labour to cities, employment had started edging towards normalcy, as portrayed by data emanating from households' surveys, pay roll numbers and new openings in the corporate sector before the second wave.²

Labour Force

Labour force, or in other words, the “economically active” population includes “employed” and “unemployed” persons. Estimates of the labour force have been obtained based on the two approaches: Usual Status (ps+ss) Approach, i.e. by considering usual principal and subsidiary activity together and Current Weekly Status Approach.

The estimate of the labour force in the usual status (ps+ss) includes (a) the persons who either worked or were available for work for a relatively long part of the 365 days preceding the date of survey and also (b) those persons from among the remaining population who had worked at least for 30 days during the reference period of 365 days preceding the date of survey.

The estimate of labour force as per Current Weekly Status gives the average picture of the labour force participation in a short period of one week during the survey period. The estimate of labour force according to the Current Weekly Status approach is derived by considering those who worked for at least one hour or was seeking/available for work for at least one hour on any day during the seven days preceding the date of survey.

¹ Annual Report, 2020-21, Ministry of Labour and Employment, GoI

² Annual Report 2020-21, Reserve Bank of India

Table 7.1.1 Labour Force Participation Rate (LFPR) according to Usual Status (ps+ss), 2017-18, 2018-19, and 2019-20, in per cent

Sl No	Age Group	Rural			Urban			Rural +Urban			Rural			Urban			Rural +Urban		
		Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person
		All India 2017-18									Kerala 2017-18								
1	15-29 years	58.9	15.9	38.1	58.5	17.5	38.5	58.8	16.4	38.2	55.1	20.8	37.2	48.4	27.6	37.8	52.2	23.6	37.4
2	15-59 years	80.2	26.6	53.6	80.1	22.3	51.6	80.2	25.3	53	79.5	31.1	53.6	78.1	33	53.6	78.9	31.9	53.6
3	15 years and above	76.4	24.6	50.7	74.5	20.4	47.6	75.8	23.3	49.8	71.1	25.9	46.6	68.9	27.3	46.4	70.1	26.5	46.5
4	All ages (0+)	54.9	18.2	37	57	15.9	36.8	55.5	17.5	36.9	54.1	20.7	36.4	53.6	22.1	36.8	53.9	21.3	36.6
All India 2018-19										Kerala 2018-19									
5	15-29 years	58.8	15.8	37.8	58.6	17.1	38.7	58.8	16.2	38.1	43.3	23	32.9	51.6	29.1	39.9	47	25.8	36
6	15-59 years	80.6	28.3	54.5	79.6	22.5	51.6	80.3	26.5	53.6	76.5	35.5	54.6	79.9	35	55.4	78.1	35.2	55
7	15 years and above	76.4	26.4	51.5	73.7	20.4	47.5	75.5	24.5	50.2	71	31.3	49.7	71.4	29.7	48.8	71.2	30.6	49.3
8	All ages (0+)	55.1	19.7	37.7	56.7	16.1	36.9	55.6	18.6	37.5	56.9	25	39.7	56.3	24.2	39.2	56.6	24.6	39.5
All India 2019-20										Kerala 2019-20									
9	15-29 years	60.8	20.7	41.3	58.3	20.3	40.0	60.0	20.6	40.9	55.6	26.2	40.9	52.9	25.4	38.8	54.3	25.8	39.8
10	15-59 years	81.5	35.4	58.5	80.6	25.7	53.5	81.2	32.3	56.9	80.6	39.8	58.4	79.1	33.5	54.6	79.9	36.7	56.5
11	15 years and above	77.9	33.0	55.5	74.6	23.3	49.3	76.8	30.0	53.5	73.6	35.1	52.8	69.8	28.6	47.7	71.7	31.9	50.3
12	All ages (0+)	56.3	24.7	40.8	57.8	18.5	38.6	56.8	22.8	40.1	57.9	29.4	42.9	54.9	23.2	38.1	56.4	26.3	40.5

Source: Periodic Labour Force Survey, 2017-18, 2018-19, and 2019-20

In India, when compared to 2017-18, LFPR (at all ages) has slightly increased by 0.6 per cent in 2018-19 (Rural + Urban). In 2019-20, LFPR (all ages) was 40.1 per cent. In Kerala, LFPR (Rural + Urban) for all ages was 36.6 per cent in 2017-18 and 39.5 per cent in 2018-19 it increased to 40.5 in 2019-20.

It is evident from **Table 7.1.1** that, in terms of gender, at all India level the LFPR for females continue to be lower at 22.8 per cent in 2019-20, compared to the rate of 56.8 per cent. for males. females LFPR in Kerala is higher than all India level. Though it is higher, there is a gender gap. The LFPR (for all ages) was 26.3 per cent compared to 56.4 per cent for males.

Considering the importance of availability of labour force data at more frequent intervals Quarterly Bulletin are brought out by NSO. These bulletins provide estimates of labour force for the urban areas. Quarterly Bulletin for quarter ending March 2021 has been released till date; it is ten in the series.

Labour Force Participation Rate according to the Current weekly Status for four quarters starting from January 2020 onwards is shown in **Table 7.1.2**. As compared to January – March 2020, LFPR (for all ages) according to CWS has come down from 37.2 per cent to 35.7 per cent indicating the impact of Covid-19 on labour.

Table 7.1.2 Labour Force Participation Rate (LFPR) (in per cent) according to Current Weekly Status for Kerala and India in urban areas 2020-2021

Age group: All	Male ^s				Female				Persons ^s						
	Jan -March 2020	Apr-June 2020	July-Sept 2020	Oct-Dec 2020	Jan-March 2021	Jan-March 2020	Apr -June 2020	July-Sept 2020	Oct-Dec 2020	Jan-March 2021	Jan-March 2020	Apr-June 2020	July-Sept 2020	Oct-Dec 2020	Jan-March 2021
Kerala	54.80	52.80	53.10	53.00	52.30	21.80	18.20	20.40	20.50	20.50	37.20	34.50	36.00	36.10	35.70
All India	56.70	55.50	57.10	57.40	57.50	17.30	15.50	16.10	16.40	16.90	37.50	35.90	37.00	37.30	37.50

Source: Quarterly Bulletin, PLFS, January - March 2021

Labour Force Participation Rate (LFPR) (in per cent) according to current weekly status for Kerala and all India from the quarter January to March 2020 to January to March 2021 is shown in the **Table 7.1.2**. It is evident from the table that, Female Labour Force Participation Rate in both Kerala and India has recorded a slight decrease in that period.

Worker Population Ratio (WPR)

WPR is an indicator used for analysing the employment situation and knowing the proportion of the population actively contributing to the production of goods and services in the economy. WPR is defined as the percentage of employed persons in the population.

Table 7.1.3 shows the Worker Population Ratio (in per cent) according to Usual Status in 2017-18, 2018-19 and 2019-20. The Worker Population Ratio (Rural + Urban) (at all ages) has gradually increased from 34.7 in 2017-18 to, 35.3 in 2018-19. In 2019-20 it was 38.2 per cent. The WPR has increased in Kerala also from 32.4 in 2017-18 to 35.9 in 2018-19 and 36.5 per cent in 2019-20.

Female Worker Population Ratio (at all ages, Rural + Urban) in Kerala is also gradually increasing. It was 16.4 per cent in 2017-18, 20.4 per cent in 2018-19 and it increased to 22.4 in 2019-20.

Table 7.1.3 Worker Population Ratio (WPR) (in per cent) according to Usual Status

Sl No	Age Group	Rural			Urban			Rural +Urban			Rural			Urban			Rural +Urban		
		Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person
All India 2017-18										Kerala 2017-18									
1	15-29 years	48.6	13.8	31.8	47.6	12.8	30.6	48.3	13.5	31.4	43.8	7.9	25.1	35.1	9.6	22.1	40.1	8.6	23.8
2	15-59 years	75.2	25.5	50.5	74.2	19.8	47.3	74.9	23.8	49.5	74.3	24.5	47.6	72.2	23.4	45.7	73.4	24	46.8
3	15 years and above	72	23.7	48.1	69.3	18.2	43.9	71.2	22	46.8	67	20.8	41.9	64.4	19.8	40.2	65.8	20.4	41.2
4	All ages	51.7	17.5	35	53	14.2	33.9	52.1	16.5	34.7	50.9	16.6	32.7	50	16	32	50.5	16.4	32.4
All India 2018-19										Kerala 2018-19									
5	15-29 years	49.1	13.6	31.7	47.6	12.7	30.9	48.6	13.3	31.5	33.1	9.7	21.1	39.7	13.7	26.1	36.1	11.5	23.4
6	15-59 years	75.8	27.2	51.5	73.7	20.2	47.5	75.1	25	50.3	72.2	29.2	49.2	75.1	27.7	49.3	73.5	28.5	49.3
7	15 years and above	72.2	25.5	48.9	68.6	18.4	43.9	71	23.3	47.3	67.6	26.4	45.5	67.7	24.1	44.1	67.7	25.3	44.9
8	All ages	52.1	19	35.8	52.7	14.5	34.1	52.3	17.6	35.3	54.2	21.1	36.4	53.4	19.7	35.4	53.8	20.4	35.9
All India 2019-20										Kerala 2019-20									
9	15-29 years	52.5	18.6	35.9	47.7	15.2	32.1	51.0	17.6	34.7	40.7	10.9	25.8	39.1	13.0	25.7	39.9	11.9	25.7
10	15-59 years	77.5	34.4	55.9	75.1	23.3	49.6	76.7	30.9	53.9	73.5	33.5	51.7	72.4	27.3	48.2	72.9	30.5	50.0
11	15 years and above	74.4	32.2	53.3	69.9	21.3	45.8	73.0	28.7	50.9	68.2	30.3	47.7	64.7	23.8	42.7	66.5	27.1	45.3
12	All ages	53.8	24.0	39.2	54.1	16.8	35.9	53.9	21.8	38.2	53.7	25.3	38.7	50.8	19.3	34.2	52.2	22.4	36.5

Source: Periodic Labour Force Survey - 2017-18, 2018-19 and 2019-20

Worker Population Rate (WPR) according to Current Weekly Status for Kerala and India (Urban) from the quarter January to March 2020 to January to March 2021 is shown in the **Table 7.1.4**.

Wage Rate in Kerala

As per the India Wage Report prepared by the International Labour Organisation (ILO 2018), the States with consistent high casual wages in both rural and urban areas are Kerala, Jammu and Kashmir, Punjab and Haryana.

Table 7.1.4 Worker Population Rate (WPR) (in per cent) according to Current Weekly Status for Kerala and India

Age group: All	Male ^s				Female				Persons ^s						
	State	Jan-March 2020	Apr-June 2020	July-Sept 2020	Oct-Dec 2020	Jan-March 2021	Jan-March 2020	April-June 2020	July-Sept 2020	Oct-Dec 2020	Jan-March 2021	Jan-March 2020	April-June 2020	July-Sept 2020	Oct-Dec 2020
Kerala	46.80	38.80	44.60	45.60	45.90	17.30	12.80	15.10	15.70	16.70	31.10	25.10	29.20	30.10	30.60
All India	51.70	44.00	49.90	52.00	52.50	15.50	12.20	13.60	14.30	14.90	34.10	28.40	32.10	33.50	34.00

Source: Quarterly Bulletin, PLFS, January - March 2021

Table 7.1.5 Average wage earnings per day from casual labour work other than public works in CWS for India and Kerala, in ₹

Period		Rural			Urban			Rural+Urban		
		Male	Female	Person	Male	Female	Person	Male	Female	Person
July - Sep, 2018	Kerala	641.83	357.79	598.79	710.13	422.76	676.4	664.82	375.6	624.23
	India	276.92	170.1	253.93	342.15	204.73	319.3	287.88	174.54	264.38
Oct - Dec, 2018	Kerala	659.41	377.8	605.64	678.44	365.85	649.06	666.26	375.43	620.16
	India	286.84	185.64	264.63	348.76	226.25	331.24	297.86	190.26	275.59
Jan - March, 2019	Kerala	677.53	403.4	651.61	684.01	332.02	649.73	680.07	374.84	650.87
	India	287.36	190.23	267.42	357.53	220.22	339.15	299.08	193.44	278.56
Apr - June, 2019	Kerala	732.17	388.32	697.18	680.32	372.25	648.27	710.77	381.59	676.96
	India	297.44	199.24	278.62	367.65	244.15	351.82	309.77	204.49	290.7
July-Sep, 2019	Kerala	667.71	372.05	613.07	744.50	385.75	709.18	701.67	375.84	653.21
	India	297.30	185.01	268.29	374.96	243.34	356.08	310.87	190.40	281.90
Oct-Dec, 2019	Kerala	721.39	395.56	678.36	736.51	369.43	704.96	727.78	387.41	689.27
	India	305.40	193.10	273.97	384.32	244.10	364.54	319.01	197.23	287.43
Jan-Mar, 2020	Kerala	715.96	430.54	694.71	729.58	381.86	692.92	721.46	406.28	693.97
	India	315.13	205.43	287.49	391.31	264.86	373.33	328.35	211.00	300.78
Apr-June, 2020	Kerala	685.12	318.79	628.62	697.62	489.62	679.72	690.09	362.31	648.03
	India	309.02	209.10	284.69	390.06	256.20	369.75	317.28	211.89	292.51

Source: PLFS Annual Report 2018-19 and 2019-20

From **Table 7.1.5**, it is evident that, the per day average wage/salary earnings of casual labour workers (both rural and urban) (in CWS) in Kerala is higher than that of all India average from July 2018 to June 2020 in various time intervals. The average wage rate in Kerala for all quarters is higher than that of India both in urban and rural areas, as per PLFS. Although the wages of women in Kerala are lower than that of men, wages for women in Kerala is 100 per cent more than that of females at all India level. It is clear from the table that, average wage earnings per day from casual labour work other than public works in India and Kerala shows an increase in (Rural + Urban) both for male and female. Average gross earnings (in ₹) during the 30 days from self-employment in India and Kerala are shown in **Appendix 7.1.1**. The remuneration of workers in Kerala in both casual work and self-employment is much higher than that of all India level. As per the PLFS report, the wage rate of both men and women in Kerala is highest among the major States in India though it is more or less equal to some of the Union Territories.

Table 7.1.6 indicates that the average daily wage rates in rural India and Kerala (men-agricultural and non-agricultural labourers) in the year 2019-20.

Table 7.1.6 Average daily wage rates in rural India and Kerala

	Agricultural labour		Non-agricultural labour	
	2018-19	2019-20	2018-19	2019-20
Kerala	682.4	700.7	657.2	670.1
India	277.4	286.6	284.8	293.5

Source: Annual Report 2019-20, Reserve Bank of India

The average daily wage rate existing in Kerala both in the agricultural and non-agricultural sector is more than the existing wage rate in India. In both sectors, labourers in Kerala are getting more than 100 per cent of the average wage compared to India.

Labour and Labour Welfare in Kerala

The Government of Kerala aims to create a labour friendly atmosphere in the State. The

Government intends to create job opportunities based on productivity, and skills, and aims to ensure gender equality, minimum wages and health protection to create a better workplace atmosphere. The Government aims at overall well-being of the labourers of all sectors by ensuring them wage protection and financial security. In Kerala, the socio-economic security of the unorganized sector including self-employed groups is given priority.

It is an accepted fact that the labour laws and labour welfare schemes implemented by Kerala, places the labour force of Kerala at a level much higher to that of other states in India. Even the world as such is viewing the labour force in Kerala with high esteem for its valuable contribution to the social and economic development of the state.

Labour Welfare activities

The Labour Department plays a key role in implementing labour welfare activities. There are 28 Labour Welfare Boards in the State (Labour Commissionerate). At present there are 16 Welfare Fund Boards functioning under the Labour Department and providing welfare amenities to the respective sector of labour. The rest of the boards are functioning under various departments like Agriculture and Industry. The welfare boards under Labour Department and registered members are shown in **Appendix 7.1.2**.

Major schemes for Labour Welfare

- I. Social Protection for unorganised sector workers - The scheme aims at social and financial protection for the workers in the unorganised sector. This scheme has following three components:
 - a. Unorganised Daily Waged Employees Distress Relief Fund - This scheme was sanctioned in 2007-08 and implemented through Labour Department to provide financial assistance at the rate of ₹2000 to the workers covered under the definition of daily wage workers and those who are not covered under any other welfare

schemes, and have sustained injury during the course of employment.

- b. Tree Climbers Disability Pension Scheme This pension scheme was introduced on January 1, 2012 to provide pension to the beneficiaries of the deceased workers who have received a financial assistance under the Kerala Tree Climbers Welfare Scheme.
 - c. Maternity Allowances to Workers in the Un-organised Sector - Government commenced a Maternity Allowance Scheme to the workers in the un-organised sector in 2011-12. To bring about a uniform pattern of assistance in the payment of maternity benefits provided by various welfare fund boards, minimum eligible wages are paid as maternity benefit.
- II. Estate Workers Distress Relief Fund - This scheme is implemented through Labour Department to provide financial assistance at the rate of ₹25,000 to the legal heirs of the deceased in distress especially to the estate workers' family.
 - III. Income Support to Workers in Traditional Sector Activities - This scheme was introduced in 2010-11 to give financial support of ₹1,250 to workers engaged in the traditional sectors like Beedi, Khadi, Etta and Pandanus, Fisheries, Fish Processing and Coir in the State. The Scheme is implemented through Departments like Coir, Fisheries, Khadi, Handloom and various welfare fund boards.

Factory workers in Kerala

It is seen from **Table 7.1.7** that the number of workers in the factories under the purview of Factories and Boilers Department are steadily increasing except in the year 2017 and 2020.

Although the rate of increase is low, the number of factories functioning in Kerala is increasing. The number of working factories has increased to 24,464 (as on October 31, 2021) from around 21764 in 2014. Details of working factories for the last 8 years are given in **Appendix 7.1.3**.

Table 7.1.7 Number of workers in the factories

Year	No. of Workers
2014	646923
2015	688199
2016	702129
2017	678058
2018	698679
2019	726195
2020	702901
2021*	698551

Source: Factories and Boilers Department
 Note: * As on October 31, 2021

Safety of the Factory Workers

The Department of Factories and Boilers is the statutory authority to ensure the safety, health and welfare of all workers in factories and the general public, living in the vicinity of factories. The Department carries out various programmes for the safety of the workers. In 2021-22 (up to July 31, 2021), 7 priority inspection for MAH factories and 5 inspection at hazardous factories by specialist inspectors have been done by the Department. The Department has also been conducting training programmes not only for factory workers and employees but also for school children and the general public near factory premises. Due to the pandemic and the lock down, Department has not been able to conduct many of their on-going works like workshops, training programmes and medical examinations. Details are provided in **Appendix 7.1.4**.

Industrial Accidents in Kerala

The number of fatal accidents in factories is declining, but the annual non-fatal accidents have not decreased much. This necessitates more precautions and safety measures to be taken in the premises of factories (**Table 7.1.8**).

Table 7.1.8 Industrial Accidents in Kerala, 2013 to 2020, in numbers

Accident	2016	2017	2018	2019	2020	upto July 31, 2021
Fatal	156	180	187	162	117	114
Non Fatal	297	507	405	307	292	220

Source: Factories and Boilers Department, GoK
 Note: * upto July 31, 2021

Industrial Disputes

Providing a platform for raising grievances and settlement of issues between employee and employer is an essential requirement for ensuring harmonious labour relations in the State. Industrial Disputes Act of 1947, provides the legal framework for the same though it applies only to the organised sector. It also regulates lay off and retrenchment.

The number of disputes pending at the beginning of 2020-21 was 3139 and the number of disputes that arose in 2020-21 was 3031. Total number of disputes handled 2020-21 is 6107. Total number of disputes settled in 2020-21 was 1981. This indicates that around 63 per cent of the disputes were settled in 2020-21. The details of industrial disputes and settlements are shown in the **Appendix 7.1.5**.

Number of Working Days lost due to strikes, lockouts and lay offs

Strikes, lockouts and lay off are the reason for loss of working days. The total man days lost in Kerala in the year (up to August 31, 2021) is 8,35,090 for various reasons. Details are provided in **Appendix 7.1.6, 7.1.7** and **7.1.8**.

Social Security System for Workers in Kerala Employees State Insurance (ESI) Scheme

ESI Scheme of the GoI aims at providing assistance to employees in case of sickness, maternity, disablement and death due to employment injury and to provide medical care to insured persons and their families. The comprehensive social security provisions are based on the ESI Act 1948. This scheme covers all the employees working in non-seasonal factories running on power that employ 10 or more persons, and factories not using power that employ 20 or more persons. It also includes those working in shops, hotels, restaurants, cinemas, road motor transport undertakings and newspaper establishments. Each insured employee and their employer are required to contribute a certain per cent of their wages to the ESIC every month. The ceiling wage rates are revised from time to time. The ESI Scheme runs like most of the social security schemes. It is a self-financing health insurance scheme and the contributions are raised from covered employees and their employers as a fixed per cent of wages.

The payments are to be made on a monthly basis. There are 145 ESI dispensaries and 9 ESI hospitals existing in Kerala. District wise details of ESI Dispensaries and Hospitals are given in **Appendix 7.1.9**.

Guest Workers in Kerala

Till 2001, the neighbouring states like Tamil Nadu, Karnataka, and Maharashtra were the major migrant sending states to Kerala. But from 2011, this trend has changed. The States which have major contribution to the rising migration trends in Kerala in recent years includes West Bengal, Assam, Odisha and Bihar.

Table 7.1.9 District-wise estimated number of migrant workers in Kerala, 2017-18

Sl No.	District	Estimated Number of Migrants (in lakh)
1	Thiruvananthapuram	3.4
2	Kollam	1.6
3	Pathanamthitta	1.6
4	Alappuzha	2.4
5	Kottayam	2.0
6	Idukki	1.2
7	Ernakulam	6.3
8	Thrissur	2.8
9	Palakkad	1.6
10	Malappuram	1.9
11	Kozhikode	2.8
12	Wayanad	0.8
13	Kannur	2.0
14	Kasaragod	1.1
15	Total	31.5

Source: Study on In-migration, informal Employment and Urbanisation in Kerala

According to 'A Study on In-migration, Informal Employment and Urbanisation in Kerala - Dr. Jajati Keshari Parida and Dr. K. Raviraman, State Planning Board, March 2021', the total estimated number of other state migrants in Kerala is 31.5 lakhs. It is a pre-Covid-19 situation; a decline in guest workers should have occurred in Covid-19 and post-Covid-19 conditions. The construction sector tops the rank. It is observed that about

17.5 lakhs of the total other state migrants are engaged in the construction sector itself. Manufacturing is the second most dominant sector which attracts large number of migrants from other states of India. It employs 6.3 lakhs migrants.

Major Schemes for Guest Workers in Kerala

Aawaz: Kerala provides medical insurance scheme named 'Aawaz' to all guest workers. They are eligible to get ₹25,000 worth medical insurance and ₹2 lakh as death assistance which is not provided by any other State in the country. Distribution of registered migrant workers from other States/Union Territories in the districts of Kerala (as on August 31, 2021) is shown in **Appendix 7.1.10**.

Table 7.1.10 Details of district wise Aawaz card issued

Sl. No.	District	No of card issued
1	Thiruvananthapuram	61552
2	Kollam	24849
3	Pathanamthitta	24059
4	Alappuzha	36926
5	Idukki	19551
6	Kottayam	32908
7	Ernakulam	112654
8	Thrissur	41900
9	Palakkad	24694
10	Malappuram	29856
11	Kozhikode	44363
12	Wayanad	11558
13	Kannur	28723
14	Kasaragod	15858
15	Total	509451

Source: Labour Commissionerate, Government of Kerala

The highest number of migrants registered in Aawaz scheme is from Ernakulam district. More than 1 lakh guest workers in Ernakulam district had registered in Aawaz scheme followed by Thiruvananthapuram (61,552) and Kozhikode (44,363). Despite the positive developments on the part of the Labour Commissionerate, the number of registered guest workers is still 5 lakh. Labour Commissionerate is taking steps

to register all guest workers in Kerala in this category.

Apna Ghar: Government has started 'Apnaghar Project' for providing dwelling places for the migrant workers at reasonable rates. The project provides good quality, hygienic and safe hostel accommodation on rental basis for interstate migrant workers while working in Kerala. These hostels are designed with shared rooms, multiple kitchens, mess areas, bathrooms, toilets and recreational facilities. These hostels also have sewage treatment plant, rain water harvesting, diesel generator backup and CCTV systems.

Bhavanam Foundation Kerala has leased one acre of land within KSIDC's Industrial Growth Centre, Kinalur, Kozhikode District for implementing a hostel under the Apna Ghar Project for about 520 interstate migrant workers.

Activities by the Department of Labour during Covid-19 Pandemic Outbreak (2020)

As a result of intervention by the Labour Department, no guest worker was deprived of food, drinking water and other essential amenities during the pandemic. Building owners had been warned strictly against any kind of unlawful evictions. The State set the best example by providing food to workers through 'Community Kitchen' managed by Kudumbasree. Kerala has taken care of guest workers by providing them with decent accommodation, health care and meeting all their needs during lockdown period.

However, as many of the guest workers desired to go home, the Government proactively arranged transport facility to enable them reach their respective home destinations. As on June 3, 2020, 102 trains carried more than 1,38,870 (One lakh thirty eight thousand eight hundred and seventy only) workers to various home destinations. A detailed plan for sending all the guest workers who are willing to go back to their home, had already been made and the trains had been scheduled accordingly.

In the wake of the Covid-19 pandemic, Labour Department had started helpline/call centres in all districts, along with the Labour

Commissionerate Call Centre, working 24x7 to address the grievance of the guest workers. Adequate number of multilingual personnel had been deployed in the call centres to converse with the workers and to address their grievances.

Activities by the Department of Labour during Covid Pandemic Outbreak (2021)

In the wake of the Covid-19 pandemic, the Government sanctioned ₹357.38 crore as first step financial assistance for the members of all the Welfare Fund Boards under the Labour department out of which, ₹187.22 crore was disbursed among 18,49,785 beneficiaries. ₹210.32 crore has been sanctioned by the Government as second step financial assistance which is being disbursed.

A dynamic data base of guest workers in the State and their influx and efflux is essential to provide them various facilities especially during the pandemic situations. Department is developing a mobile application for the guest workers to manage all their requirements like work, shelter and other facilities. With this Government can have an accurate data of guest workers in the State and ensure facilities for them, especially vaccination and quarantine facilities during the time of pandemics.

Labour Commissionerate has prepared and forwarded a user requirement specification document describing the requirements of the Department to NIC for developing a mobile application and portal for managing returning migrant workers. Department envisages to register the migrant workers, employers and contractors, collecting photograph and biometric of the migrant workers for providing them healthcare facilities, record their location and provide them quarantine facilities and other welfare measures. Department will develop a data management policy to protect sensitive data of guest workers like biometrics and location data. Data will be handled and shared only on the basis of the policy.

NIC is entrusted for the development of mobile application and web portal. Development of web portal is completed. The process for development of mobile app is nearing completion.

During the second wave of Covid-19, Labour Department collected the details of Guest Workers in a war foot us manner. Even during period of lockdown, Department took efforts to address the concerns of Guest Workers regarding their work, food, medicine, treatment, testing, vaccination and Covid related precautions. Labour officers of the Department conducted awareness camps and sent messages to migrant workers to instill confidence among them. Measures were also taken to prevent a panic situation among migrant workers through spreading of fake messages. Data of 1.4 lakh workers have been already collected by the Department. Permission was given to continue works like construction works (strictly following Covid protocol) where guest workers are mostly engaged. Measures were taken to establish separate CFLTCs (Covid First Line Treatment centres) exclusively for migrant workers with the help of District administration. Distribution of food kits among guest workers was started with the help of Civil Supplies Department. Steps were taken to provide vaccination facilities to guest workers.

Kerala aims at ensuring peace and industrial harmony in the labour sector for increasing efficiency and protecting the rights of labourers and developing a new transparent work culture. The Labour Department also emphasises on developing a good employee - employer relationship and in creating awareness about not only the rights but also duties among the employees. The interests and rights of both employers and employees need to be protected.

7.2 EMPLOYMENT

Employment Scenario: India and Kerala

The Periodic Labour Force Survey (PLFS), a new series of employment data launched by the Government of India (GoI) in 2017, discontinuing the quinquennial Employment and Unemployment Surveys of National Sample Survey Organisation (NSSO), [now National Statistical Office (NSO)], Ministry of Statistics and Programme Implementation, provides labour force data on an annual basis. The PLFS data is now the primary source of data on employment and unemployment at national and State level. The Government of India released the third PLFS 2019-20 Report in July 2021. This Report is based on the survey conducted by NSO from July 2019 to June 2020. The survey was spread over 12,569 First Stage Units (6,913 villages and 5,656 urban blocks) covering 1,00,480 households (55,291 in rural areas and 45,189 in urban areas) and enumerating 4,18,297 persons (2,40,231 in rural areas and 1,78,066 in urban areas). Estimates of the labour force indicators are presented in this Report based on the usual status (ps+ss) approach and current weekly status approach adopted in the survey for classification of the population by activity statuses. The reference period for usual status (ps+ss) approach is one year and for current weekly status approach, it is one week.

Unemployment Rate

Unemployment Rate (UR) is defined as the percentage of unemployed persons in the labour force and is measured in terms of usual status (ps+ss) and weekly status in the PLFS surveys. This gives the portion of the labour force actively

seeking/available for work. According to the PLFS conducted by NSO, (GoI) from July 2019 to June 2020, unemployment under usual status (ps+ss) for persons of age 15 years and above, among the major States, Kerala has an unemployment rate of 10 per cent as against the all India level of 4.8 per cent (**Figure 7.2.1**).

The all India unemployment rate has declined from 5.8 per cent in 2018-19 to 4.8 per cent in 2019-20. The unemployment among males was 5 per cent and among females 4.2 per cent in 2019-20. In 2018-19, these rates were 6 per cent and 5.2 per cent respectively. In 2019-20, unemployment rate was 4.5 per cent among males and 2.6 per cent among females in rural areas, while the rates were 6.4 per cent among males and 8.9 per cent among females in urban areas.

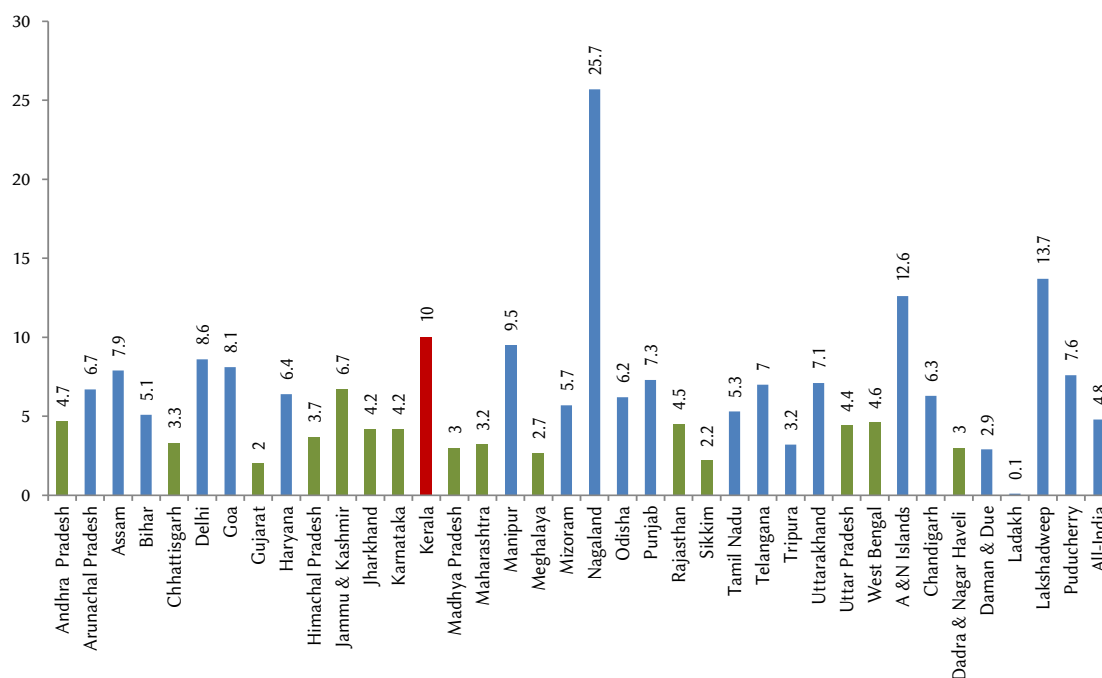
The unemployment rate in Kerala increased from 9.0 per cent in 2018-19 to 10.0 per cent in 2019-20. The unemployment rate among males was 7.4 per cent and 15.1 per cent among females. The unemployment rate was 7.3 per cent among males and 13.8 per cent among females in rural areas, while the rates were 7.4 per cent among males and 16.7 per cent among females in urban areas.

Details of unemployment rate (in per cent) according to usual status (ps+ss) for persons of age 15 years and above for each State/UT are given in **Appendix 7.2.1**.

Box 7.2.1 Global employment perspective

According to the World Employment and Social Outlook-Trends 2021 published by International Labour Organisation, the gradual decline of the unemployment rate observed between 2009 and 2018 appears to have come to a halt in 2021. The reduction in employment is because of the pandemic Covid-19 and shortfall in jobs. The projected employment growth forecast for the year 2021 is 100 million jobs, followed by 23 million in 2022. The pandemic induced shortfall in job is projected to be 75 million in 2021 and 23 million in 2022. The global unemployment is expected to reach 205 million and the unemployment rate is projected at 5.7 per cent in 2022.

Figure 7.2.1 Unemployment Rate (UR) according to usual status (ps+ss) for persons of age 15 years and above for each State/UT, in per cent



Source: PLFS report, 2019-20, GoI

As per the usual status (ps+ss) approach for persons of age 15 years and above, among the States, the lowest unemployment rate is estimated in Ladakh (0.1 per cent). The other major States, which have lower UR than the all India average (4.8 per cent) are Andhra Pradesh (4.7 per cent), Chhattisgarh (3.3 per cent), Gujarat (2.0 per cent), Himachal Pradesh (3.7 per cent), Jharkhand (4.2 per cent), Karnataka (4.2 per cent), Madhya Pradesh (3.0 per cent), Maharashtra (3.2 per cent), Meghalaya (2.7 per cent), Rajasthan (4.5 per cent), Sikkim (2.2 per cent), Tripura (3.2 per cent), Uttar Pradesh (4.4 per cent) and West Bengal (4.6 per cent).

For educated (secondary and above) persons of age 15 years and above, in usual status (ps+ss) unemployment rate in India was 10.1 per cent: 9.9 per cent in rural areas and 10.3 per cent in urban areas. In this category, unemployment rates among rural males and rural females of age 15 years and above were 9.3 per cent and 12.2 per cent respectively. In urban areas, the

unemployment rate was 8.7 per cent among males and 16.2 per cent among the educated females of age 15 years and above.

For educated (secondary and above) persons of age 15 years and above, unemployment rate in Kerala was 16.7 per cent, 17.0 in rural areas and 16.4 per cent in urban areas (**Appendix 7.2.2**).

In current weekly status (CWS), for persons of age 15 years and above, the unemployment rate was 8.8 in India and the corresponding unemployment rate of Kerala was 16.7. The unemployment rate in India was 8.7 per cent among males and was 5.5 per cent among females in rural areas while the rates were 10.5 per cent among males and 12.4 per cent among females in urban areas. The corresponding unemployment rate in Kerala was 14.1 per cent among males and 21.2 per cent among females in rural areas while the rates were 15.3 per cent among males and 20.4 per cent among females in urban areas (**Appendix 7.2.3**).

The male and female unemployment rate in Kerala in rural area as measured by usual status (ps+ss) and CWS approaches are found to be much higher than the all India average. Female unemployment, particularly in rural areas, is a matter of concern in Kerala. However, the female labour force participation rate (LFPR) in Kerala is estimated at 25.8 per cent which is higher than the all India level of 20.6 per cent (**Appendix 7.2.4**). As per the PLFS report, the Unemployment Rate (UR) in Kerala is lower in urban areas as compared to rural areas (**Figure 7.2.2**).

Unemployment Rates (UR) of the Youth

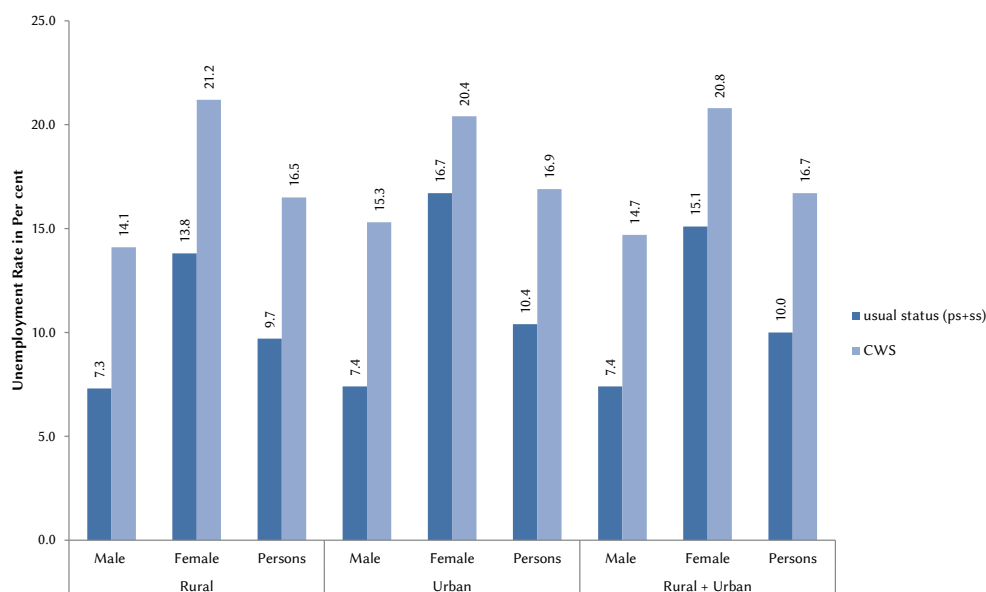
Productive employment of youth (persons aged 15-29) is an essential factor for economic development. Unemployment rate among the youth is measured at the all-India level in PLFS (2019-20) and in the last three erstwhile quinquennial rounds of NSSO. It is seen that over the period from 2004-05 to 2011-12, the unemployment rate among the rural male youth ranged between 3.9 to 5 per cent and it rose to 13.8 per cent in 2019-20 while the unemployment rate among the rural female youth ranged between 4.2 per cent to 4.8 per cent between 2004-05 and 2011-12 and rose to

10.3 per cent in 2019-20. The unemployment rate among the urban male youth ranged from 7.5 to 8.8 per cent between 2004-05 and 2011-12. It rose to 18.2 per cent in 2019-20. The unemployment rate for urban female youth ranged from 13.1 per cent to 14.9 per cent between 2004-05 and 2011-12 and rose to 24.9 per cent in 2019-20.

In Kerala, the youth account for around 23 per cent of the State's population. As per the survey report, the UR among the youth in Kerala is much higher as compared to that of unemployment among all age groups. This reveals the severity of the unemployment problem among the youth in Kerala. The UR among youth is 36.9 per cent in rural areas and 33.8 per cent in urban areas. Similarly, the UR among female youth is much higher than that of the male youth. 58.3 per cent of the female in rural area are unemployed as against unemployment among males (26.8 per cent) (**Figure 7.2.3**).

Youth unemployment is prevalent in Kerala because young people lack adequate skills, and work experience in emerging areas. In order to face the challenge, the ongoing programmes for skill development and employment generation

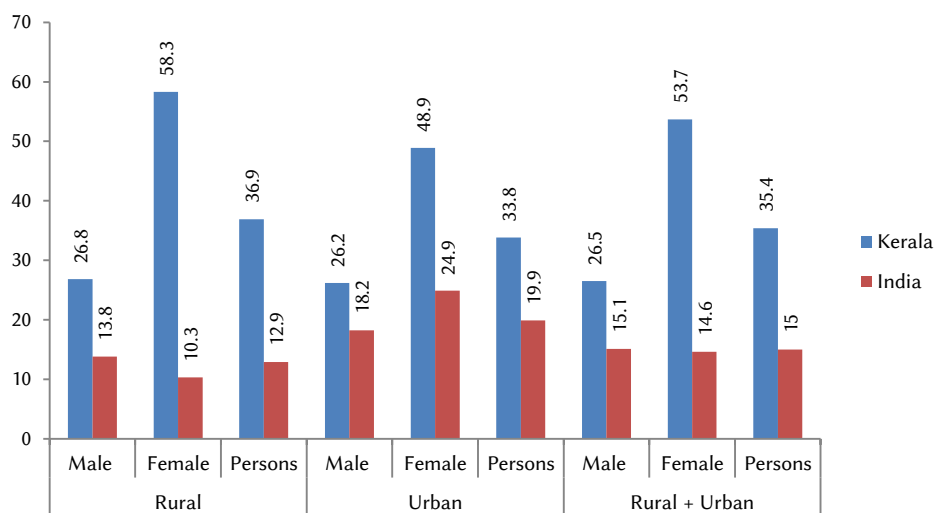
Figure 7.2.2 Unemployment rate in Kerala [both usual status (ps+ss) and CWS], in per cent



Source: PLFS report, 2019-20, GoI

Note: The estimates based on usual status considering principal and subsidiary statuses together is called as unemployed in usual status (ps+ss). The estimate of unemployed in current weekly status (CWS) gives an average picture of unemployment in a short period of 7 days during the survey period.

Figure 7.2.3 Unemployment rate (in per cent) among the youth (15 to 29 years) in Kerala and India as per usual status (ps+ss)



Source: PLFS report, 2019-20, GoI

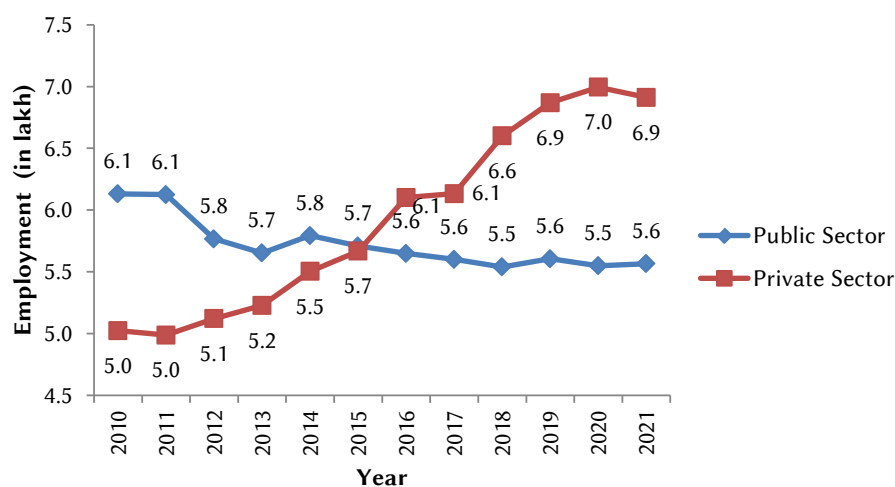
are to be made effective to equip the youth for finding better employment opportunities.

Employment in the Organised Sector

In Kerala, employment in the organised sector has remained more or less stagnant, showing only a marginal increase from 10.9 lakh in 2012 to 12.5 lakh in 2021 (as on March 31, 2021).

The organised sector comprises private and public sectors and it is noteworthy that private sector employment is slowly increasing since 2012. In 2021, out of 12.5 lakh persons employed in the organised sector, 5.6 lakh (44.8 per cent) are in the public sector and 6.9 lakh (55.2 per cent) are in the private sector. As compared to 2020, public sector employment has increased in 2021 (**Appendix 7.2.5, Figure 7.2.4**).

Figure 7.2.4 Employment in the organised sector in Kerala, in lakh



Source: Directorate of Employment, GoK, 2021

Within the public sector employment, 46.6 per cent are employed in State Government and 10.8 per cent are in Central Government, 23.6 per cent are in State quasi-institutions, 4.5 per cent in LSGI and 14.5 per cent are in Central quasi-institutions (Figure 7.2.5 and Appendix 7.2.6).

Data on district-wise employment as on March 2021 reveals that Ernakulam and Wayanad are the two Districts which, respectively, accounted for the highest and lowest employment. Total organised sector employment in Ernakulam District is 2.6 lakh persons, which accounted for 21.2 per cent of the total employment of the State, whereas in Wayanad the employment under organised sector is 0.4 lakh persons, which accounted for 2.8 per cent of the total employment.

In 2020, number of persons employed in public and private sector was 5,54,919 and 6,99,447, respectively, and in 2021 the corresponding figure in public sector increased to 5,56,634 and that of private sector decreased to 6,91,134. (Appendix 7.2.7).

In Kerala, men outnumbered women in public sector employment where as in private sector employment women and men are almost in equal number. In 2020-21, the share of males is 65.1 per cent of public sector employment, while that of women is 34.9 per cent. Thiruvananthapuram and Idukki are the two Districts which, respectively, accounted for the highest and lowest women participation in public sector employment. In Thiruvananthapuram, 30,491

women are employed in public sector followed by Ernakulam (23,039), Thrissur (21,962), Kollam (16,959), Malappuram (14,989), Kozhikode (13,534), Palakkad (13,515), Kannur (13,510), Alappuzha (10,528), Kottayam (10,526) whereas in Idukki, 3,440 women are employed in public sector followed by Kasaragod (6,537), Wayanad (6,890) and Pathanamthitta (8,160) (Appendix 7.2.8). Women's participation in the public sector employment is shown in Table.7.2.1.

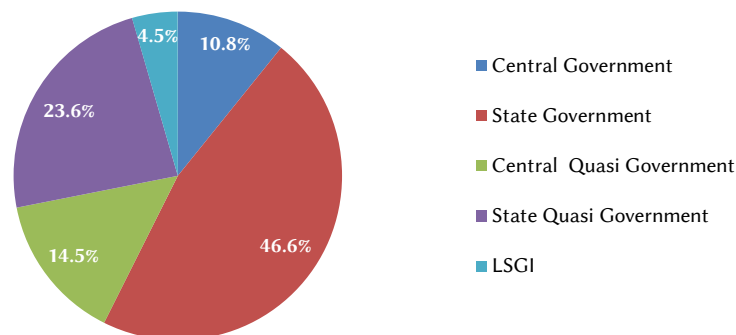
Table 7.2.1 Women's participation in public sector employment in 2020-2021

Sl. No.	Branch	No. of Women Employed	Share (%)
1	State Government	105567	54.4
2	State Quasi Government	39172	20.2
3	Central Government	14716	7.6
4	Central Quasi Government	25341	13.0
5	Local Self Government Institutions	9284	4.8
	Total	194080	100.0

Source: Directorate of Employment, GoK, 2021

Recent statistics on industry-wise distribution of workers in organised sector in Kerala indicates that the dependence on service sector continues to rise whereas the dependence on agriculture continues to decline. Employment in agriculture, relative to other sectors has fallen while the share

Figure 7.2.5 Distribution of employment in public sector



Source: Directorate of Employment, GoK, 2021

of employment in education and manufacturing has risen. (**Appendix 7.2.9 and Figure 7.2.6**).

Employment in Unorganised Sector

Unorganised sector plays a crucial role in the Indian economy in terms of employment and its contribution to the Gross Domestic Product, savings and capital formation. More than 90 per cent of workforce and nearly 50 per cent of the Gross Domestic Product is attributable to this sector. A high proportion of socially and economically weaker sections of society are engaged in the unorganised economic activities in India and Kerala.

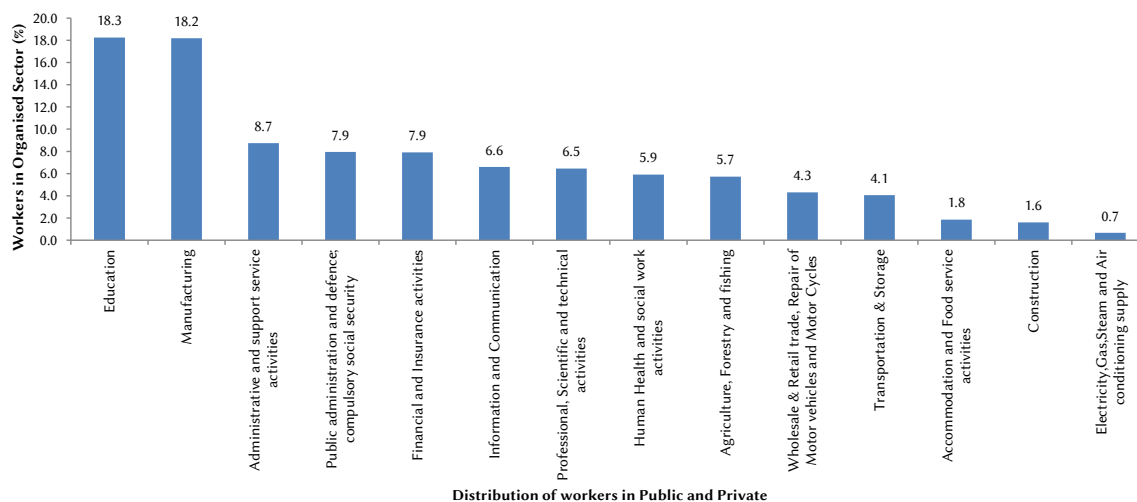
Employees of enterprises belonging to the unorganised sector have lower job security, lack job contracts, have no social protection, lesser

chances of upward mobility, no paid holidays, and have lower protection. In Kerala, Directorate of Employment is the nodal department entrusted with the responsibility to take measures to reduce instances of unfair practices existing in the unorganised sector. In recent years, the Government of Kerala has initiated several measures to provide social security to workers in the unorganised sector.

Employment Exchanges and their Services Registered Job Seekers

According to live register of employment exchanges in Kerala, the total number of job seekers as on December 31, 2015 was 34.9 lakh and it increased to 38.3 lakh as on August 31, 2021. Details of job seekers for various years are given in **Appendix 7.2.10 and Figure 7.2.7**.

Figure 7.2.6 Major sectoral distribution of employment in the organised sector in Kerala March 2021, in per cent

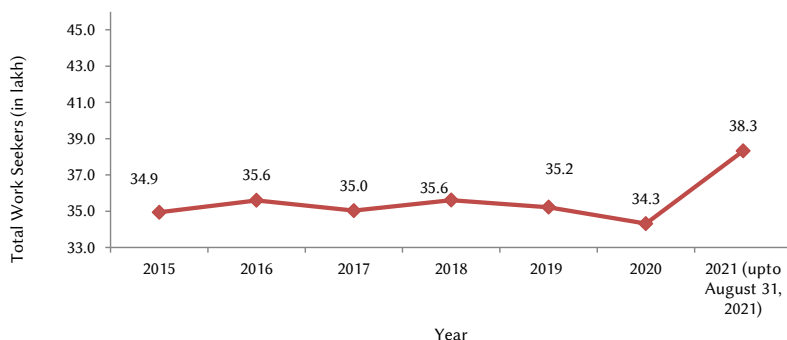


Source: Directorate of Employment, GoK, 2021

Box 7.2.2 Massive Employment initiative in Kerala

The Government of Kerala envisages a massive employment programme for providing employment to 20 lakh educated unemployed people in the digital platform within a period of 5 years. This programme aims to revive the economy from the shocks of Covid-19 pandemic by boosting the digital sector through the Knowledge Economy Mission. It is envisaged that, through Kerala Development and Innovation Strategic Council (K-DISC) the global recruitment portals will connect trained job seekers with employers and facilitate their subsequent engagement thereby ensuring the development of the digital platform and the potential for new opportunities. In 2021-22, for the overall functioning of the K-DISC, administrative sanction was accorded to ₹395 crore, out of which an amount of ₹200 crore will be exclusively for the Knowledge Mission programme.

Figure 7.2.7 Work seekers in Kerala, number in lakh



Source: Directorate of Employment, GoK, 2021

Contrary to the all India scenario, women job seekers are found to be more in the live registers in Kerala. Of the total job seekers in 2021 (upto August 31, 2021), 63.1 per cent are women. Number of illiterate persons in the live register is 1860. Distribution of job seekers by educational level indicates that only 6.4 per cent have qualification below SSLC. About 93.6 per cent of the job seekers have qualifications of SSLC and above (**Figure 7.2.8 and Appendix 7.2.11**).

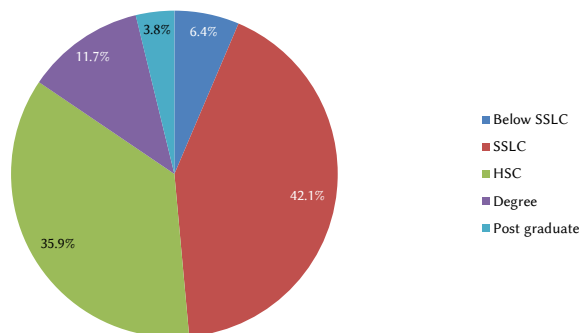
The number of professional and technical job seekers as on August 31, 2021 is 2.9 lakh. Data reveals that ITI certificate holders, diploma holders and engineering together constitute 57.4 per cent of the total professional and technical job seekers. There are 56,540 registered engineering graduates and 11,103 medical graduates (**Appendix 7.2.12**). District-wise job seekers in Kerala are shown in **Figure 7.2.9**.

Thiruvananthapuram District ranks first in the number of job seekers in general and professional/technical categories as on August 31, 2021. The total number of job seekers in Thiruvananthapuram District is 5.8 lakh; of which 3.5 lakh are women and 2.3 lakh men. The second largest number of job seekers is in Kollam district with 4.2 lakh persons. The lowest number of job seekers registered in Kasaragod district with 1.0 lakh (1,03,360 persons). (**Appendix 7.2.13**).

Kaivalya

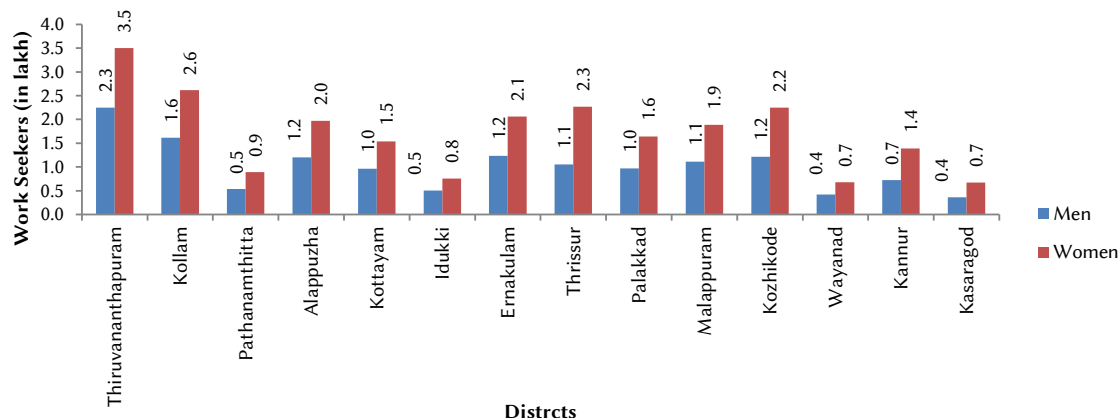
Kaivalya was introduced by the National Employment Service (Kerala) Department in 2016 for achieving the goals of social inclusion and equality of opportunity for all citizens with disabilities. The primary objective of the scheme is to create a social and physical environment favouring accessibility, integration and full

Figure 7.2.8 Distribution of work seekers in Kerala by educational level



Source: Directorate of Employment, GoK, 2021

Figure 7.2.9 Job seekers in Kerala, men and women as on August 31, 2021, in lakh



Source: Directorate of Employment, GoK, 2021

participation of persons with disabilities. Kaivalya comprises of the following four components;

1. Vocational and career guidance
2. Capacity building
3. Coaching classes for competitive examinations
4. Interest-free loan for self-employment ventures

An amount of ₹1,112.60 lakh was spent in 2020 for implementing the above activities benefiting 2,226 persons. In 2021-22 (as on July 31, 2021) an amount of ₹2,268.33 lakh has been sanctioned for implementing above activities. Details of amount disbursed and beneficiaries are given in **Appendix 7.2.14**.

Self-Employment Schemes

Three self-employment schemes are implemented through the Employment Exchanges in Kerala.

1. Kerala Self-Employment Scheme for the Registered Unemployed (KESRU):

KESRU is being implemented since 1999 and is intended for unemployed persons in the live register between the age 21 to 50 years with annual family income not exceeding ₹1 lakh. Preference will be given to those with ITI/ITC certificate, professional or technical qualifications, graduate women and beneficiaries of unemployment dole scheme. Bank loan up to ₹1 lakh with a 20 per cent subsidy is given for self-employment ventures. In 2020-21, an amount of ₹130.5 lakh was allotted to the

scheme and ₹109.21 lakh has been spent for 587 beneficiaries.

2. Multi-Purpose Service Centres/ Job Clubs (MPSC/JC):

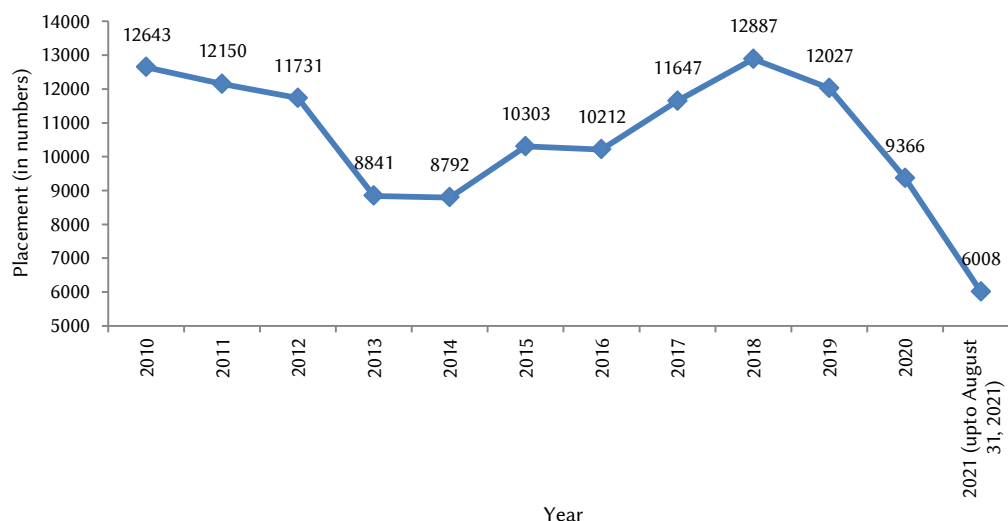
This is a group oriented self-employment scheme for development of enterprises in the unorganised sector. Bank loan up to ₹10 lakh with 25 per cent subsidy subject to a maximum of ₹2 lakh is given for starting self-employment group ventures of two to five members, who are unemployed persons in the live registers in the age group of 21 to 45 years. The scheme is incorporated with Credit Guarantee Scheme. In 2020-21 an amount of ₹88 lakh was allotted to 54 job clubs.

3. Saranya: Saranya, the Employment Scheme for the Destitute Women, aims at uplifting the most vulnerable sections among women in the State, namely widows, divorced, deserted, spinsters above the age of 30, unwed mothers belonging to Scheduled Tribes, women with physical disabilities and wife of bedridden person. Under this scheme, interest free bank loan upto ₹50,000 with 50 per cent subsidy is given for starting self-employment ventures. In 2020-21, an amount of ₹1,700 lakh was allotted to the scheme and the full amount was spent for 3,512 beneficiaries.

Model Career Centre

Model Career Centre is a joint venture of the Directorate General of Employment and

Figure 7.2.10 Placement through employment exchanges-Kerala



Source: Directorate of Employment, GoK, 2021

Training, Ministry of Labour and Employment, Government of India and the Department of National Employment Service, Government of Kerala. This centre is functioning at the University Employment Information and Guidance Bureau, Thiruvananthapuram. The Centre will act as a one-stop solution centre for all assistance needed to the aspiring youths to find out suitable career according to their qualifications and skillset. Activities performed by this centre include partnering with industry, candidate engagement, job and skill mapping and conducting placement drives/job fairs.

Unemployment Assistance

The Government of Kerala had introduced an unemployment assistance scheme in 1982. Under the scheme, unemployed youth remaining in the live registers for over three years (two years for persons with disabilities) after attaining the age of 18 and having passed SSLC (for SC/ST and persons with disabilities, candidate need to have only appeared for SSLC examination) and having annual family income below ₹12,000 and personal income below ₹100 per month are eligible for an unemployment assistance of ₹120 per month up to the age of 35 years of age. With the enactment of the Kerala Panchayat Raj Act and Kerala Municipality Act, the unemployment assistance scheme was transferred to rural and urban Local Governments since 1998. Under

the scheme, the eligible candidates submit their application for unemployment allowance in the prescribed form to the Local Government. The Welfare Standing Committee at the Local Governments finalise the list of candidates based on the eligibility criteria. In 2020, ₹433.4 lakh was disbursed to 82,300 beneficiaries as unemployment assistance and ₹1,639.85 lakh to 2,708 beneficiaries as self employment assistance. In 2021, ₹439.3 lakh was disbursed to 37,069 beneficiaries as unemployment assistance and ₹766.6 lakh to 1,595 beneficiaries as self employment assistance as on October 31, 2021 (**Appendix 7.2.15**).

Placement through Employment Exchanges in Kerala

The total placement through Employment Exchanges in Kerala has been declining since 2010. Though it increased in 2015, there was a slight decline in 2016. In 2017 and 2018, total placement through employment exchanges increased. But it declined again in 2019 and 2020. The placement through employment exchanges in Kerala since 2010 is given in **Figure 7.2.10**.

7.3 SKILL DEVELOPMENT

Skill development is crucial from the perspective of both employability and sustained economic growth based on high productivity. Skill development is essential to enhance the employability of new entrants to workforce by equipping them with right skills. Similarly, regular up-skilling and re-skilling are required to maintain the employability levels of those already in the labour force. A highly skilled workforce facilitates generation of new ideas and innovation which is vital to achieve productivity growth and competitive advantage in the wake of the rapidly changing demands of international labour markets.

Skills and knowledge are the driving forces of economic growth and social development for any country. India currently faces a severe shortage of well-trained, skilled workers. It is estimated that only 2.3 per cent of the workforce in India has undergone formal skill training as compared to 68 per cent in the UK, 75 per cent in Germany, 52 per cent in USA, 80 per cent in Japan and 96 per cent in South Korea. Large sections of the educated workforce have little or no job skills, making them largely unemployable. Therefore, India must focus on scaling up skill training efforts to meet the demands of employers and drive economic growth.¹

India is one of the youngest nations in the world, with more than 54 per cent of the total population below 25 years of age and over 62 per cent of the population in the working age group (15-59 years). The country's population pyramid is expected to bulge across the 15-59 age group over the next decade.²

The National Skill Development Mission (NSDM) was launched on July 15, 2015 on the occasion of World Youth Skills Day. The Mission consists of a three tier institutional structure, where the functions of the bodies consist of providing policy directives and

guidance, reviewing and monitoring overall progress and actual implementation in line with Mission objectives.

Skill Development Scenario in Kerala

Skill development is critical for achieving faster, sustainable and inclusive growth and for providing decent employment opportunities to Kerala's young population. Given its high social and human development indicators, Kerala can contribute to the requirements of technically trained manpower not only for the country's growing economy but also for rest of the world.

As per the 2011 Census, Kerala is the most literate state in the country, with literacy recorded at 94 per cent, compared to the India average of 74.0 per cent. The male literacy rate was reported to be 96.1 per cent and female literacy rate was recorded at 92.1 per cent. The literacy levels in urban and rural areas are also not too diverse with 94.9 per cent urban literacy and 92.9 per cent rural literacy rates. However, there is a huge gap in Kerala in terms of skills suitable for the internal and international labour markets.

Government Initiatives towards Skill Development

In Kerala, various departments are organizing different skill programmes for different sections. Institutions conducting such skill training programmes are; K-DISC, NORKA, ASAP, Scheduled Caste Development Department and Scheduled Tribes Development Department.

Kerala Development and Innovation Strategic Council (K-DISC)

The Kerala Development and Innovation Strategy Council, (K-DISC) is a strategic think-tank and advisory body constituted by the Government of Kerala. K-DISC aims at bringing out path-breaking strategic plans that reflect new directions in technology, product and process innovations, social shaping of technology and

¹ National Skill Development Mission - Ministry of Skill Development and Entrepreneurship, GoI; also see Mehrotra S, Kalaiyaran A, Neha Kumra and Ravi Raman (2015), Vocational training in India and the duality principle: A case for evidence-based reform, Prospects 45 (2): 259-73

² National Policy for Skill Development and Entrepreneurship, Ministry of Skill Development and Entrepreneurship, GoI -2015

creating a healthy and conducive ecosystem for fostering innovations in the State.

The Cabinet approved in principle the activities of the Kerala Knowledge Economy Mission under K-DISC to provide employment to the educated unemployed. The scheme is intended to provide employment to 20 lakh people.

Additional Skills Acquisition Programme (ASAP)

Additional Skill Acquisition Programme (ASAP), part of the State Skill Development Project (SSDP), was launched in 2012 jointly by the Higher and General Education Departments. It aims at tackling the problem of educational unemployment by introducing market-relevant foundation training, vocational training and career counselling alongside the general curriculum at the higher secondary and under graduate levels.

The cumulative count of the number of students enrolled for ASAP courses offered through Higher Secondary schools and colleges increased to, 1,98,912 by 2020. During the Covid-19 pandemic ASAP implemented effective strategies to bring back the education system live with the aid of virtual tools. ASAP also organized webinar series, panel discussions, and online skill sessions titled 'Skill Talks' during the lockdown period in 2020. In 2020, training of nurses in English proficiency was started to seize the opportunities arising in UK following BREXIT. Currently 106 nurses are undergoing training in IELTS in association with the British Council.

- ASAP has 121 Skill Development Centres in selected schools and colleges in order to facilitate smooth quality training to the students.
- In the wake of the Covid-19 pandemic, Foundation Module training was conducted in online mode for 8,309 students enrolled in 2018-19, and 15,104 students enrolled in 2019-20 and the number of batches were 289 and 526 respectively.
- In 2020-21, 5,752 APTIS (an innovative global English assessment tool from the British Council) certificates and 14127 skill course certificates were awarded.
- ASAP launched Advanced Skill Development Centre (ASDC) in 2018 to bridge the skill

gap of Engineering and Polytechnic students with an additional focus on preparing them for emerging job opportunities. As on 2021, ASAP has associated with 99 Engineering colleges and 45 Polytechnic Colleges across the State.

- In 2020-21, 1,124 students were trained through 3 skill courses under the Advanced Skill Development course of ASAP.

Community Skill Park

Community Skill Parks (CSPs) are multi-skill training centres of ASAP, equipped with state of the art training facilities in various locations across the State. 16 CSPs were envisaged, out of which 9 CSPs are already constructed.

In 2020-21, 1,104 students underwent around 27 skill training courses through the Community Skill Park.

Skill Talks – Online Knowledge Series

ASAP launched Skill Talks, an online knowledge series in July 2020 through ASAP's official YouTube channel. The series consisted of sessions related to the field of film making. Renowned film director and Kerala Chalachithra Academy Chairman, Shri Kamal handled the first session. The subsequent sessions were handled by film director Shri Jeetu Joseph, Shri Dileesh Pothen, Shri Mahesh Narayanan, and Shri Ranjith Shankar.

She Skills

It is skill training programme started by ASAP in 2019 exclusively for women in Kerala above the age of 15. The initiative is aimed to improve the living standards of women by facilitating them to acquire skills, assist women to become economically self-sufficient and connect them with opportunities of employment. The programme has trained 5,529 women above the age of 15 years.

Skill Training Programmes of Different Departments

I Training and Employment programmes under SC Development Department

For providing livelihood security to the weaker sections, different types of skill development training programmes including human

resource development training and job oriented training programmes, were implemented for Scheduled Castes. Through the “Assistance for Training, Employment and Human Resource Development” scheme, 1,786 SC youths received skill training during the last two years (2019-20 and 2020-21).

Table 7.3.1 Number of SC persons benefited under Self Employment scheme in 2020-21

District	No. of Persons Benefited
Thiruvananthapuram	23
Kollam	9
Pathanamthitta	11
Alappuzha	11
Kottayam	11
Idukki	2
Ernakulam	58
Thrissur	31
Palakkad	32
Malappuram	12
Kozhikode	19
Wayanad	2
Kannur	14
Kasaragod	
Total	244

Source: Scheduled Caste Development Directorate

Self-employment assistance is given to the individuals/self-help groups with one-third of the loan as subsidy for undertaking self-employment

ventures. In 2020-21, 244 beneficiaries received self-employment subsidy through the scheme “Assistance for Training, Employment and Human Resource Development”. District wise details of SC persons benefited under the self-employment scheme in 2020-21 and 2021-22 (as on September 30, 2021) is given in **Table 7.3.1**. 244 SC persons benefitted under the self-employment scheme in 2020-21.

II Skill Development, Employment and Livelihood Programme under ST Department

In order to reduce intensity of unemployment among the Scheduled Tribes youth, the Department intends to assist ST families for skill training in modern skill sets and earning a livelihood by giving assistance for individuals and self-help groups for self-employment.

Various skill training programmes and career guidance campaigns were organised for improving livelihood activities among STs. In 2020-21, 1,600 ST youths participated in 6 skill training programmes. Details of skill training and placement effected for ST youth for the last 5 year is mentioned in **Table 7.3.2**.

III Skill Training Programmes under Kudumbashree

Kudumbashree, the State poverty eradication mission, was formed with the objective of poverty eradication through the empowerment of women. As a part of skill development among women, this agency conducts many training programmes at State level. It is the nodal agency of centrally sponsored programme called Deendhayal Antyodaya Yojana-National

Table 7.3.2 Details of skill training and placement effected for ST youth

Year	No. of Skill Training courses Conducted	No. of persons attended	Placement	
			India	Abroad
2017-18	8	1430	1393	--
2018-19	11	870	659	--
2019-20	22	1693	647	10
2020-21	6	1600	--	11
2021-22 (as on 5.10.2021)	1	250	--	--
Total	48	5843	2699	21

Source: ST Development Directorate

Rural Livelihood Mission [DAY-NRLM]. Under this scheme, with the aim of demand-led skill training at no cost to the rural poor, Deen Dayal Upadhyaya Grameen Kaushalya Yojana [DDU GKY] provides skill based training to men and women, among whom large numbers are Kudumbashree members.

DDU-GKY is a job oriented skill development scheme jointly implemented by the Ministry of Rural Development (MoRD) and Kudumbashree. DDU-GKY is uniquely focused on rural youth between the ages of 15 and 35 years from poor families. As on March 31, 2021, 64,813 people have been trained in connection with the scheme. (Table 7.3.3.)

Table 7.3.3 Number of persons trained and appointed in DDU-GKY

Year	Training started	Training completed	Job obtained
As on March 2021 Cumulative	64813	52989	40803
2019-20	15058	13113	9957
2018-19	16428	13702	10972
2017-18	12998	10663	9196
2016-17	10722	11250	8232
2015-16	9607	4261	2446

Source: Kudumbashree

Table 7.3.4 Skill Training under NORKA Roots

Year	Area of Training	No. of courses provided (Institution)	No. of beneficiaries
2020-21	Information and Communication Technology	5 (ICTAK)	368
	Nursing course for qualifying Government. licensing examinations of GCC countries	1 (NICE)	65
Total		6	433

Source: NORKA Roots

IV Skill Up-gradation and Reintegration Training Programme of NORKA Roots

NORKA Roots' skill up gradation and reintegration training programme aims at the up gradation of the skills of young Keralites and reskilling of returnee migrants to meet the challenges in the overseas employment market. Training and skilling programmes are being imparted in areas such as technology, language, soft skill development, communication. NORKA Roots' skill training programme details are mentioned in Table 7.3.4. The total number of beneficiaries of NORKA Roots' skill training programme in 2020-21 were 433.

V Technical Education

A degree in engineering, medicine, agriculture, management, crafts or a diploma/certificate in agriculture, engineering/technology, medicine and crafts are included under technical education.³

Technical education also helps to acquire and improve the skills of an individual. It aims to improve the human resources by applying technology for the benefit of the society, in terms of improving the quality of life, enhancing industrial productivity and improvising technologies for the overall development of the community. Directorate of Technical Education is the nodal department for technical education in the State.

Polytechnics and Technical High Schools

There are 45 Government polytechnics 6 Government aided polytechnics and 39 Government technical high schools functioning in the State in 2020-21. All these institutes offer courses that give importance to skill training of the students in the State. Although there are many limitations, the Government aims to provide the kind of skilled workforce that will meet the demand for employment both at home and abroad in the near future. The details of these institutions are covered in Chapter 6.1.

VI Industrial Training Department

Industrial Training Department is functioning under the Labour and Skills Department, Government of Kerala. It is also the state level

3. Periodic labour Force Survey 2019-20, Ministry of Statistics and Programme Implementation, Gol

nodal agency for implementing various skill development activities of Director General of Training, (DGT) Ministry of Skill Development and Entrepreneurship, Government of India. The Department is also in charge of implementing apprenticeship training in various establishments, as per Apprentices Act, 1961 in the State. The Department implements two major schemes introduced by the DGT, namely Craftsman Training Scheme and Apprenticeship Training Scheme through various Government and private institutes scattered in urban, semi urban and rural areas of the State. The free training and other assistance given to the trainees help to bring the backward sections of the society to the main stream of technological advancement. By using the latest technologies in imparting training, the Department enhances the employability of the trainees. The aim of the Department is to create a skilled and technically qualified workforce who would contribute to the growth and development of the nation and to provide quality training to all possible people so as to achieve the national goal of 500 million skilled persons in our nation by 2022 so as to reduce unemployment.

a) Craftsman Training Scheme (CTS)

The Craftsman Training Scheme was introduced by the Government of India in 1950 to ensure a steady flow of skilled workers in different trades for the domestic industry, to raise quantitatively and qualitatively the industrial production by systematic training and to reduce unemployment among the educated youth by providing them employable training. National Council for Vocational Training (NCVT) is the apex authority in the country for the implementation of the scheme. As per the scheme, National Trade Certificate (NTC) is issued to the trainee who completes the training in a particular trade and passes the All India Trade Test.

The total seat strength of the 104 ITIs under the Department of Industrial Training for the year 2020-21 is 23874 and the enrolment for the period is 22839. Out of the total enrolment in 2020-21, 5291 are women candidates, 3612 are SC students and 474 are ST students.

b) Apprenticeship Training Scheme (ATS)

The Apprenticeship Training Scheme is being

conducted as per the provisions mentioned in the Apprentices Act 1961. Apprentices Act, 1961 was enacted with the objectives to regulate the programme of training of apprentices in the industry so as to conform to a standard syllabi, period of training, skill sets and to utilise the facilities available in industry for imparting practical training with a view to meet the requirements of skilled manpower for the industry. Apprenticeship is a contract between an apprentice and an employer to provide a stipend fixed as per the Apprentices Act 1961. The Central/State Government acts as the third party in contract regulating and monitoring the process.

Recently, Government of India introduced the National Apprentice Promotion Scheme (NAPS) through which the Central Government will reimburse 25 per cent of stipend to the establishments.

Apprenticeship training in Kerala is both a Central and State Initiative. National Apprenticeship Certificate (NAC) is issued to those who complete the apprenticeship training in an organization and pass the National Apprenticeship Trade Test. Apprenticeship schemes in the state are implemented through office of the State Apprenticeship Advisor, and Assistant Apprenticeship Advisor in 14 districts. There are 81 trades in which seats have been located for Apprenticeship Training.

In 2020-21, as per the scheme, the total numbers of seats located were 12612 and the number of seats utilised were 4282. The total numbers of establishments located were 2443 (Government: 869, Private: 1574) and the number of establishment utilised were 746 (Government: 251, Private: 495).

c) Industrial Training Institutes

There are 104 Government Industrial Training Institutes functioning in the State with a total capacity of 33,332 seats (both Ist and IInd year trade), out of this 30 per cent of seats are reserved for women candidates. Apart from these 14 women ITIs are functioning in the State in Government sector. List of 104 government ITIs and year wise enrolment details, trade wise details

Box 7.3.1 ISO Certified ITIs in Kerala

Quality has been the hallmark of our Industrial Training Institutes. Various innovative techniques have been introduced in training programmes. The target is to ensure result oriented performance by the institutes. These initiatives of the department are recognised with ISO certification awarded to the following 34 ITIs in 2021-22.

ITI (W) Kozhikode, ITI Ettumanoor, ITI Mala, ITI (W) Kalamassery, ITI Kozhikode, ITI Kalpetta, ITI Kannur, ITI (W) Kazhakkuttom, ITI Attingal, ITI Chenneerkkara, ITI Kalamassery, ITI (W) Chalakudy, ITI Arecode, ITI Chengannur, ITI Dhanuvachapuram, ITI Chackai, ITI Kollam, ITI Kollam (W), ITI Pallickathode, ITI Kattappana, ITI Chalakkudy, ITI Malampuzha, ITI Kannur(W), ITI Kasaragod, ITI Arayanadu, ITI Chathannoor, ITI Malayinkil, ITI Pallipadu, ITI Attappady, ITI Kayyur, ITI Koyilandy, ITI Nilambur, ITI Kuzhalmannam, ITI Madayi.

Source: Industrial Training Department

(1 year and 2 year courses), and institution wise details of apprentices are shown in **Appendices 7.3.1, 7.3.2, 7.3.3, 7.3.4, and 7.3.5.**

Achievements of Industrial Training Department in 2021-22

- Steps (including land acquisition) to establish ITI in Pinarayi Education Hub have been started
- Action has been taken to start production centres in 5 ITI s.
- Action has been taken to implement K-SAP scheme which provides financial support to establishments having strength of 4 to 29 employees
- Administrative sanction has been obtained from Government for the construction of building for ITI Vadakara at a total cost of Rs 6.96 crore and ITI Maniyur at a total cost of ₹6.9 crore
- Green Campus: The main objective of the scheme is to adopt the environmental friendly practices in ITI campuses. In this scheme, it is proposed to provide solar energy plants, wind mills, rain water harvesting systems, and bio gas waste treatment plants with the support of Haritha Kerala Mission. It is also proposed to make the campus green by planting trees. In 2020-21, 14 ITIs were selected in the first phase for the implementation of the scheme with the support of Haritha Kerala Mission. Hon'ble Minister for Labour and Skills declared 11 ITIs (ITI Kazhakkuttom, Chandanathoppu, Chenneerkkara, Kattappana, Chalakkudi, Malampuzha, Vaniyamkulam, Kozhikode (W), Kalpetta, Areacode, Pullur) as Green Campus on October 30, 2020.

VII Kerala Academy for Skills Excellence (KASE)

KASE has been set up to act as the apex entity to initiate, regulate and co-ordinate focused skill development for different industrial domains. KASE is also designated as the State Skill Development Mission (SSDM) to function as the nodal body for the convergence of all skill training initiatives of the State. The main objectives of SSDM are to promote, establish, setup, monitor, govern and regulate institutions and academies for skills excellence for development.

Unique skilling models have been adopted by SSDM with industry tie-ups and placement linkages such as Centres of Excellence (CoE), Accredited Institutions, Employability Centres, Kaushal Kendras, Indian Institute of Infrastructure and Construction (IIIC), Kerala State Institute of Design (KSID) etc. KASE is also the nodal agency for implementing the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and the Skills Acquisition and Knowledge Awareness for Livelihood Programme (SANKALP). KASE will fully utilise its existing networks and future networks to fulfill the aim of the Government for skilling and creating employment opportunities in the State. Institution wise admission and placement details are mentioned in **Appendix 7.3.6.**

Skill Convergence in Kerala

For institutional strengthening at the national, state and district levels, Kerala Academy for Skills Excellence (KASE) has been designated as the State Skill Development Mission (SSDM).

Various departments have their own skilling programmes, which inadvertently result in duplication. This emphasises the need for convergence across the departments under a mission at the State level. This mission would guide, coordinate, monitor and evaluate skilling initiatives and bring all skill development activities of the State under a single umbrella.

Skill Registry Mobile Application

Department of Labour and Skills, Government of Kerala has launched a unique single window facility to help customers hire certified and experienced resources at an affordable cost for all their service needs.

Skill Registry is first of its kind mobile application in the government sector. The application provides the services of skilled workforce for the daily household and commercial needs directly to the public. The application has been developed by KASE in association with the Industrial Training Department, Kudumbashree and Panchayat department. The mobile application helps to bridge the gap between the work force and the general public, thereby eliminating intermediaries. Skilled labourers can register as service providers and those who require their services can register as customers in this application. The application is hosted in Google Play store and there is no registration fee for both the users, customers and service providers. Once a service provider registers in the mobile application, customers can view those service providers only after the authority concerned approves them, this in turn helps in providing only quality service providers to the customers. The application was launched with 24 services as a pilot in Thiruvananthapuram district, on July 10, 2019. By the end of February 2020, the application has started its operations in all the 14 districts of the State. Due to the overwhelming

response towards the application, the services have been increased from twenty four to forty two since February 2020. Currently there are 18,139 customers and 5,064 approved service providers in the application. The current status of the application is given in **Table 7.3.5**.

International Skill Training and Employability Programme (i-STEP)

The international outreach initiative - iSTEP (International Skill Training and Employability Programme), is a system envisaged for faster, simpler and efficient processing required for setting up of Centres of Excellence (CoE) in various sectors. Presently in all such models, KASE will provide the basic shell infrastructure, whereas the training, certification and placement including overseas placement are the mandate of the industrial partner as per the standards laid out by KASE. iSTEP is open to any sector of the industry, where the skill gap is identified by the stakeholders. Models under iSTEP are as follows:

- I Centres of Excellence (CoE)**
- II Accreditation of Skill Training Courses**

The various Centres of Excellence functioning under KASE are detailed below;

I Centres of Excellence (CoE)

a) Nursing Institute for Career Enhancement (NICE)

Nursing Institute for Career Enhancement (NICE), the Centre of Excellence in Nursing, is a first-of-its-kind initiative in India which provides world-class training facilities for enhancement of the employability skills of nurses. KASE partnered with M/s. Trivandrum Speciality Hospitals (NMC Healthcare Group, UAE) to set up this Centre of Excellence in Nursing at KINFRA International Apparel Park, Thiruvananthapuram. The Centre is operational since July 2, 2015 and offers a varied range of

Table 7.3.5 *Current Status of Skill Registry Mobile Application*

Registered Service Providers	Pending service providers for approval	Approved Service Providers	Total customers registered	Total Service orders	Total Services available
8361	875	5214	18866	1049	42

Source: Industrial Training Department, GoK

Box 7.3.2 Achievements of 13th Five Year Plan

- In 2018-19, Department sent 57 trainees to Singapore for training under the Technical Exchange Programme to foreign countries.
- During the 13th Five-Year Plan, around 40,000 trainees got placement.
- 21 ITIs were started in different districts during the 13th Plan period

courses. KASE in association with Scheduled Caste Development Department (SCDD) and Scheduled Tribe Development Department (STDD) has been conducting a series of skill development training programmes to the students for their career advancement and social upliftment through NICE.

b) Enlighten Skill Programme for Oil and Rig (ESPOIR)

KASE has partnered with Eram Engineering WLL, Qatar to set up the Centre of Excellence in Oil and Rig at Inkel Tower, Angamali, Kochi for equipping the youth with requisite skills needed for this industry. The programme offers courses in Mechanical, Instrumentation and Electrical related trades viz. Industrial Electrician, Instrument Technician, Pipe Fabricator, Certified Welders, Instrument Fitter, Certified Scaffolders, Supervisors, etc. ESPOIR focuses on imparting practical skills and hands-on training through its well-equipped labs and workshops which meet international standards. The institute is also actively involved in the upliftment of the students belonging to the Scheduled Caste community.

c) Indian Institute of Infrastructure and Construction (IIIC)

Indian Institute of Infrastructure and Construction (IIIC) is the Centre of Excellence (CoE) in infrastructure and construction domain. It aims to provide employability skills to the personnel in all cadres of the infrastructure and construction sector, from the lower level workers to supervisory and managerial level to make them readily employable in national and international market and to act as an intermediary to connect these skilled personnel, who have successfully completed the courses of IIIC with the probable employers. Established in 9-acre land with state-of-the-art campus at Chavara, Kollam District, Kerala, the objectives of IIIC includes establishing a world class skill centre for

imparting international quality skill sets to the personnel in construction industry of all cadres, increasing the reach of the skill centre in terms of capacity intake as well as sub sectors, obtain high recognition for the courses of the centre across the globe, and ensure maximum employment through linking the courses with employment wide industrial tie ups. The institute was formally inaugurated on July 23, 2018 and the classes for the first batch commenced in October 2018. The institute is also actively involved in the upliftment of the students belonging to the Scheduled Caste community.

d) Establishing Multi-Language Learning Institute at Angamaly in Partnership with ODEPC

KASE in partnership with Overseas Development and Employment Promotion Consultants Ltd. (ODEPC) has established Multi-Language Learning Institute at INKEL Towers, Angamaly for conducting IELTS/OET courses. The courses provided by the institute aims to provide finishing skills to the qualified nurses, to make them readily employable in international market and act as an intermediary to connect the nurses who have successfully completed the courses with probable employers.

e) Centre of Excellence in Renewable Energy

KASE in association with ANERT has set up of a Centre of Excellence in Capacity Building in Renewable Energy projects as well as green jobs for imparting skill development training. The Centre of Excellence has been established at the Headquarters of ANERT, at Thiruvananthapuram and various extension Centres and technology Centres across the State.

f) OET Examination Centre

KASE in association with Overseas Development and Employment Promotion Consultants Ltd. (ODEPC) has established an Occupational English Test centre at INKEL Towers, Angamaly

for healthcare professionals. The centre assesses the language communication skills of healthcare professionals who wish to register and practice in an English-speaking environment.

g) Skill Training for Non-resident Keralites who have Returned due to Pandemic KASE in association with NORKA had conducted skill training cum re-employment programme for NRKs who had returned due to the pandemic and also for prospective migrants. The courses were conducted in Pipe Fabrication, Industrial Electrician and Tig and Arc Welders trade. The training was conducted at ESPOIR Academy, a Centre of Excellence of KASE in Oil and Rig Sector. A total of 79 candidates were trained under this project.

II Accreditation of Skill Training Institutes

Reputed skill training institutions can associate with KASE in getting them accredited so as to enhance their reach and acceptance in attracting suitable candidates. The public acceptance in the services of accredited institutions is increased when they know that standards are being monitored and enforced. The KASE symbol is a means of identifying institutions that uphold and sustain high standards. Important accredited skill training institutes are mentioned below.

a) Sports and Management Research Institute ‘Synergian Society’ through its division Sports and Management Research Institute is engaged in training programmes such as PG Diploma in Sports Management, Certified Sports Manager, Advanced Diploma in Sports Business and Advanced Diploma in Sports Engineering.

b) BLITZ Academy Private Ltd.

BLITZ academy is a training provider of KASE engaged in training programmes in Mechanical and Civil Engineering such as ASNT NDT Level II, Welding Inspection, Piping and Pipeline Engineering, Mechanical QA/QC, Civil QA/QC and Quantity Surveying.

Career Development Centres

Career Development Centre is a scheme launched in 2016-17 by the Government through the National Employment Services Department for the educated unemployed in rural areas.

Career Development Centres are working as extension Centres for Vocational Guidance Units in District Employment Exchanges. Apart from this, the Career Development Centre also runs the “Dhanus” program, a comprehensive training programme for students from Kerala for admission to postgraduate courses in high profile colleges and centres of excellence at the national level. The project is being piloted in Kozhikode district.

Table 7.3.6 Details of training and placement under various centres

Sl No	Name of The Centre	Number of trained candidates	Placement
1	NICE	34	107
2	ESPOIR	289	88
3	IIC	231	28
4	OTEC - ANGAMALY	5	NA
5	SMRI	22	5
6	BLITZ ACADEMY	161	103

Source: Kerala Academy for Skill and Excellence

Table 7.3.7 Activities of Career Development Centre

Programmes	Number
Registration	25428
Group Counselling	156
Career Seminar	10036
Individual Guidance	4082
Mock Interview	14
Goal Settings	164

Source: Kerala Academy for Skill and Excellence

Currently Seven Career Development Centres have been set up at (Perambra) Kozhikode, (Chittur) Palakkad, (Thrippunithura) Ernakulam, (Kayamkulam) Alappuzha, (Kottarakkara) Kollam and (Neyyattinkara and Palode) Thiruvananthapuram.

Kerala State Job Portal

Department of Labour and Skills, Government of Kerala through KASE has launched a unique single window facility for job seekers and employers to boost employment in the

State. State Job Portal is a one-stop solution or all-inclusive support system for job search and recruitment. State Job Portal provides end-to-end recruitment solution starting with job posting till issuance of final offer letter. Job seekers can update their information on the portal to find the right job for them and the employer can find the right candidate for them by entering the job openings portal. The job portal enables to effectively utilise the employment opportunities in various sectors from basic to management level. Job seekers and employers' registration, digi locker system, automatic resume generation, video resume, integration with other portals, learning management system and job blog are the features of the portal. KASE has initiated the process of integrating the university students' database to state job portal, by which students passing out various universities across Kerala will be registered in the portal. This will help in building a databank of the college pass outs in the State

Pradhan Mantri Kaushal Vikas Yojana (PMKVY)- Kerala Academy for Skills Excellence (KASE) is the nodal agency for the implementation of Centrally Sponsored State Managed (CSSM) component of Pradhan Mantri Kaushal Vikas Yojana (PMKVY) schemes by virtue of its designation as the State Skill Development Mission. PMKVY is the flagship outcome - based Skill Training Scheme of the Ministry of Skill Development and Entrepreneurship (MSDE). The Skill Certification Scheme aims to enable and mobilise a large number of Indian youth to take up skill training and become employable and earn their livelihood.

Pradhan Mantri Kaushal Vikas Yojana 3.0 (2020-21) The Ministry of Skill Development and Entrepreneurship (MSDE) launched the third phase of its flagship scheme - Pradhan Mantri Kaushal Vikas Yojana (PMKVY 3.0) on January 15, 2021. The scheme aims to provide livelihood to unemployed and dropout youth through Short Term Skill Training Programme (STT) and Recognition of Prior Learning (RPL). It is the third version of PMKVY scheme. As per the concept note issued by MSDE, PMKVY 3.0 shall be implemented in two phases: 1st phase (2020-21) and 2nd Phase (2021- 2026). MSDE has issued guidelines for PMKVY 3.0 (2020-21) on December 30, 2020.

PMKVY 3.0 (2020-21) Scheme is being implemented in 32 courses in 15 sectors. Under the Pradhan Mantri Kaushal Vikas Yojana 3.0 scheme there are 19 empanelled training partners and the number of enrolled candidates was 2300. Among them 560 candidates had already completed the training.

Acquisition and Knowledge Awareness Livelihood Promotion (SANKALP)

Government of India has launched a World Bank assisted project Skills Acquisition and Knowledge Awareness Livelihood Promotion (SANKALP), under Ministry of Skill Development and Entrepreneurship (MSDE), to strengthen the institutional mechanisms for skill development and increase access to quality and market relevant training for youth across the country. SANKALP project aims to implement the mandate of the National Skill Development Mission (NSDM), through its core sub-missions. The main

Table 7.3.8 Current Status of State Job Portal

Employers Registered	Job seekers Registered		Partnered Institutes Registered	Vacancies Posted	Job Applications	Interview Scheduled	Job Offered	Job Fairs
	Completed	Basic						
313	17,026	3,38,807	108	56,302	23,635	4,134	246	2

Source: Kerala Academy for Skill and Excellence

Box 7 3.3. *India Skills Report 2022*

As per the India Skills Report 2022 brought out by Wheelbox in partnership with Confederation of Indian Industry, Taggd, Sunstone University, Association of Indian Universities, UNDP, AICTE and ASAP, Kerala is ranked third in terms of employability after Maharashtra and Uttar Pradesh. Kerala has the 3rd highest youth employability with 64.2 per cent found highly employable. Maharashtra and Uttar Pradesh have 66.1 per cent and 65.2 per cent respectively employable youth talent. In terms of female employability resources, Kerala is ranked fourth. Several cities from Kerala have showcased a significant improvement in female and male employability, with a lot of talent to leverage in coming years. Cities of Thiruvananthapuram and Kozhikode appear in the top 10 cities for available skilled talent. With regard to internship preferences, Kerala is ranked 6th among States with 91.17 per cent students wanting to avail internships. Kerala is also among top 5 states where maximum hiring activity is forecasted in coming years. This augurs well for the State. Such an achievement was possible because of the active intervention by the Government in developing a strong skill ecosystem in the State.

objectives of the project include strengthening institutional mechanisms at both national and state levels, building a pool of quality trainers and assessors, creating convergence among all skill training activities at the State level, establishing robust monitoring and evaluation system for skill training programmes, providing access to skill training opportunities to the disadvantaged sections and most importantly supplement the “Make in India” initiative by catering to the skill requirements in relevant manufacturing sectors.

As part of the SANKALP project setting up of District Skilling Committee and District Nodal Centre at the district level is essential to facilitate on-ground implementation of various skilling initiatives of Ministry of Skill Development and Entrepreneurship for ensuring quality and consistency in the skilling eco system. The District Skilling Committee acts as the focal point and local facilitator for ensuring and sustaining skilling at the district level.

District Skilling Committees were constituted under the chairmanship of District Collectors in all Districts. KASE appointed 11 District Skill Coordinators (DSCs).

Skill learning enables students to get a job in a variety of ways and thereby earn regular income stream. In addition, skill learning helps to increase access to employment opportunities. Central and State Governments have identified such skill gaps and are working to address them and enable skill development.

CHAPTER

8

INITIATIVES FOR SOCIAL
INCLUSION

INITIATIVES FOR SOCIAL INCLUSION

8.1 GENDER AND DEVELOPMENT

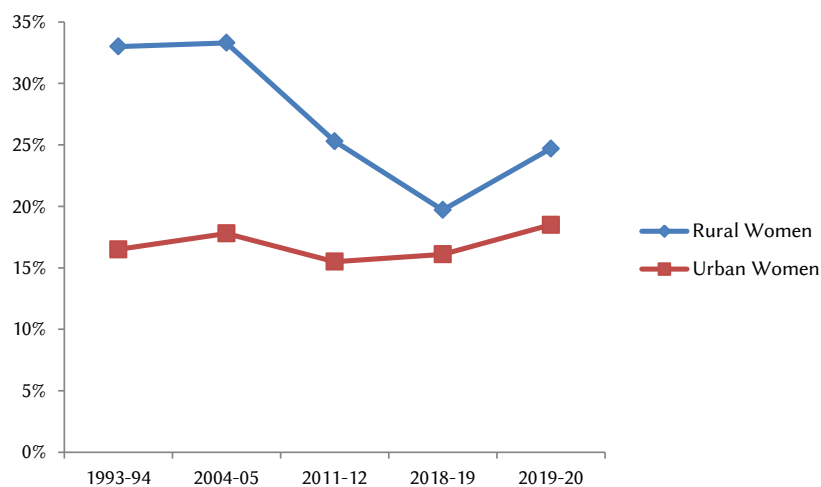
Achieving gender equality and empowering all women and girls is one of the sustainable goals of the United Nations (UN) Sustainable Development Goal 5 (SDG 5). The UN recognises ending discrimination against women as not only a basic human right but as a necessary condition for a sustainable future. It is very evident that significant progress toward gender equality and women's empowerment has happened in the past four decades. However, as a global community, we are still far away from being a gender-equal world.

The two main commonly used gender-related indices are the Gender Development Index (GDI) and the Gender Empowerment Measure (GEM) developed by the United Nations Development Programme. The GDI

is concerned with basic capabilities and living standards. It uses the same variables as the Human Development Index (HDI) but focuses on the inequality between men and women as well as on the average achievement of all people taken together. As per the Human Development Report (HDR) 2020 India is the third-poorest performer among South Asian countries with 0.82 GDI value.

India is ranked 140th among 156 countries in the World Economic Forum's Global Gender Gap Report 2021. Further, the Gender Inequality Index (GII) also offers a picture of gender disparities in India in sectors such as health, empowerment and the labour market. **Figure 8.1.1** shows women's participation in labour force in India.

Figure 8.1.1 Women's LFPR in India for different years, in per cent



Source: Previous NSS data and Periodic Labour Force Survey reports

Kerala stands out among the States of India in terms of several indicators of women's development.

Kerala took a historic step in 2010 by implementing legislation to reserve 50 per cent of seats for women in local government. In 2021, there were 602 women headed local self-governing bodies out of a total of 1200 local bodies (Department of Panchayat, Kerala Government 2021). Kudumbashree Mission, one of the largest women empowerment projects in India has also been playing a key role in women's development. Women's participation in local bodies need to be seen also as a reflection of Kudumbashree's constant involvement in empowering lakhs of women through training, entrepreneurship support and education. In this era of neo-liberalism, despite the impact of fiscal policy all over India, social spending in Kerala is still sensitive to areas like gender and development. The Government of Kerala and its various agencies play a significant role in paving a leading path towards a gender-equal society.

As per the 2011 census, the ratio of women to men for Kerala is 1,084, which is high compared to the national figure of 940. Women constitute 52 per cent of the total population in Kerala. Children aged 0-14 years represent 23.44 per cent of the total population in Kerala, 48.91 per cent of whom are girls. In contrast to the national average of 11 per cent, 22 per cent of all households in Kerala are female-headed. In recent years there was an increase in women's employment in Departments such as Police and Excise. In 2017, 605 police constables were recruited (including a police battalion of women, commanded by a woman commandant)

and another 154 were recruited in 2018. In Excise Department, 133 women were inducted for patrolling in 2018. After the pandemic substantial recruitment of health workers has been occurred, large number of the new health workforce being women.

Education and Gender Parity

The impressive achievement of Kerala with respect to socio-cultural development is often attributed to its high female literacy and education. High literacy can be considered as the basis of "take-off" for the social and political development of Kerala women. Kerala has the highest female literacy rate among Indian states at 92 per cent though a small gender gap exists (Census, 2011). It is also seen that the gender gap has narrowed during these six decades in Kerala (for more details see Chapter 6 of this Review). As per the NFHS-5, 2019-20 statistics, literacy rate of women (age 15-49) in Kerala has further increased to 98.3 per cent. But women in Kerala as well as India lag behind men in terms of other levels of literacy like computer literacy and basic internet knowledge. The gender gap in terms of the internet literacy is more prominent in rural areas. The gender as well as rural-urban differences in different levels of literacy is given in **Table 8.1.1.**

In the case of general education, enrolment is universal at the primary level and gender parity has been achieved; girl students constitute 48 per cent of total student enrolment in schools. Girls outnumbered boys in terms of enrolment in higher secondary education at 51.82 per cent. At the tertiary level also the enrolment of girls is higher than boys. For example, girls constituted 64.6 per cent of total enrolment for

Table 8.1.1 Percentage of literacy at various levels in adults (age 15-49), in India and Kerala,

Rural/Urban	Kerala			India		
	Urban	Rural	Total	Urban	Rural	Total
Male literacy	99.2	97.4	98.2	89.6	81.5	84.4
Female literacy	99.1	97.5	98.3	83	65.9	71.5
Male who have ever used Internet	78.3	74.2	76.1	72.5	48.7	57.1
Female who have ever used Internet	64.9	57.5	61.1	51.8	24.6	33.3

Source: NFHS-5, 2019-20

undergraduate courses in various Arts and Science colleges in Kerala in 2020-21. With regard to post-graduation, enrolment of girls was as high as 64.69 per cent of the total enrolment. But when the intake of girls in engineering colleges and polytechnics is considered, the situation is different. Out of the total enrolled students, girls constitute only 41.85 per cent in engineering colleges and 26.51 per cent in polytechnics. The percentage of girls in technical schools is very low at 5.2 per cent. Details are given in **Table 8.1.2**.

Table 8.1.2 Enrolment of girls at different levels, Kerala 2021-22

Area	Total	Female	Percentage
LP	1418079	679968	47.94
UP	1175521	574238	48.84
HS	1274511	617320	48.43
*HSS	368283	190853	51.82
VHSS	27218	12805	47.04
Technical High schools	7834	410	5.2
*Poly Technic	13280	3521	26.51
*BA, B.Sc & B.com	295417	193070	64.6
*B. Tech	5916	2476	41.85
*MA, M.Sc & M.Com	44160	28568	64.69
*M. Tech	1700	1137	66.88
Health & Allied Sciences	23003	18715	81.35

Source: DGE, DCE, DTE, Directorate of VHSE, KTU and KUHS

*Data pertains to 2020-21

Enrolment of girls in the professional courses like B.Tech and other technical courses like polytechnics and technical high schools is proportionately low; but the proportion is high in the case of health and allied sciences. Compared to any other category, girls constitute a large majority of students in medical science related courses. As seen in **Table 8.1.3** more than 80 per cent of the students in health and allied courses are girls. Here also, girls outnumber boys. This is an indication that in the coming years above 60 per cent of doctors will be women.

Table 8.1.3: Proportion of annual intake of girls in Medical Education, Kerala 2021-22 as on October 2021

Name of Branch	Male	Female	Total	Female percentage
Modern Medicine	1792	3439	5231	65.74
Dental	292	1804	2096	86.06
Homeo Medicine	40	348	388	86.75
Ayurveda Medicine	159	1132	1291	87.62
Unani Medicine	6	25	31	80.64
Sidha Medicine	12	25	37	67.56

Source: Kerala University of Health Science (KUHS)

Over the years, there is an increase in the proportion of enrolment of girls in professional courses, likewise in 2020-21, 517 girl students in under graduate and 181 in post graduate agricultural courses have enrolled under Kerala Agricultural University which constitute 77.05 and 75.73 percentages respectively. As shown in **Table 8.1.4**, more than 60 per cent of students enrolled in Kerala Veterinary and Animal Sciences University in 2021-22 are girls. Similarly, more than 75 per cent of students enrolled in Kerala University of Fisheries and Ocean Studies (KUFOS) are girls.

All the data related to enrolment of students show that except in technical education, girls outnumber boys at all levels of education including professional education.

Health Status of Women in Kerala

Kerala has achieved high status in terms of most of the women's health indicators such as maternal mortality, life expectancy and sex ratio. Life Expectancy at birth of women in Kerala at 77.9 years is the highest in India; much higher than for women in India as a whole, which is 70.7 years. The high health status of women in Kerala than the women in other parts of the country is a reflection of overall social development of the State. Most of the health indicators are highly favourable to women in the State. As per the figures released by the Registrar General of India, all the demographic indicators are favourable to women of Kerala (**Table 8.1.5**).

Low maternal mortality rate and high female life expectancy in Kerala are attributed to the

Table 8.1.4 Proportion of Girls in other professional streams, Kerala, 2021-22

Name of University		Male	Female	Total	Female percentage
Kerala Agricultural University (KAU)	UG*	154	517	671	77.05
	PG*	58	181	239	75.73
Kerala Veterinary and Animal Sciences University (KVASU)	UG	729	1153	1882	61.26
	PG	115	279	394	70.81
Kerala University of Fisheries and Ocean Studies (KUFOS)	UG*	32	97	129	75
	PG	65	232	297	78

Source: KAU, KVASU, KUFOS

*Data pertains to 2020-21

Table 8.1.5 Health Status of Women in India and Kerala

Sl. No.	Indicator		Kerala	India
1	Infant Mortality Rate #	Total	6	30
		Male	6	30
		Female	7	31
2	Mean age at effective marriage of female *	Below 18	17	16.8
		18-20	19.1	19.2
		Above 21	24.6	24
		All age	23.2	22.3
3	Maternal Mortality Rate**		43	113
4	Expectancy of Life at Birth***	Total	75.3	69.4
		Male	72.5	68.2
		Female	77.9	70.7

Source: # SRS bulletin 2021 October. /* SRS Statistical Report 2018/

Special Bulletin on MMR 2016-18/SRS Life Table 2014-18/

extensive public provisioning for maternal care in the State. As per SRS Statistical Report 2018, total fertility rate of women in Kerala in the age group of 15-49 who are illiterate is 1.8 and that of total literate women is 1.7, while at national level it is 3 and 2.1 respectively. The universal access to health care institutions helps to ensure maternal care as well as institutional delivery to all. For more details of maternal care indicators of Kerala, see **Table 8.1.6**. These achievements are the results of decadal long efforts of Government of Kerala since its formation in providing public health care.

The high literacy, educational status and the favourable health indicators are however not reflected in the life style health indicators. In

terms of Body Mass Index, obesity and anaemia, women's position is not good as per the reports of NFHS, 2019-20. In Kerala as well as India, the percentage of women with Body Mass Index below normal is high compared to their male counterparts even though Kerala women are better compared to all India average. But in the case of obesity, the percentage of women in Kerala is higher than that of India as well as that of their male counterparts in the State. In the case of anaemia, it is seen that the percentage has increased from 2015-16 to 2019-20 though Kerala's situation is better than that of all India average (**Appendix 8.1.1**). The adolescent pregnancy also is very low in Kerala. As the proportion of aging population in Kerala is high, non-communicable diseases like hypertension,

Table 8.1.6 Indicators of Maternal Care

Indicators	India			Kerala		
	NFHS - 3 (2005-06)	NFHS - 4 (2015-16)	NFHS - 5 (2019-20)	NFHS - 3 (2005-06)	NFHS - 4 (2015-16)	NFHS-5 (2019-20)
Adolescent pregnancy	16	7.9	6.8	5.8	3	2.4
Mothers with Antenatal Check-ups	43.9	58.6	70	91.9	95.1	93.6
Institutional Births (per cent)	38.7	78.9	88.6	99.3	99.8	99.8
Mother and Child Protection (MCP) card holder (per cent)	NA	89.3	95.9	NA	84.2	91.3
Total Fertility Rate (children per women)	2.7	2.2	2	1.9	1.6	1.8
Full Antenatal Care (per cent)	11.6	21	NA	66.7	61.2	NA
Mothers received post natal care (per cent)	34.6	62.4	78	84.6	88.7	93.3
Delivery by caesarean (per cent)	8.5	17.2	21.5	30.1	35.8	38.9
Anaemic adolescent (per cent)	55.3	53.1	57	32.8	34.3	36.3
Experienced violence during pregnancy (per cent)	NA	3.9	3.1	NA	1.2	0.5

Source: National Family Health Survey

diabetes, and cardiovascular diseases etc. are also on increase. Lack of physical activities creates number of health issues like obesity and high prevalence of non-communicable diseases among women. According to NFHS-5 statistics, 24.8 per cent of women in Kerala have diabetes mellitus and 30.9 per cent have hypertension.

As per NFHS-5 report, anaemia among women and children in Kerala has also increased as compared to NFHS-4 in spite of various schemes such as Supplementary Nutrition Programme, Poshan Abhiyaan and First 1,000 days implemented by the Women and Child Department (WCD) to improve the nutritional status of women and children. To address the issue of malnutrition we need integration of health and nutrition platforms at the community level and awareness creation among the public. With an aim to reduce anaemia among women and children to 20 per cent with coordinated and focused action, the Department has started an awareness campaign called “Campaign 12”. It was launched on January 12, 2021 and will go on for a year.

As regards family planning, the knowledge of contraception is almost universal in Kerala. The availability of contraception within and outside marriage is a concern. Male participation in contraceptive methods is negligible as per NFHS 5. Data indicates that female sterilisation rate as 46.6 per cent as opposite to male 0.1 per cent in Kerala. At national level, it is 37.9 per cent in females and 0.3 per cent in males.

Participation in Economy

Though in terms of health, education and many other development indicators, women of Kerala are better than their male counterparts; their participation in economic domain is yet to improve. During the previous rounds of NSSO, there were wide gaps between men and women both in terms of the Labour Force Participation Rates (LFPR) and Work Participation Rates (WPR). The gender paradoxes in contemporary Kerala society are particularly reflected in the low labour participation rate and a disproportionately high unemployment rate of women. Workforce participation rates, as per the official labour force survey, have been lower in Kerala than at all India-level, particularly in rural areas.

Workforce participation rates of women in urban areas have always been much higher in Kerala reflecting the advantages of a literate State. The recent Periodic Labour Force Surveys (PLFS) show that gap between men and women has been to some extent reduced in this regard. Likewise, in 2019-20 they have reached a better position when compared to their counterparts in India (**Appendix 8.1.2**). As per the PLFS of 2018-19, both male and female LFPR and WPR had slightly increased when compared to their counterparts at national level. But this has again reduced in 2019-20 due to the impact of Covid 19 pandemic on the economy. Female WPR has increased from 20.4 per cent in 2018-19 to 22.4 per cent in 2019-20 in all age groups. In the productive age group of 15-59 years, the WPR of women in Kerala is 30.5 while the all India average is 30.9.

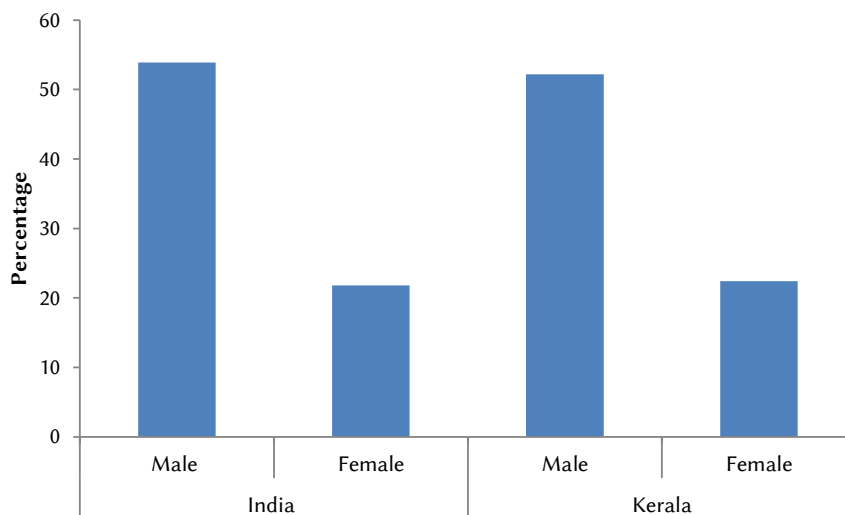
The gender gap in levels of employment both in India and Kerala in terms of WPR is brought out in **Figure 8.1.2**. Though both male as well as female WPRs show upward trends, the increase in female WPR in Kerala is less than of men and their counterparts in India. The increase was taken up by self-employment and casual labour; especially in rural areas. The detailed discussion on LFPR and WPR is given in Labour and Labour Welfare section in Chapter 7 of this Review.

Inequality in Wage Rates

In terms of wages and remuneration, significant gender inequality exists in the State as well as at national level. The prevalence of inequality in the wage rates among men and women in salaried job, self-employment and casual work have been detailed in the section on Labour in Chapter 7 of this Review. The gender disparity in wage rate is prevalent not only in informal or unorganised sector but also in regular/salaried employment as shown in **Appendix 8.1.3**. The gender difference in earnings is more prevalent in casual labour works than salaried jobs and self-employment. Though women and men in Kerala are higher paid in casual work than their counterparts in India, the gender difference in wage rate persists in Kerala also (**Table 8.1.7**).

The economic empowerment of women is attained when they become an integral part of labour force and are gainfully employed without having to bear the full burden of household and care responsibilities. It is necessary that this is recognised, and efforts are taken to reduce and redistribute unpaid household and care work in more just ways promoting shared responsibility within the household. The State should play a crucial role in designing appropriate policies/schemes that support its reduction and redistribution.

Figure 8.1.2 Work Participation Rates of Males and Females in Kerala (All ages)



Source: Periodic Labour Force Survey 2019-20

Table 8.1.7 Gender Difference in Average Wage/Salary/Earnings per day from casual labour work other than public works

Period	Kerala/India	Rural		Urban	
		Male	Female	Male	Female
July-Sep-2019	Kerala	667.71	372.05	744.50	385.75
	India	297.30	185.01	374.96	243.43
Oct-Dec 2019	Kerala	721.39	395.56	736.51	369.43
	India	305.40	193.10	384.32	244.10
Jan-Mar 2020	Kerala	715.96	430.54	729.58	351.86
	India	315.13	205.43	391.31	264.86
April-June 2020	Kerala	685.12	318.79	697.62	489.62
	India	309.02	209.10	390.06	256.20

Source: Periodic Labour Force Survey 2019-20, CWS

Industrial Distribution of Women Workers

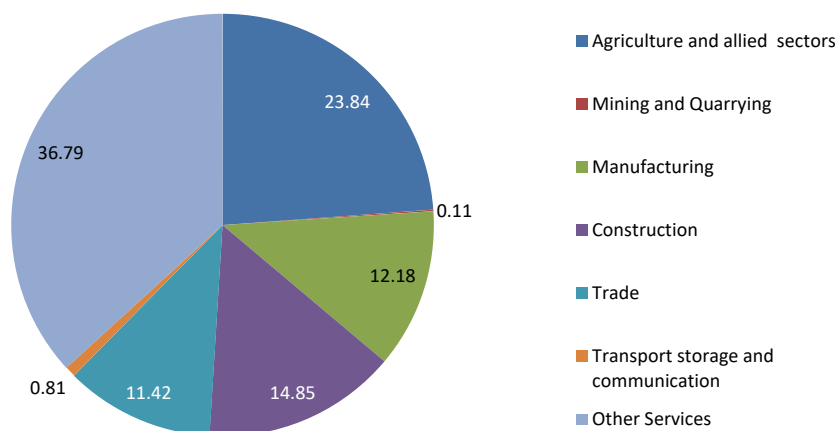
A project report on female LFPR in Kerala of CDS, 2015 showed the shift of the female workforce away from agriculture was quite marked in Kerala. As per PLFS 2019-20, the proportion of women in manufacturing is high in Kerala compared to all India (**Figure 8.1.3**). This may be because large numbers of women are engaged in low productivity, labour intensive traditional industries like handlooms, khadi, coir, and cashew. Concentration of women in low remunerative industries would be clear from the membership of females in different Welfare Fund Boards in Kerala. For example, among beedi and cigar workers, women constitute 97.83 per cent of the total workforce.

While in 2019-20, given the increase in FWPR in Kerala, there is a slight increase in women engaged in agriculture in rural and urban areas, the larger increase in rural Kerala is in construction and certain services. In urban Kerala, the increase has been sharper in trade followed by manufacturing and services. Hence the increase in rural female participation rate in 2019-20, has been to some extent in agriculture, given the hike in National Rural Employment Guarantee Act (NREGA) employment but is found in other non-agricultural sectors also.

Status of Employment

The status of female employment as shown in **Table 8.1.8** shows that out of the employed

Figure 8.1.3 Industry wise proportion of female workforce



Source: PLFS 2019-20.

Table 8.1.8: Percentage distribution of working women in India and Kerala (CWS)

Employment Category		2019-20	
		India	Kerala
All self employed	Own Account Worker, Employer	55.5	39.4
	Helper in household enterprises		
Regular salaried		22.6	44.3
Casual labour		21.9	16.3

Source: PLFS 2019-20

women in Kerala, nearly half were in regular salaried employment, nearly twice that in the rest of India. Similarly, it is more than that of all self-employed women in Kerala. While helper in household enterprise occupied the majority of the female workforce in the rest of the country, in Kerala this accounts for only 12 per cent. This points towards the better quality of employment that the state has been able to provide to its female workforce. Kerala also has a relatively small share of women casual labours compared to all India level.

Women in Organised Sector

In 2021, the proportion of women workers (43.60 per cent) in organised sector in Kerala was low compared to that of men (56.39 per cent). But the total number of women workers in the organised sector has increased during the last ten years (**Appendix 8.1.4**). But it can be seen that out of the total women workers (5,44,058) in the

organized sector, majority (64.32 per cent) are engaged in the private sector (**Table 8.1.9**).

An examination of sector-wise percentage share of employment statistics in the organised sector reveals that females are in a disadvantaged position compared to their male counterparts in public sector. Women employment share in public sector is 1.9 lakh which accounts for 34.86 per cent in 2021. The situation is better in the case of private sector where 3.5 lakh women (50.63 per cent) are employed.

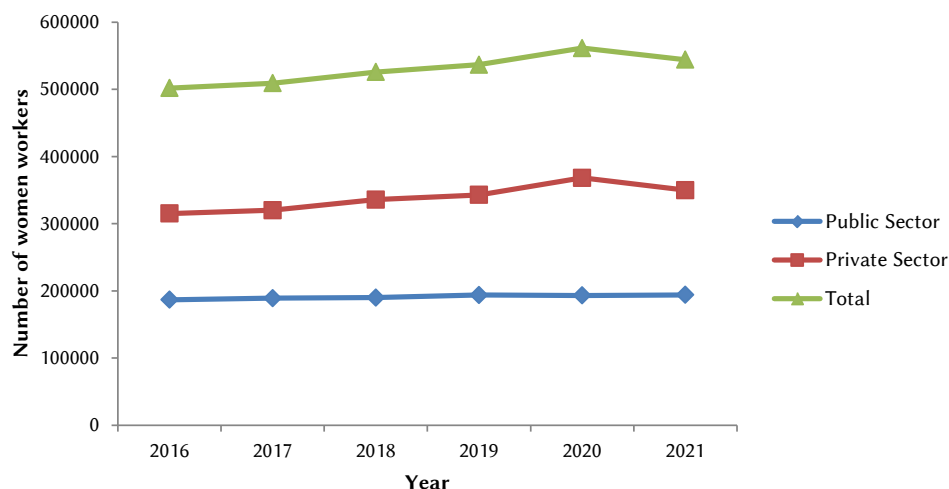
The employment of women in organised sector is growing over the last 6 years, both in public and private sectors. (**Figure 8.1.4**). The increase in the private sector employment is more than that of public sector and women outnumber men in private sector in 2020 and 2021.

Table 8.1.9: Employment in the Organised Sector in Kerala, in number and in per cent

Year	Public Sector			Private Sector			Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
2019	366812	193807	560619	344004	342877	686881	710816	536684	1247500
Percentage to the total	65.4	34.6	100	50.1	49.9	100	57	43	100
2020	361695	193224	554919	331294	368153	699447	692989	561377	1254366
Percentage to the total	65.17	34.82	100	47.36	52.63	100	55.24	44.75	100
2021 (as on 31st March)	362554	194080	556634	341156	349978	691134	703710	544058	1247768
Percentage to the total	65.13	34.86	100	49.36	50.64	100	56.39	43.60	100

Source: Directorate of Employment

Figure 8.1.4 Growth of women's employment in organised sector



Source: Directorate of Employment

An examination of distribution of public sector employment of women in different types of government organisation as shown in **Table 8.1.10** reveals that the proportion of women is high in the State Government in 2019-20 and in 2020-21.

The district wise employment of women in different type of government organisations is given in **Appendix 8.1.5**. Both the number and proportion of women workers in public sector is highest in Kollam followed by Wayanad. But the highest number of women workers in State Government is from Thiruvananthapuram followed by Thrissur. In the case of women in central government employment, Thiruvananthapuram followed by Ernakulam stands ahead.

Skill and Entrepreneurship Development

Kerala State Industrial Department, Kudumbashree, Women Development Corporation and many other Government Departments are conducting various programmes including Entrepreneurship Development Programmes (EDPs) to cater to the needs of potential women entrepreneurs, who may not have adequate educational background and skills. MSME has also opened a Women Cell to provide coordination and assistance to women entrepreneurs facing specific problems. There are also several other schemes of the government at central and State level, which provide assistance for setting up training cum-income generating activities for needy women to make them economically independent. Some banks and financial institutions like NABARD have also been implementing special schemes

Table 8.1.10 Distribution of women employees in different levels of government in Kerala

Year	2019-20			2020-21		
	Total	Women	Percentage to the Total	Total	Women	Percentage to the total
Central Government	59971	14745	24.59	60003	14716	24.52
State Government	260170	104628	40.2	259239	105567	40.7
Central Quasi	80800	25968	32.1	80635	25341	31.42
State Quasi	129290	38666	29.9	131480	39172	29.79
LSGI	24688	9217	37.3	25277	9284	36.72
Total	554919	193224	34.8	556634	194080	34.86

Source: Directorate of Employment

Table 8.1.11 *Employment generation in Information Technology (IT) sector in Kerala*

IT Parks	2019-20			2020-21		
	Total	Women	Per cent	Total	Women	Per cent
Techno Park	62000	28000	45	63000	28350	45
Info Park	47000	18800	40	54000	21600	40
Cyber Park	570	198	34	764	278	36

Source: Techno Park, Info Park, Cyber Park

for women entrepreneurs. In addition to the special schemes for women entrepreneurs, various government schemes such as Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY), National Rural Livelihood Mission (NRLM) and MSME schemes of Kudumbashree and entrepreneur support scheme of Industrial Department for small and micro enterprises also provide certain special incentives and concessions for women entrepreneurs. The Government has also made several relaxations for women to facilitate the participation of women beneficiaries in this scheme.

Women in IT Sector

The IT sector (Techno Park, Cyber Park, and Info Park) has shown an increase in employment in 2019-20 and 2020-21. The proportion of women employees in Cyber Park showed a marginal increase from 34 per cent in 2019-20 and 36 per cent in 2020-21, while the proportion was constant during the periods for Techno Park and Info Park. (Table 8.1.11).

Economic Participation of Women through Kudumbashree

Kudumbashree, a community organisation of Neighbourhood Groups (NHGs) of women, setup in 1998 as the State Poverty Eradication Mission is functioning under the Local Self Government Department. Starting initially with thrift and loan activities, the NHGs focused on empowering women through income generation activities and micro-credit, besides engaging in a range of other activities such as health, nutrition, agriculture, and social development. Kudumbashree has played an important role with regard to financial inclusion of poor women and has enhanced the financial status of less privileged women through its thrift and credit programmes. Internal loan is given to the deserving members from the pooled small regular savings (thrift)

of neighbourhood groups. Though, NHG is autonomous and has a discretionary role in financial activities, each and every NHG is bound to act in accordance with the Kudumbashree byelaw. The activities are to be reported to Area Development Society (ADS) and Community Development Society (CDS). The total thrift collected by NHGs in 2020-21 was more than ₹406.71 crore and the internal loan generated out of this thrift amount comes to more than three times of the thrift amount (Table 8.1.12)

Table 8.1.12 *Financial Inclusion through Neighbourhood Groups*

	2019-20	2020-21
No of NHGs	287723	294436
No of NHG Members (in lakh)	45.1	45.85
Amount of Thrift (in crore)	443.7	406.71
No of Bank linked NHGs	73522	250018
Total Disbursement Amt.(in crore)	2670	4070.26
Internal Loan (in crore)	1778.4	1323.11

Source: Kudumbashree

In 2018, Kudumbashree initiated “Harsham” programme realising the opportunities existing in the service sector in Kerala. *Harsham* programme aims at providing intensive training of 15 days to women and equip them to provide service in geriatric care sector. Training for caregivers was provided with the assistance of doctors, nurses and hospital management in selected hospitals in the State. *Harsham* team is all set to provide full time professional care on enterprise model to the elderly, provide day time care, provide service as bystander in hospitals and extend service as caretaker for old people in care homes. Training has been provided to 636 people, out of which 198 have already got opportunity to serve on monthly salary basis in various firms/ care homes/ houses.

Table 8.1.13 Joint Liability Groups and Micro Enterprises under Kudumbashree

Year	Joint Liability Groups (JLGs) under Kudumbashree	
	2019-20	2020-21
No. of JLGs	71572	72306
No of JLG members	322074	331060
Total area cultivated (in Ha)	25050.23	28042.35
Area of Fallow land cultivated (in acre)	-	4206.235
	Women Enterprises under Kudumbashree	
No of Enterprises	26448	46240 (cumulative)
No. of Women Members	87239	157848 (cumulative)

Source: Kudumbashree

The major income generation activities under Kudumbashree are Joint Liability Groups (JLGs) and enterprises. These women are aggregated into small farming groups called Joint Liability Group and are supported by Kudumbashree by means of training, financial assistance, convergence opportunities facilitated by district missions and provided exposure to a vast arena of livelihood ventures for income enhancement. Most of the women involved in collective farming activities had the experience in farming as wage earners, workers or helpers to their husbands/parents. Now the project has transformed them from the status of labourer to women farmers. For a sustainable financial growth and quality of life the support extended apart from the above include, linkage loans from nationalised bank at practically a zero-percentage interest with no collateral security as well as continuous and uninterrupted service

of the Community Resource Persons called Master Farmers throughout the year for all activities. As shown in **Table 8.1.13**, more than 3.3 lakh of women farmers are actively involved in farming and they are cultivating in more than 28 thousand hectares of land in 2020-21. The figure is very crucial in Kerala where men are increasingly moving away from cultivation and the cultivable land (including paddy fields) are converted into other purposes.

Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA)

In Kerala, over 90 per cent of the workers in NREGA are women. There has been an increase in person days of employment generated in 2020-21 and the percentage of women person days generated through NREGA has also increased (90.49 per cent) (**Table 8.1.14**).

Table 8.1.14 Status of NREGA employment provided in Kerala from 2018-19 to 2020-21

Year	No. of Active Job Cards (No. in Lakh)	No. of households got Job (No. in Lakh)	per cent of women person days generated	Person days generated (No. in Lakh)	Average wage rate per day per person in ₹	Average days of employment provided to a household	No. of H Hs completed 100 days of wage employment
2018-19	20.20	14.78	90.41	975.25	274.2	65.97	4,41,479
2019-20	20.00	14.38	89.8	802.3	274.29	55.75	2,51,141
2020-21	20.43	16.17	90.49	1023	294.65	63.25	4,70,410

Source: NREGA data base (as on 03.12.2021)

In Women Mate deployment vis-a-vis Group wise Task Naapi Payment System (GTNPS) 100 per cent of selected mates are women. Annual training is given to all mates deployed in the State and 90,789 mates were trained in 2020-21. 37.34 per cent of the semi-skilled workers and 25.6 per cent of the skilled workers are women in NREGA.

Women Empowerment and Participation in Decision Making

Women need to play a pro-active role in decision making at home as well as in the policy decisions of the State. This would ensure an integration of their needs and interests into the development process and in developing a gender just society. The NFHS-5 report shows 89 per cent of married women at the age group between 40-49 in Kerala are self-sufficient in cash earning either themselves or jointly with their partners. Women who earn more or equal to their partners are 32.8 per cent among the age group 40-49 and 32.2 per cent among 30-39 age group. 92.8 per cent of the women educated above 12th standard are self-sufficient either themselves or jointly with their partners.

In Kerala, 72.7 per cent women at age group 30-39 and 56.5 per cent among the age group 20-24 participate in the decision making process such as health care, major household purchasing and their visits to family or relatives. 73.1 per cent of employed women are involved in their everyday decision making, while it is 67.8 per cent among the women who are not employed.

The fraction of women aged 15-49 years who have bank accounts in their names is 76.48. 61.4 per cent among the age group 40-49 and 62.6 per cent of 30-39 and they are aware of micro credit programme. But women who know about micro credit programme among the age group 15-19 are 35.9 per cent only. 15.4 per cent of the employed women and 7.8 per cent unemployed women have taken loan from micro credit programmes. 24.5 per cent women own a house or jointly with their partners among the women aged 15-49 years whereas women those who own land alone or jointly is 11.5 per cent only. 86.5 per cent of the women between the age group 15-49 years have mobile phones.

Women's participation in decision making of the family is considered here in terms of three indicators as gathered in NFHS, 2019-20, namely, the percentage of women who usually participate in the household decisions, percentage of women having a bank/savings account that is operated by them and percentage of women having a mobile phone that they themselves use. As shown in **Table 8.1.15** women in Kerala actively participate in the decision making process more than their counterparts at all India level.

The participation of women electors in the Lok Sabha elections has increased over the years from 46.63 per cent in the third Lok Sabha election in 1962 to 66 per cent in the election for 16th Lok Sabha. The participation of women electors in Kerala is very high compared to all India average. But in terms of women's representation in

Table 8.1.15 Women's Participation in Decision Making in India and Kerala

Indicators	India			Kerala				
	NFHS-5 (2019-20)		NFHS-4 (2015-16)	NFHS-5 (2019-20)		NFHS-4 (2015-16)		
	Urban	Rural	Total	Urban	Rural	Total	Total	
Currently married women who usually participate in household decisions (per cent).	91	87.7	88.7	84	93.6	94.6	94	92.1
Women having a bank/savings account that they themselves use (per cent)	80.9	77.4	78.6	53	78.9	78.2	78.5	70.6
Women having a mobile phone that they themselves use (per cent)	69.4	46.6	54	45.9	86.2	86.9	86.6	81.2

Source: NFHS

Parliament and Legislative Assembly, Kerala lags behind. In 16th Lok Sabha, women constitute 12 per cent of the total Members of Parliament while only one woman MP (5 per cent) could reach the Parliament from Kerala. Likewise representation of women in State Assembly is also low.

But the participation of women in Panchayathi Raj institutions is higher than the all India average and half the positions in decision making bodies of local governments is reserved for women. It is remarkable that of the total number of persons elected to local bodies in the elections of 2020, 54 per cent were women. Women's representation in the apex bodies of social, political and religious significance is negligible, despite there being an adequate representation at the lower rungs of such institutions. It is appalling to note that women MLAs ever elected in Kerala have never exceeded 10 per cent of Kerala legislative assembly in its 64-year political history.

Crimes Against Women

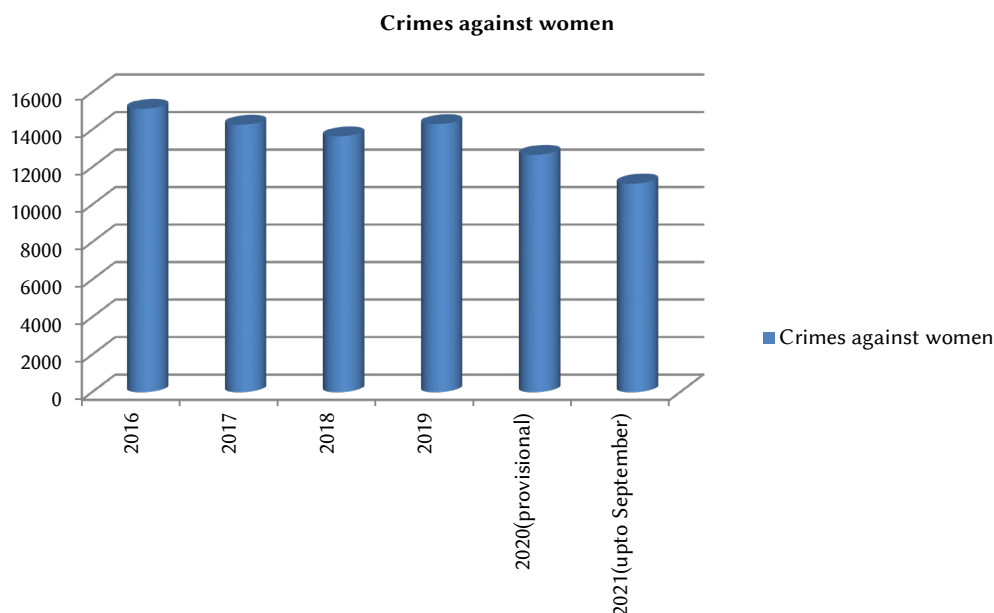
Crimes against women continue to be a major threat in Kerala, though total number of crimes against women has decreased in the last

two years. Greater efforts are required in this direction, to enable women to take up gainful economic activities outside the home. Cruelty by husband/relatives and molestation are the major components in crimes against women in Kerala. As per the crime statistics of Crime Records Bureau in 2020, majority of cases under crimes against women were reported in Kerala under molestation (30.72 per cent) followed by other offences against women (28.3 per cent) cruelty by husband or his relatives (21.38 per cent) rape (18.85 per cent) and eve teasing (3.49 per cent). The total number of crimes in Kerala has decreased since 2016 except in the year 2019. The details of crimes against women in Kerala are given in **Figure 8.1.5** and **Appendix 8.1.6**.

Domestic Violence

As per NFHS-5 report, in Kerala, 9 per cent of women have experienced physical violence and one per cent sexual violence. One-tenth (11 per cent) of married women aged 18-49 years in Kerala have experienced physical or sexual violence. Among married women aged between 18-49 years, 10 per cent have experienced some form of physical violence committed by their husband. Spousal violence prevails among all groups of

Figure 8.1.5: Number of Total Crimes in Kerala, 2016-2021



Source: Crime Records Bureau, Kerala

women but is lower among more educated women. 1 in 9 women who have at least 12 years of schooling have experienced emotional, physical or sexual spousal violence. It is higher among women in urban areas (14 per cent) than in rural areas (12 per cent) and among women who are employed (20 per cent) than women who are not employed (10 per cent).

Programmes Initiated by the State Government to Address Gender Based Violence

Prevention and redressal of gender based violence and rehabilitation of the survivors are important for women's development. This covers several departments with the WCD being the nodal agency and police and judiciary critical for redressal. A large number of measures ranging from regular sensitisation, public awareness, community based crime and vulnerability mapping, counselling to adolescent girls, self-defense training, pink police control rooms, shelter homes, short stay homes, one stop crisis centre, medical care for victims of violence, and so on are part of the programme.

Nirbhaya Policy: Government of Kerala had formulated the Nirbhaya Policy for combating sexual violence against women and children and to safeguard them against trafficking for exploitation. Nirbhaya cell has been formed under the Directorate of Women and Child Development. Nirbhaya programme include shelters for sexually abused women, where they are provided with life skill education to earn a living and gain employment. The Nirbhaya Cell has set up fifteen Nirbhaya Homes (Women and Children Homes) across the State.

SOS Model Home: This model shelter home was started in Thiruvananthapuram for POCSO survived girls below the age of 12 years.

One Stop Centres: These centres by WCD provide support to those women who are affected by violence in public and private places, within the family, community and at the work place. These centres will provide a range of integrated services including, transportation, medical assistance, and facilitation in dealing with the police and accessing legal aid, psychosocial

counseling and temporary shelter, if required. In 2019-20, Kerala became one of the first states in India to have One Stop Centres in all the districts.

Kathorth: The online consultation programme of WCD for women commenced in February 2021 and is aimed at resolving their various issues through counselling, legal aid and police assistance. Complaints can be submitted through the website kathorthu.wcd.kerala.gov.in.

Aswasanidhi: Realising the need to provide financial support to victims of sex crimes and heinous gender based violence, the State Government has announced the setting up of a corpus fund of ₹300 lakh in the State Budget of 2018-19 for providing interim relief to such victims. The Department of Women and Child Development maintains it for release to victims of sex crimes, domestic violence, acid attacks and heinous gender based violence.

Bhoomika: Government had launched a programme on medical and psychological care for the victims of gender based violence/social abuses with the support of NRHM. "Bhoomika", a gender based violence management centre provides social and psychological support to the victims.

Snehitha: Kudumbashree Gender Help Desk Snehitha provide services to women and children in distress. The services include short stay homes for women and children facing atrocities and violence, individual, adolescent and premarital counseling, awareness campaigns, legal and medical assistance, and rehabilitation through convergence with other departments and NGOs.

"Aparajitha is online": This is a quick response mechanism for the grievance redressal of harassment of women and girls and is operated by the Department of Police.

Mithra Helpline (181): The helpline was initiated by Kerala State Women's Development Corporation (KSWDC) and is presently functioning successfully as a 24/7 accessible and emergency response service for women in need.

Setting up of the Department of Women and Child Development

One significant achievement of the Government was the setting up of the Department of Women and Child Development (WCD) in June 2017, bifurcating the Social Justice Department to give a more focussed thrust to activities aimed at social assistance and empowerment of women and children. It is an umbrella structure that includes the State Women's Commission, State Women's Development Corporation, State Commission for Protection of Child Rights, Gender Park, Nirbhaya project, women and children homes, ICDS and Anganwadis. A large part of its working is concerned with running of 44 welfare institutions for the care, protection and rehabilitation of women and children (16 for women and 28 for children); NGOs and voluntary organisations also play a major role in providing institutional care to the vulnerable population. The Department of Women and Child functions for ensuring the holistic, physical, psychological, cognitive and emotional developments of women and children and a gender sensitive family and community.

Initiatives of WCD during 13th Five Year Plan (2017-22)

In Kerala, women not only outnumber men, but also outlive them. So the marital status of women in Kerala is very important. It could influence the overall level of care and support they receive from their family and society. Statistics shows only 3.5 per cent of the total male population in Kerala are widowers and the proportion of the widowed female population is 11.56 per cent. This gender gap adversely affects women in every sphere of her life. It is in this context, the Government of Kerala introduced a scheme, *Mangalya* to encourage widow remarriage. The scheme imparts financial assistance for widows/divorced to remarry. With an objective of providing a safe and better living environment to destitute and homeless widows, *Abhayakiranam* scheme provides monthly financial assistance of ₹1,000 to the close relatives of destitute widows who provide protection and shelter to them. Majority of the families of widows are living in deplorable conditions. The *Sahayasthanam* scheme proposes to extend a helping hand to these families by way of providing financial assistance to self-employment. *Padavukal* is a

scheme which gives educational assistance for professional courses to the children of widows whose annual income is less than ₹3,00,000.

Athijeevika is a scheme that has been envisaged to provide one time financial assistance up to a maximum of ₹50,000 to women headed families in cases of unforeseen financial crisis.

Thejomaya After Care Home has been set up at Edakkattuvayal, Ernakulam. It is intended for the residents of Women and Children Homes who have completed their studies and are interested in various vocations. In 2020-21, a career assessment programme was done with the help of HLFPPPT (Hindustan Latex Family Planning Promotion Trust) and 42 inmates were selected for various vocations namely catering, tailoring, beautician, driving etc. A psychological intervention programme/wellness programme was also conducted for 26 inmates.

Home for Mental Health: Home for Mental Health is intended for the residents of Women and Children Homes with psychological problems. Government had accorded sanction for an amount of ₹39.87 lakh for starting the Home for Mental Health in Thrissur and entrusted Gandhi Bhavan International Trust, an NGO, for starting the same. It has started functioning in 2019-20.

One Day Home: With an objective to ensure safe accommodation for women who travel alone and reach the capital city for various purposes, a One Day Home was started at the 8th floor of the Kerala State Road Transport Corporation building in the heart of Thiruvananthapuram city as a joint venture of Thiruvananthapuram Corporation and Women and Child Development Department. The main objective of the scheme is to provide a safe stay and food at a reasonable rate. The One Day Home started functioning from March 7, 2020 onwards.

Dowry Prohibition: A popular campaign to eradicate dowry was initiated by the Department in 2019-2020. A five year long action plan has been prepared aiming at complete eradication of dowry through awareness creation and empowerment. Importance of women's

education, economic independence and free thinking men- all are highlighted to ensure an umbrella approach towards this age old custom. The initial phase of campaign was a success mainly because of the tools like memes used to address the youth. The campaign will continue over the next 3 years. According to the amendment (July 13, 2021) of Kerala Dowry Prohibition Rules, District Dowry Prohibition Officers (DDPOs) were appointed to create awareness about the ill effects of dowries among the public and manage the activities against the dowry in all the districts.

Pandemic Strategies for Women by the WCD

The impact of Covid-19 pandemic has adversely affected women. As the Covid-19 pandemic deepens economic and social stress coupled with restricted movement and social isolation measures, gender-based violence is increasing exponentially. As the nodal department for ensuring the welfare and protection of women and children, the Department of Women and Child Development implemented various projects to address the issues faced by children and women during the pandemic.

- Protection from Domestic Violence during Covid-19- 24 hour Whatsapp/SMS helpline “9400080292” was initiated by the Department with the support of NSS technical cell to enable people to report cases related to domestic violence, safety of women and children during lockdown period. In collaboration with Postal Department a new scheme named “Rakshadooth” was initiated to enable access services to women in remote area and women those who do not have phone and transportation facilities.
- The Department took the initiative to keep in touch with maximum number of beneficiaries through WhatsApp and video conference calls. The concerns of beneficiaries were addressed by conducting sessions on pregnancy issues, lactating issues faced in providing child care and feeding practices. Nearly 3.5 lakh people were covered.
- On World Population Day the Department addressed the issues of unplanned pregnancy, contraception and other reproductive issues for women and couples. Nearly 96000 family/ couples were covered.
- As part of “Poshan Maah” activities nutrition

garden and wayside planting of fruit trees and vegetables, nutrition challenges for women, children and men were conducted.

- Tele nutrition counselling and tele-consultation facility were conducted in all projects to address the issue of malnutrition, immunization and proper development of the growing child and concerns of pregnant women and lactating women were also addressed with the help of Indian Association of Dieticians and Indian Academy of Paediatricians and IMA. Nearly 7.31 lakh people were covered.
- Daily nutritive recipe shared through the department communication network. 40 recipes shared till date.

Kerala State Women’s Development Corporation (KSWDC)

KSWDC aims at the all-round development of women in the State to make them active participators in social development and progress. The Corporation focuses on providing financial support to women entrepreneurs, trainings and gender awareness programmes. Upto the financial year 2020-21, the Corporation has implemented “She Pad” menstrual hygiene management awareness project in 1,693 Government/aided Schools for 2.99 lakh girl students. Phase I construction of “Vanitha Mithra Kendra” Working Women’s Hostel at Kakkanad, (Ernakulam) was inaugurated on February 12, 2021. Safe stay project for ensuring safe, secure and affordable stay for women was inaugurated on February 5, 2021. Comprehensive app has been developed and its tie-ups with 30 women’s hostels for first phase programme rolled out.

Gender Sensitisation Programme for Police Personnel- “Bodhyam” Gender sensitisation online training programme for police personnel was launched by KSWDC on July 21, 2020. The training was conducted in batches of 30 personnel each (civil police officers) at Police Training College (PTC), Thiruvananthapuram and Kerala Police Academy (KEPA), Thrissur. The aim of the programme is to improve effectiveness of emergency response services for women as well as to create a gender-friendly environment in the State. The Corporation has completed the training of 5,457 police personnel from 12 police battalions across Kerala in 2020-21.

Women Cells in Women's Colleges- As part of its gender awareness programmes, KSWDC has started Women Cells in selected colleges in the State which initiated various programmes like gender awareness trainings, pre-marital counseling, open forums, cultural programmes, manuscript publishing, training in IT/Soft skill, creative workshops and community intervention programmes in selected women's colleges in Kerala. In 2020-21, women cells have functioned in 39 women's colleges with over 5,000 members. The main objective of a women cell is to make the youth aware of the issues involved in the society and to equip them with adequate management skills to handle day-to-day affairs.

24/7 Women Information and Assistance Centre - Mithra Helpline (181) was launched in Kerala on March 27, 2017 by KSWDC. The helpline is envisioned to create an infrastructure to support women at all times with the continuous feedback mechanisms at its core and as an emergency response system for women in distress. In 2020-21, 181 Mithra Helpline has rendered services to 25,591 calls. The concerted efforts of Mithra 181, OSCs (One stop centres called Sakhi) and the State Police can strengthen the safety infrastructure for women of the State.

Integrated skill development centre for tribal women- The Corporation has piloted a scheme of setting up of Integrated Skill Development Centre for tribal women in Chakkittapara GP, Kozhikode. Community social workers were appointed by the Corporation to understand the skill and livelihood requirements of the women. Several training programmes and workshops have been conducted. KSWDC has imparted training to 50 tribal women and their families (299 days) as part of Vanamithra Cattle Rearing and Dairy Farming project. Training was also imparted to 33 tribal women in apiculture (bee-keeping).

Finishing School for women - KSWDC started "Reach" for enhancing employability skills among women to improve their job prospects. In 2020-21, 903 students were provided training. Through advanced skill enhancement programme for nurses (ASEPN), 61 professionals were trained.

Gender Park- It is an initiative of the Women and Child Development Department to pioneer gender equity and empowerment in the State with its main campus located at Kozhikode, a convergence centre for various projects, cultural and academic programmes. It includes an International Convention Centre, Amphitheatre, Gender Library, Gender Museum. "She Taxi" is to encourage women to take up driving for livelihood. A Gender Data Centre will be established in collaboration with UN Women, along with Heritage Museum and Library which would make Gender Park the South Asian hub for gender activities. Based on the Sustainable Development Goals of the United Nations, an International Women's Trade Centre (iWTC) will be set up at the Kozhikode campus of the Gender Park. The iWTC will be a platform for women to safely start and expand enterprises, and market their products globally. A Memorandum of Understanding has been signed between Gender Park and UN Women in December 2020 to come together as equal partners to address gender equality in the South Asian region.

Gender Self-Learning Programme (GSLP)- GSLP was initiated by Kudumbashree in 2007 in order to make women capable of learning and understanding the gender issues themselves. It is a "participatory education programme through which women in NHGs address gender and its manifestations in their lived experience." The learning process helps the women to develop a collective consciousness on women issues and understanding of how to express their views. Under this programme, nearly a total of 86,307 women were trained as resource persons for a cascading training programme till NHG level and in all, 4,33,313 women underwent training including resource persons and 3,47,006 support team members. The programme is expected to cover 35 lakh women in the State. The four thematic areas selected for the learning process are: (1) women and work, (2) women and health, (3) women and mobility and (4) women and entertainment.

Kerala Women's Commission- Gender Awareness Programme-A significant activity of KWC is the training of Jagrata Samithi (a watchdog institution at the grass root level)

members, which can work very effectively in prevention of crime with community participation. The Commission conducts seminars/legal workshops, training programmes for Panchayat Jagratha Samithis on various laws related to women and other legal procedures and adalaths. In 2020-21 (as on March 31, 2021) Women's Commission received a total of 5,439 complaints of different cases against women in Kerala. The highest number of cases were in Thiruvananthapuram (1,768 complaints) followed by Kollam with 609 complaints. Out of the total, 1,315 complaints were related to family problems, 898 of women harassment, 331 of property related and 330 of domestic violence cases.

“Saranya” is a self-employment scheme to support the unemployed widows, deserted/divorced/unmarried women/unwedded mothers, differently abled women, wives of bed ridden persons by providing financial assistance. It is implemented by the Employment Department. In 2020-21, 3,512 women were benefitted by the scheme. 774 women in 2020-21 and 1,656 women in 2021-22 (upto August 31, 2021) received financial assistance through Kaivalya i.e. a rehabilitation and welfare scheme of differently abled registrants of employment exchanges, implemented by the Employment Department.

Transgender Community in Kerala

The Government of Kerala issued a right based transgender policy in 2015, after the landmark judgment of the Supreme Court of India in 2014 which firmly established the right to equality and equal protection for transgender persons (TGs). Transgender Persons (Protection of Rights) Act, 2019, has raised several concerns regarding the status of transgender people in India, especially with respect to right of self-identification. The policy also recommends the establishment of District-level TG Boards that can register TGs and issue identification cards. The visibility of transgender people in public sphere in Kerala has also been increased during the last few years. But the issues of people with other sexual identities are still not highlighted in that manner. The survey conducted by the Social Justice Department on TGs revealed that they are unable to acquire even basic capabilities essential to a life of well-being and dignity. Hence, interventions

for inclusion of TGs cannot be limited to merely economic measures.

Various schemes for the welfare of TGs are being implemented by various departments, primarily by Social Justice Department. Likewise, schemes/programmes aiming at the welfare of LGBTs have been initiated under Health and Family Welfare Department. The facilities for free sex reassignment surgeries have been established in Kottayam Medical College. A programme, viz, “Nisarga” has been started by Directorate of Homeopathy for counseling and medication for transgender. Apart from these, Kerala State Literacy Mission Authority (KSLMA) has initiated special literacy programme, which focuses on providing free and continuing education for the minority gender in the State. As part of Samanwaya programme, they have joined 4th, 7th, 10th and 12th equivalency programme of KSLMA. 311 TGs were benefitted by the programme in 2020-21. As part of the continuing education programme, KSLMA conducted a survey among 918 persons from the transgender community, which revealed that 20.35 per cent of them were unemployed and 16.70 per cent worked in the private sector. While 1.65 per cent had government jobs, 5.86 per cent were working in semi-government institutions. Over 30 per cent were engaged in some form of self-employment. A majority of the people who were employed had not disclosed their distinct sexual identity before society in any official records. The survey also found that six out of 100 transgender persons were engaged in begging and eight out of 100 in prostitution. Over four per cent of the people did not have any documents to prove their identity. The survey found that only 1.2 per cent of the transgenders surveyed were unable to read or write. The number of school dropouts among transgenders increased as they progressed to higher classes, mostly due to social stigma. While 10.61 per cent dropped out of school between classes IV and VII, around 40 per cent dropped out between classes VII and X. Among the transgenders surveyed, 26.55 per cent had passed the plus two course. While 13.60 per cent transgenders were graduates 2.10 per cent were post graduates. Around 67.14 per cent of the persons surveyed were keen to enroll in continuing education programmes of KSLMA.

As per the disability census conducted in Kerala, there are 1187 disabled transgenders, Various schemes are to be implemented by Government of Kerala on a rights based approach for the wellbeing of Transgenders. In 2018-19, the Transgender Person Cell in the Social Justice Directorate was set up for design, coordination and implementation of various activities for the transgender persons giving them a voice in their own planning. Since then, all the schemes under SJD came under this comprehensive umbrella scheme “Mazhavillu”. Community level programme, institutional intervention, research and survey, sensitisation and workshops, pension, insurance and loan, and skill development are the major components of the scheme. Transgender persons’ arts festival was organised, marriage assistance was provided and they are included as a priority category in the LIFE Housing Mission project. A Transgender persons’ helpline (24x7) and crisis management centre was established with the help of accredited NGOs working in the field. Financial assistance is given for education (school drop outs being high), vocational training, self-employment and for writing competitive exams. Financial assistance for Sex Re-assignment Surgery (SRS) in Government hospitals based on medical advice was increased to ₹2 lakh in 2019 and further to ₹5 lakh by 2020.

In 2020-21, 3,576 transgender persons have benefitted from various schemes implemented by various departments. Hostel facility, beautician course, continuing education scheme, sewing machine distribution, entrepreneurship development programmes, TG short stay/shelter homes, further treatment post SRS surgery, HIV zero surveillance centre (KSSWB), imparting driving training, TG friendly toilet, self-employment assistance, Varnam (TG fest) and sensitisation in school/colleges, among various officials, elected representatives are the other schemes for TGs implemented by SJD during 13th Five Year Plan.

KSWDC launched self-employment loan scheme for transgender persons in 2020-21 to help them become self-reliant through self-employment. This scheme is being implemented with the funding support of Directorate of Social Justice. An amount of ₹30 lakh was sanctioned in the

initial phase disbursement of loans in the scheme and 22 transgender persons benefitted from the scheme.

Gender Budgeting

A gender-responsive budget at the local level was introduced in Kerala at the time of 9th Plan itself with the mandatory inclusion of Women Component Plan (WCP) in Local Governments’ annual plan. With the devolution of 35-40 per cent of funds from the State to the Local Self-Government Institutions (LSGIs), the first form of Gender budgeting was seen in the State in 1996 where each Panchayat was directed to prepare a chapter on the status of women in their development plan document. During 9th Plan, 10 per cent of the Plan Outlay of the local bodies had to be set apart for needs of women or women specific projects, which came to be known as the Women Component Plan (WCP).

To institutionalise the process of Gender Budgeting, the Gender Budget Statement had been introduced in the Union Budget 2005-06. In Kerala, conscious efforts have been taken to make the State Budget gender responsive. While the process started with the 11th Plan, the first Gender Budget for the State Plan was released in 2017-18 aggregating resources earmarked for girls/women across departments as a separate document included in the Budget papers.

In 2020-21, an amount of ₹1,509.33 crore (7.3 per cent) has been provided for women specific schemes (Part A) and an amount of ₹2,300.54 (11.1 per cent) for composite schemes in Part B has been made available for women. A total amount of 3,809.87 crore has been earmarked for women which is 18.4 per cent of total Outlay. Out of this amount, ₹5 crore is allocated for Mazhavillu, scheme for transgenders. In 2021-22, an amount of ₹1,346.91 crore (6.54 per cent) has been provided for women specific schemes ie Part A and an amount of ₹2,678.49 (13 per cent) for composite schemes in Part B has been made available for women. A total amount of ₹4,025.40 crore has been earmarked for women which is 19.54 per cent of total outlay. Over the four years, 2017-18 to 2020-21, allocation and proportion of budgetary resources for women specific schemes has increased.

8.2 ADDRESSING SOCIO-ECONOMIC VULNERABILITIES

Scheduled Castes and Scheduled Tribes

The Thirteenth Five Year Plan in Kerala declared that the “planning process will work to protect the rights of the people of the Scheduled Castes and Scheduled Tribes, and to expand the socio-economic achievements of all people of the Scheduled Castes and Scheduled Tribes in the State.”

In Kerala, Scheduled Castes and Scheduled Tribes constitute 9.1 per cent and 1.45 per cent of the population respectively (Table 8.2.1). Over the period of the Thirteenth Plan, the policy of the Government of Kerala has been to ensure that allocations to the Scheduled Caste Sub Plan (SCSP) and the Tribal Sub-Plan (TSP) exceed the share of the population of Scheduled Castes and Scheduled Tribes in the total population of the State.

Table 8.2.1 General profile of SC and ST population in Kerala

Sl. No.	Indicators	SC	ST
1	Total Population *	30.39 lakh	4.84 lakh
2	Percentage*	9.1	1.45
3	No. of settlements**	26,342	4,762
4	No. of communities*	53	37
5	Literacy rate**	88.70%	74.44%
6	Unemployment rate**	49%	30.27%
7	Deprivation rate***	57.66%	61.68%

Source: *Census 2011, **SC and ST Survey 2013, ***SECC 2011

District-wise details of Scheduled Castes and Scheduled Tribes population are given in Appendix 8.2.1 and 8.2.2 respectively. A comparative picture regarding literacy and sex ratio of SC and ST population in Kerala and the national level is furnished in Appendix 8.2.3. As per Rule 14(a) of the Kerala State and Subordinate Service Rules 1958, 10 per cent representation (8 per cent for SCs, 2 per cent for

STs) is reserved to SCs/STs in Gazetted, Non-Gazetted and Last Grade posts in Government departments. According to the annual review data from 49 out of 89 departments on January 1, 2021, the representation of SCs and STs was reported to be 11.88 per cent of the total. Of this, 9.60 per cent were SCs and 2.28 per cent were STs. Details of the representation of SC/ST employees in Government Departments are in Appendix 8.2.4.

Development Programmes for Scheduled Castes and Scheduled Tribes

The Government of Kerala is committed to its effort to enhance human development and incomes among the people of the Scheduled Castes and Scheduled Tribes. As already stated, the Government of Kerala earmarks a portion of State Plan outlay annually for the development of SCs and STs as Scheduled Caste Sub Plan (SCSP) fund and Tribal Sub Plan (TSP) fund. At present, 9.81 per cent of total State Plan outlay is earmarked for the welfare of SCs and 2.83 per cent for the STs. Out of this, an average of 45 per cent of funds are allocated for SCSP and 23 per cent of funds are allocated for TSP to Local Governments for implementation of schemes under decentralised planning and the remaining to the SC/ST Development Departments.

The total plan amount set apart for the development of SCs and STs in 2020-21 was ₹2,708.54 crore and ₹781.36 crore respectively out of the total State Plan outlay of ₹27,610 crore. Year-wise details of allocation from 2017-18 to 2021-22 for the development of SCs and STs are given in Table 8.2.2.

Development of Scheduled Castes

Government of Kerala allocates Plan fund to the SC Development Department and the Local Governments for implementing various development programmes. Besides this, Central Government allocates fund for the implementation of Centrally Sponsored Schemes. An amount of ₹2,708.54 crore was earmarked in

Table 8.2.2 Year-wise Outlay for SCSP and TSP from 2017-18 to 2021-22, in ₹ crore

Year	Total State Plan Outlay	SCSP Outlay				TSP Outlay			
		Department	LSGIs	Total	Per cent of Total State Plan	Department	LSGIs	Total	Per cent of Total State Plan
2017-18	26500	1427.60	1172.05	2599.65	9.81	575.08	176.00	751.08	2.83
2018-19	29150	1570.36	1289.26	2859.62	9.81	632.59	193.60	826.19	2.83
2019-20	30610	1649.00	1353.84	3002.84	9.81	663.27	202.99	866.26	2.83
2020-21	27610	1487.39	1221.15	2708.54	9.81	598.26	183.10	781.36	2.83
2021-22	27610	1487.39	1221.15	2708.54	9.81	598.26	183.10	781.36	2.83
Total	141480	7621.74	6257.45	13879.19	9.81	3067.46	938.79	4006.25	2.83

Source: Budget Documents

the 2020-21 Budget for the welfare of Scheduled Castes. Out of this, an amount of ₹1,487.39 crore was allocated to the SC Development Department and ₹1,221.15 crore for Local Governments. SC Development Department expended ₹1,313.37 crore (88.30 per cent) and Local Governments expended ₹1,125.87 crore (92.20 per cent) out of the allocated budgeted outlay. Allocation of SCSP funds from State Plan Outlay from 2017-18 to 2021- 22, is given in **Appendix 8.2.5**. Scheme-wise outlay and expenditure and the physical targets and achievements for the years 2020-21 and 2021-22 (as on September 30, 2021) of the schemes implemented by SC Development Department are given in **Appendix 8.2.6** and **8.2.7** respectively. Major programmes undertaken for the welfare of Scheduled Castes are summarised below.

MAJOR DEVELOPMENT PROGRAMMES FOR THE WELFARE OF SCHEDULED CASTES

Land and Housing

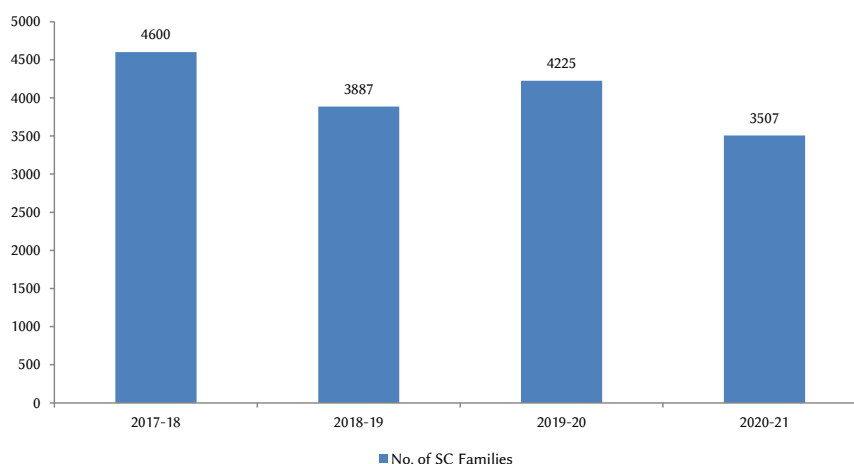
Government of Kerala provides financial assistance for purchasing land to the landless Scheduled Caste households under the scheme “land to landless families for construction of houses”. As per the estimates of SC Development

Department, 1,00,475 number of SCs are landless. Of which, 3,507 households were assisted under this scheme in 2020-21. Out of the budgeted outlay of ₹185.00 crore, ₹140.79 crore (76.10 per cent) was expended in 2020-21. Number of households benefited under this scheme from 2017-18 to 2020-21 is given in **Figure 8.2.1**.

District wise details of land provided to SCs under the land to landless scheme from 2019-20 to 2021-22 (as on September 30, 2021) is given in **Appendix 8.2.8**.

Under the housing scheme, LIFE Mission has taken over the construction of new houses and spillover work implemented by SC Development Department from 2007-08 to 2016-17. In the first phase of LIFE Mission, construction works of 3,844 houses were completed out of the 3,893 incomplete houses which were sanctioned under the housing scheme of SC Development Department from 2007-08 to 2015-16. In the second phase, out of the 13,017 eligible SC beneficiaries, construction of houses for 12,007 beneficiaries was started and 7,721 houses have been completed in 2020-21. Mission has identified 54,949 SC beneficiaries without land and house for the third phase of the programme.

Figure 8.2.1 Number of SC families availed land from 2017-18 to 2020-21



Source: SC Development Department, 2021

1,905 houses have been completed out of 9,539 sanctioned in 3rd phase as on September 30, 2021.

Education

SC Development Department runs 85 nursery schools, 11 Model Residential Schools, 44 Industrial Training Institutes, 85 pre-matric hostels, 19 post-matric hostels, 7 subsidised hostels, 4 Pre-Examination Training Centres, 1 Institute for Civil Services Exam Training Society, a Community College in Vadakkancherry and a Medical College in Palakkad for imparting education for the SC students. Government provides various types of educational assistances such as primary education aid, lump sum grant, stipend, pre-matric and post-matric scholarships and overseas scholarships for improving the educational status of SC students. Two new Model Residential Schools were started in Kozhikode and Kannur districts in 2020-21. In 2019-20, the rate of assistances including lump sum grant, stipend, and scholarships given to SCs, STs and OEC students for pre-matric, post-matric and professional courses were enhanced. 6,935 study rooms were constructed for the students from families having annual income of less than ₹1.00 lakh in high school and higher secondary classes in 2020-21. 2,307 study rooms were constructed in 2021-22 (as on September 30, 2021). Major educational

assistances given to SC students in 2020-21 are given in **Box 8.2.1**.

Box 8.2.1 Major educational assistances given to SC students in 2020-21, number of students benefited

Pre-matric scholarships - 4,07,843
Post-matric scholarships - 1,81,472
Assistance for studying abroad - 17
Assistance for studying in other States - 2,819
Assistance for purchasing laptop - 1,371
Assistance for purchasing stethoscope - 296
Ayyankali Talent Search scholarship - 5115

Source: SC Development Department, 2021

Details of lump sum grant, stipend and pocket money provided to Scheduled Castes students in 2020-21 and 2021-22 (as on September 30, 2021) are given in **Appendix 8.2.9** and the number of students who availed various kinds of scholarships and assistance from 2017-18 to 2021-22 (as on September 30, 2021) are given in **Appendix 8.2.10**.

Health

Under the health care scheme, 10,408 persons availed treatment assistance for various diseases throughout the State. Besides this, 29 homeo dispensaries are functioning in SC colonies. In 2020-21, ₹52.22 crore and in 2021-22 (as on September 30, 2021), ₹20.45 crore was spent

under health care scheme. Details of outlay and expenditure under health care scheme and number of patients who availed treatment assistance for the last five years are given in **Appendix 8.2.11**.

Skill Training and Employment

For providing livelihood security to the weaker sections, various types of skill development training programmes including job oriented training programmes, were implemented for people of the Scheduled Castes. In 2020-21, ₹50.00 crore was allotted for the scheme and ₹38.79 crore was expended. Skill training was provided to 1,786 SC youths through various skill development programmes.

Self-employment assistance is given to individuals/self-help groups with one-third of the loan as subsidy for undertaking self-employment ventures. In 2020-21, 244 beneficiaries received self-employment subsidy. Number of persons benefited under the self-employment scheme in 2020-21 and 2021-22 (as on September 30, 2021) is given in **Appendix 8.2.12**. Financial assistance up to ₹1.00 lakh is given for unemployed SC youths with annual family income limit of below ₹2.50 lakh for seeking job abroad. In 2020-21, 651 persons availed assistance for seeking job abroad and in 2021-22 (as on September 30, 2021) 165 persons availed this assistance.

Infrastructure Development in SC Colonies

For providing better infrastructure facilities in the habitats, the “Ambedkar Village Development Scheme” was launched in all SC colonies with more than 30 SC families residing in it. Under this scheme, ₹1 crore is provided to each colony for undertaking various developmental activities including provision of drinking water, toilet and sanitation, waste management, road connectivity, electrification, land protection wall, irrigation, playground, community hall, renovation of houses, financial support for income generating activities, assistance for protection and renovation of burial grounds inside/adjacent to the colony. Works undertaken in 18 colonies in 2020-21 and in 16 colonies in 2021-22 (as on September 30, 2021) have been completed.

SOCIAL DEVELOPMENT PROGRAMMES

Assistance for Marriage

Under this scheme, ₹75,000 is given as financial support for the marriage of girls belonging to scheduled caste communities. In 2020-21, 9,249 SC households were assisted under the scheme and ₹69.89 crore was expended out of the budgeted outlay of ₹70.00 crore. In 2021-22, ₹30.07 crore was disbursed out of the budgeted outlay of ₹83.39 crore. 3,692 SC families were assisted under the scheme in 2021-22 (as on September 30, 2021). The rate of marriage assistance was enhanced from ₹50,000 to ₹75,000 in 2016-2017. It was further enhanced to ₹1,25,000 in the budget speech of 2021-22. Outlay and expenditure under marriage assistance scheme and number of persons benefited from the scheme for the last four years is given in **Figure 8.2.2**.

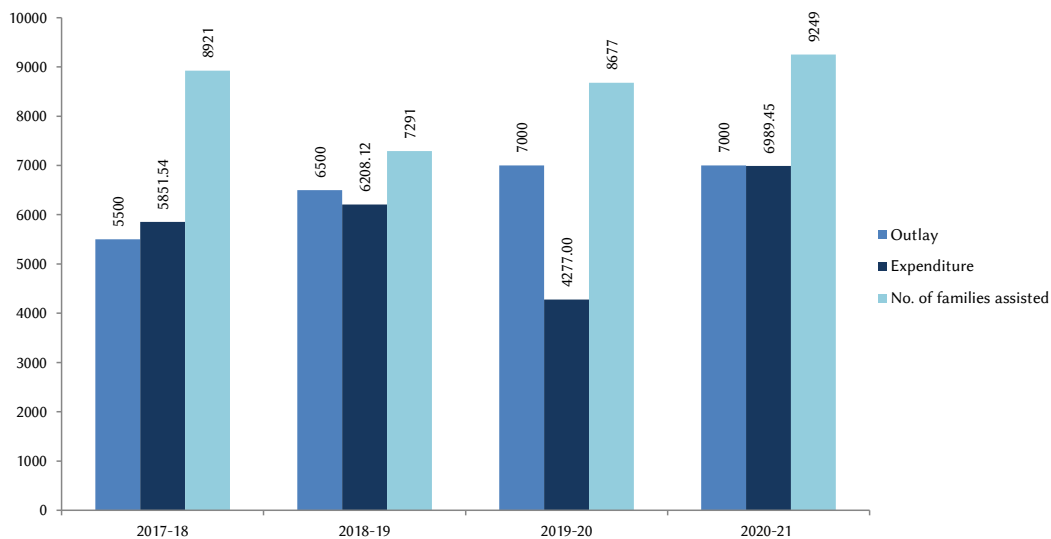
Special Package for Vulnerable Communities

A special package was introduced in 2019-20 for providing assistance for purchase of agricultural land for vulnerable communities such as Vedar, Nayadi, Kalladi and Arundhathiyar/Chakkliar. Under this package, assistance was provided up to a maximum of ₹10.00 lakh for purchasing minimum 25 cents of land. In 2020-21, ₹50 crore was earmarked for the development activities for the vulnerable communities and ₹38.83 crore was expended. 47 beneficiaries received assistance for purchase of agricultural land in 2020-21. Besides this, assistance was given to 204 families for repairing houses and 125 study rooms were constructed for the students from vulnerable communities in 2020-21.

Legal services

Special Courts, SC Protection Cell and Special Police Stations have been formed in the State for the trial of offences and provision of relief and rehabilitation of the victims of atrocities. In 2020-21, ₹12.50 crore was earmarked for this scheme and ₹10.97 crore was expended. Inter caste marriage assistance was provided at the rate of ₹75,000 under this scheme. 1,409 couples received the assistance in 2020-21. Year-wise number of beneficiaries who received inter caste

Figure 8.2.2 Outlay, expenditure and number of families benefitted under Marriage Assistance Scheme, in ₹ lakh and in number.



Source: SC Development Department, 2021

marriage assistance for the last five years are given in **Appendix 8.2.13**.

Valsalyanidhi

For the holistic development of the girl children belonging to Scheduled Castes, an insurance linked social security scheme namely, 'Valsalyanidhi' was launched in 2017-18. Under this scheme, SC Development Department deposits ₹1,38,000 in the name of the girl child in LIC in four installments. ₹30,000 as 1st installment, when the child attains six months, ₹33,000 as second installment when she gets admission in primary school and attains five years, ₹36,000 as third installment on 5th standard or at the age of 10 and ₹39,000 as 4th installment on completion of 10th standard. ₹3,00,000 is assured when she attains 18 years. Besides this, insurance benefits are also available to the income earning member of the family. Educational assistance of ₹1,000 is also given to the brother or sister of the girl child studying from 9th standard to 12th standard yearly. ₹12.00 crore was earmarked for the scheme and ₹26.99 crore was expended in 2020-21. 6,928 girls were insured under 'Valsalyanidhi' in 2020-21.

Corpus Fund for SCSP (Critical Gap Filling)

SC Development Department earmarks a portion of outlay as Corpus fund in the Budget annually for filling critical gaps identified in the Scheduled Caste Sub Plan schemes. Corpus fund is intended to provide funds for filling any critical gap in the SCSP provision made under various schemes on project basis with emphasis on socio-economic and human development and basic needs. Administrative sanction for such schemes up to ₹25.00 lakh can be accorded at the districts by District Level Committee for SC/ST. In 2020-21, 101 projects were completed by using Corpus Fund for an amount of ₹34.70 crore. Road works, drinking water schemes, cultural centres and side protections for SC houses are the major works undertaken using the funds. Outlay and expenditure under the scheme from 2017-18 to 2021-22 (as on September 30, 2021) is given in **Appendix 8.2.14**.

Special Central Assistance to Scheduled Castes Sub Plan (SCA to SCSP)

Government of India has provided SCA to SCSP to the States mainly to undertake economic development programmes for SCs. It helps the State governments to fill the gaps which are not met from the Central, State and Local Government Plans. Out of the total

funds received under SCA to SCSP, 75 per cent of the fund is distributed to the District Collectors on the basis of SC population in the districts and the balance 25 per cent is handled by the Director, SC Development Department for implementing various developmental programmes. Activities that can be taken up under SCA to SCSP are assistance to SC families for taking up viable income generating activities, through a mix of institutional finance and subsidy. The outlay and expenditure details of SCA to SCSP from 2017-18 to 2021-22 (as on September 30, 2021) are given in **Appendix 8.2.15**.

Development of Scheduled Tribes

The major sources of funds for Scheduled Tribes Development Department are State Plan, fund from Tribal Sub Plan component of Centrally Sponsored scheme and Special Central Assistance to Tribal Sub Plan (SCA to TSP). An amount of ₹781.36 crore was earmarked for the welfare of Scheduled Tribes in 2020-21. Out of this, an amount of ₹598.26 crore was allocated for the ST Development Department and ₹183.1 crore for LSGIs. Scheduled Tribes Development Department had spent ₹540.99 crore out of the budgeted outlay. Allocation of TSP funds from State Plan Outlay from 2017-18 to 2021-22 is given in **Appendix 8.2.16**. Details of financial and physical achievements of schemes implemented by the Department in 2020-21 and 2021-22 (as on October 05, 2021) are given in **Appendix 8.2.17** and in **Appendix 8.2.18**.

Major developmental programmes undertaken for the welfare of STs are summarised below.

Land

The Tribal Resettlement and Development Mission (TRDM) was set up in 2001, to provide land to landless tribals. Major programmes of TRDM are provision of land to landless and overall development of the Resettlement Areas. As per the estimates of ST Department, in 2020-21 there are 7,930 landless STs in the State. The land distribution under TRDM is through land bank scheme, distribution of vested forest land and Forest Rights Act. Major achievements under

the scheme in 2020-21 are listed below.

- Under the Land Bank scheme, 10.16 acres of land were distributed to 73 beneficiaries, of which, 15 beneficiaries in Palakkad District availed 3.40 acres of land and 23 beneficiaries in Wayanad District availed 6.76 acres of land.
- 237.76 acres of land under Vested Forest was distributed to 436 tribals in Palakkad District.
- Under Forest Right Act, 320.31 acres of land was distributed to 182 tribals.

In 2020-21, altogether, 568.47 acres of land were distributed among 691 tribals under various schemes. (as on October 5, 2021). District-wise details of land distribution from 2016-17 to 2020-21 is given in **Appendix 8.2.19** and **Appendix 8.2.20**.

Housing

The policy of the Government of Kerala is to provide housing to all households belonging to Scheduled Tribes so that there will be no homeless Scheduled Tribe family in the State. As per the Survey conducted by the ST Development Department in 2020-21, it is estimated that about 16,070 tribal families possessing land are homeless and 7,930 families are landless. From 2017-18 onwards housing programme is implemented through LIFE Mission. Apart from the financial assistance from State Plan, assistance for housing is also provided by Kerala Urban and Rural Development Finance Corporation Ltd. (KURDFC). The funds earmarked by the Local Governments from their Tribal Sub-Plan fund and Prime Ministers Awaas Yojana are also utilised for providing housing for STs. Out of the 6,709 houses sanctioned by the ST Department under various housing schemes in 2016-17, 1583 houses were completed as on 2021-22. In the Phase-I of LIFE Mission, it was targeted to complete 12,054 unfinished houses, of which, 11,377 have been completed. Under Phase-II of LIFE Mission, 3,380 houses have been sanctioned, of which 2,748 houses have been completed. In Phase-III, out of the 487 houses sanctioned, 265 have been completed. Outlay and expenditure of housing scheme from 2016-17 to 2020-21 is given in **Appendix 8.2.25**.

Educational Programmes

There has been a phenomenal improvement in the educational status of Scheduled Tribe communities in Kerala due to concerted efforts of the Government of Kerala over the last few decades. The residential schooling programmes for tribal students coupled with wide coverage under scholarship programme have led to progress of tribal education, especially among girls. The Government of Kerala has taken up creation of model residential schools and hostels in a major way in the last two decades with a strong focus on constructing hostels for girls. All boarders are provided free boarding and lodging facilities, uniforms, toiletries, and necessary amenities by the Government of Kerala. A sizable budget is earmarked each year for the functioning and regular maintenance of these schools and hostels. The residential facilities clubbed with schooling greatly address access related difficulties faced by tribal children from remote regions and also reduce burden of the disadvantaged tribal families by taking care of all expenses towards their children's education. Scholarship is another major scheme of Government of Kerala for incentivizing the educational attainment among the Scheduled Tribe students which is implemented both through plan and non-plan.

Many educational institutions are run by the ST Department. There are 13 Nursery Schools, 10 Kindergarten, 3 Balavadies, 1 Vikasvadi, 3 Balavijnan Kendrams, 7 Peripatetic education centres for Particularly Vulnerable Tribal Groups, 20 Model Residential Schools, 22 single teacher schools, 106 Prematric hostels, 9 post-matric hostels, 12 training centres, 2 Vocational Training Centres, 1 Industrial Training Institute under the ST Development

Department. Apart from post matric and pre-matric scholarships, Ayyankali Talent Search scholarship, peripatetic education and sports promotion helps in over all development of tribal students. Major physical achievements in education sector in 2020-21 are given in **Box 8.2.2**.

Number of students who availed scholarships and assistance from 2016-17 to 2021-22 (as on October 05, 2021) is shown in **Appendix 8.2.21**. Details of lumpsum grant, stipend and pocket money provided to ST students in 2020-21 and 2021-22 (as on October 05, 2021) are given in **Appendix 8.2.22**. In 2020-21, out of the budgeted outlay of ₹162.70 crore for education, ₹125.69 crore was spent. Year-wise details of outlay and expenditure under education is given in **Appendix 8.2.23**.

Health programmes

Various programmes were undertaken for providing health care to the tribal people. Comprehensive Tribal Health Programme, Janani Janmaraksha, Assistance to Sickle Cell Anaemia patients, Financial assistance to tribal healers, and Running of Mobile Medical Clinics are major health care schemes undertaken for STs. Major physical achievements in health sector in 2020-21 are given in **Box 8.2.3**.

Adiya, Paniya and PVTG (Koraga, Kattunaickan, Kurumba, Kadar and Cholanaickan) communities are known to live in congested colonies and generally poor in sanitation. In the districts where they live, the concerned officers have been asked to conduct special awareness programmes, health checks and provide sanitation facilities.

Box 8.2.2 Major achievements in education sector in 2020-21

- 800 talented tribal students were assisted under the 'Ayyankali Memorial Talent Search and Development Scheme'.
- 625 orphans availed special assistance.
- 66,853 Students availed pre-matric scholarship.
- 18,710 students availed post- matric scholarship.
- Special incentives availed by 2,480 brilliant students.
- Laptops were distributed to 249 students
- 1,600 ST youths participated in 6 skill training programmes. Of the completed training programmes, 317 youth were successfully placed in India and abroad

Box 8.2.3 Major physical achievements in Health sector in 2020-21

- 770 sickle cell anaemia patients received monthly financial assistance of ₹2500 per person
- 8126 pregnant women and lactating mothers received monthly financial assistance of ₹2,000 per person under the scheme Janani Janmaraksha.
- Under the scheme 'Traditional Tribal Healers' annual grant of ₹10,000 per person was given to 102 tribal healers.
- 45,046 tribals availed treatment benefits under the Comprehensive health care scheme.
- 3,577 medical camps were organised by mobile medical clinics for ensuring health services to the tribals at their doorsteps.

In 2020-21, out of the budgeted amount of ₹43.73 crore, ₹42.46 crore was expended for programmes under health sector. In 2021-22, ₹16.26 crore was spent as on October 5, 2021. Details of outlay, expenditure and physical achievements under health sector for the last five years is shown in **Appendix 8.2.24**.

Skill Development, Employment and Livelihood Programme

Various skill training programmes and career guidance campaigns were organised for ensuring employment among educated youths of STs. In 2020-21, 1,600 ST youths participated in 6 skill training programmes. Of the completed training programmes, 317 youth were successfully placed in private enterprises. Details of skill trainings conducted and placement effected for the last four years are given in **Appendix 8.2.26**.

Gothrajeevika – A Milestone in Skill Development

Gothrajeevika is a remarkable initiative of the ST Development Department, for providing skills to Scheduled Tribes. It was a process of transformation of unskilled/semiskilled tribal workers into skilled labour. The objective of the programme was to develop a labour force from tribal groups to carry out the construction activities including houses in tribal areas. 1,170 tribal youth were trained under two types of training, that is product-based and service-based in various areas such as masonry, plumbing, electrical wiring, carpentry, electrical house wiring, building materials, painting, and tile works. One of the outstanding projects undertaken by the Self Help Groups of Gothrajeevika programme is 'Panthapra Housing Project', at Kuttampuzha in Ernakulam District. House construction of 57 tribal

families rehabilitated under TRDM was carried out by ST self-help groups of Gothrajeevika. This housing project is one of the largest tribal projects implemented solely by the participation of tribal groups in India. It highlights the aspect of empowerment and upliftment of a community that has often been downtrodden and marginalised by the mainstream society.

Attappady Tribal Apparel Park (ATAP)

Attappady Tribal Apparel Park aims at social and economic empowerment of tribal women of Attappady. Lack of enterprises and lack of skill among tribal women are the serious issues to be addressed among the tribal women. For solving this, the Department took initiatives to provide skill trainings to tribal women throughout the State. 250 ST women of Attappady were identified from various tribal communities of Attappady and provided training in highly mechanised decorative apparel making. A production unit has been established in the Mini Civil Station Complex at Attappady Block in Palakkad District. The Scheduled Tribe Department supported the enterprise by providing required furniture, machinery and equipment. The District Administration also provided necessary help in terms of space and initial handholding. The programme helped in skill development, livelihood and empowerment of ST women in Attappady by engaging 200 women. It is one of the model projects in terms of the economic, social and leadership changes that happened to the women beneficiaries and families.

Kerala Tribal Plus under MGNREGS

The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) provides 100 person days of work for the people

engaged in this scheme. In order to enrol more number of families and ensuring maximum coverage of tribal families under MGNREGS and thereby ensuring adequate livelihood to tribals, the Government of Kerala enhanced 100 person days to 200 person days for all ST families of Kerala under the scheme Kerala Tribal Plus of MGNREGS. The Department also intends to expand the scope of MGNREGS by extending the Revolving fund scheme to other areas. The delay in wage payment due to delayed fund release from Government of India was found as one of the major reasons for tribal families dropping out of MGNREGS. Revolving fund scheme was started in 2019-20 in order to offset this hurdle especially in Attappady, Wayanad, and Aralam (Kannur). Already a corpus of about ₹11.13 crore has been parked by the ST Department with the Kudumbashree Mission for implementing the revolving fund scheme. Further, Project Officers and Tribal Development Officers have been instructed to mobilise maximum employment to tribal families under MNREGS.

The number of job card holders of ST households also increased from 91,717 in 2017-18 to 1,27,983 in 2021-

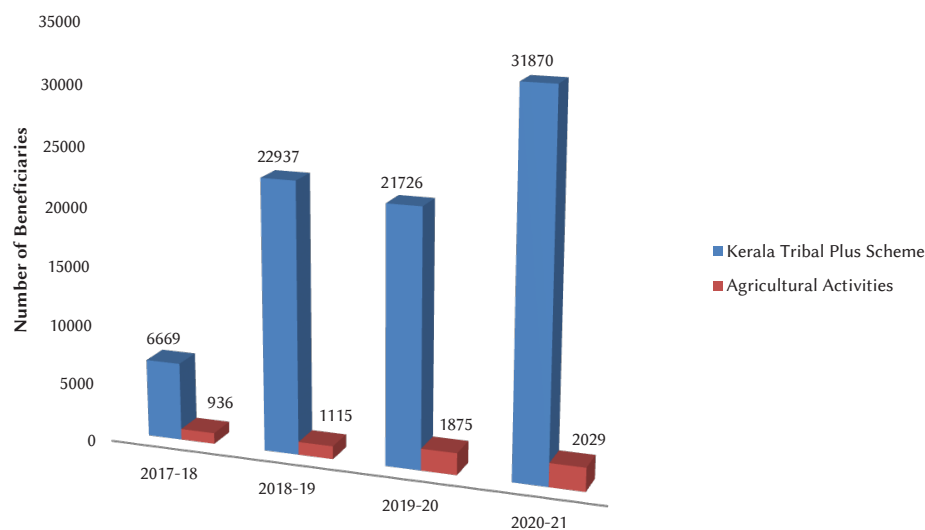
22. The ST families who completed 100 days of employment (including 200 days) in 2020-21 are 31,870. Details of beneficiaries in livelihood programmes for Scheduled Tribes are given in **Figure 8.2.3** and **Table 8.2.3**.

Table 8.2.3 Details of fund allocation and man days generated under Tribal Plus programme

Year	Amount Released (₹ in crore)	Man days Generated	ST HH completed 100 days (including 200 days)
2017-18	12.40	30,39,257	6,609
2018-19	00.00	54,07,613	22,937
2019-20	2.00	55,27,731	21,726
2020-21	18.93	66,90,321	31,870
2021-22 (as on October 5, 2021)	27.08	22,11,630	829
Total	60.41		

Source: ST Department

Figure 8.2.3 Number of Tribal families assisted under MGNREGS Kerala Tribal Plus Programme



Source: ST Development Department, 2021

Food Security and Nutritional Development Programmes

For addressing the issue of malnutrition and poverty among the STs, food grains are distributed every month during the monsoons, from June to September in the tribal areas of all the districts under the Food Security scheme. This is in addition to the food kit supplied by the Government of Kerala during the pandemic. In 2020-21, apart from the on-going food support programme, food kits including 12 items was given to all deserving tribal families. 80,000 food kits were distributed among tribals under the programme. Community kitchen programme is also implemented for the nourishment of the vulnerable population including pregnant and lactating mothers, children, adolescents, senior citizens and chronically ill tribes of Attappady and Wayanad. Several agricultural projects were taken up in various districts using the Corpus Fund and Pooled Fund of ST Department. In addition, the millet village programme and nutrition sufficiency programme were implemented in Attappady for addressing the nutrition issues. To ensure special nutrition food to all tribes beyond 60 yrs of age (62,473 Nos.), food kit containing cereals, pulses, oil etc has been given in order to improve their nutritional status and resistance to virus infection.

The ST Department has initiated an innovative pilot project in 2020-21, *Haritha Resmi* to address nutrition sufficiency in Idukki and Wayanad tribal areas. It has benefitted 2,500 ST families in Idukki and Wayanad.

Millet Village Scheme

‘Millet Village Scheme’, is intended for rejuvenating agriculture in Attappady. The total project cost is ₹7.41 crore. The scheme is in progress in 70 settlements covering 1,900 acre. Vegetables, and variety millets, pulses and oilseeds are cultivated under this scheme. As part of marketing, a quality branded organic product is given for sales in the name of ‘Attapady Organic’. 1,256 farmers benefited by harvesting in 400 hectares. Ultimate objective of this project is to attain food and nutrition security for the tribes living in Attappady besides employment generation and creation of livelihood.

Social Development Programmes

Important social security programmes implemented for welfare of STs include, assistance for the marriage of ST girls, specific package programmes for the development of Adiyas, Paniyas and the Primitive Tribal Groups, Gothravatsalyanidhi and Ambedkar

Box 8.2.4 ‘Namuth Vellame’ – Nutrition-Sufficiency in Food through Agroecology

The project means nutrition-sufficiency in food through agro ecology (in local language named Namuth Vellame) for the revival of tribal agriculture of Attappady. Through this project, Panjakrishi, was revived, is one of the traditional farming methods practised by the various tribal communities of Attappady. The farming practice follows intercropping method, in which multiple varieties of millets, maize, sesame, redgram, rice and vegetables are cultivated. It enhanced food security and nutrition of the community and is extremely resilient and sustainable. The project responds to the needs of family farmers through financial assistance, Participatory Guarantee System (PGS-India), MGNREGS support and value addition programmes. It is managed and driven exclusively by the tribal communities, especially by young tribal field co-ordinator Oorukoottams. Tribal field coordinators are the building blocks of the project. In the first phase of the project, it was implemented in 19 hamlets in Attappady and around 897 acre of land owned by 617 farmers was brought back to cultivation. Nearly 71 per cent (638 acre) of fallow land was made fit for agriculture. By the end of the cropping year, the farmers managed to harvest 17,234 kg of millets, grains, vegetables and other food crops that have rich nutritional value. The project was widely accepted by the tribes as it reintroduced many rare millets and crop varieties that played a prominent role in the indigenous diet, culture and rituals. In the second phase of the project, it is being extended to 16 more hamlets of Attappady. Altogether, the project will benefit 1,211 farmers covering 1,671 acre of land.

Box 8.2.5 Haritha Resmi

Harithareshmi is a scheme designed to attract the Scheduled Tribes to the agricultural sector and thereby ensure improvement in their income and living standards. The objective of this scheme is to promote scientific and modern agriculture in the unutilised land owned by the Scheduled Tribes. The project is implemented with the participation of tribal beneficiaries. Agricultural activities are being carried out on the land owned by 3,000 selected families in Wayanad district and 1,000 selected families in Idukki district. For the successful implementation of the Harithareshmi project, involvement of officials of all the departments concerned, the people's representatives, experts, tribal farmers, university experts, community leaders, agrarian organisations and traditional agrarians, is ensured. As part of the Harithareshmi project, kits containing seedlings of okra (ladies' finger), green chilli (2 varieties), tomato, eggplant and seeds of pumpkin, spinach, lentils, plantain, cucumber and bitter gourd were distributed to farmers in different parts of the district. In addition, seedlings of perennial fruit trees such as guava, apricot, gooseberry, brindle berry, lemon, curry leaves, soybean, pomegranate, ramacham and jackfruit have been distributed to the beneficiaries. So far 87 farmers' groups have been formed in Wayanad district and 33 farmers' groups in Idukki district. Reviews and discussions are held at regular intervals with the project beneficiaries and representatives of the farmer groups.

As envisaged in the scheme, steps are being taken to distribute seeds and seedlings to be cultivated as per the agricultural calendar, taking into account the soil structure, climate and taste of the beneficiaries. Quality seeds and seedlings of cardamom, ginger, turmeric, pepper, cantaloupe, banana, papaya and other winter vegetables, tubers and herbs planned for cultivation is distributed to the farmers in a timely manner. Practical trainings on farming methods, scientific harvesting methods, seed management and nursery management have been started in Wayanad district for the farmer groups formed under the scheme with the involvement of agricultural experts.

Settlement Development scheme. Major physical achievements under these schemes are given below.

- 285 ST girls received marriage assistance at the rate of ₹1.00 lakh.
- Of the 94 colonies selected under the Ambedkar Settlement Development Scheme, the construction works in 22 colonies have been completed.
- Under Special package for Adiya, Paniya, 35,000 beneficiaries were benefitted
- Under Gothravatsalyanidhi, Tribal Girl Child Endowment Scheme, 512 ST girl children were provided insurance coverage as part of social security.

Legal Protective Measures: Protection of Civil Rights and Enforcement of Prevention of Atrocities Act.

In order to provide constitutional and legal protection to safeguard the interest and protect the marginalised sections of society from exploitation, the Protection of Civil Rights Act and Scheduled Caste and Scheduled Tribe (Prevention of Atrocities) Act, 1989 Act, was

enacted. The provisions of the Act prevent offences against the SCs and STs. In 2020-21, inter-caste marriage assistance was given to 50 couples. In 2021-22, inter-caste marriage assistance was given to 13 beneficiaries (as on October 5, 2021). Details of number of beneficiaries who received marriage assistance and inter cast marriage assistance from 2016-17 to 2021-22 is given in **Appendix 8.2.28**.

Corpus Fund for TSP (Critical Gap Filling)

ST Development Department earmarks a portion of outlay as Corpus fund in the Budget annually for filling critical gaps identified in the Tribal Sub Plan schemes. In 2020-21, ₹40.00 crore was earmarked for the scheme and ₹44.53 crore was expended. Outlay and expenditure under the scheme from 2016-17 to 2021-22 (as on October 5, 2021) is given in **Appendix 8.2.27**.

Special Central Assistance to Tribal sub Plan (SCA to TSP)

The Special Central Assistance to Tribal sub Plan is released by Government of India in addition

to State Plan funds and is meant for undertaking programmes of education, health, and employment cum income generation activities beneficial to Scheduled Tribes families. The outlay and expenditure under SCA to TSP from 2016-17 to 2021-22 (as on October 5, 2021) is given in **Appendix 8.2.29**.

Kerala Institute for Research Training and Development Studies for Scheduled Castes and Scheduled Tribes (KIRTADS)

Kerala Institute for Research, Training and Development Studies of Scheduled Castes and Scheduled Tribes (KIRTADS) was started as a 'Tribal Research and Training Centre' (TR and TC) in 1970. The Institute conducts research and study on Scheduled Castes and Scheduled Tribes population of the State. Anthropological research helps to promote development among the Scheduled Communities in Kerala. It attempts to identify the needs and problems confronting the marginalised section of the population and suggests recommendations to the Government in finding a panacea for their holistic development. The Institute has three major wings namely Research, Training and Development Studies. The Research Wing conducts ethnographic as well as socio-cultural studies of various communities, especially on the Scheduled Communities of the State, by incorporating theoretical perspectives from the domain of Anthropology and Sociology as part of its research and classification of community studies. The Development Studies Wing conducts various evaluation studies of the programmes implemented for the development of the Scheduled Communities of the State.

The Training Wing co-ordinates and conducts a large number of programmes with special emphasis to empower the SC/ST communities of the State. This wing also conducts orientation programmes, capacity building programmes, empowerment programmes and educational programmes. The Institute also undertakes Adikalagramam programme which includes traditional dance music of the Scheduled Caste and Scheduled Tribe Communities of the State. The scheme-wise outlay and expenditure of KIRTADS is given in **Appendix 8.2.30**. Number of anthropological investigation cases on Scheduled Castes and Scheduled Tribes in

Kerala from 2016-17 to 2020-21 conducted by KIRTADS (as on October 5, 2021) is given in **Appendix 8.2.31**.

Kerala State Development Corporation for SCs and STs

The Kerala State Development Corporation for SCs and STs Limited implements various income generating and other welfare programmes designed to suit the needs and aspirations of entrepreneurs from SC/ST communities. Schemes being implemented by the Corporation can be broadly grouped as (i) Sole Lending Scheme (ii) Schemes implemented in association with the National Scheduled Caste Finance and Development Corporation (NSFDC) and (iii) Schemes implemented by National Scheduled Tribes Finance and Development Corporation (NSTFDC). Income generating activities of the Corporation includes multipurpose unit loan, transport scheme, loan to start up entrepreneurs, loan to rehabilitation of return emigrants, foreign employment loan, micro credit finance loan, Laghuvyavasaya loan, women empowerment programme, Mahilasamridhi Yojana and loan for animal husbandry. In 2020-21, the Corporation disbursed an amount of ₹6,761.22 lakh and benefited 3,726 SC and 2094 ST beneficiaries for income generating schemes. In 2021-22, assistance has been given to 505 SC and 222 ST beneficiaries (as on September 30, 2021). Major initiatives of the Corporation in 2020-21 are given below.

- 1. A. Loan for Start-up entrepreneurs-** Assistance is given up to a maximum of ₹50 lakh at 6 per cent interest rate for SC youths within the age group 18-55 years having annual income limit of ₹3.50 lakh for undertaking start-up ventures. Priority is given for newly passed out professional courses students. In 2019-20, one SC entrepreneur and in 2020-21, 2 entrepreneurs received assistance under this scheme.
- 2. Loan for Rehabilitation of Return Emigrants-** The Kerala State Development Corporation earmarks ₹20 lakh to provide assistance to the beneficiaries identified by NORKA for starting income generating ventures. NORKA releases 15 per cent of

the project as capital subsidy. In 2020-21, Corporation assisted 4 beneficiaries with loan amount of ₹24.03 lakh.

3. Women Empowerment programme- Corporation initiated the Women Empowerment programme in association with Kudumbashree. Under this scheme, Corporation gives loan to a group of women entrepreneurs. The loan amount is ₹3.00 lakh, of this, ₹1.00 lakh is subsidy. 448 beneficiaries were assisted under this programme.

Scheme-wise details of physical and financial achievements of the Corporation in 2020-21 and 2021-22 (as on September 30, 2021) are given in **Appendix 8.2.32**.

Welfare of Other Backward Classes

Even before independence, protective measures were taken to uplift the vulnerable sections of the society such as Scheduled Caste, Scheduled Tribe and Other Backward Classes. After independence various protective measures were undertaken to improve the conditions of backward sections of the society. Article 15(4) and 16(4) of the Indian Constitution ensure special attention and reservation to the backward classes in education and jobs. As per Article 340 of the Constitution of India and the recommendations of the Mandal Commission Report, the Government of Kerala formed a special Department in November 2011 to promote the welfare of socially and educationally backward classes in Kerala. Most

backward communities among OBCs are classified as Other Eligible Communities (OECs).

Kerala is one of the pioneers among Indian states in ensuring reservation for OBCs in public employment and education. Due to this, social progress of the backward class in Kerala is far better than their counterpart in other states of India. Even then, social advancement of OBCs in comparison with the general section of the society is far behind in Kerala. In Kerala, around 65 per cent of the population belongs to OBC and 84 communities are included in the OBC list.

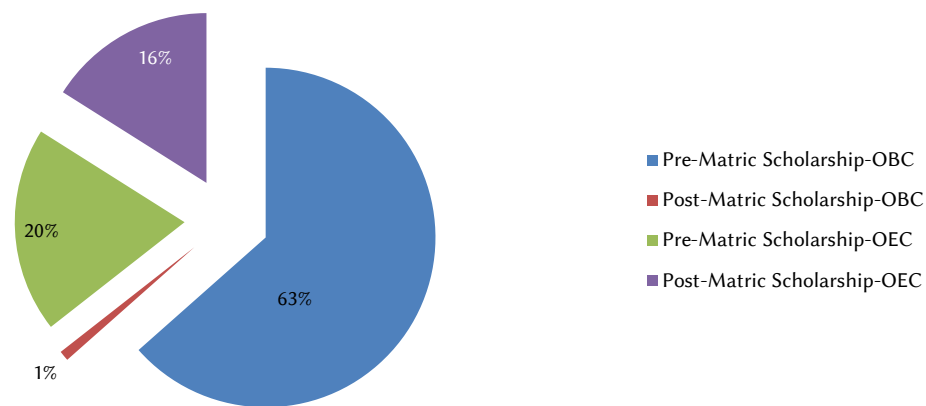
The OBC Development Department undertakes various educational schemes such as (i) provision of scholarships to pre-matric and post-matric students (ii) employment generation schemes (iii) skill training (iv) assistance to the traditional occupation such as barber shops, pottery workers and traditional craftsmen.

Educational Assistance

Pre-matric and post-matric scholarships are provided for OBC as well as OEC students. The OEC students are eligible for all kinds of educational assistances given to SCs and STs without any income limit. Major educational assistances provided to OBC and OEC students in 2020-21 are given below.

- 52,486 OEC students availed pre-matric assistance and 43,060 OEC students availed post-matric assistance.
- 1,70,454 OBC students availed pre-matric scholarship and 2585 OBC students availed

Figure 8.2.4 Pre-Matric and Post-Matric Scholarships to OBC and OEC students



Source: Other Backward Classes Development Department

- post-matric scholarship.
- 38 students availed Overseas Scholarship for higher studies.

Employment Generation Schemes

For enhancing the employability of the backward classes, schemes such as 'Employability enhancement programme' and 'Career in Automobile industry through public-private participation' are implemented. Financial assistance was given to students to avail coaching facilities for civil service examination, UGC/NET/ JRF/ GATE/ MAT and other competitive examinations in reputed institutions and also for starting self-employment ventures under the scheme 'Employability Enhancement Programme'. In 2020-21, 1,888 beneficiaries availed assistance under the scheme. Placement oriented training is imparted in areas such as automobile, logistics, hotel management and polymer technology through the scheme 'Career in automobile industry through public private participation'. In 2020-21 198 individuals were benefited under the scheme.

In order to promote traditional occupation among the OBCs, financial assistance was given to pottery workers, barber shops and craftsmen. In 2020-21, 112 pottery workers and 270 traditional barbers were provided assistance under the scheme. Besides, 2,509 persons received skill development training and assistance for purchasing toolkits under the scheme, 'Skill development training and Toolkit grant for traditional craftsmen'.

An amount of ₹160.68 crore was allocated by the Government of Kerala to the Backward Classes Development Department in 2020-21 and the expenditure incurred was ₹130.52 crore. An amount of ₹160.38 Crore was allocated by the Government of Kerala to the Backward Classes Development Department in 2021-22. The scheme-wise outlay, expenditure, and the physical achievements of the Department in 2020-2021 and 2021-22 (as on October 5, 2021) are given in **Appendix 8.2.33** and **8.2.34**.

Kerala State Backward Classes Development Corporation (KSBCDC)

Kerala State Backward Classes Development Corporation (KSBCDC) acts as the major

State level channelising agency of three national financial agencies, National Backward Classes Finance and Development Corporation (NBCFDC), National Minorities Development and Finance Corporation (NMDFC), and National Safai Karamcharies Finance and Development Corporation (NSKFDC). The main objective of the Corporation is to eradicate poverty and backwardness from among the target groups-OBCs and Minorities by providing financial assistance at lower rate of interest to the members of backward communities living below poverty line.

KSBCDC also utilises the Government of Kerala assistance and its own fund reserves to implement various welfare schemes include loan assistance for self-employment, education loans, micro finance. KSBCDC also provides assistance such as marriage assistance, house building/maintenance and personal loan. During the 13th Five Year Plan (2017-2021), KSBCDC disbursed ₹2,228.29 crore among 2,26,307 beneficiaries. The Corporation implemented Covid Working Capital Loan Scheme in the wake of the Covid-19 pandemic for supporting OBCs and Minorities. Under the scheme ₹859.08 lakh was disbursed among 365 members. The Corporation also implemented "Subhiksha Keralam" for women from OBC communities for starting individual enterprises. The Corporation has disbursed ₹285.52 lakh among 158 women beneficiaries through this scheme. The Corporation has disbursed loans worth ₹631.59 crore in 2020-21 benefiting 72,644 persons. In 2021-22 (as on October 5, 2021), an amount of ₹207.95 crore has already been disbursed among 18121 persons. The source-wise expenditure and the physical achievements of the Corporation in 2020-21 and 2021-22 (as on October 5, 2021) are given in **Appendix 8.2.35**.

Kerala State Development Corporation for Christian Converts from Scheduled Caste and the Recommended Communities

Kerala State Development Corporation for Christian Converts from Scheduled Castes and the Recommended Communities was incorporated in 1980 under the Indian Companies Act 1956. The main objective of the Corporation is to promote the social, educational,

cultural, and economic upliftment of the Christian converts from Scheduled Castes and the Recommended Communities in a comprehensive manner for ameliorating their living conditions. The source of finance for the Corporation is the share capital assistance and grants sanctioned by the Government of Kerala on an annual basis, and the loan assistance from NBCFDC. Major programmes implemented by the corporation include agricultural land purchase, self-employment, housing, cash incentive to students, marriage loan, agriculture and allied sector assistance, and small business and educational loan. The Corporation provided a financial assistance of ₹10,000 to 500 BPL families of the target group during the Covid-19 pandemic through 'Covid-19 Samaswasam' scheme. An amount of ₹8.50 crore was allocated to the Corporation in 2020-21 for various programmes. But the expenditure was ₹12.68 crore. The excess of expenditure over outlay in 2020-21 is due to the loans issued from amount received as loan repayments. Details of year-wise disbursement of Government of Kerala assisted loan schemes from 2016-17 to 2020-21 (as on October 5, 2021) are given in the **Appendix 8.2.36**. The scheme-wise details of physical and financial achievements of the Corporation are given in **Appendix 8.2.37**.

Welfare of Minorities

The Indian Constitution has emphasised the importance of equality of citizens and the responsibility of the State to preserve, protect and assure the rights of minorities in the matters of religion, language, culture and education. Though India achieved describable progress in the human development indicators such as literacy, education, health, and shelter not all religious communities and social groups have shared equally the benefits of development of the nation.

In Kerala, 45 per cent (26.56 per cent Muslims, 18.38 per cent Christians, 0.014 per cent Buddhists, 0.013 per cent Jains, 0.011 per cent Sikh and Parsi) of total population are notified minorities. They are entitled to minority rights as envisaged in the Article 29 and 30 of Indian Constitution. Among them, Muslims, Latin Catholics, Scheduled Castes Converted to Christians are considered backward communities in Kerala. The Directorate of Minority Welfare

was formed under Government in 2008, for the overall welfare and advancement of notified minority communities, namely, Muslims, Christians, Buddhists, Sikhs, Jains and Parsis. The Minority Welfare Department prepares and implements projects, focusing on education, health, housing, and employment of minorities. Major schemes implemented by the Minorities Welfare Department are educational assistance, drinking water scheme, housing scheme for divorcees, widows and abandoned women from the minority communities, Pradhan Mantri Jan Vikas Karyakram (PMJVK), pre-marital counselling centres, and Minority Research Institute for the welfare of the minorities.

An amount of ₹52.41 crore was allocated by the Government of Kerala for the welfare of minorities in 2020-21 of which ₹32.04 crore (61.13 per cent) was expended. An amount of ₹57.66 crore was allocated by the Government in 2021-22. Scheme-wise outlay and expenditure and the physical achievements of the Department in 2021-22 (as on October 5, 2021) are given in **Appendix 8.2.38** and **8.2.39**.

Kerala State Minorities Development Finance Corporation Limited

The Kerala State Minorities Development Finance Corporation is a fully owned Government company incorporated on March 22, 2013, to look after the welfare of minority communities including Muslims, Christians, Buddhists, Jains, Sikhs, and Parsis. The main schemes implemented by the Corporation are self-employment loan, business development loan, education loan, visa loan, pravasi loan, employees multi-purpose loan, and housing loan for Madrassa teachers.

The Corporation has announced a new multipurpose loan scheme namely "Sumithram" as a special initiative in the wake of the Covid-19 pandemic. It includes marriage loan, treatment loan and Covid related loan. KSMDFC has disbursed loans amounting to ₹9.88 crore to 194 beneficiaries belonging to minority communities in 2020-21. An amount of ₹56.93 crore has been provided as share capital contribution to the Corporation in 2020-21. The financial and physical achievements of the Corporation are given in **Appendix 8.2.40**.

Welfare of Forward Communities (Samunnathi)

The Government of Kerala constituted the Kerala State Welfare Corporation for Forward Communities Limited branded as Samunnathi on November 8, 2012. KSWCFC was established with an aim to carry on the activities to promote comprehensive development and welfare of economically backward sections of the Forward Communities in Kerala through providing assistance to their members for improving their educational status, living conditions and all-round development. There are 168 communities notified to be forward communities by the Government of Kerala, of these 19 are Christian communities.

By utilising the fund availed as grant-in aid from the Government of Kerala, the Corporation undertakes various activities which include vidyasamunnathi merit scholarships, vidyasamunnathi coaching assistance, samrambha samunnathi term loan assistance, naipunya samunnathi skills and entrepreneurship development, renovation of dilapidated agraharas and houses, and mangalyasamunnathi. An amount of ₹36.24 crore was allocated to the Corporation in 2020-21 for various programme. Of this, ₹24.56 crore was spent (67.77 per cent). An amount of ₹36.24 crore was allocated to the Corporation in 2021-22. The scheme-wise outlay and expenditure and the physical achievements of the Corporation in 2020-21 and 2021-22 (as on October 5, 2021) are given in **Appendix 8.2.41**.

8.3 SOCIAL SECURITY MEASURES

Social protection, as defined by the United Nations Research Institute for Social Development, is concerned with preventing, managing, and overcoming situations that adversely affect people's wellbeing. Effective social security systems guarantee income security and health protection, thereby contributing to the prevention and reduction of poverty and inequality, and the promotion of social inclusion and human dignity. The World Social Protection Report 2020-22 of the International Labour Organisation gives a global overview of recent developments in social protection systems, including social protection floors and covers the impact of Covid-19 pandemic. The report identifies protection gaps and sets out key policy recommendations, including the targets of 2030 Agenda for Sustainable Development. The report highlights that only 26.4 per cent of children globally receive social protection benefits.

Kerala has achieved significant progress in ensuring social protection through programmes of educational, economic and social development, and rehabilitation aiming at supporting and empowering target groups. Social security pensions are a source of stability for the elderly, disabled, widowed and so on. Pension distribution is effected by the State Government for various categories through Local Self Governments. Welfare pensions have increased from ₹600 per beneficiary in 2016 to ₹1,600 per beneficiary in 2021. The number of social security pensioners, which was 34 lakh in 2015-16, has increased to 48.6 lakh in 2021. Among social security pensioners, 30 percent received pensions for the first time during the period of this Government. The Government paid pensions two months in advance when the pandemic struck. Also, measures were taken to ensure that the money reached the homes of beneficiaries without delay (*Source: Kerala Development Report, 2021*). Welfare pensions are also distributed through different welfare boards. In 2020-21, ₹951.27 crore was distributed among 17.2 lakh beneficiaries, through various welfare boards (*Source: Labour Department*).

In Kerala, the Departments of Social Justice, Women and Child and its allied agencies are providing social security for the vulnerable groups. Major activities of the departments and agencies are given in **Appendix 8.3.1**.

Categorisation of Social Security Programmes in Kerala

The social security programmes in Kerala can be categorised into two: A. Institutional Care and B. Social Assistance Programmes.

A. Institutional Care

In the State, Government as well as Non-Governmental Organisations (NGO) and other voluntary organisations, provide institutional care to the disadvantaged sections of the population. The Social Justice Department (SJD) is the nodal department for the implementation of social security schemes in the State. In 2017-18, in order to give meaningful thrust to the activities aimed at welfare and empowerment of women and children, a separate department of Women and Child Development (WCD) was formed by bifurcating the SJD. WCD acts as a nodal agency for matters pertaining to women and children and implements State and Central schemes related to women and children. SJD addresses the needs of people with disabilities, senior citizens and transgenders. There are 29 welfare institutions and two vocational training centres under the aegis of SJD for the care, protection and rehabilitation of disabled and senior citizens, of which, 16 are for senior citizens and 15 for disabled. There are 44 welfare institutions functioning under the WCD for the care, protection and rehabilitation of children and women, of these, 28 institutions are for children and 16 for women.

SJD and WCD had provided rehabilitation services to 2,155 persons in different categories and 55,431 persons were benefited through the registered institutional support in 2020-21 (as on March 2021) through institutional care and support. However, the number of occupants is less compared to the sanctioned strength of

inmates for certain categories of institutions. As against the total sanctioned strength of 91,593 inmates in the registered welfare institutions, the occupants were 55,431 in 2020-21. The number of inmates is higher than the sanctioned strength in some of the welfare institutions under the departments such as Asha Bhavan, Pratheeksha Bhavan, after care home for the adolescents, home for physically handicapped, institutions for mentally retarded and beggar homes. The District-wise coverage of beneficiaries in major welfare institutions run by SJD and WCD is given in **Appendix 8.3.2** and that of registered welfare institutions in **Appendix 8.3.3**.

Destitute Free Kerala (Agathirahitha Keralam), implemented through Kudumbashree, is a flagship programme of Government of Kerala to identify, rehabilitate and monitor the destitute families. Through this programme, various needs of destitute families such as basic needs, infrastructural needs, development needs and social needs are addressed. At present, 1,56,647 families are included in this project, with 1,46,917 families in the general category projects and 9,730 families in tribal projects. By assessing the needs of the destitute at the local body level, Detailed Project Reports would be prepared. Forty per cent of the total project (with a ceiling of ₹40 lakh and ₹50 lakh for general and ST projects respectively) would be met through Kudumbashree.

B. Social Assistance Programmes

Social assistance programmes aim to reduce poverty and vulnerability among the people having little or no regular means of subsistence. Details on welfare of senior citizens are given in Chapter 6 of this Review.

Social Security Pension Schemes through Local Governments

Pension schemes for agricultural workers, pension for the old aged, pension for the disabled, pension for unmarried women above 50 years of age and pension for widows are the major pension schemes implemented by the State Government. From April 2015, the disbursement of pensions is being done at the State level through the Direct Benefit Transfer (DBT) system. As on October 2021, there are

51.35 lakh pensioners in the State, out of which 32.20 lakh are women beneficiaries. The highest number of pensioners are recipients of old age pension, 28.23 lakh (54.95 per cent) persons followed by those who receive widow pension, 13.88 lakh (27.03 per cent). Other beneficiaries include recipients of agricultural labour pension, 4.23 lakh (8.23 per cent), disability pension, 4.12 lakh (8.02 per cent) and pension for unmarried women above 50 years, 0.87 lakh (1.69 per cent). Among the Districts, Thiruvananthapuram has the highest number of beneficiaries, followed by Malappuram. Wayanad has the least number of beneficiaries. The District-wise coverage is given in **Appendix 8.3.4**.

Welfare of Persons with Disabilities

Disability is a part of human condition that may be visible or invisible, and can be congenital or acquired. The three dimensions of disability as per World Health Organization are (1) impairment in a person's body structure or function, or mental functioning (2) activity limitation and (3) participation restrictions in normal daily activities. Over the last several years, there has been a shift in the perspective from a 'bio-medical model' to a 'social model'. A balanced approach would be required where different aspects of disability are considered and given appropriate importance.

The UN Convention on the Rights of Persons with Disabilities (UNCRPD) is the first international legally binding instrument that aims to protect the rights and dignity of Persons with Disabilities (PwD). The global commitment for the 2030 Agenda for Sustainable Development recognises the promotion of the rights, perspectives, and well-being of persons with disabilities in line with UNCRPD.

At the national level, the comprehensive Rights of Persons with Disabilities (RPwD) Act, 2016, is a broader umbrella of 21 types of disabilities against the earlier seven types under the PwD Act 1995. In Kerala, a disability census was conducted by the Social Justice Department through KSSM in 2015. The categories of disabilities, as per the census, are given in **Table 8.3.1**.

Table 8.3.1 *Disabilities based on the categories*

Sl No	Disability	Number				%
		Male	Female	Trans Gender	Total	
1	Locomotor Disability	155836	104922	329	261087	32.89
2	Muscular Dystrophy	1359	913	8	2280	00.29
3	Chronic Neurological Disorders	2052	1575	6	3633	00.46
4	Multiple Sclerosis	282	232	1	515	00.06
5	Kyphosis	2044	2835	8	4887	00.62
6	Short Stature/ Dwarfism	2488	3577	14	6079	00.77
7	Blindness	11361	9094	22	20477	02.58
8	Low Vision	33907	27916	77	61900	07.80
9	Learning Disability	5257	2805	12	8074	01.02
10	Speech Language Disability	13152	9443	53	22648	02.85
11	Intellectual Disability	38245	30546	143	68934	08.68
12	Mental Illness	48429	52423	131	100983	12.72
13	Autism	2179	950	6	3135	00.39
14	Hearing Impairment	28771	32093	61	60925	07.67
15	Leprosy Cured	679	494	2	1175	00.15
16	Haemophilia	1048	394	3	1445	00.18
17	Thalassemia	269	300		569	00.07
18	Sickle Cell Anaemia	461	544	1	1006	00.13
19	Cerebral Palsy	3781	2597	7	6385	00.80
20	Epilepsy	10839	8637	36	19512	02.46
21	Deaf Blindness	432	408	2	842	00.11
22	Multiple Disability	75982	61197	262	137446	17.31
	Total	438853	353895	1189	793937	100

Source: Disability Census, Kerala 2015

Organisations and Agencies in Disability Sector Under State Government

The Directorate of Social Justice is the nodal agency for implementing the social welfare schemes of the State Government and various welfare schemes of the Government of India. Through various organisations under the Social Justice Directorate - National Institute of Speech and Hearing (NISH), Kerala Social Security Mission (KSSM), Kerala State Handicapped Person's Welfare Corporation (KSHPWC), National Institute of Physical

Medicine and Rehabilitation (NIPMR), and State Commissionerate for Persons with Disabilities (SCPwD) – several development programmes have been implemented for persons with disabilities.

National Institute of Speech and Hearing (NISH)

NISH is an institution of national repute, working in areas of disability and rehabilitation, including early intervention, education of persons

with disabilities, disability and rehabilitation services and capacity creation. It also provides an excellent environment for the pursuit of higher studies for persons with disabilities. NISH conducts degree courses in various streams, exclusively for the deaf and hard of hearing. In 2020, the institution had launched Bachelor of Occupational Therapy (BOT) programme, affiliated to Kerala University of Health Sciences (KUHS). Various programmes were organised by NISH in 2020-21 wherein, 169 students participated in early intervention programmes, 2600 cases attended through audiology and speech-language pathology divisions, and 3853 cases attended under medical, psychology and allied services. Various academic programmes conducted in 2020-21 benefitted 268 students.

NISH has addressed the challenges of Covid-19 through a hybrid model of delivery. Helpline services for the deaf and hard of hearing (DHH) was launched in Indian Sign Language (ISL) and was offered online. All the regular academic programmes of NISH, early intervention programmes for children under the age of 6 years and counselling for parents were also conducted in online mode. Awareness videos on Covid-19 were prepared in Indian Sign Language (ISL) for Kerala State Disaster Management Authority and Health Department. Covid-19 related news was delivered in Indian Sign Language (ISL) through NISH YouTube channel and social media.

Kerala State Handicapped Person's Welfare Corporation

The Kerala State Handicapped Person's Welfare Corporation (KSHPWC) is a Public Sector Undertaking under the State Government aimed at formulating, promoting and implementing various welfare schemes for rehabilitating and improving the living conditions of the visually impaired, hearing and speech impaired, people with locomotor and intellectual disabilities and also to provide financial and technical assistance to such categories.

The services offered through the Corporation in 2020-21 included, supply of various disabled friendly equipment to 4,408 persons, distribution of self employment loans to 94 disabled persons, financial assistance @ ₹20,000 as fixed deposit

to 606 children through "Hastadanam" scheme, distribution of proficiency award @ ₹5,000 to 300 children with disabilities, assistance to 12 self help groups @ ₹20,000 for undertaking appropriate micro projects, financial assistance for starting lottery ticket sales @ ₹5,000 to 223 persons and distribution of side wheel scooters to 165 persons.

State Commissionerate for Persons with Disabilities

The Commissionerate for Persons with Disabilities functions at the State level and is a semi judicial body that can exercise the power of a Civil Court under Section 63 of Persons with Disabilities Act. The Commissionerate monitors various programmes and schemes designed for the benefit of the people with disabilities, conducts awareness camps, adalats, provides free legal aid for the disabled persons, and undertakes research and development for their rehabilitation.

National Institute of Physical Medicine and Rehabilitation (NIPMR)

National Institute of Physical Medicine and Rehabilitation (NIPMR) is the centre of excellence in disability management and rehabilitation. The institute, along with its routine activities including early intervention, therapy and academic programmes also runs numerous projects with other stakeholders including LSGIs, KSSM, SJD and Department of Education. The organisation has various therapeutic departments and units for providing medical and therapeutic services. Special Training and Empowerment Programme for parents (STEPS), a programme under the Department of Developmental and Behavioural Paediatrics aims at early intervention and also to empower parents of children with disability. *Rehab on wheels* is a mobile outreach programme run by NIPMR which aims at providing assessment, health care and assistive solution at field level using specially designed low floor buses. A project for transportation of people with disabilities, *Wheel Trans*, is also run by the institution. The Centre for Mobility and Assistive Technology (C-MAT), a wing under NIPMR, manufactures and distributes mobility assistive solutions to people with disabilities.

General Education Department - Activities for Inclusive Education

CH Mohammed Koya Memorial State Institute for the Mentally Challenged, under the General Education Department imparts special education, training and rehabilitation services to the mentally challenged. The institute offers various services in the field of mental retardation like special schools for mentally challenged children, clinical service, physiotherapy centre, early intervention centre, vocational training centre, diploma courses on special education and so on.

General Education Department, through their Alternative and Innovative Education Centre (AIEC) or Multi Grade Learning Centre (MGLC) provides primary education to marginalised children in remote, coastal, hilly and forest areas. The Department also provides financial assistance to accredited institutions that offers care to intellectually disabled children for meeting their infrastructural needs, water supply, medical aid facilities and so on. Assistance is also provided by the Department for enhancing the capacity of teachers in special schools.

Welfare Programmes for Persons with Disabilities

Several schemes are being implemented through various departments and agencies for the welfare of persons with disabilities.

Directorate of Social Justice

A number of welfare schemes are being implemented through the Department of Social Justice to ensure the rehabilitation of the marginalised. Implementation of RPwD Act was a milestone in the area of disability sector, based on which schemes, activities and programmes were designed in a rights based approach. The following schemes were implemented by the Directorate during 13th Five Year Plan.

- *Pariraksha* scheme provides emergency assistance to PwDs. In 2020-21, the scheme provided emergency medical assistance to 22 persons with disabilities who were affected by natural calamities.
- *Vidyakiranam* provides educational assistance to the children of PwDs who are educationally and financially backward. There were 5,845 beneficiaries for the scheme in 2020-21.

- *Vidyajyothi* provides uniform and learning materials to PwD students after 8th standard and in 2020-21, 501 students were benefitted.
- *Swasraya* scheme provides self-employment assistance to the single mother of persons with physical disability/ intellectual disability. 101 parents of children with physical / mental disabilities were given assistance in 2020-21.
- *Vijayamrutham* scheme provides assistance to PwD students who have secured high marks in graduate/post graduate/professional courses from government/aided institutions.
- *Sahachari* scheme encourages NSS/SPC/ NCC units which support PwD students in educational institutions.
- *Sreshtham* scheme encourages persons with disabilities who excel in sports and arts.
- *Mathrujyothi* provides financial assistance @ ₹2,000 to mothers who have disabilities to provide special care to her children. 63 mothers were benefitted in 2020-21.
- *Recovery Facilitation Unit* Day care project for mentally cured patients through IMHANS.
- *Athijeevanam* is a comprehensive development programme for persons with disabilities, in collaboration with NGOs, to ensure their welfare. The beneficiaries of this scheme fall in the age group of 18 to 40 years. An amount of ₹83.36 lakh was sanctioned for 600 beneficiaries of 13 NGOs in 2020-21
- *Niramaya Health Insurance Scheme* provides insurance coverage up to ₹1.00 lakh per year to the marginalized people who comes under National Trust Act. During the period 2017-2021, ₹5.18 crore was spent to the beneficiaries as claim settlement.
- *Barrier free Kerala* aims at making public places accessible for marginalised people.

Kerala Social Security Mission (KSSM)

Disability Certificate/ Identity Cards to Disabled Persons

- Kerala Social Security Mission is the nodal agency of Universal Disability Identity Card (UDID) project in the State. According to the PwD Act, identity card and pass book are to be issued to those persons having disability of 40 per cent and above and are certified by the medical board. KSSM organises disability certification camps across the State to ensure that the entire disabled population receives the disability certificate and UDID card. During

the period between 2009 and 2018, 3,66,109 ID cards were distributed through 1992 camps across the State. There were 26,831 beneficiaries in 2020-21.

Aswasakiranam This scheme provides monthly assistance of ₹600 to the caregivers of patients of those categories who are in need of a full-time caregiver like 100 per cent blind, bedridden patients suffering from cancer, cerebral palsy, autism, mental illness, mental retardation, intellectual disabilities and also to the bedridden old aged. In 2020-21, 1,14,188 persons were benefitted through the scheme.

State Initiative on Disabilities (SID ANUYATRA) is an umbrella programme of KSSM designed with the objective of having universal coverage and equitable distribution for persons with disabilities in line with the Rights of Persons with Disabilities Act 2016. It encompasses a strategic framework, interventional approach and convergence plan for establishing the organised network of systems and institutions for prevention, early intervention and management of disabilities. Activities under *ANUYATRA* included the following:

- Early Intervention Centres: District Early Intervention Centres (DEIC) ensure early screening of disabilities and provide appropriate services.
- Mainstream education would be promoted and monitored through DEICs. Construction of DEIC buildings had been completed in Kollam, Thrissur, Malappuram, Wayanad and Kannur. Mobile intervention units are an extended activity of existing DEICs that provide regular services and therapy to PwDs, especially to children residing in rural areas. Around 2,500 to 3,000 children are getting services every month through the 25 units established across the State. Special early intervention cum disability management unit was set up in tribal areas for addressing the disability management activities of the tribal community. The first unit was started in 2018-19 at Kottathara speciality hospital in Agaly, Palakkad. In 2020-21, 1539 children were supported through this unit. Regional Early Intervention Centres (REICs) established in 5 Medical Colleges (Thiruvananthapuram, Alappuzha, Kottayam,

Trissur and Kozhikkode) provide better quality services through convergence of different disciplines. About 11,930 children with development delay and disabilities have been supported through these REICs.

- **KATHORAM-** It is a life cycle approach in hearing disability management. Activities include –
 - (a) Universal Hearing Screening of new born babies would be done through 62 Government delivery points across the State. About 12,000 neonates are screened every month.
 - (b) Through Brainstem Evoked Response Audiometry (BERA) equipment, hearing disability would be confirmed by 3 months. About 1,500 babies are tested through this equipment per month.
 - (c) Auditory Verbal Therapy would begin at the age of 6 months and would continue till 18 yrs of age and would be supported with hearing aids for controlling deafness.
 - (d) Cochlear Implant would be done at 18 months, wherever required, in convergence with the existing *Shruthitharangam* project. Around 1,196 cochlear implant surgeries were conducted free of cost in the State between 2012-13 and 2020-21
 - (e) Post implant habilitation therapy would be provided up to 42 months through NISH, NIPMR, government medical colleges and major hospitals
- Auditory Verbal Therapy Centres- SID has established State-of Art Auditory Verbal Therapy Centres (AVT) at Government Medical College Kozhikkode and at NIPMR, Thrissur for those children who are identified for cochlear implant surgery. Around 150 children are availing these services every day through these centers.
- Special Anganwadi Project, currently being implemented in Kozhikkode District, provides appropriate training and remedial therapy to pre-school children with disabilities, especially developmental disabilities, for which one anganwadi in every ICDS project is designated as a special anganwadi. Through this project, 1,317 children having development delay and disabilities were provided support in 2020-21.
- Horticulture Therapy and Social Farming- This therapy uses plants and horticultural activities to improve the social, educational, psychological and physical adjustments of

persons to improve their body, mind and spirit. A horticulture therapy garden is established at the College of Agriculture, Vellayani in association with the Department of Community Science. 14 children with disabilities are undergoing therapy in the first phase.

- Collaboration with other agencies/ departments - KSSM (SID) in association with KDISC identified 100 talented children by organising a talent search programme for children with disabilities. The children were provided an opportunity to perform in public. KSSM, with the assistance of Tribal Development Department has undertaken a project to identify persons with disability among tribal community. A pilot project has been initiated in Vithura Grama Panchayat in Thiruvananthapuram. All disabled persons in the 21 tribal hamlets of Vithura Panchayat were identified and based on need assessment individual care plan was prepared. The first phase support was also provided which included assistive devices, disability medical certificates, ration cards, aadhar cards and UDID.

Department of Labour and Employment

A rehabilitation package (KAIVALYA) is provided by the Department for the welfare of differently abled registrants of employment exchanges, by way of loans, up to a maximum of ₹50,000 for commencing self employment ventures, vocational career guidance, soft skill training and so on. By disbursing ₹2.35 crore in 2019, the KAIVALYA scheme benefitted 471 differently abled people. The year 2020 witnessed remarkable increase in the number of beneficiaries to 2,226 and loan disbursement worth ₹11.12 crore.

Welfare of Transgenders (TGs)

In Kerala, transgender welfare has taken a significant transformation from a visibility perspective to inclusion at a larger level. Education, employment, and individual welfare have begun to take shape. With successful implementation, various measures have opened up opportunities to transgender community persons. Transgender shelter homes of Kerala have gained national prominence as a pioneer programme accommodating transgender

individuals during life crises and providing them shelter, food and emotional support to ensure their wellbeing.

The 13th Five Year Plan saw the dawn of transgender prominence in mainstream aspects, increased entrepreneurial motives and comparatively increased self-sustenance through welfare schemes. Extensive initiatives under various aspects were implemented for the welfare of the transgender community during the 13th Five Year Plan. Various aspects were taken into account while devising the plan that included educational, socio-economical and health dimensions of the transgender community. The outcome has resulted in sustainable development practices to create visibility to the transgender community at various levels of society and foster an inclusive environment.

Kerala is the first State to launch a policy for the transgender sector in the country. As envisaged in the Kerala State Transgender Policy, a comprehensive scheme, named “*Mazhavillu*” is being implemented for the transgender community by the Department of Social Justice. During 13th Five Year Plan, following schemes were implemented for the welfare of TGs.

A. Educational Assistance:

- Scholarship for transgender students.
- Hostel facilities for transgender students.
- ‘Samanwaya’- continuing education scheme through State literacy Mission.
- ‘Varnam’- financial assistance to transgender students who continue their study through distance education system.
- ‘Saphalam’- financial assistance to transgender students for professional courses

B. Socio-Economic empowerment:

- Transgender Helpline.
- Self-employment assistance to transgender individuals.
- Sewing machine distribution scheme.
- Short stay/shelter homes in co-operation with community based organizations in Thiruvananthapuram, Kottayam, Ernakulam and Kozhikode.
- Awareness programmes in schools/ colleges, and for various officials, elected representatives etc.

- Provided transgender friendly toilet in Ernakulam Maharajas College.

C. Health related interventions:

- Established HIV Zero Surveillance centre for Transgender individuals with the support of KSSWB.
- Financial assistance to SRS surgery.
- Financial assistance for further treatment after SRS surgery.

D. Skill Development Initiatives:

- Driving training programme.
- Beautician training course.
- Entrepreneurship development programmes.

Empowerment and Social Welfare of Women

Kerala, over the years, has seen several interventions that have ensured the enhancement of participation of women in social, political and public affairs. The State Government has also taken considerable efforts through several policy measures to ensure equal opportunities for women in all spheres of public employment, and to facilitate their equal access to public spaces in the State. Activities of institutions functioning for the welfare and empowerment of women are detailed as follows.

Kerala Women's Commission

The Commission established in 1996, is a statutory body of five members headed by the Chairperson. As a quasi-judicial body, the Women's Commission can intervene in all matters relating to women. The Commission enquires into the complaints on any unfair practice and takes decisions and recommends remedial measures. Commission is also responsible to improve the social status of women. The Commission implements gender awareness programmes and undertakes legal workshops/seminars, adalaths, and provides facilities for conducting DNA test.

Initiatives of the Commission during the 13th Five Year Plan were - (1) *Face to face with Commission* for adopting ideas and views, methodologies and projects from individuals and organisations involved in women empowerment activities with a view to develop innovative projects for women (2) *Special Awareness Campaigns* were initiated by

the Commission to sensitise Keralites on gender equality and for uplifting the status of women. In 2020-21, the Commission conducted 117 seminars/ legal workshops and 48 training programmes for the members of Jagratha Samithies. Under gender awareness programme, the Commission undertook 22 pre-marital counselling sessions, conducted Kalalayajyothi in 245 educational institutions and 8 sittings of *Face to Face with Commission*. In 2020-21, the Commission had received 5,439 complaints, of various nature, like violence against women, property related issues, domestic violence, issues related to family problems and so on. Category-wise and district-wise details of complaints received as on March 2021 are given in **Appendix 8.3.5**.

Kerala State Women's Development Corporation

Kerala State Women's Development Corporation (KSWDC) was established in 1988 for providing better opportunities to women for their empowerment and aims at the overall development of women to enable them to be active participators in social development and progress. Loan disbursement programmes for encouraging women entrepreneurs, self-employment schemes for women, flagship programme on gender awareness and finishing school are the major programmes implemented through the Corporation.

Performance highlights of Women's Development Corporation in 2020-21 included the following:

- Loan amount worth ₹118.51 crore was disbursed among 5,784 women beneficiaries (including 22 transwomen) for taking up viable self employment units.
- Menstrual Hygiene Management Awareness was conducted among 20,000 girl students from 200 Government/Aided Schools where SHE PAD project was implemented. SHE PAD project was implemented in 169 Government/Aided schools benefitting 21,960 girl students.
- As part of *Vanamithra* cattle rearing and dairy farming project, 50 tribal women and their families were given training on cow rearing for their livelihood enhancement. Training in apiculture (bee-keeping) was given to 33 tribal women.

- In connection with the functioning of Mithra 181 Helpline, Corporation had organised gender sensitisation programmes for all Government officials, particularly to those working in close contact with the public. In 2020-21, Mithra 181 Helpline has rendered services to 25,591 calls, of which 19,218 cases could be resolved with the intervention of Police Department.
- BODHYAM- Gender sensitisation training for police personnel was held online through which 5,457 police personnel from 12 police battalions had completed training in 2020-21.
- Through the seven “Vanitha Mithra Kendra” Working Women’s Hostel, residential facility was provided to 700 women. The working women’s hostel at Perinthalmanna was inaugurated in November 2020.
- As part of gender awareness programmes, KSWDC had started women cells in selected colleges of the State. In 2020-21, women cells had functioned in 39 women’s colleges with over 5,000 members.
- Under the flagship programme on finishing schools for women, through the REACH finishing schools at Thiruvananthapuram and Kannur, skill development training was provided to 903 students (15,850 training days)
- Advanced skill enhancement programme for Nurses (ASEP/N) was piloted by KSWDC in 2020-21, thereby providing training to 61 nurses.

Gender Park

Gender Park is an initiative of the Government of Kerala and was conceptualised to develop strategies, policies, programmes and projects to achieve the goal of gender equality. Functioning as a gender convergence hub, it works through a multi - pronged approach rooted in gender sensitive methods for research, dialogue, policy interventions, awareness generation and creation of economic opportunities. Construction works of first phase were completed and inaugurated in February 2021. Amenities included in the first phase of Gender Park are (1) International Convention Centre (2) Gender Library (3) Heritage Museum and (4) Amphitheatre.

International Women’s Trade Centre (iWTC) is a visionary project of the Gender Park, towards creating a safe and sustainable environment for

the growth of industry, business, trade, lifestyle and a destination cultural centre for women in line with the Sustainable Development Goals of the United Nations. Women in Sustainable Entrepreneurship (WiSE) Fellowship aims to sharpen and strengthen the knowledge, skills and attitudes of WiSE fellows in establishing, operating, and scaling up sustainable enterprises. Gender Park is in the process of creating an environment for sustainable entrepreneurial ventures that contribute to economic empowerment of women. *She Taxi* was Gender Park’s earliest initiative under the ‘Vision 2020’. A major project planned for 2021-22 is *She e-Auto*, aimed at integrating taxi and auto services with various women homestays of KSWDC and Kudumbashree.

Programmes for the Welfare and Empowerment of Women

Schemes for the welfare and empowerment of women implemented through the Women and Child Department and Kerala Social Security Mission are given below.

- **Mangalya scheme:** Financial assistance to widows for remarriage
- **Abhayakiranam:** Monthly financial assistance of ₹1,000 to close relatives of destitute widows who provide protection and shelter to them.
- **Sahayahastam:** Financial assistance to self employment schemes.
- **Athijeevika:** One time financial assistance up to a maximum of ₹50,000 to women headed families in case of unforeseen financial crisis
- **Aswasanidhi:** Financial support to victims of sex crimes and gender based violence.
- **One Day Home:** Ensures safe accommodation for women who have to travel alone to the Capital city. One Day Home which started functioning in March 2020, is located at the 8th floor of KSRTC building and is a joint venture of Thiruvananthapuram Corporation and Women and Child Department.
- **Snehasparsham:** Implemented through KSSM, provides financial assistance @ ₹2,000 per month to unwed mothers. The scheme benefitted 2,044 beneficiaries in 2020-21.

Social Welfare of Children

Social welfare of children comprises the services of various institutions dealing with social,

physical and mental well-being of children, especially those from the vulnerable categories and without normal parental care. Government of India as well as Government of Kerala have implemented several schemes for the protection of child welfare. As per Census 2011, children in the age group 0-6 is 10.4 per cent of State's total population and the child sex ratio of Kerala is 964.

Early childhood is the most significant phase of development of a person. Holistic development of children up to 18 years include physical, mental, emotional and social development. Infant mortality and prevalence of low birth weight babies are the two major determinants of child survival. As per NFHS-5 report, infant mortality rate (IMR) in Kerala is 4.4 deaths per 1,000 live births as against IMR of 5.6 deaths reported in NFHS-4. Under 5 mortality rate (U5MR) also shows an improvement with 5.2 deaths per 1000 live births against 7.1 deaths as per NFHS-4. But, anaemic rates reveal a decrease in health status among children. NFHS-5 data shows an increase in the rate of anaemia among children aged 6-59 months, from 35.7 per cent (NFHS-4) to 39.4 per cent (NFHS-5). Data on nutritional status of children are also quite disturbing, as per NFHS-5 data. Data reveals that the percentage of children under 5 yrs who are underweight has risen to 19.7 per cent as compared to NFHS-4 figure of 16.1. Similarly, children under 5 years who are stunted accounts to 23.4 per cent (NFHS-5) against 19.7 per cent (NFHS-4).

Child marriage violates the rights of children and adversely affects their health and well-being. NFHS-5 report shows a slight decrease in child marriage for 15-19 year old girls. The rate has declined from 3 per cent (NFHS-4) to 2.4 per cent (NFHS-5). It is essential to create a safe and caring environment for all children, free from neglect, violence, abuse and exploitation. As per the State Crime Records Bureau, 3,941 cases of crimes were reported against children in Kerala in 2020, a decrease of 17 per cent compared to the 2019 data of 4,754 crimes. Rape cases dominated with 1,243 cases, followed by 200 cases of kidnapping and abduction.

Kerala State Commission for Protection of Child Rights

The Commission was established in 2013 as per the Commissions for the Protection of Child Rights Act (CPCR Act) 2005. This statutory body has the mandate to examine and review the existing laws for the protection of child rights, inquire into cases of violation of child rights, look into factors inhibiting the enjoyment of those rights and suggest remedial measures. In 2020-21, the Commission had received 1,728 complaints, of which 650 cases were disposed. Of the total complaints received, 83 cases were related to the Protection of Children from Sexual Offences (POCSO) Act, 290 cases were related to Right to Education (RTE) Act, 34 cases on Juvenile Justice (JJ) Act, and 1,321 were on child rights violation.

Adoption Services

There are 17 specialised adoption agencies, functioning in Kerala for helping the State Adoption Resource Agency. During 2013-14 to 2020-21, 1,114 in-country and 106 inter-country adoptions took place. In 2020-21, 133 children were adopted in Kerala (120 in-country adoptions and 13 inter-country adoptions), out of which 69 were females. Details of adopted children are given in **Appendix 8.3.6**.

Programmes on Child Care, Development and Protection

Various programmes and schemes related to protection, care and development of children are being implemented by the Department of Women and Child Development and Kerala Social Security Mission.

Programmes Implemented through Women and Child Department

District Resource Centres were strengthened to provide necessary scientific interventions and expert consultations to those children who need expert care, personal interventions, referral mechanism, trainings and expert services.

Kilikonchal- Video classes on Kilikonchal were telecasted online to the pre school children in anganwadi during Covid-19.

Web Based Programme Monitoring System for child protection was initiated in the State since January 2021.

Thenamrithu Nutri Bars, jointly developed by the Department of Women and Child Development and University of Agriculture, were supplied to 5832 severely underweight children during Covid period.

Nutrition Warehouse, a project for the preparation of Nutri Gardens in anganwadis was commenced by the Department in collaboration with the Department of Community Science. The project is being implemented in 17,675 anganwadis.

First 1,000 Days Programme, which was initiated for reducing child mortality rate in Attappadi, on pilot basis, was extended to 10 more ICDS projects in coastal and hilly areas in 2018-19. In 2021-22, it has been scaled up to 17 other ICDS projects in coastal and hilly areas.

Our Responsibility to Children aims at scientifically identifying and addressing the behavioural, emotional, learning and psychological challenges faced by children at the school level, in collaboration with teachers, parents and general public. The project is currently operational in 304 schools across the State.

KAAVAL Plus focuses on community based rehabilitation and re-integration, through psycho social approach, for children who are in need of care and protection and also for POCSO survivors. The first phase of the project was implemented in 2020-21, in collaboration with NGOs, led by the District Child Protection Unit. The project which started in Palakkad and Thiruvananthapuram was scaled up to Ernakulam, Idukki, Malappuram, Kozhikode and Kannur districts in 2021-22. This will provide psychological, education and legal support to the children until they are mainstreamed or obtain a secure livelihood.

Integrated Child Development Services (ICDS) - ICDS is a major Government of India programme that addresses the needs of children under the age of six years. It provides children with an integrated package of services including supplementary nutrition, healthcare, referral service, health and nutrition, education and pre-school education. It also extends to adolescent girls, pregnant women and lactating mothers. The scheme focuses on the physical, psycho-social, cognitive, language and creative aspects of the child's development. In 2020-21, 33,115 anganwadi centres were operational across the State, covering 15.23 lakh beneficiaries under Supplementary Nutrition Programme, of which 5.4 lakh beneficiaries were children in the age group 3-6 years and 3.32 lakh were pregnant and lactating women. District-wise coverage of ICDS beneficiaries is given in **Appendix 8.3.7**.

Government of India has recommended the fortification of food (including rice), provided through anganwadis, to address micronutrient malnutrition gap in a sustained manner. Department in collaboration with World Food Programme (WFP), has initiated fortification of rice, which is served as hot cooked meals to children between the age group of 3 to 6 years in anganwadis. Under this project, rice is fortified with 8 micronutrients (Iron, Folic Acid, Zinc, Vit.A, Vit.B12, Niacin, Vit.B6, Thiamine). Raw rice will be blended with fortified rice kernels in the ratio of 100:1. The scheme was started on pilot basis in Taliparamba ICDS project of Kannur district. The fortification of Amrutham Nutrimix was given as Take Home Ration to the children in the age group of 6 months to 3 years. This was initiated in Wayand district and was later extended to all the districts of Kerala.

Campaign 12: NFHS-5 data shows an increase in the rate of anaemia among women and children, compared to the figures of NFHS-4. For children aged 6-59 months, the rate of anaemia is 39.4 per cent (35.7 in NFHS-4) and for women aged 15-49 years, the rate is 36.3 (34.3 in NFHS-4). With an aim to reduce anaemia among women and children to 20 per cent, Department has launched an awareness campaign (Campaign 12) for a period of one year from January 12, 2021.

Programmes Implemented through Kerala Social Security Mission

Cancer Suraksha and Thalolam Schemes for Child Patients – Through these schemes, KSSM provides free treatment to children below 18 years who are suffering from cancer and life threatening diseases. Cancer Suraksha Scheme is being implemented through 15 government hospitals and Thalolam Scheme is being implemented through 18 major government hospitals in the State. In 2020-21, 7,897 children were benefited through Cancer Suraksha scheme and 18,517 children through Thalolam scheme.

Cochlear Implantation in Children (Sruthitharangam) provides support to children in the age group of 0-5 years. 558 children were benefitted through this in 2020-21.

Social Support Scheme for Children Affected with Juvenile Diabetes (Mittayi) provide comprehensive care to the children/adolescents with Type-1 diabetes through Mittayi clinics established in 5 Government Medical Colleges in the State. The project supported 930 children in 2020-21.

Snehapoorvam provides educational assistance to those children who lost both parents or either of them and the alive parent is not in a position to look after the child because of financial constraints. Children including HIV/AIDS affected students will be provided with educational assistance up to degree level. This programme benefitted 25,948 children in 2020-21.

Snehasanthwanam, a relief measure to endosulfan victims, also provides educational assistance to children studying in class I to XII. This scheme supported 5,355 children in 2020-21.

Outlook

Ensuring right based service delivery to the most neglected and marginalised segments of the society should be the prime focus for which a comprehensive and scientific approach is needed in the management of institutional mechanisms. Disability management and addressing the issues

of elderly require multi-departmental integration. Problems of the elderly population could be addressed in a broad perspective by creating better awareness about Maintenance and Welfare of Parents and Senior Citizens (MWPSA) Act. As transgender welfare progresses, new initiatives should bring in new perspectives and tap the potential in unidentified sectors. While the initiatives remain largely successful, there are hurdles that need to be eliminated to ensure the continuum of the success rate and fill the gaps with the right measures.

CHAPTER

9

ART, CULTURE AND SPORTS

ART, CULTURE AND SPORTS

9.1 ART AND CULTURE

There are multiple institutions in the State working to promote and propagate the plural and democratic cultural heritage of Kerala. They include academic institutions for the performing arts and the institutions for the promotion of art and culture. Financial assistance to this sector is mainly provided through the Directorate of Culture. The major implementing agencies of Government in this field are the Directorate of Culture, Department of Archaeology, Department of Archives, Department of Museum and Zoos and the Kerala State Film Development Corporation.

The Culture Affairs Department coordinates and evaluates the activities of these diverse institutions. An apex body of culture coordinates, monitors, and evaluates the activities and programmes of these institutions. The Directorate of Culture functions as the secretariat for the Apex body and the Director as the council convenor. This committee would be instrumental in deciding on the financial support to be given to cultural organisations.

Directorate of Museums and Zoos

Under the Directorate of Museum and Zoos, there are Museums and Galleries, Zoological Park in Thiruvananthapuram City, Art Gallery and Krishna Menon Museum in Kozhikode, State Museum and Zoo in Thrissur and Heritage Museum in Kunkichira (Wayanad). These institutions are functioning as major centres of attraction to native and international tourists.

In the wake of the global pandemic, the Department had restricted visit to Museums and Zoos in 2019-20 and 2020-21. Subsequently, admission of public was suspended as per

Government orders. Department re-opened Zoos and Museums on September 14, 2021 as per Government guidelines and Covid-19 protocol.

The list of Important museums in Kerala under the Museum Department is given in **Appendix 9.1.1**.

Major Achievements of the Department in 2020-21

- Natural History Museum: Modernisation process of Natural History Museum has been completed.
- A new Art Gallery in the name of Raja Ravi Varma has been setup near Sri Chitra Art Gallery, Thiruvananthapuram.
- Setting up of Handloom Museum at Kannur: Work is expected to be completed by June 2022.
- Theyyam Museum, Kannur: Construction work has been started through the Kerala Historical Heritage Museum. The work is expected to be completed by the end of December, 2022.
- AKG Memorial Museum Kannur: Construction work has been started through the Kerala Historical Heritage Museum. The work is expected to be completed by the end of December, 2023
- Repair and maintenance activities of Sree Chitra Enclave building, 150 year old Eastern Water Fountain in front of Napier Museum and Art museum building of Thrissur Zoo have been completed.
- Initial works of Coffee table books with the help of World Wildlife Fund (WWF) on the animals in Thiruvananthapuram Zoo have been published

Table 9.1.1 Important institutions coming under the Department of Cultural Affairs

Institutions with Plan fund allocation	Institutions with Non Plan Allocation/ Recurring grants/One time grant
<ul style="list-style-type: none"> • Kerala Sahitya Academy • Kerala Kalamandalam • Kerala State Chalachitra Academy • Kerala Sangeetha Nataka Academy • Kerala Lalithakala Academy • Kerala Folklore Academy • Mahakavi Moyinkutty Vaidyar Mappila Kala Academy • State Institute of Languages • Kerala State Institute of Children's Literature • State Institute of Encyclopaedic Publications • Kerala State Book Marketing Society • Malayalam Mission • Vyloppilly Samskrithi Bhavan • Vasthuvidya Gurukulam • Bharath Bhavan • Guru Gopinath Natana Gramam • Centre for Heritage Studies • Sreenarayana International Study Centre • Kumaran Asan National Institute of Culture • Kerala State Film Development Corporation • Jawahar Bala Bhavan (5 entities) • Margi (No Non Plan) • Thunchan Memorial Trust and Research Centre (Thunchan Smarakam) 	<ul style="list-style-type: none"> • Konkani Sahithya Academy • Tulu Academy • Urdu Academy • Poorakkali Academy • A. R. Rajarajavarma Smaraka Samithi • Kerala State Cultural Activists Welfare Fund Board • Pallana Kumaranasan Smarakam • O. V. Vijayan Smarakam • Kunchan Nambiyar Smarakam Ampalapuzha • Thakazhi Smarakam • Kunjunnimash Smarakam, Palakkad • Kunjan Nambiar Smarakam • Vaikom Muhammad Basheer Smaraka Trust • Govinda Pai Smaraka Samithy • Parthi Subbah Yakshagana Samithi • Narendraprasad Smaraka Nadaka Padana Gave-shana Kendram • Unnaiwarrier Smaraka Kala Nilayam • Mayyanad C. Kesavan Smarakom • Cherayi Sahodharan Ayyappan Smaraka Samithi • Sarasakavi Mulur Smarakam

Source: Department of Culture, Government of Kerala

- Construction of Quarantine Station for animals in Thiruvananthapuram Zoo and Interpretation Centre were started during pandemic.
- Mobile application: Agreement has been signed with Keltron for developing a mobile application for developing a database on Thiruvananthapuram Zoo.

Kerala State Archaeology Department

The Kerala State Archaeology Department was formed in 1962 integrating the Travancore Archaeology Department and the Archaeological Research Centre of erstwhile Kochi. The main functions of the Department include publishing of volumes on stone-inscriptions discovered from various places, copying of writings on copper plates, conducting of excavations and explorations and measures to protect historical monuments dating back to 200 BC onwards which lie scattered in different parts of the State. There are 12 museums under the Archaeology Department. They are given in **Box 9.1.1**.

The list of important monuments under the Department of Archaeology are given in **Appendix 9.1.2**.

Major Achievements and Performance in 2020-21

- Excavation process has been started in Tippu's Fort, Feroke, Kozhikode District
- Payyannur old police station has been declared as a protected monument in memory of the national freedom struggle. After completing the conservation work, the Gandhi Smriti Museum was set up there and dedicated to public
- The second volume of the Kerala Archaeological Series, a publication on the study of ancient scripts, has been published
- Renovation and protection process of Aranmula Vazhuvellil homestead, Hill Palace Museum, Kannur CSI St:John's Church, Heritage Building of Hanveev in Kannur, Moovattupuzha Uramana Narasimha Moorthi Temple and Eravimangalom Sree

Subramanya Swami Temple are completed.

- Jewish church at Kavumbhagam, Mattancherry, Ernakulam was acquired by the Department
- District Heritage Museums of Idukki, Palakkad and Ernakulam have been set up and opened to the public
- 2D graphical documentation works of selected monuments are completed.
- Construction work of Kandomthar historical museum in Kannur has been completed. This is the first local museum in Kerala under Government sector.

Kerala State Archives Department

The State Archives Department was formed in 1962. Archives Department is the custodian of all non-current records of permanent value belonging to the State Government and its various departments, institutions and individuals. Department also works as the custodian of records of historical value, such as Government records, palm leaf and manuscripts. The Department conserves such documents and protects them scientifically so that they are preserved for reference purposes.

Major Achievements and Performance in 2020-21

- Digitisation of Palm Leaf Records and paper records: Department has digitised 1 lakh palm leaf records and 1 lakh paper records through C-DIT.
- Heritage Exchange Programme with Netherland National Archives: As part of the shared cultural heritage exchange, MoU was signed between Department and Netherlands National Archives. It aims to exchange the copy of Kerala related Dutch records to Department and the copy of Dutch related Kerala records to Netherlands National Archives. The project will be completed in 2022.
- Scientific conservation and Digitization of Cartographic Records: This project aims conservation and digitization of handwritten maps, litho maps, railway maps etc. implemented through Kerala Museum. Conservation of 24 maps has been completed.
- International Archives and Heritage Centre: For the setting up of International Archives and Heritage Centre at Karyavattom

University Campus, Thiruvananthapuram, MoU has been signed with the University of Kerala. This project will be executed through Kerala Museum.

- Setting up of Palm Leaf Museum: MoU has been signed with the Kerala Museum for the setting up of Palm Leaf Museum at Central Archives, Thiruvananthapuram. Department has a collection of 10,000 churunas numbering about one crore palm leaf records to its credit, the largest collection of this kind in the world.
- District Heritage Centre and Archival Gallery Idukki: For the acquisition and conservation of the archival documents from Idukki District, the Department has opened District Heritage Centre
- History Quiz: The State Archives Department organises history quiz every year to create awareness on history among students.
- Publication of Records: Department has completed the publishing work of following books:
 1. Mathilakom Rekhakalude Sabdakosam (Glossary of Mathilakom Records)
 2. Brochure on books published by the Archives Department

Directorate of Culture

The Directorate was formed for effectively co-ordinating and regulating the activities of all the art, literary and cultural institutions functioning

Box 9.1.1 Museums Under the Archaeology Department

- Pazhassi Tomb
- Kunjali Marakkar Memorial Museum
- Pazhassi Raja Museum
- Archaeology Museum Thrissur
- Mural Paintings Museum
- Chendamangalam Synagogue
- Hill Palace Museum
- Krishanapuram Palace
- Kottarakkara Thampuram Memorial Classical Arts Museum
- Velu Thampi Dalawa Museum
- Koyikkal Palace
- Padmanabhapuram Palace

Source: Department of Archaeology, Government of Kerala

under various departments. Various schemes are being implemented by the Directorate to preserve and nurture the rich cultural heritage of the State. The Directorate is also entrusted with the task of distribution of financial assistance to financially disadvantaged artists and provide them with a monthly pension, distribute monthly pensions to the dependents of deceased eminent artists and writers and coordinate the activities of the South Zone Cultural Centre, a Central Government Institution in Kerala. The Directorate of Culture distributes annual grants to all cultural institutions in the State to promote creative activities distinguished artistic and literary geniuses.

Several innovative programmes were initiated in 2020-21, in spite of the constraints that had existed in the wake of Covid-19 pandemic.

Major Achievements and Performance in 2020-21

1. Diamond Jubilee Fellowship for 1,000 Young Artists

The Diamond Jubilee Fellowship Scheme for Thousand Young Artists is a project to discover the power of Kerala's diverse and rich artistic heritage and present it to the community. The programme envisages selection of young men and women who have certain qualifications in fine arts and proficiency in folk arts and providing them with a platform to train people for which the artists will be supported by giving fellowships for a fixed period of time.

As part of the project, which is being implemented with the active participation of local bodies, 1,000 young artists has been selected as trainers. These artists are giving training in 47 different art forms. The art training is being imparted to the trainees irrespective of age and gender at more than thousand training centres in 171 Local Governments (Municipal Corporations, Municipalities and Block Panchayats). The trainers are given ₹10,000 each by the State Government and ₹5,000 by the local body concerned. Art training is currently being conducted online in the context of the Covid-19 pandemic. These young artists are also involved in non-artistic activities such as promotion of various Government welfare schemes, raising awareness against alcohol and drugs, reviving

local art forms, presentation and Covid-19 prevention/awareness activities. District wise details of Diamond Jubilee Fellowship are given in **Appendix 9.1.3**.

A total of 825 artists were selected from 241 art forms. Out of the total artists, 545 are men and 327 are women. The highest number of artists are from Thrissur District (126) followed by Ernakulam (116) and Thiruvananthapuram (101) Districts.

2. Rural Art Hub/Livelihood Scheme for Artists

Kerala has a rich handicraft tradition. But artisans are facing threat to losing their livelihoods and they are compelled to look for other sources of income. The "Grameena Kalakendram" or Rural Art Hub is a project implemented by the Department to conserve the handicraft heritage of Kerala and ensure livelihood sustainability for the artisans. The project is being implemented in 21 selected heritage villages in the State. Details of the heritage villages and products under which the project is being implemented are given in **Appendix 9.1.4**. Thousands of experts in the field have been trained in advanced technology and marketing strategies. In each selected village a marketing centre has been set up parallelly. The project, which will be implemented over a period of three years, will help conserve the arts and crafts tradition of Kerala and attract more youth to the field.

3. Spread of Kerala Culture

The aim of the project is to spread the art and culture of Kerala beyond State boundaries. In connection with this, several cultural exchange programmes are being conducted. Notable Cultural exchange programmes were held in Telangana, New Delhi, Chennai and Riyadh, Saudi Arabia.

Kerala's sculptural models, arts and culinary tastes are being disseminated in four languages through the Department's website. More than 2,000 photographs depicting pre-Kerala's unique art and socio-cultural life have been collected and made available on the website. In addition to this, a short video on the handicraft heritage villages located in 14 districts is available on

the website to showcase our cultural pride to the world. In the backdrop of Covid-19 pandemic, an online art programme called 'Maveli Malayalam' was organized during the last Onam season. Department of Culture in association with Bharath Bhavan conducted an online art show called 'Mazha Mizhi' also to provide a platform for artists who have lost their livelihood due to Covid-19.

4. Nattarangu

The aim of the project is to set up venues called "Nattarangu" in rural areas and small towns where public spaces for cultural activities are not available. A permanent "Nattarangu" venue was established at Vadakkancherry in Palakkad. Construction work of other venue is in progress at Chengannur in Alappuzha. The Government is considering setting up of a permanent venue for Nattarangu at Vallikunnu in Malappuram District. An estimated cost of ₹20 lakh is required for construction of open-air stage, dressing room, garden benches, solar lights, sculptures and murals for setting up a permanent venue.

5. Cultural High Level Committee

The Cultural High Level Committee was formed with the objective of providing guidance to various institutions, arts and cultural organisations and other associations under the Department of Culture, for recommending the level of financial assistance to various cultural institutions in the State, advising on policy formulation and shaping innovative initiatives in the fields of art and culture.

6. Statue of Sree Narayana Guru

On the occasion of the 100th anniversary celebration of Sree Narayana Gurudeva's proclamation of "No castes", a bronze statue of Gurudeva was unveiled on September 21, 2020 by Honourable Chief Minister. The statue is situated at Observatory Hills, opposite Kanakakkunnu, Thiruvananthapuram.

Covid-19 Relief Assistance Scheme for Artists

An emergency financial assistance of ₹640 lakh was provided to 32,000 artists and allied workers at the rate of ₹1,000 per month for 2 months for those who lost their livelihood due to Covid-19 pandemic. Artists who have been working in

the arts sector for 10 consecutive years and have settled permanently in Kerala were selected for financial assistance. ₹290.50 lakh was disbursed from the Chief Minister's Distress Relief Fund at the rate of ₹1,000 per person to 29,050 artists and allied workers who had not been able to apply for relief funding through the Department of culture and academies and had not received other financial assistance.

MAJOR CULTURAL INSTITUTIONS

Kerala Kalamandalam

Kerala Kalamandalam, deemed University of Art and Culture by the Government of India, is a major centre for learning Indian performing arts, especially those that developed in the Southern states of India, with the special emphasis on Kerala.

Kerala Kalamandalam has, for decades, been regarded as the most prestigious Kathakali school in the entire world. This legendary school of art is located in Cheruthuruthy and was originally set up by the famous poet of Malayalam, Vallathol Narayana Menon. The story goes that he recognised a subtle decrease in the interest people had in Kathakali and other traditional art forms and thus started the venture. Today, the Kalamandalam is the foremost proponent of a variety of traditional performing art forms that include Mohiniyattam, Koodiyattam, Thullal and Nangiarkoothu. It is also an official deemed University for Art and Culture.

Margi

Margi had continued its activities to promote and nurture the temple arts of Kathakali, Koodiyattam, Chakyarkoothu, Nangyarkoothu and Pathakam. Margi staged its activities at two places in Thiruvananthapuram. Koodiyattam and Nangiarkoothu are performed at Margi centre, Valiyassala. The other one near East Fort is devoted exclusively for Kathakali. At both centres, students undergo training in their chosen fields of performing art forms. Margi also provides training in musical instruments like chenda, maddalam, idakka and thimila.

Apart from regular courses, Margi conducts short-term courses, especially for foreigners Margi

offers free online training in musical instruments of Kathakali to school children. The Koodiyattam section conducts online classes for students on Saturdays and Sundays. Margi provides free training to 22 children, in addition to these seminars. Classes are also conducted to promote appreciation of Koodiyattam and Kathakali.

Since March 2020, because of Covid-19 restrictions, programmes of Margi are held online for students, artists and connoisseurs. A 5-minute video titled 'Jagratha' was produced to create awareness among the general public on Covid-19 pandemic. The video was popular on social media.

Vyloppilly Samskriti Bhavan

The basic objective of the formation of Vyloppilli Samskriti Bhavan is to foster the traditional arts. Vyloppilli Samskriti Bhavan organises and coordinates various activities of the State Government that intend to create awareness on the diverse cultural forms and transition of the State and to orient the people to appreciate culture rooted in humanity, democracy and secularism.

Major Activities in 2020-21

- Monthly cultural event: "Sanskriti Samskarikotsavam" a monthly event is held four to five days a month to promote the diverse arts and crafts of Kerala and to provide opportunities for people to enjoy different art forms.
- Annual cultural event: The birth and death anniversaries of the great poet Vyloppilly Sreedhara Menon are celebrated regularly. "Mambazhakalam", a workshop to share the sweetness of the mid-summer season as expressed by the great poet to children, is conducted in various districts of Kerala. Rhythm festivals, including classes, seminars and tributes to artists in dance, music, drama and musical arts are also conducted.
- Learning Workshops: Vyloppilli Samskriti Bhavan organises online workshop namely "Akshara Shloka Kalari" with the aim of developing language skills in school children. Students from different districts of Kerala can participate in this workshop. Classes are arranged online twice every month. On the

occasion of the 75th anniversary of India's independence, a class on freedom struggle was organised for students aged 10 to 15 years. Classes are conducted online once in a week.

- Cultural Museum: An imaginary writing room has been set up in the "padippura" with the materials used by the Mahakavi Vyloppilly Sreedhara Menon to relive his life.

The State Institute of Encyclopaedic Publications (SIEP)

The State Institute of Encyclopaedic Publications is an institution established for publishing Encyclopaedias and other similar reference books in Malayalam language with high standards expressible to that of renowned encyclopaedias like 'Encyclopaedia Britannica' and 'Americana'.

The institute has so far published 17 volumes of the General Encyclopaedia, 10 volumes of the Encyclopaedia on World Literature, one volume of Encyclopaedia on Environment, Evolution, Astronomy and Law and 10 volumes of the revised General Encyclopaedia. Three volumes of the General Encyclopaedia still remain to be published. Publication of General Encyclopaedia Volume 18, Malayalam Sahitya Vijnanakosam, Encyclopaedia on Law, completion of the preliminary works of Encyclopaedia on Kerala, Encyclopaedia on Cutting Edge Technology have been envisaged. Encyclopedia on Law has been published by the Institute on August 2, 2021.

Kerala Sangeetha Nataka Academy

Kerala Sangeetha Nataka Academy founded on April 26, 1958, under the Department of Culture, nourishes and encourages various forms of dance, music, drama and folk arts of Kerala. The academy undertakes documentation and preservation of art forms that are rare, historically important and under the threat of extinction. It is by joining hands with similar bodies like the Sangeeth Natak Akademi, GoI, the Kerala Sangeetha Nataka Academy grants affiliation to organisations, institutes awards and fellowships for outstanding artistes, and conducts seminars and workshops.

The following plans and schemes were implemented to support artists during Covid-19 pandemic.

- Sargabhoomika online platform: Events featuring artists were presented through this online platform.
- Release of 100 Kerala songs: For promoting composers, singers and directors of music, this scheme provided financial assistance for releasing 100 songs.
- Publication of Books: Through this scheme 100 books were published in 100 days.
- International Theatre Festival of Kerala (ITFOK), State professional drama competition and amateur drama competition for promoting and assisting drama troupes.
- Shadkala Govinda Marar music festival: This festival is conducted every year for promoting music. The festival includes classical concert, sopana sangeetham, classical dance, instrumental music and seminars.
- Conducted festivals and workshops for promoting, dance, music, drama and Kathakali story recital.

Malayalam Mission

Malayalam Mission is an educational and cultural institution. Malayalam Mission is an autonomous body formed by the Government of Kerala to help kids of migrant Keralites learn Malayalam and to know about Kerala culture, Malayalam Mission consists of 15 members and is headed by the Chief Minister.

In this body, secretaries from related Departments serve as official members, while, the government nominated renowned litterateurs in Malayalam serve as unofficial members. In the case of Kerala, one-third of its total population live as migrants outside the state. The growth and survival of Malayalam language depend on the language skills of the coming migrant generation. Also, mother tongue plays a vital role in maintaining cordial relationships with the land and their kith and kin. Learning their mother tongue was always taken up by the migrant population. Malayalam Mission was thereby founded to prioritise their love and concern for their language and to expand further possibilities.

Important Activities of Malayalam Mission

Malayalam Mission's curriculum courses are known as *Kanikkonna*, *Sooryakanthi* (2 Year), *Aambal*, *Neelakkurinji* (3 Year).

Bhoomi Malayalam Open Online Course (BMOOC)

Malayalam Mission Open Online Course programme was launched and now the beginners' level modules are updated in website. Through this, programme Malayalam Mission has laid a milestone in the growth of Malayalam language. BMOOC course, is developed in such a way that, it help the students who have no basic knowledge in Malayalam to learn the language from their home itself. The course offers quick and easy learning with a free registration for everyone. It is the only open online course that teaches Malayalam, anyone can learn Malayalam through this App by free registration. BMOOC is available on website www.bhoomimalayalam.kerala.gov.in. It is also available in a mobile application, which helps the users to write Malayalam letters and words through easy games and fun learning.

Now, around 1,500 users from 30 countries had registered in this application and MOOC is also conducting online interactive sessions for students. After the course the student will get an authentic certificate issued by Malayalam Mission.

Kerala State Chalachitra Academy

Kerala State Chalachitra Academy is an autonomous non-profit institution functioning under the Department of Cultural Affairs, Government of Kerala. It was founded in August 1998 for the promotion of cinema in the State. It was the first of its kind in India and Kerala was an ideal setting for such an initiative considering the fact that cinema is the most popular art form in Kerala. The Academy is an effort to counter gross commoditisation of the film medium and to promote rightful recognition of the contribution of cinema to the cultural enlightenment of the society. It is guided by the motto that cinema should contribute to the complete development of human being, both as an individual and as a social being. The Academy today has become a major player in the cultural landscape of Kerala reaching out to students, teachers, and ordinary people through various initiatives designed to carry the message of cinema as not only a means of entertainment but also a serious academic endeavour and a tool to preserve and document the history of society.

Box 9.1.2 Samam - A Signature Film

The signature film “Samam” is a cultural awareness initiative released by the Minister for Culture , government of Kerala at TNG hall on September 2, 2021. “Samam” is a project conceived by the Department of Culture to respond creatively to the recent atrocities against women and children and to spread the idea of gender equality in all sectors. The “Samam” programme for women’s equality aims at a variety of activities. Bharat Bhavan, Malayalam Mission, Kerala Film Academy, Kerala Film Development Corporation and Kerala Institute of Languages under the Department of Culture are spearheading these campaigns through various activities. The Samam project, which will last for a year, aims to implement various programmes.

Source: Kerala State Chalachitra Academy

25th IFFK Amid Covid-19

The 25th edition of the International Film Festival of Kerala (IFFK) organised by Kerala State Chalachitra Academy was held from February 10, to March 5, 2021. The IFFK which began in 1996 has evolved into one of the best film festival in India over the years.

The IFFK is the largest cultural event organised by the Government of Kerala. It is held in December traditionally. The global pandemic Covid-19 had forced the Academy to shift the film festival to the month of February 2021. The sanction from International Federation of Film Producers Associations (FIAPF) which provides accreditation to festivals across the globe was obtained to shift the dates and conduct festivals in three additional venues. The decision to add three more venues was taken to limit the number of delegates gathering for the festival. The festival usually attracts delegates numbering around 14,000. The festival held in Thiruvananthapuram for eight days was redesigned as four festivals of five day duration. The content was same everywhere. Details of venues and delegates are given **Table 9.1.2.**

Centre for International Film Research and Archives (CIFRA) Film Archive and Fellowships

Kerala State Chalachitra Academy has collected 10,000 world classic films and more than 1,000 film magazines of the last decades, in the current fiscal year. The film posters, notices, film magazines and other memorabilia collected for CIFRA will be displayed at the proposed Malayalam Cinema Museum. In an effort to encourage serious academic research in Malayalam cinema, the Kerala State Chalachithra Academy has awarded 26 fellowships and 12 research grants. As part of the fellowship programme, the candidates are to do extensive research on various topics relating to Malayalam cinema and come up with a thesis within 6 months. The fellowship amount comes to the tune of ₹50,000 and the research grant is ₹25,000. The candidates were selected based on the interview and evaluation of synopsis submitted by the candidate. As part of the programme, out of 37 fellowships and research grants, 34 theses have been submitted so far. After the internal and external valuation, the selected research works will be published by the academy.

Table 9.1.2 Details of venues and delegates of 25th IFFK

Sl. No	Venue	Dates	No of theaters	No of Delegates
1	Thiruvananthapuram	February 10-14, 2021	6	3757
2	Kochi, (Ernakulam)	February 17-21, 2021	6	2520
3	Thalassery, (Kannur)	February 23-27, 2021	5	1612
4	Palakkad	March 01-05, 2021	5	1727

Source: Kerala State Chalachitra Academy

Short Films on Isolation and Survival

The Kerala State Chalachithra Academy released 10 short films made by the winners of the short film scriptwriting competition held from July 9 to 11, 2021 on Youtube channel. The winners were selected from the competition on the topic “Isolation and Survival”. It was an attempt by KSCA to empower and engage the creative minds during the lockdown. The entries were invited from Malayalis across the globe. Among the total 730 entries, the winners were selected by a three member jury panel consisting of filmmaker Shyama Prasad, Blessy and writer Chandramathi. The winners received financial assistance of ₹50,000 each for the production of short films. One of the most popular films of the lot was Shanoj R. Chandran’s “*Oru Barbarinte Katha*”.

Kerala is a treasure box of folk and classical art. Colourful festivals, delightful cuisine, beautiful beaches, backwaters and many other features make the State really a “God’s Own Country”. The culture of Kerala is a fusion of different types of performing arts and diverse art forms. It has a profound effect on the lifestyle of every citizen in Kerala.

9.2 SPORTS AND YOUTH AFFAIRS

The declared objective of the Government of Kerala to create a vibrant culture of sports in the State. Sports persons will be encouraged to participate in competitive and high-performance events. The culture of sports is to be based on the achievements of social goals of good health, cultural well-being, broad-based recreational facilities, and social inclusiveness. Keeping in view the growing demands of the sector, the Government of Kerala has taken several initiatives to provide necessary assistance to sports persons by way of training and exposure in competitions and investment in advanced infrastructure and equipment.

Sports Institutions under Government of Kerala

Government of Kerala provides financial assistance to the following institutions coming under the sector.

- I. Directorate of Sports and Youth Affairs
- II. Kerala State Sports Council
- III. Kerala State Youth Welfare Board
- IV. Kerala State Youth Commission

I. Directorate of Sports and Youth Affairs

Directorate of Sports and Youth Affairs (DSYA), established in 1986, plays a leading role in the development and promotion of sports and games in Kerala. Its activities cover promotion and development of sports and games in the State by providing appropriate and good quality infrastructure, imparting awareness among public on the importance of sports, providing facilities for training and grooming of sports persons to achieve international standards. Besides this, DSYA takes up activities to bring in latest technologies and innovations in sports to provide and augment the competitive skills of sports persons from Kerala.

Participation in Khelo India Youth Games

Khelo India Youth Games (KIYG), formerly known as Khelo India School Games (KISG), held annually in January or February, are the national level multidisciplinary grassroot games in India held for two age group categories, namely 'under-17 years school students' and

'under-21 college students'. Every year best 1,000 children will be given ₹5 lakh each as an annual scholarship to participate in the international sporting events. The third Khelo India Youth Games was held from January 10, 2020 to January 22, 2020 in Guwahati, Assam. Total participants from Kerala were 280. Among 14 disciplines of the events, Kerala won 40 medals (5 gold, 15 silver and 20 bronze).

Kerala Shooting Academy

Kerala Shooting Academy was established on February 3, 2020 to mould world class shooting champions from Kerala in collaboration with the National Rifle Association of India. The Academy provides training to 90 students in one batch.

Play for Health

This scheme aims to enhance physical and mental abilities of children by initiating them to sports and games. The primary focus is to help the children develop an aptitude in a variety of games which could later be developed through systematic and scientific training. It also aims to convert schools as sporting hubs and ensure regular physical activity among school children. The scheme was inaugurated on January 25, 2021 in Thalapp Mixed Upper Primary School, Kannur. The scheme is implemented in 25 schools of the State with the technical support of Small Industries Development Corporation (SIDCO). All the students studying in these schools are the beneficiaries of this scheme.

Sports Life Fitness Centres

Sports and fitness play a vital role in the overall development of each citizen and inculcates team spirit and develops strategic and analytical thinking, leadership skills, goal setting and risk taking ability. International standard air-conditioned Sports Life Fitness Centres have already become operational at nine locations in the State. It is planned to establish at least one such centre in all the districts. The Sports Life Fitness Centres are expected to promote a sporting culture among the people of the region and encourage healthy living.

Box 9.2.1 Special projects

- a. **Kick-off:** This programme is intended to sharpen the football playing ability of children. The Kick off scheme is a grassroot training programme which aims to bring up talented children from sub urban, rural, tribal and other vulnerable areas by catching them young. The scheme is implemented in 19 centres across the State with 25 students in each centre. 18 centres are for boys and one centre is for girls. In addition to the 19 centres, steps are being taken to start 14 more centres exclusively for girls this year.
- b. **Slash:** This programme started in June 2019 is intended to improve the ability of swimming of children between the age group 8 to 18 years. The scheme is being implemented in five districts (Kasaragod, Wayanad, Palakkad, Thrissur, and Idukki).
- c. **Hoops:** Grassroot Basketball Programme: This is a project to find and train children who are interested in basketball at an early age. This scheme was launched in 2020 in 10 schools from 5 districts. The aim is to extend the programme to all schools in the State. The target is to give training to 120 students in each centre between the age group of 5 to 9 years within 6 months.
- d. **Sprint:** This programme is a grassroot training programme for Athletics: Sprint is a project designed to find world-class athletes at an early age and restore Kerala's lost glory at the international level. For performance enhancement, training at grassroot level across the State, with inter school and inter district tournaments has to be promoted. Hence, athletics has to be identified as a top priority sports discipline and continuous training has to be provided to school going children between the age group of 5 to 12 years. This scheme aims to encourage talented children from sub urban, rural, tribal and other less tapped areas by catching them at young age.

Stadiums

An amicable ecosystem is a primary requisite for budding sport prodigies, laying emphasis on high performance and helping in building and improving confidence level of children and youth. Among various facilities for sports, stadiums are very essential for the promotion of sports. There are 26 stadiums in the State. The list of major 10 stadiums in Kerala with their use and capacity is given in **Table 9.2.1** and the complete list is given in **Appendix 9.2.1**.

Green Field International Stadium

The Sports Hub, Thiruvananthapuram, commonly known as Greenfield International Stadium, and formerly known as Trivandrum International Stadium, is a multi-purpose stadium in Kerala, used mainly for football and cricket associations. The stadium is located at Kariavattom in Thiruvananthapuram. Built over 37 acres, it is a completely integrated sport and leisure complex, the first of its kind in India.

The ground is designed such that it can be used for international cricket and football tournaments and matches. The playing arena in the stadium has been constructed in line with Federation Internationale de Football Association (FIFA) regulations and International Cricket

Council (ICC) norms. It has a seating capacity for 55,000 spectators. The stadium has been demarcated into four zones, where the north zone is dedicated to cricket, the east zone for football and each zone has a player lounge, gymnasium, media centre, and stock room. Shopping malls and a food court are placed in the south zone. The adjoining Pavilion accommodates the latest facilities for squash, volleyball, basketball, table tennis, a swimming pool following Olympic games norms. It is the first fully eco-friendly stadium in India, it is surrounded by green plants and also has a rainwater harvesting facility. The State Environment Impact Assessment Authority and Pollution Control Board have commended the builders for the green initiatives taken in the project. The Sports Hub, Thiruvananthapuram was adjudged as the winner of the David Vickers Award for New Venue of the Year, in the Stadium Business Awards 2016 held at the Santiago Bernabéu Stadium, Madrid, Spain on June 1, 2016.

II. Kerala State Sports Council

Kerala State Sports Council is a statutory body formed as per Kerala Sports Act 2000 (Act 2 of 2001). Kerala State Sports Council was established in 1954 under Charitable Societies Registration Act and reconstituted in 1974 for

Table 9.2.1. Major Ten Stadiums in Kerala, by use and seating capacity

Sl No	Name of Stadium	Use	Seating Capacity (Appx. Nos)
1	Corporation Stadium, Kozhikode	Outdoor Stadium (Football)	80,000
2	Karyavattom Stadium	Greenfield Stadium (Cricket ball/Football)	50,000
3	Lal Bahadur Shastri Stadium, Kollam	Outdoor Stadium	30,000
4	Chandrasekaran Nair Stadium, Thiruvananthapuram	Outdoor Stadium (Football/Athletics)	25,000
5	Medical College Stadium, Kozhikode	Outdoor Stadium (Football/Athletics)	15,000
6	Corporation Stadium, Thrissur	Outdoor Stadium (Football)	15,000
7	Rajiv Gandhi Stadium, Kochi	Indoor Stadium (Multi sports)	10,000
8	Hockey Stadium, Kollam	Outdoor Stadium (Hockey)	5,000
9	Indoor Stadium, Kannur	Indoor Stadium (Multi sports)	5,000
10	Swimming Pool, Pirappancode, Thiruvananthapuram	Swimming Pool	5,000

Source: Directorate of Sports and Youth Affairs

promoting sports in Kerala under the name of Kerala Sports Council. The Kerala Sports Council was dissolved and Kerala State Sports Council came into existence and is at present functioning as per Kerala Sports Act 2000 and Kerala Sports Rules 2008. There are 25 centralised sports hostels, 53 college sports hostels and 43 school sports hostels functioning under Kerala State Sports Council.

Sports Academies

Under the direct control of the Kerala State Sports Council, 31 District Sports Academies are functioning in different districts in different sports with the aim of selecting the best athletes and giving them high level training. In addition, there are 51 sports academies and 23 sports academies functioning at the college and school levels respectively. Athletes in the academies are given a boarding and lodging charge of ₹200 per day and a monthly washing allowance of ₹200. In addition, their medical expenses and travel and daily expenses for participating in the competitions are met by the Council. They are trained under the expert guidance of the Council. The Council also provides sports equipment and sports kits for training in the academies.

Rural Coaching Centres and Day Boarding Centres

There are nine Rural Sports Coaching Centres functioning in the State under the control of Kerala State Sports Council. The Kerala State Sports Council gives remuneration to the trainers of these centres and refreshment to athletes. There are 61 day boarding centres in various sports in 14 districts. The Council provides essential sports equipment and refreshment for the trainers. Funding for the day boarding scheme is provided through the District Sports Councils.

Centre of Excellence (Elite Training Centre – Athletics, Volleyball, Basketball)

Kerala State Sports Council has implemented Elite Scheme in various disciplines like athletics, volleyball and basketball in order to nourish the sports skills among young talented sports persons and to make them capable of securing medals in Asian, Common wealth, and Olympic Games.

Promising sports players are selected on merit after selection trials and they are provided with monthly boarding and lodging expenses, training under expert coaches, medical treatment, study facilities

Box 9.2.2 Achievements of the Directorate of Sports and Youth Affairs during 13th Five Year Plan

- The Directorate of Sports and Youth Affairs, in collaboration with the University of Victoria, Australia, conducted a training programme for Master Trainers in 2020-21 through international partnership programme.
- The Kerala Shooting Academy was started on February 3, 2020 at the Vattiyoorkavu Shooting Range in association with the National Rifle Association to mould world-class shooting champions.
- Self-defence for women programme envisages promotion of sports disciplines such as Kalarippayattu, Taekwondo, Judo and Karate for equipping girls to protect themselves from violence and enabling them to excel in national and international tournaments.
- Grassroots training programmes like Kickoff (Football training programme), Hoops (Basketball training programme) Sprint, (Athletic training) and Slash (swimming training) were started and steps have been taken to launch Judoka (Judo training programme) and Punch (boxing training programme).
- Conducted Beach Games, Marathon and International Sports and Expo.
- The construction and renovation of various stadiums are being undertaken with the budget allocation of the Sports Department and with the financial assistance of KIIFB. Indoor stadiums, swimming pools, football courts, basketball, volleyball and shuttle courts were also constructed depending on the availability of space at various District and Block Panchayat levels.
- Infrastructure has been developed in GV Raja Sports School, Thiruvananthapuram and Sports division, Kannur and programmes such as Nutrition Projects, Inspire Scholarships and Legends Talk Touch were implemented for children in these schools.
- One cryostat equipment was purchased for biopsy test and installed in Thiruvananthapuram Medical College for evaluating the fitness of the students in GV Raja Sports School, Thiruvananthapuram and Kannur

Source: Directorate of Sports and Youth Affairs Department

and conditioning facilities. Currently there are four centres functioning under the Elite Scheme (Table 9.2.2).

Table 9.2.2 Centres of Excellence functioning under the Elite Scheme

Centre	No of Students	No. of Coaches
Lakshmbai National College of Physical Education Kariavattom (athletics)	10	2
Thriprayar Volleyball Academy, Thrissur	23	1
Basketball Academy, Kannur	9	1
Football Academy, Ernakulam	6	1

Source: Kerala State Sports Council

Various Awards

The various types of awards given by the Kerala State Sports Council are given in Table 9.2.3.

Dr APJ Abdul Kalam Scholarship Scheme

Kerala State Sports Council implements Dr APJ. Abdul Kalam Scholarship Scheme for

encouraging eminent sports players in the State. Under this scheme, 11 sports persons from the age group of 14 to 20 years are granted scholarship of ₹10,000 per annum. Scholarships are awarded to deserving athletes based on their performance in the respective year. The athlete will receive a scholarship till the completion of 24 years of age or up to a maximum of five years on the basis of performance each year.

Kayika Kshamatha Mission

The Kayika Kshamatha Mission envisages the improvement of physical fitness level of the students as well as the general public. As phase 1 of the project, the overall fitness level of the students in the school was assessed. The results showed that an alarming figure of more than 80 per cent of students in schools in Kerala are below the desired fitness level. In the second phase of the Kayika Kshamatha Mission envisages the improvement of physical fitness level of the students as well as the general public and also creating awareness about physical literacy. In the programme, the entire population of the State will be categorised into four groups for the ease of

Table. 9.2.3 Various Sports Awards by Kerala State Sports Council

Sl. No.	Awards	Description
1	GV Raja Award	The GV Raja Award is the highest honour presented to sportspersons instituted by the Council given in the name of Lt. Colonel Godavarma Raja for the best male and female athlete in Kerala A cash prize of ₹3 lakh, a plaque and a certificate of appreciation are given to the awardee
2	Olympian Suresh Babu Memorial Lifetime Achievement Award	The award is instituted in the memory of Olympian Suresh Babu and given to individuals who have made comprehensive contributions in the field of national and international sports. A cash prize of ₹1 lakh, a plaque and a certificate of appreciation are given to the awardee
3	Best sports coach	A cash prize of ₹1 lakh, a plaque and a certificate of appreciation are given to the best sports coach in Kerala
4	Other sports awards	Best Sports Teacher (School Level) Best Sports Teacher (College Level) College with outstanding athletic achievements School with the best athletic achievements Best Sports Academy - School Level (Boys and Girls) Best Sports Academy - College Level (Men and Women) A cash prize of ₹50,000, a plaque and a certificate of appreciation are given to the awardee
5	Kerala State Sports Council Media Awards	Best Sports Photographer Excellent Visual Media Feature Best Sports Book Best Sports Journalist A cash prize of ₹50,000, a plaque and a certificate of appreciation are given to the awardee

Source: Kerala State Sports Council

implementation and monitoring. The categories are:

- Nursery to fourth standard students
- Fifth standard to twelfth standard and university students
- Youth and working professionals
- Senior citizens

The project will be implemented with the collaboration of various departments of the Government of Kerala, namely the Kerala Sports Council, Department of Education and Department of Local Self Government.

Operation Olympia 2020-2024

Operation Olympia envisages to improve the top and elite potential sports persons from eleven sports disciplines across the State and train them with state of the art infrastructure and training facilities including services of foreign coaches and exposure in international events. The prestigious project of Department of Sports, Government of Kerala “Operation Olympia

2020– 2024” was launched on May 28, 2017. Kerala State Sports Council is preparing the athletes and sports persons from Kerala to win medals in next Olympics. An expert committee has been formed for the said purpose and a series of stakeholders discussion for formulating the project namely ‘Operation Olympia’ was initiated. The Operation Olympia focuses on five selected disciplines namely Athletics, Boxing, Badminton (shuttle), Fencing and Rowing. The students trained under this scheme received 20 gold, 13 silver and 14 bronze medals in 2018-19 in various national and international games.

Kerala State School Sports and Games

The Director of General Education conducts sports and games events for school children every year. School level competitions are conducted in all high school and higher secondary schools in games and athletics.

Box 9.2.4. The Tokyo Olympics 2021

In Tokyo Olympics 2021, a 228-member strong contingent from India participated in 18 sport events. India's Olympic contingent for Tokyo 2020 included 127 participants from 18 sports categories, including two alternate players and one reserve goalie in men's and women's hockey squads, respectively. India won seven medals in the following games

Game	Athlete	Medal
Javelin throw	Neeraj Chopra	Gold
Wrestling (57 Kg)	Ravi KumarDahiya	Silver
Weight Lifting (49 Kg Women)	Mirabai Chanu	Silver
Women's Singles Badminton	PV Sindhu	Bronze
Women's Welterweight Boxing	Lovlina Borgohain	Bronze
Hockey	Indian Hockey Team	Bronze
Wrestling (65 Kg)	Bajarang Punia	Bronze

From Kerala, nine players participated in the Tokyo Olympics 2021. Out of which, six were in track and field. Shri P. R. Sreejesh, member of the Indian hockey team won the bronze medal. He is the second Keralite to win an Olympic medal. The participants from Kerala, were:

- Amoj Jacob - 4 × 400 m relay
- Muhammed Anas Yahiya- 4 × 400 m relay
- Noah Nirmal Tom-4 × 400 m relay
- Alex Antony-4 × 400 m relay (Mixed)
- Irfan Kolothum Thodi-20 km walk
- Jabir M Palliyalil-400 m hurdles
- Murali Sreeshankar-Men's long jump
- P. R. Sreejesh-Field hockey
- Sajan Prakash-Men's 100 m butterfly, Men's 200 m butterfly

Inter school competitions are held in the following six age groups—seniors (below 19 years), juniors (below 17 years), sub-juniors (below 14 years), kiddies (below 12 years), LP kiddies (below 10 years), LP mini (below 8 years) for aquatics, athletics, and 17 other category games. Regular school going students are eligible for grace marks. Sports and games are conducted in sub-District level, District level and State level. The performance details of aquatics, athletic and games for the year 2019 are given in the **Appendix 9.2.2**, **Appendix 9.2.3** and **Appendix 9.2.4** respectively. The overall performance of Districts for the Sports Meet 2019-20 is given in **Table 9.2.4**.

In the Sports Meet conducted in 2019-20, Thiruvananthapuram district won 99 gold, 102 silver and 55 bronze medals and topped the list

with a total of 256 medals. Ernakulam District was in second place with a total of 139 medals followed by Palakkad in the third place with 118 medals. In the National Meet 2019-20, Kerala won 262 medals (43 gold, 146 silver and 73 bronze medals).

Box 9.2.3 Stadiums and swimming pools under the auspices of Kerala State Sports Council

- High Altitude Training Centre, Munnar
- Sripadam Stadium, Attingal
- Pirappankode International Swimming Pool
- Alappuzha Swimming Pool
- Nanniyode Swimming pool
- Kottayam Indoor Stadium
- Wayanad District Stadium Munderi, Kalpetta (Jinachandra Stadium)
- G.V Raja Indoor Stadium, Shankhumukham

Source: Kerala State Sports Council

Table 9.2.4 District-wise medal status in the Sports Meet, Kerala 2019-20

Sl No	District	Gold	Silver	Bronze	Total
1	Thiruvananthapuram	99	102	55	256
2	Ernakulam	51	35	53	139
3	Palakkad	32	44	42	118
4	Thrissur	32	33	44	109
5	Kottayam	32	33	41	106
6	Kozhikode	27	16	37	80
7	Kannur	28	20	19	67
8	Wayanad	6	14	22	42
9	Malappuram	11	11	19	41
10	Alappuzha	13	11	14	38
11	Idukki	4	10	10	24
12	Kasargod	4	6	9	19
13	Kollam	5	5	5	15
14	Pathanamthitta	2	3	3	8

Source: Directorate of General Education (Sports Wing)

III. Kerala State Youth Welfare Board

Kerala State Youth Welfare Board was constituted in 1985. The main objective of the Board is to co-ordinate the youth welfare and development activities targeting the youth. The Board provides assistance to youth clubs and organisations for organising training programmes and self-employment initiatives to the jobless youths.

Major Activities:

- **Yuvasakthi:** Major activities of the scheme are to promote social development programmes and voluntary programmes through youth clubs, to enhance the participation of youth in Keralotsavam and in Gramasabha, to organise labour banks and other employment guarantee programmes and to disseminate Youth Welfare Board's activities to the lowest level in the society. Yuvasakthi programme is co-ordinated by the district co-ordinators in the State. These co-ordinators are actively involved in Covid-19 preventive activities.

- **Youth Clubs:** Kerala State Youth Welfare Board aims to empower the youth clubs in Scheduled Caste and Scheduled Tribe colonies and coastal areas through awareness programmes, training for competitive exams, health campaigns, environmental activities, distribution of sports kits and Youth Kerala Express Reality show. Financial assistance of ₹8,000 is given to 1043 youth clubs and 457 yuva youth clubs.

The main activities of the youth club in 2020-21 were the following.

- Funds provided for cloth bag making training conducted by youth clubs.
- Youth clubs, co-ordinators and youth centres cultivated 175 acres of land.
- Cleaned schools and hospitals.
- Youth Welfare Board conducted career guidance programme in 200 centres for SSLC and class 12 students from February 13 to 18, 2021
- **Youth Kerala Express:** Youth Kerala Express is a project aimed at presenting the beneficial activities of youth clubs to the public. The scheme, introduced in 2018-19, has benefited more than 100 Youth Clubs. Out of the 100 clubs, 13 clubs were selected for zone wise competition. Cash prizes were given to zone-wise winners. The project has popularised the activities of youth clubs in the society.
- **Entrepreneur training (LED Challenge):** In Idukki, 680 youth were trained for making LED bulbs. The LED bulbs were sold and the money received (₹2,98,418) was donated to the Chief Minister's Disaster Relief Fund.

- **National Folk Fest of Kerala:** The National Folk Fest of Kerala aims to promote the indigenous folk art of the different states of the country. The delegation of National Folk Fest comprises delegates from outside the State, who present their unique folk arts and cultural programmes, interact with young talent in the community and learn about the work of others. People from neighbouring states get opportunity to get acquainted with the families of Kerala and to experience the family life, culture and lifestyle of the people.

- **Keralolsavam:** Kerala State Youth Welfare Board organises Keralotsavam with the aim to provide an opportunity for the youth to express their talents in the field of culture, arts and sports. In this festival, youth in the age group of 15 to 35 years can participate in cultural, arts and sports competitions at Block, District and State levels. Primary and District level programmes are conducted in all 14 districts. In this programme, around 5 lakh youth and 6,000 clubs participate every year. The winners get cash prize at LSGD and level, District level and trophy for individual champions who achieve high points in the State level. Due to Covid-19 pandemic, Keralotsavam was not conducted in 2020-21.
- **Kerala Voluntary Youth Action Force:** In 2018, Kerala witnessed an unprecedented flood in its history. In 2019, the State suffered a similar flood. The youth of Kerala, volunteers, cultural workers, youth clubs, students, bureaucrats, people's representatives, NGOs, workers, especially fisherfolk played a valuable role in saving many lives. The power of youth in times of adversity was visible to all. This gave the idea of the formation of Kerala Volunteer Youth Action Force (KVYAF) in the State. The KVYAF is a volunteer force formed with the aim of preparing youth volunteers to deal with natural disasters. Around 1,15,000 youth registered under the force, 3,000 youths were trained and Volunteer force set up in 14 districts. These volunteers of the KVYAF have been deployed in community kitchens and for delivery of medicines and essential items during lockdown periods. The Kerala State Youth Welfare Board has set up collection centres in 14 districts under the aegis of the KVYAF to provide essential items to disaster affected persons.
- Preventive measures against Covid-19 pandemic - Break the chain: - The KVYAF has been engaged in preventive activities of Covid-19 pandemic since March 14, 2020. Various government schools, railway stations, bus stands, court compounds and other public places were cleaned by using sanitiser. Water kiosks were installed at District headquarters and other public places for hand washing.
- Lockdown help Desk: - KVYAF set up help desks at District level to distribute medicine and necessary goods to the people at the time of lockdown. They played a dual role in the community kitchen programme, as a volunteer and as a co-ordinator.
- Steps were taken to utilise the facilities of libraries and clubs to make arrangements to those students who do not have access to online school classes.
- Necessary facilities were arranged for the people in quarantine centres in various districts.

Other Youth Development Programme

The Board acknowledges the young achievers in various fields in the society by felicitating them with "Swami Vivekananda Yuva Prathibha Puraskaram". Best youth club award is given district wise and one among them is selected for award at the state level. The Board organised media camps for young journalists and journalism students. It implemented various schemes for the youth under various fields and provided financial assistance to various youth projects and schemes implemented through District Youth Centres. Social media workshops and seminars were organised to create awareness among the youth about the emerging trends in media. Programmes to commemorate Environment Day, Gandhi Jayanthi, Independence Day, Anti Narcotic Day and other important days were organised. The Board also publishes a magazine namely 'Yuvatha' to spread awareness among the general public about the activities of the Board and the Youth Clubs.

III. Kerala State Youth Commission (KSYC)

Kerala State Youth Commission is a quasi-judicial body constituted in 2013 to empower the youth in Kerala and to protect their rights. It is functioning as a grant-in-aid institution under the Government of Kerala.

The activities of KVYAF will be further expanded in the coming years. It is aimed to extend the force to the local government level. The aim is to set up a Youth Action Force at the Panchayat, Municipality and Corporation level and provide them with training and equip them for various volunteer activities. The KVYAF did the following activities during Covid-19.

The objective of the Commission is to guide, assist, provide and develop the youth in the State and serve as a protector of youth affairs and educate the youth to maintain the dignity of labour and also for securing better education and employment.

The main activities of Kerala State Youth Commission are;

- Awareness programmes under Project Co-ordinator in colleges/venues for youth and among youth in SC/ST Colonies: In 2020-21, a training camp was conducted for youth defence force in Kollam and the trained youth conducted 312 programmes. About 74,865 youth participated in these programmes.
- District seminars, symposiums and workshops: National level seminar in collaboration with Bharat Bhavan for online classical dance festival was conducted. Mohiniyattom, Bharathanatyam, Kuchippudi, Manipuri, Kathak, Odissi, Kerala nadanam, Chow dance, Classical dance, Rabeendra dance, Vilasini natyam and Soobhi dance are some of the dance forms that are included in the festival.
- Adalath and local level sittings: The Commission has been able to restore the rights of many youth through its intervention on complaints of denial of justice to the youth. In

2020-21, commission received 800 complaints and out of which 584 were resolved.

- Youth Icon Awards: The Commission presents the Youth Icon Award to honour young people who have excelled in the fields of art, culture, literature, sports, agriculture, social work and entrepreneurship.
- Empowering the marginalised youth and health protection: In collaboration with the Department of Social Justice and the Department of Scheduled Tribes, the Commission aims to provide health awareness to tribal women and to promote the employment, health and social development of youth in the tribal colonies.
- Youth Legal Support Centre: The Youth Legal Support Centre is a scheme to provide services to the economically and socially backward youth and those in need of legal assistance through the toll free number '7511100900'.
- EMS Memorial Inter University Elocution Competition and National Youth Day programme: Every year on January 12, the birthday of Swami Vivekanadan is celebrated as National Youth Day. On the occasion of National Youth Day, the winners of EMS Memorial Inter University Elocution Competition are applauded and prizes are distributed.

Box 9.2.5 *Achievements of Kerala Youth Welfare Board in 13th Five Year Plan*

- Conducted training for PSC Exam and KAS main exams
- State Level folklore song competition called 'Maninadam' was conducted on the death anniversary of Shri. Kala Bhavan Mani at Chalakudi in Thrissur District.
- State level programme "Sevens Football" was conducted at Kozhikode
- Felicitated Shri. Chitharesh Natesan, the first Indian to be crowned Mr Universe 2019 at the 11th World Body Building and Physique Sports Championship (WBPF) 2019 that was held in South Korea.
- Short film documentary festival was conducted online. 100 films were screened and 24 short films were played. nine films were selected for award.
- Conducted Kalaripayattu training for women and conducted strengthening programme for transgender persons named 'Marivillu'.
- Conducted Mime Fest and Young Talent Fest
- International dance and music Festival called 'oneness' was organised by the Board with the participation of artists from the State and other parts of India and other countries.

Source: Kerala State Youth Welfare Board

- Cultural Exchange Programme for outstanding Youth and Youth Commission Facilitation Programmes: Green youth programme and virtual employment exchange are the facilitation programmes conducted by the Commission.

Kerala State Youth Commission has formed 'Youth Defence Force' which works 24 hours for the essential services. They undertook the following activities during Covid-19 pandemic.

- The Youth Defence Force provided voluntary service to distribute essential items for living and medicines during the Covid-19 lock down period.
- With the help of the Fire Force Department, they distributed medicines to the cancer patients of Regional Cancer Centre, Thiruvananthapuram.
- Essential medicines not available in the local medical store were made available to the needy in 14 districts.
- They distributed reading books to those who were affected by Covid-19 and stayed in the isolation ward.
- Books were distributed to the households from the local library
- Participated in blood donation activities
- Helped to distribute medicines to the mental patients of the Mental Hospital Medical Centre, Thiruvananthapuram.
- Government decisions and information were communicated through electronic social media and printed media.
- Participated in the cleaning activities in the isolation wards and other public places.

CHAPTER

10

DIASPORA

DIASPORA

Kerala's migrants play an important role in the social, economic, and cultural life of the State.

Migration from India

As per the estimates by United Nations Department of Economic and Social Affairs, India has the highest number of international migrants in the world. Around 18 million Indians were living abroad, followed by Mexico (11 million), Russia (11 million), China (10 million), and Syria (8 million). According to the report UAE, US and Saudi Arabia host the largest number of migrants from India.

There are two types of international migration from India: first, workers who are categorized as 'unskilled' or 'semi-skilled' and who migrate mostly to the Gulf countries. Second, the semi-skilled workers, professionals and students who wish to migrate to the advanced countries.

Kerala Migration Status

The Kerala Migration Survey (KMS) shows a decline in emigration. The total number of emigrants in 2013 was 24 lakh and it reduced to 21 lakh in 2018. This recorded a decrease of around 12 per cent from 2013 to 2018. The number of return emigrants estimated by KMS 2018 is 12.95 lakh, which is about 60 per cent of the total number of emigrants from Kerala. KMS 2018 has confirmed the trend that was observed in the last round that emigration from Kerala is falling and return migration is on the rise.

District Wise Emigrants

Table 10.1.1 shows the District-wise emigrant population from Kerala in 2018. Malappuram District had the highest number of emigrants (4.06 lakh) followed by Kannur (2.49 lakh), Thrissur (2.41 lakh) and Kollam (2.40 lakh). The two hilly districts of Kerala, Wayanad and Idukki, have the lowest number of emigrants.

They are 0.36 lakh and 0.32 lakh respectively.

Table 10.1.1 District-wise NRKs in Kerala 2018

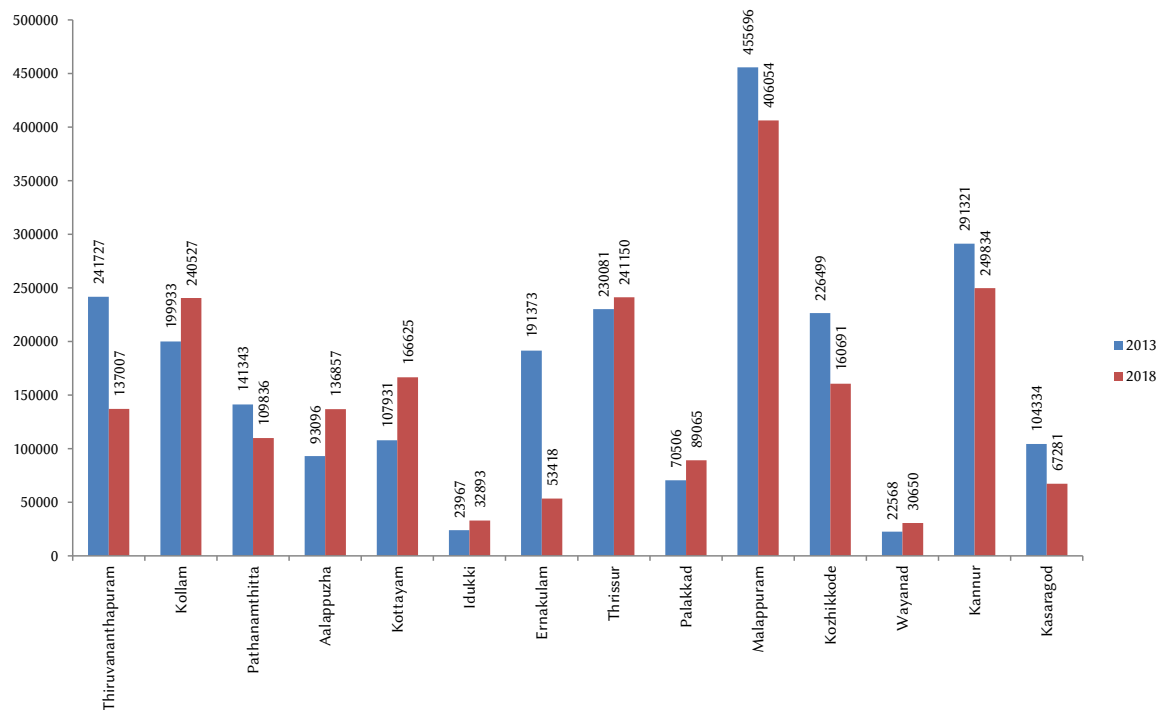
Estimated Emigrants from Kerala	
Districts	2018
Thiruvananthapuram	137007
Kollam	240527
Pathanamthitta	109836
Alappuzha	136857
Kottayam	166625
Idukki	32893
Ernakulam	53418
Thrissur	241150
Palakkad	89065
Malappuram	406054
Kozhikode	160691
Wayanad	30650
Kannur	249834
Kasaragod	67281
Total	2121888

Source: Kerala Migration Survey 2018, CDS, Thiruvananthapuram

District-Wise Details of Emigrants in Kerala 2013 and 2018

District-wise details of emigrants from Kerala in 2013 and 2018 are given in **Figure 10.1.1**. The total number of emigrants in Kerala has decreased from 24 lakh in 2013 to 21 lakh in 2018. That is a decrease of 11 per cent within the time span of 5 years. Of these, Ernakulam District shows a decline of 72 per cent (**Appendix 10.1.1**) Though the total number of migrants in the State reduced in the period 2013-2018, there was an increase in some districts, such as, Wayanad, Palakkad, Thrissur, Kottayam, Idukki,

Figure 10.1.1 District-wise number of emigrants in Kerala, 2013 and 2018



Source: Kerala Migration Survey 2018, CDS, Thiruvananthapuram

Alappuzha, and Kollam. The highest decline was recorded in Ernakulam, Thiruvananthapuram and Kozhikkode districts.

Figure 10.1.2 shows the number of emigrants from 1998 to 2018 in five year intervals. During 2015-2018, the number of NRKs decreased by 2.78 lakh. The details of emigrants from various districts from 1998 to 2018 (five year interval) are shown in **Appendix 10.1.2**.

Return Emigration

Return emigrants are defined as persons who have lived outside Kerala for at least six months either for work or study or any other purposes (including accompanying spouses and parents) and now live in a household in Kerala. According to Kerala Migration Surveys, about 90 per cent of Kerala migrants leave for the Gulf for temporary contract employment. As the Gulf countries do not provide citizenship, all of them have to return to Kerala once their contract expires (Emigration and Remittances: New Evidences from The Kerala Migration Survey, 2018: S. Irudaya Rajan, K.C. Zachariah January 2019).

Trends of Return Emigration in Kerala

The number of return emigrants estimated by KMS 2018 is 12.95 lakh, about 60 per cent of the number of emigrants. **Figure 10.1.3** shows an increase since 2013, but the per cent of increase has declined from 8.1 in 2013 to 3.3 per cent in 2018. Details of return emigrants in districts from 2008 to 2018 are shown in **Appendix 10.1.3**.

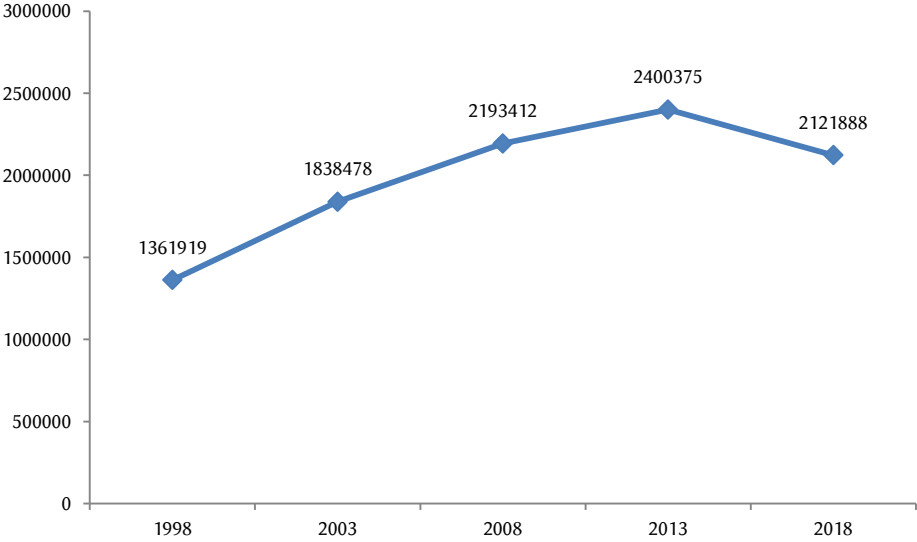
Covid 19 Crisis and Migration

The Covid-19 pandemic is imposing high and rising human costs worldwide. For safeguarding the lives and improving health care systems, isolation, lockdowns and widespread closures were required to slow the spread of the virus. The health crisis is therefore having an acute influence on economic activity. The end result of the pandemic is that the global economy is projected to shrink sharply by three per cent in 2020, much more than during the 2008-09 financial crises (IMF 2020).¹

The Covid-19 pandemic is crippling the economies of rich and poor countries alike. Yet

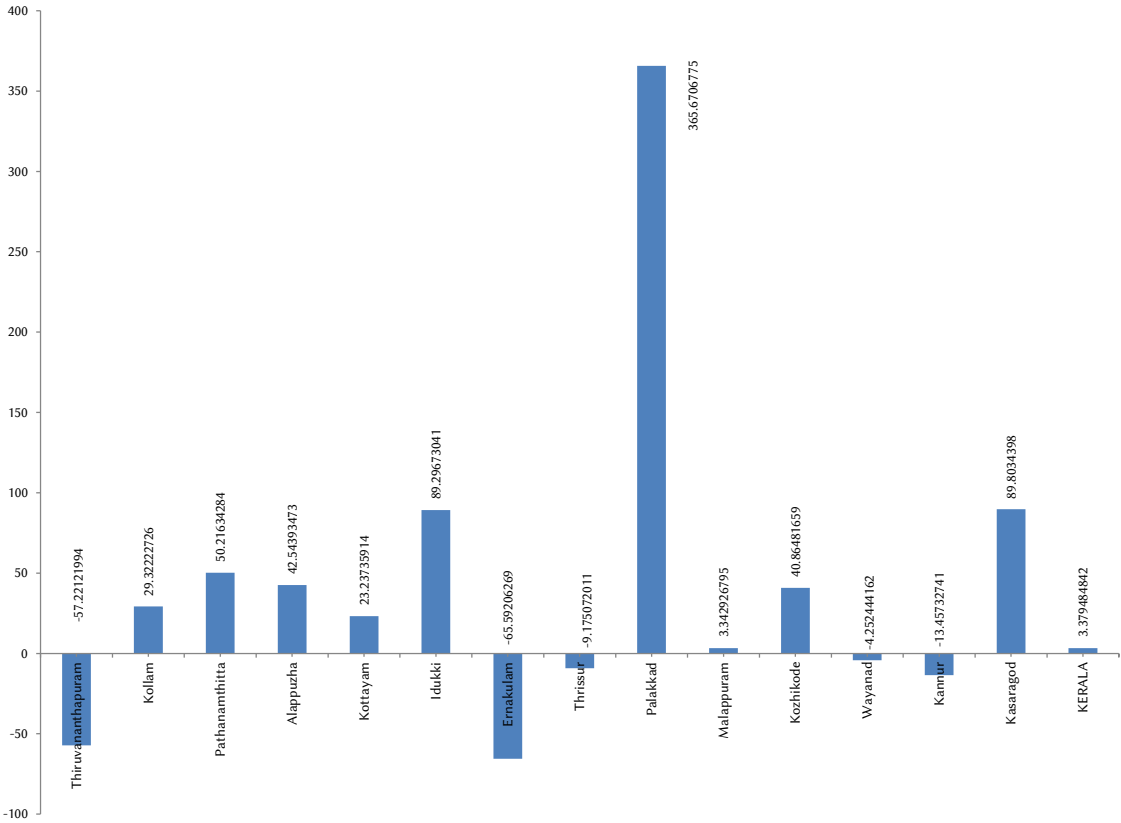
¹ International Monetary Fund - World Economic Outlook – The Great Lock down, IMF April 2020

Figure 10.1.2 Number of emigrants from Kerala, 1998 to 2018, in numbers



Source: Kerala Migration Survey 2018, CDS, Thiruvananthapuram

Figure 10.1.3 Net increase in the return emigration 2013-2018



Source: Kerala Migration Survey 2018, CDS, Thiruvananthapuram

for many low-income and fragile states, the economic shock will be magnified by the loss of remittances-money sent home by migrant and guest workers employed in foreign countries. A fall in remittance flows is likely to heighten economic, fiscal, and social pressures on governments of these countries already fighting to manage even in normal times. (IMF-Finance and Development June 2020).²

NORKA ROOTS

NORKA Roots is an agency, working under the NORKA Department since 2002. The key objective of NORKA Roots is to ensure NRK welfare and to serve as a single kiosk for all information pertaining to them. The agency was earlier known as Non Resident Keralites Welfare Agency (NORKWA).

NORKA Roots is one of the leading recruitment agency approved by the Government of India. NORKA Roots started recruitment activities especially the overseas recruitment of Indian nurses as per order of the Government of India in 2015. Since then they have been recruiting nurses, doctors, engineers, teachers, technicians and domestic service workers to overseas countries especially GCC countries. NORKA Roots has already deployed around 2000 candidates till date to various sectors. In addition to GCC countries, currently, NORKA Roots is also focusing on nurse's recruitment to Grenada (North America) and some of their major recruitment projects includes Specified Skilled Workers project (SSW), Japan and Triple Win Project Germany in association with Ministry of External Affairs, Government of India.

Some of their major clients of NORKA Roots are,

- Ministry of Health, Saudi Arabia
- Ministry of Education, Maldives
- Ministry of Health, Maldives
- Royal Oman Police Hospital, Oman
- NHS Trust, UK
- Al Mouwasat Medical Services, KSA
- Kings College Hospital, UAE
- Emirates Specialty Hospital, UAE
- Royal Hayath Hospital, Kuwait
- Birla Public School, Qatar.

Specified Skilled Worker (SSW) Programme:

India and Japan signed a MoC on a basic framework of partnership for employment opportunities in Japan for SSW, on January 18, 2021. The programme covers 14 categories of specified skills under which skilled workers from India would be eligible for employment in Japan in healthcare, construction and agriculture sectors. Japan would grant these workers the status of a specified skilled worker after a qualifying Japanese language test and work skill test. Japan has projected 3,50,000 vacancies across 14 sectors until 2023; the demand is expected to continue. Qualified SSW can work in Japan up to five years. It is expected that 60,000 vacancies are there in nursing care, which could be utilized by aspiring migrants. Most of the categories require only basic level Japanese language skill (N4 level). Through the skill training programme of Norka, Japanese language training could be imparted to the aspiring candidates.

Triple Win Programme:

In association with the German Federal Employment Agency, Norka Roots has initiated steps for recruitment of qualified nurses to healthcare sectors in Germany after equipping them with necessary German language skill. This will open up a new corridor for aspiring nursing candidates from Kerala.

Interventions of NORKA during Covid-19

Non-Resident Keralites play a significant role in the progress of the State. The contribution of emigrants, highly skilled, semi-skilled and low skilled has led to Kerala becoming the top recipient of remittances in India. The destinations of emigrants from Kerala are spread across the world.

Now the world is facing an unprecedented challenge with communities and economies everywhere affected by the growing Covid-19 pandemic.

In these hard times of the pandemic, a series of steps have been rolled out by the State of Kerala through NORKA Roots to assist the NRK's by providing financial support and rehabilitation packages as detailed below.

² Antoinette Sayeh & Ralph Chami- Lifelines in Danger the Covid-19 pandemic threatens to dry up avital source of income for poor and fragile countries

Box 10.1.1 Key findings of IMF-Finance and Development, June 2020

- Global remittances are projected to decline sharply by about 20 per cent in 2020 due to the economic crisis persuaded by the COVID-19 pandemic and shutdown
- An estimate shows the low and middle income economies to fall by 19.7 per cent to \$445 billion, constitute a loss of a crucial financing lifeline for many vulnerable households
- Even with the reduction, remittance flows are expected to become more important as a source of external financing for LMICs as the fall in foreign direct investment is expected to be higher (more than 35 per cent)
- Remittance flows are expected to drop across all World Bank Group regions, most remarkably in Europe and Central Asia (27.5 per cent), followed by Sub-Saharan Africa (23.1 per cent), South Asia (22.1 per cent), the Middle East and North Africa (19.6 per cent), Latin America and the Caribbean (19.3 per cent), and East Asia and the Pacific (13 per cent)

Ref. IMF - Finance and Development June 2020.

1) NORKA Pravasi Registration.

NORKA ROOTS has started registration of Pravasis who expressed the desire to return to Kerala from overseas during this pandemic period. So far 5,63,513 NRKs have registered with NORKA Roots. Six countries in the Middle East have contributed to the largest segment of

NRKs aspiring to return to Kerala. The country wise breakup is as follows.

- United Arab Emirates (UAE)- 2,40,849
- Kingdom of Saudi Arabia (KSA)-1,00,256
- Qatar - 55,354
- Bahrain -18,779
- Oman - 35,600
- Kuwait - 35,097

2) Covid-19 Emergency Financial Assistance

As an emergency assistance to overcome the financial crisis at the time of pandemic, Norka Roots distributed 'Government of Kerala Covid-19 emergency financial support' to the NRKs' who were stranded in Kerala and could not travel back to overseas workplaces due to the lockdown.

The Government is extending an ex gratia amount of ₹5,000 as emergency financial assistance to all those who had returned to Kerala after January 1, 2020 and could not return due to the ban on international flights. 1,78,000 NRKs submitted applications for availing financial assistance under the scheme.

3) Supply of Daily Usage Medicines

Many Keralites and senior citizens from the State, who had gone abroad on short visits, were put in a spot by the lockdown and flight bans. The situation was even worse for those on medication for pre-existing conditions, as their medicine stocks began depleting and it was an expensive proposition to buy the same overseas. For helping them, NORKA introduced a procedure to send medicines abroad by air cargo. DHL courier service company has informed NORKA ROOTS of their willingness to deliver medicines to Keralites abroad and supplied the medicines.

Table 10.1.3 Covid-19 Inward status of NRKs (Inward status as per Jagratha portal)

SI No	Country	Number of Returnees
1	UAE	1039651
2	KSA	191797
3	Qatar	190974
4	Bahrain	51863
5	Kuwait	58186
6	Oman	157965
7	Other Countries	57995
Total		1748431

Source: NORKA Roots, Thiruvananthapuram
Note: *as on October 5. 2021

4) NORKA Sets up Helpdesk & Telemedicine Services for NRKs

Amid growing concerns over the Covid-19 outbreak in the Gulf, NORKA has set up help

desks with the help of volunteers and malayali associations abroad. An online teleservice was also set up to address the worries of NRKs and facilitate consultation with doctors through video conferencing.

Return of Pravasis during Covid-19

Of more than 17 lakh Non Resident Keralites who returned, 72 per cent lost their jobs due to Covid-19. Although most of the returnees have gone back to other countries, the government has a responsibility to rehabilitate a large section. The Government initiated a comprehensive plan for this in 2020-21

As per the records from Jagratha Portal, around 17 lakh NRKs returned from various countries. Most of them returned from the Middle East. More than 10 lakh NRKs returned to their homeland from UAE and around 2 lakh NRKs returned from Saudi Arabia and Qatar.

Table 10.1.4 Details of aircraft & passenger movement

Duration	Airport	Total flights	Total Passengers
May 2020 - August 2021	Trivandrum	6515	658341
	Cochin	12950	1390165
	Calicut	8600	1029980
	Kannur	3304	427185
Total		31369	3505671

Source: Norka Roots, Thiruvananthapuram

Table 10.1.5 Pravis return: reasons

Sl No	Country	Number of Returnees
1	Loss of Job**	1264043
2	Visa Expiry and Other	334747
3	Children below 10 years	98487
4	Senior citizen	33375
5	Pregnant women	14338
6	Spouse of pregnant women	3441
Total		1748431

Source: Norka Roots, Thiruvananthapuram

Note: **Subject to verification

Outward Status as per Airport Authority of India

Table 10.1.4 indicates that, the total number of passenger movement during May 2020 - August 2020 was more than 35 lakh. Of these, highest passenger movement was recorded in Cochin International Airport followed by Calicut International Airport. Total number of flight services during this period was 12,950 and 8,600 in Cochin International Airport and Calicut International Airport respectively. **Table 10.1.5** shows various reasons of Pravasi return.

Table 10.1.6 indicates that, in 2021 ₹107.72 crore was expended through the NORKA Roots for various schemes and 1,34,166 beneficiaries received assistance of NORKA Roots.

Table 10.1.6 Assistance through NORKA Roots in 2021

Sl No.	Scheme	No. of Beneficiaries	Amount Disbursed in ₹ in lakh
1	Norka Santhwana	4445	2700.00
2	Norka Department Project for Return Emigrants (NDPREM)	782	1628.00
3	Covid Assistance ₹5000	128798	6430.00
4	Covid Assistance ₹10000	141	14.00

Source: Norka Roots, Thiruvananthapuram.

Kerala Non- Resident Keralites' Welfare Board

Kerala Non Resident Keralites' Welfare Board is a statutory Board of Government of Kerala constituted under the Non Resident Keralites' Welfare Act, 2008 for the purpose of carrying out activities for the welfare of the Non Resident Keralites' (NRKs). The Board is implementing the schemes envisaged under the Non Resident Keralites' Welfare Scheme, 2009 notified as per the provisions of the Act. A Welfare Fund is established as per the provisions of the Act and the Scheme for implementing the welfare activities. NRKs under the following three categories can be registered as members into

the Welfare Fund by paying ₹200 towards registration fee for getting the benefits from the Board.

1 A Category: NRKs working abroad on valid visa. 1B Category: NRKs returned after working for a minimum period of 2 years and above on a valid visa and settled in Kerala.

2 A Category: NRKs employed outside the State of Kerala for more than a period of 6 months and residing in other parts of India outside Kerala.

These categories of NRKs within the age bracket of 18 years to 60 years can become members in to the Welfare Fund. After being a member one has to remit the prescribed monthly contribution up to the age of pension (normally 60 years) without default.

The Board provides various assistance such as pension, family pension, invalid pension, death assistance, treatment assistance, marriage assistance, educational assistance and maternity assistance to its members of welfare boards.

As of now, there are 20,000 plus pensioners. Similarly, the numbers of members eligible for various welfare schemes are also increasing. The expenditure incurred towards pension and other welfare schemes during the last four years is given in **Table 10.1.7**.

In addition, an amount of ₹7 crore has been granted towards special assistance in the pandemic situation.

Table 10.1.7 Expenditure incurred towards pension and other welfare schemes

Year	Pension (Amount in ₹)	Other Welfare Schemes (Amount in ₹)	Total (₹ in Cr)
2016-17	36260744	8185390	4.44
2017-18	107185039	9864285	11.70
2018-19	242704929	16035653	25.87
2019-20	386622339	24763852	41.13

Source: Norka Pravasi Welfare Board

Pravasi Dividend Scheme

This is a newly introduced deposit linked monthly income scheme for the NRKs. The eligible NRKs can make deposit from ₹3 lakh to ₹51 lakh under the scheme and the fund collected is transferred to KIIFB for the purpose of various development activities of the State. The monthly dividend is given to the depositor or spouse (on the demise of the depositor). The dividend is paid out of the cost of the funds received from KIIFB and the Government contribution earmarked for the purpose. A dividend of 10 per cent is assured for the deposits under the scheme. After the demise of the spouse of the depositor, the original deposit along with the dividend for the first 3 years will be returned to the legal heir or nominee of the depositor. The scheme is intended to tap NRK funds for the development activities of the State and for providing long term monthly income to the pravasi community. As on October 28, 2021 ₹270 crore has been collected and transferred to KIIFB from 2,940 deposits under the scheme.

Migration has a significant impact on Kerala's economy and NRKs play a pivotal role in the socio economic development of the State. Policy changes in this sphere such as the proposed Emigration Bill by GoI will have substantial implication on the State.

CHAPTER

11

INFRASTRUCTURE

INFRASTRUCTURE

11.1 TRANSPORT

This section deals with the development of different modes of transport in Kerala and the efforts of the State to enhance economic development by fostering the development of different modes of transport.

Road Transport

India has the second largest road network in the world after USA. India's road network stands at over 62,15,797km. This comprises of National Highways and Expressways (1,36,440km), State Highways (1,76,818km), and other roads (59,02,539km) including district roads and village roads. India's road network carries 65 per cent of freight traffic and 85 per cent of passenger traffic. National Highways (NH) form the economic backbone of the country and have often facilitated development along their routes with many new towns developing alongside the major highways. The National Highways facilitate medium and long-distance inter-city passenger and freight traffic across the country. The details of road network in India are given in **Table 11.1.1**.

Table 11.1.1 Road network in India

Particulars	Road Network (in km)
National Highways/ Expressway	1,36,440
State Highways	1,76,818
Other Roads	59,02,539
Total	62,15,797

Source: Annual Report 2020-21, MoRTH

The State Highways (SHs) are intended to carry the traffic along major centres within the State. Major District Roads provide the secondary function of linkage between main roads and rural roads. The Other District Roads and Village Roads provide accessibility to the towns and villages to meet their social needs as also the means to transport agriculture produce from villages to nearby markets.

Road Profile of Kerala

Total road length in Kerala is 2,38,773.02km. This includes classified and non-classified roads as stipulated by Indian Road Congress. Road density in Kerala is 548km per 100 sq. km, which is roughly three times the national average. The length of road per lakh population is 993.54km and almost 90 per cent of the road network is single lane. The National Highways, considered to be the primary network, carries 40 per cent of the total traffic, and the State Highways and Major District Roads (MDRs) - the secondary road network - carries another 40 per cent of the road traffic. Thus around 12 per cent of the road network handles almost 80 per cent of the traffic in the State. The major development indicators of transport sector in the State since 2021 are given in **Appendix 11.1.1**.

There are 11 National Highways (NHs) in the State having a total length of 1,781.50km. Out of this total length, the NH Wing of State PWD maintains a length of 548.00km and the National Highway Authority of India (NHAI) under Ministry of Road Transport and Highways (MoRTH) maintains 1,233.50km. The State maintained NH portion comprises of 51.00km

road with paved shoulders, 331.00km with 2 lane and 166.00km with intermediate lane. The district wise status of roads maintained by NH wing is given in **Appendix 11.1.2**. The details of NH in Kerala are presented in **Table 11.1.2**.

The major roads in the State are developed and maintained by the State Public Work Department, which accounts for about 12 per cent of the state road network. The total length of roads maintained by PWD Roads and Bridges (PWD-R&B) is 29,522.150km in 2020-21, which comprises of 4,127.83km (13.98 per cent) State Highways and 25,394.32km (86.01 per cent) Major District Roads (MDRs). Out of the total length of the State highways, 898.74km is four lanes, 3,193.50km is two lanes and remaining 35.75km is single lane roads. Out of the 25,394.32km of MDRs, 52.51km is four lanes, 10,593.03 km is two lanes and remaining 14,748.46 km is single lane roads.

Kottayam District tops in the share of PWD maintained roads. It is with 3,310.440km (11.21 per cent) in length. Wayanad District has the got lowest share of 856.950km (2.90 per cent). Details of district wise and category wise length of roads maintained by PWD (R&B) are given in **Appendix 11.1.3** and **Appendix 11.1.4**.

There are 2,778 bridges maintained by PWD Bridges Wing along State Highways (41), Major District Roads and Other District Roads (2,098) and Village Roads and ROBs (139). Out of the total bridges, 111 bridges built across National Waterways (65) and State Waterways (46). The Department has identified 58 bridges that to be reconstructed. The department has been undertaking construction of 103 bridges as of now. Details of bridges and culverts in PWD Bridges wing as on March 31, 2021 are given in **Appendix 11.1.5**.

Of the total road network in the State, 83.74 per cent is owned and operated by the Local Self Government and PWD maintains 13.1 per cent of roads including the national highways. Agency wise details of roads developed and maintained in the State are given in **Table 11.1.3**.

The roads maintained by different Local Governments in 2020-21 is 1,99,953.70 km, of which 1,31,597.6 km (49.58 per cent) are black topped, 31,395.10 km (11.83 per cent) are cement concrete, 72,762.70 km are earthen roads (27.41 per cent), 18,669.70 km metalled roads (7.03 per cent) and others 10,996.02 km (4.14 per cent) with varying standards.

Table 11.1.2 National Highways (NH) in Kerala

Sl. No	New No.	Old No.	From	To	Length of NH in Kerala (km)
1	66	NH 17	Thalappadi	Edappally	420.77
		NH 47	Edappally	Kaliyikkavila	248.66
					} 669.43
2	544	NH 47	Walayar	Edappally	168.14
3	85	NH 49	Bodimettu	Kundanoor	167.593
4	744	NH 208	Kollam	Kazhuthuruthy	81.280
5	766	NH 212	Kozhikode	Muthanga (Kerala- Karnataka Border)	117.600
6	966	NH 213	Kozhikode	Palakkad	125.300
7	183	NH 220	Kollam	Theni (Tamil Nadu Border)	216.30
8	966 B	NH 47 A	Wellington Island	Kundanoor	5.920
9	966 A	NH 47 C	Vallarpadam	Kalamassery	17.20
10	183 A		Bharanikkavu	Pathanamthitta (via) Vandipperiya	116.80
11	185		Adimaly	Kumili (via) Painavu	96.00
Total					1,781.50

Source: PWD (NH)

Table 11.1.3 Agency-wise distribution of State roads in Kerala in 2019-20 and 2020-21

Sl. No	Name of Department	Length (km) 2019-20	Percentage	Length (km) 2020-21	Percentage
1	Local Self Government Departments (LSGDs)	1,87,655.00	81.91	1,99,953.70	83.74
2	PWD (R&B)	31,812.06	13.88	29,522.15	12.36
	PWD (NH)	1,781.50	0.77	1,781.50	0.74
3	Others (Railways, KSEB, Forest, Irrigation)	7,833.49	3.41	7,515.67	3.14
	Total	2,29,082.02	100.00	2,38,773.02	100

Source: Various Departments

Road Traffic

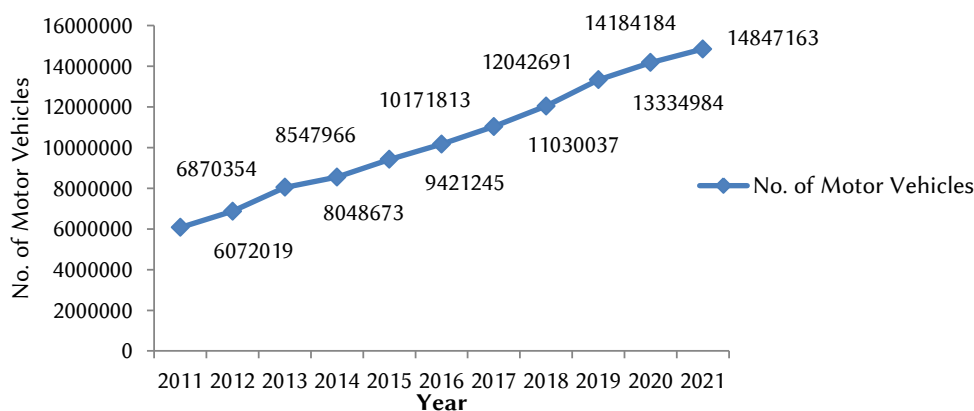
As on March 2021, there are 148.47 lakh motor vehicles registered in the State. For the last two decades, it had experienced a compounded annual growth rate of around 9 per cent. The number of vehicles per 1,000 populations for Kerala as on March, 2021 is 445. According to world development indicators (2015), number of vehicles per 1,000 populations in India is 18, China 47 and United States 507, which means Kerala's vehicle population, is far ahead of China and at par with developed countries. The growth of vehicle population in Kerala has decreased by 4.7 per cent over the previous year. The growth in number of motor vehicles since 2011 last eleven years is shown in **Figure 11.1.1**.

The number of motor vehicles having valid registrations as on March 31, 2021 is 1,48,47,163 as against 1,41,84,184 in the previous year. The number of newly registered vehicles in 2020-21 is 6,62,979 (8,49,200 in

2019-20). The details are given in the **Appendix 11.1.6 and Appendix 11.1.7**. The percentage of category-wise motor vehicles registered in 2020-21 is shown in **Figure 11.1.2**.

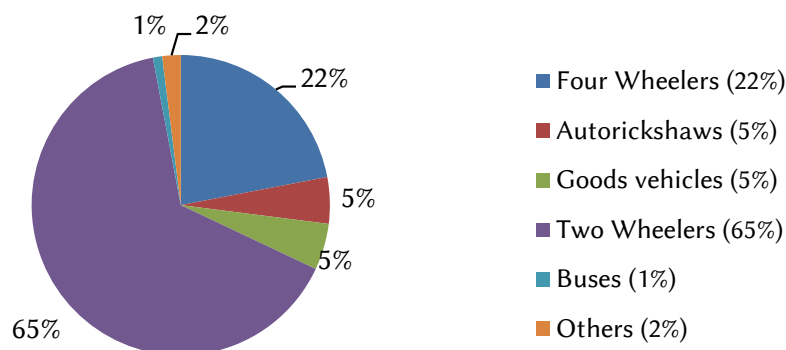
The highest vehicle population was recorded in Ernakulam District with 21,31,332 vehicles (14.35 per cent) followed by Thiruvananthapuram with 18,49,460 (12.45 per cent). Wayanad District has the lowest number of 2,47,215 vehicles (1.66 per cent). The District-wise growth in number of motor vehicles in Kerala is given in **Appendix 11.1.8**. Category-wise growth of motor vehicle registrations in Kerala during 2012-13 to 2020-21 is given in **Appendix 11.1.9**. The mismatch between growth in motor vehicles and the capacity augmentation of roads has resulted in increasing traffic congestion and road accidents throughout Kerala.

Figure 11.1.1 Growth in number of motor vehicles since 2011



Source: Motor Vehicles Department, Government of Kerala

Figure 11.1.2 Distribution of motor vehicles registered by type in 2020-21



Source: Motor Vehicles Department, Government of Kerala

A shift to green mobility is spectacular in the State. The electric two wheeler registration in Kerala as on September, 2021 is 4,742 as against 1,334 in the previous year, showing an increase of 28.13 per cent. Upto to September 2021, the number of e-Rickshaw (passenger) registered is 728. At the same time it was 544 during the previous year. The three wheelers (personal) registration shows (-)77.41 per cent decrease in registration. The e-vehicle registration details in Kerala in 2020 and 2021 (up to September, 2021) are given in **Appendix 11.1.10**.

The State is extensively promoting electric vehicles (EVs) for use in government offices. Followed by the Motor Vehicles Department (MVD), other departments have also placed orders for 'plug-in electric vehicles' on dry-leased from the Energy Efficiency Services Ltd (EESL), a Central Government institution under the Ministry of Power, through the Agency for Non-Conventional Energy and Rural Technology (ANERT). As a shift to green mobility, Kerala State Road Transport Corporation (KSRTC) is on to introduce 10 hydrogen-powered buses on a pilot basis in collaboration with Indian Oil Corporation Limited (IOCL) and Cochin International Airport Limited (CIAL).

The Covid-19 restrictions and continuous lockdowns adversely affected vehicle sales and the revenue earned by Kerala Motor Vehicles Department through vehicle tax and others earnings. It has fallen from ₹4,582.92 crore in 2019-20 to ₹3,184.52 crore in 2020-21, which is 30.51 per cent decrease over the previous year.

The revenue earned till September, 2021 was ₹1,688.8 crore.

Road Safety

The major road network of Kerala, though well connected, faces severe constraints because of the urban sprawl and the haphazard ribbon development all along the routes. The existing traffic levels at most stretches are excessive and beyond the road capacity. The traffic on roads is steadily increasing at an average rate of 12 to 14 per cent per year creating pressure on State road network. Capacity augmentation of existing roads is beset with problems relating to limited right of way and land acquisition.

According to State Crime Records Bureau of Kerala, 2,979 deaths and 30,510 injuries were reported in Kerala in 2020 from 27,877 road accidents. Up to August, 2021, 20,818 accidents cases were reported. Road traffic accidents are attributed mainly to driving, road condition, vehicle condition and environment. Road Safety being a complex issue, it requires consistent, prolonged and concerted efforts from various stakeholders to achieve the goals.

Even though several initiatives have been taken by the Motor Vehicles Department and Police to enforce rules and road discipline, road accidents are increasing. The increasing trend of traffic accidents is a matter of concern. The District-wise motor vehicle accidents in Kerala and the category-wise details of motor vehicles involved in road accidents are given in **Appendix 11.1.11** and **Appendix 11.1.12** respectively.

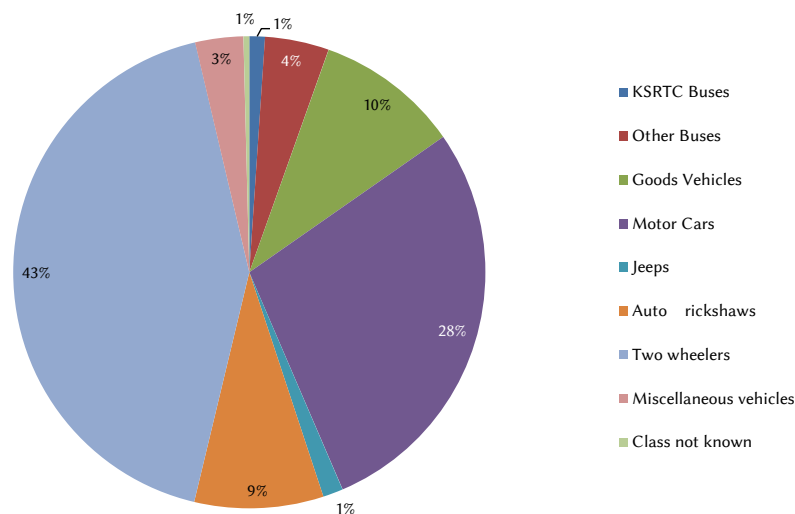
Majority of road accidents are by two wheelers that constitute 65 per cent of vehicles registered in the State. The percentage of vehicle category-wise accidents in Kerala in 2020 is shown in **Figure 11.1.3**.

A total of 1,521 bus accidents were registered in the State in 2020. Out of this KSRTC buses are involved in 296 accidents. Upto August 2021, KSRTC buses involved in 174 accidents and other buses in 792 accidents. The number of two wheelers has increased from 92.07 lakh in 2019-20 to 96.72 lakh in 2020-21, recording an average annual growth rate of 5.05 per cent. The

number of traffic crashes involving two wheelers has decreased from 34,473 (94 per day) in 2018 to 8,533 (23.37 per day) in 2021. Two wheeler accidents account for nearly 41 per cent and motor cars for 30.30 per cent respectively of the total accidents reported in the State. Trend of motor vehicle accidents in Kerala is presented in **Figure 11.1.4**.

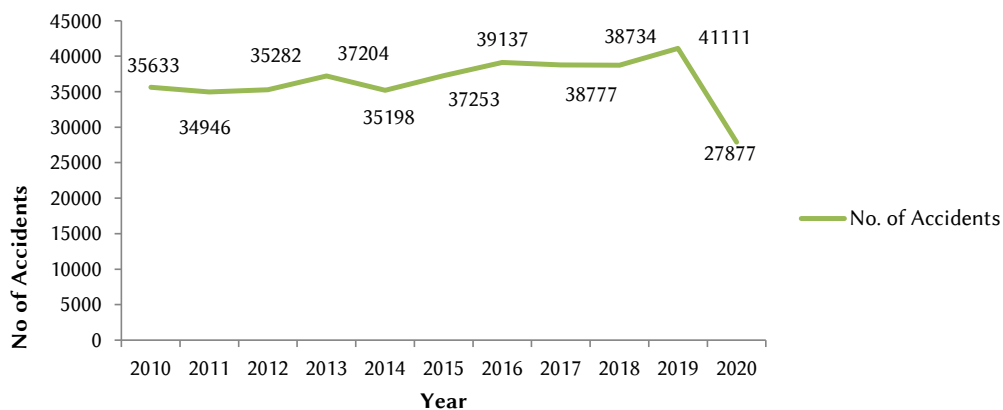
The accidents per lakh vehicles registered in the State were 305 in 2018-19, and it reduced to 188 in 2020. In 2020, 27,877 road accident cases were reported. Though occurrence of accidents had exhibited fluctuations during various time

Figure 11.1.3 Details of road accident by vehicle type in Kerala in 2020



Source: State Crime Records Bureau

Figure 11.1.4 Trend of motor vehicle accidents in Kerala



Source: State Crime Records Bureau

periods, it showed a definite pattern of decline over years. The accident trend in Kerala during 2011-2020 is given in **Table 11.1.4**.

Table 11.1.4 Accident trend in Kerala in 2011-2020

Year	No. of Motor Vehicles	No. of Accidents	Accidents/ lakh vehicle
2011	60,72,019	34,946	576
2012	68,70,354	35,282	514
2013	80,48,673	37,204	462
2014	85,47,966	35,198	412
2015	94,21,245	37,253	395
2016	1,01,71,813	39,137	385
2017	1,10,30,037	38,777	351
2018	1,20,42,691	38,734	322
2019	1,41,84,184	41,111	289
2020	1,48,47,163	27,877	188

Source: Motor Vehicles Department and State Crime Record Bureau

It is to be highlighted that there is a constant decrease in accidents per lakh vehicles every year since 2011. This may be attributed to the improvements made in roads.

Most of the accidents are attributable to the fault of drivers as per records available with traffic police. However, deficiencies in road design also affect motor vehicles, a fact generally overlooked as bad road conditions. Road safety training for various categories of road users, rectification in road design, deficiencies in inclusion of road safety aspects in the planning and operation stages of road construction are the primary facts to be taken up for reducing accidents.

Black Spots: Identification, analysis and treatment of black spots are widely regarded as one of the most effective approaches in preventing road crashes. The NHAI has defined hazardous locations based on Accidents Severity Index (ASI) and Black spots as Hazardous spots with Accidents Severity Index (ASI) more than threshold value (Average Severity + 1.5*Standard Deviation).

The NATPAC had identified 340 priority black-spots all over Kerala in 2019 based on

crash data provided by Police Department for the years 2016-2018. It was further classified into high-risk black-spots (232 locations) and moderate-risk black spots (108 locations). The agency has also suggested immediate short-term improvement measures for the selected crash black-spots to Kerala Road Safety Authority (KRSA) in March, 2021. Based on the crash data provided by the police department for the year 2018-2020, NATPAC has conducted a study in 2021 and prepared provisional list of 4,592 crash black spots all over Kerala. Of the identified crash black-spots, 1,286 black-spots are on the National Highways in Kerala. There are 1462 black-spots on State Highways and 1844 black-spots on the Other Roads in Kerala. The Number of black spots identified across NH, SH and other roads are given in **Table 11.1.5** wherein the categorisation of black spots has been made on the basis of fatality and frequency of accidents in black spots namely black spots coming under class I category is more prone for accident and fatality and the same will be lower in class III black spots.

Table 11.1.5 Crash black-spots according to Road Type

Type of Road	Number of Priority black-spots			Total crash black-spots
	Class I	Class II	Class III	
National Highway	339	363	584	1286
State Highway	153	350	959	1462
Other Roads	114	323	1407	1844
Total	606	1036	2950	4592

Source: NATPAC

A provisional list of 374 priority black-spots has also been prepared from the list of crash black-spots, based on the discussions with Kerala Road Safety Authority (KRSA). There are 227 priority black-spots were identified on National Highways in Kerala followed by 84 priority black-spots on State Highways and 63 priority black-spots on Other Roads

Road Improvements

The State PWD is primarily responsible for

policy, planning, design, construction and maintenance of the State Highways, MDRs and the National Highways on behalf of the National Highway Authority of India (NHAI). Kerala State Transport Project (KSTP), Kerala Road Fund Board (KRFB), Roads and Bridges Development Corporation of Kerala Ltd (RBDCK) and Road Infrastructure Company Kerala Limited (RICK) are also involved in implementation of road projects in the State.

The main source of funding for NH maintenance is GoI assistance. The Central Road and Infrastructure Fund (CRIF) allocate funds based on weightage of 30:70 based on the geographical area of the States/Union Territories. Under CRIF, MoRTH approves the list of projects to be taken up in coordination with State Government and thereafter technical approval and financial approval are to be given by State Government. The State government usually advances fund for Central Road Fund works and later gets reimbursed from MoRTH. The status of CRIF works (State Roads) is given in **Appendix 11.1.13**.

However for keeping the National Highway in traffic worthy condition, the State Government also carries out improvement works using State Plan Funds and maintenance works using State Plan as well as Non Plan funds. Maintenance of Urban links to NHs and NH road bypass stretches are taken care of by the State NH wing. Routine maintenance, traffic safety works in National Highways, junction improvement works, bypass works, which are essential in the State, are being carried out using Kerala budgetary support.

No additional length of roads was added to SHs and MDRs in 2021-22. The works taken up include road improvements, repair and maintenance of existing roads, relaying and upgradation with a view to address geometrical improvement, junction improvement and other technical corrections. In 2020-21, development and improvement of roads for a total length of 6437.761km have been carried out including 3,873.167km of Bitumen Macadam and Bitumen Concrete (BM and BC) under various Plan schemes. This includes 207.573km State Highways (118.336km (BM

and BC) and 6,230.188 km Major District Roads (3,754.831km BM and BC). The major activities of the Department involves traffic safety measures taken up in 16km in different Districts, 27 road works and two bridge works under CRIF scheme, construction of bye lanes to NH in Malappuram (2km) and final works of Attingal town improvement project. The Department succeeded in developing 512km of road using plastic waste and 2,672 km using Natural Rubber Modified Bitumen (NRMB). Further geotextiles were used in 50.4km of roads for stabilisation, and white topping applied to City Road improvement projects in Alappuzha District.

Road Maintenance wing is carrying out the data collection required for the implementation of Road Maintenance Management System (RMMS) from July, 2019 onwards. The overall objective of RMMS is to establish an enhanced and user friendly web based road information system. The main objective of RMMS is to optimize the use of limited resources available for maintenance works, to have a systematic approach and planning of road maintenance work and to reduce the entire transport costs through proper and timely road maintenance.

The prioritisation of Core Road Network (CRN) has also been done broadly based on economic importance, connectivity to economic growth centres and strategically important corridors, traffic volume, share of commercial vehicle, public transport routes, disaster relief and climatic resilient functionalities. Government has earmarked 7,000km of PWD roads as Core Road Network (CRN), including all State Highways and some MDRs. Out of this, 4,000km roads had been selected as pilot project for implementation of RMMS in all respect and it is likely to be completed by December, 2021. Data collection for the remaining 3,000km CRN is in progress and is expected to complete at the end of the financial year.

Data collection for the implementation of Output and Performance Based Road Maintenance Contract (OPBRC) for selected roads of Kerala for a period of 5/7 years was also started in 2019-20. Implementation of OPBRC in 2 packages for a total amount of ₹128.72 crore will be started soon. The other 2 packages are in

Box 11.1.1 Vehicle Scrappage Policy

Vehicle Scrappage Policy

The vehicle scrappage policy is a government-funded programme to replace old vehicles from Indian roads. The policy is expected to reduce pollution, create job opportunities and boost demand for new vehicles. According to the new policy, commercial vehicles (CVs) of more than 15 years and passenger vehicles of more than 20 years will have to be mandatorily scrapped if they do not pass the fitness and emission tests. The idea is to phase out cars and CVs older than 15-20 years to slash urban pollution levels and stimulate automotive sales, which continue to suffer during India's post-covid recovery phase. Additionally, the vehicle scrappage policy is also said to be a part of a stimulus package majorly requested by the original equipment manufacturers (OEMs) to infuse their demand.

Incentives for scrapping old vehicles and buying new ones:

- i) Vehicle manufacturers can give up to 5 per cent discount for buying new vehicles
- ii) Zero new registration fee
- iii) Scrap value equivalent of 4-6 per cent of ex-showroom price of new vehicles
- iv) States can give up to 25 per cent and 15 per cent rebate on road tax for personal and commercial vehicles, respectively
- v) Reduced maintenance cost and increased savings from fuel

Advantages:

According to the Ministry of Road Transport and Highways (MoRTH), the policy will likely result in the following projected gains:

- i) 30 per cent boost for the Indian automobile industry from the current ₹4.5 lakh crore turnover to ₹10.00 lakh crore over the coming years
- ii) The export component of ₹1.45 lakh crore of the present turnovers is likely to go up to ₹3.00 lakh crore.
- iii) Availability of scrapped materials such as steel, plastic, rubber and aluminium will increase. This will be used in manufacturing automobile parts, which will reduce cost by 30-40 per cent.
- iv) Promote new technologies with better mileage of vehicles besides promoting green fuel and electricity
- v) Decrease India's huge ₹10.00 lakh crore crude import bill
- vi) Attract new investments of ₹10,000 crore and create as many as 35,000 jobs.

Challenges

For the proposed policy to succeed, the most important step is to build an infrastructure of testing and scrapping centres quickly across the country. Due to the lack of a supporting infrastructure, implementation of the scrappage policy will be challenging. Currently, India has just seven automated fitness test centres and two authorised scrappage centres, which is inadequate to cater to the market. Further, the process to deregister vehicles also needs to be simplified. At present, deregistering vehicles is a dreadful experience for most owners who want to sell or scrap their old vehicles, thereby discouraging many interested in discarding old vehicles.

However, to overcome this challenge, the Society of Indian Automobile Manufacturers (SIAM) has stated that it will work with the Government to create an infrastructure for vehicle testing and scrappage centres across the country.

Source: MoRTH, Govt. of India

tendering stage. Both the projects (OPBRC and RMMS) are being carried out with the financial assistance of World Bank through KSTP.

Coastal Highway: The coastal highway from Thiruvananthapuram to Kasaragod is a prestigious project envisaged by the Kerala

Government along the most beautiful coastal belt of the State. The Government accorded sanction to construct a Coastal Highway parallel to the existing NH 66 starting from Kollankode in Kerala-Tamil Nadu border in the south and ending at Kunjathoor in Kasaragod District having a total length of 655km amounting

to ₹6,500 crore with funding support from KIIFB. This Coastal Highway can reduce traffic congestion along the National Highways and this can even route container movement from the International Container Transshipment Terminal at Vallarpadom and the proposed transshipment terminal at Vizhinjam. The Coastal Highway will connect Vallarpadam, Kollam and Vizhinjam apart from other small ports and harbours and passes through 9 Districts. Coastal Highway stretches approved by KIIFB is given in **Appendix 11.1.14**.

Hill Highway: Government of Kerala declared State Highway 59 (SH 59) which is the longest State highway in Kerala as Hill Highway or Malayora highway connecting almost all district in Kerala except Alappuzha and starting from Nandarapadavu in Kasaragod to Parassala in Thiruvananthapuram District. The proposed hill highway envisages the development of the much-needed North-South corridors through the hilly regions by upgrading or improving the existing network optimally. The total length of Hill Highway is 1,332.16km, arrived on the basis of the alignment approved by the Government. The proposed Hill Highway is also called “Kerala Spices Route” as the same connects almost all the cities engaged in trade and cultivation of spices and other high range products in Kerala. The objective of forming such a Highway is to augment the trade, transportation of spices and agricultural products of high ranges as well as to reduce the traffic intensity in the main central road of Kerala. Also, the Hill Highway will facilitate development of the connecting places as industrial areas/IT hubs as there is sufficient vacant land available on high ranges. Kerala Road Fund Board (KRFB) is designated as Special Purpose Vehicle for the project. So far, work for 21 reaches have been sanctioned to the tune of ₹1,734.14 crore. The total length of sanctioned reaches is 521.79km. Work have been completed for 2 stretches and are progressing in other stretches. Hill Highway stretches approved by KIIFB is given in **Appendix 11.1.15**.

Kerala State Transport Project (KSTP): KSTP-II is a World Bank assisted project and the Bank has approved ₹2,403 crore (US \$445 million) for the project. The disbursement ratio is 56:44

between World Bank and Government of Kerala for the eligible items (except land acquisition and operation cost). The original loan closure date was in April, 2019. This was extended to April, 2021.

The objective of the project is to improve the riding quality of 363km road section with enhanced road safety provisions. The project has three components (A) upgradation of 363km of road; (B) road safety management; and (C) institutional strengthening. The roads identified for improvement pass through about 87 villages covering eight Districts. The project includes innovative components like development of a demonstration safe corridor of 80 km, strengthening of Kerala Road Safety Authority and other institutions including PWD Road Safety Cell, Community Participatory Road and Asset Management Programmes, strengthening of Public Information and Grievance Redressal Cell in PWD and the pilot project on road improvement through Public Private Partnership (PPP). All the 11 stretches of KSTP Phase-II project have been completed except Kootupuzha bridge and approach road of Eranholi bridge. The details are presented in **Appendix 11.1.16**.

Challenge Fund Programme: Challenge fund falls under safety management initiatives of the World Bank assisted KSTP Programme-II. The objective of this programme is to develop another five “safe corridors/zones” across the State, through local partnerships. The Challenge Fund is intended to elicit innovative road safety proposals in a collaborative effort between local road user stakeholder groups and District Road Safety Councils (DRSCs), Kerala Road Safety Authority (KRSA), PWD and KSTP. The Challenge Fund will target high risk locations with opportunities to address highly vulnerable road users (pedestrians, cyclists, motor cyclists). The evaluation criteria for the fund will be based on the accident history, innovativeness of approach and the extent of local participation and commitment. The details of works progressing under the Challenge Fund are given in **Appendix 11.1.17**.

Rebuild Kerala Initiative: As part of the Rebuild Kerala Initiative (RKI), KSTP has undertaken reconstruction/ restoration of the roads damaged

due to the floods and landslides in 2018 utilizing World Bank assistance of ₹1,200.0 crore and German Development Bank assistance of ₹1,800.0 crore. World Bank would provide 100 per cent assistance under Development Policy Loan and German Development Bank (KfW) would provide loan assistance of 70 per cent of estimated cost. Based on the impact of flood and the importance of road in socio-economic development, 59 roads have been taken up under the project. DPR preparation of the selected roads is completed and bidding for arranging the contract works has been started. The projects funded by the World Bank are being undertaken on engineering, procurement and construction (EPC) mode and that of German Bank is under item rate contract.

City Road Improvements: Kerala Road Fund Board (KRFB) is a statutory body under the State Government established by the Kerala Road Fund Act (KRF Act) 2001. It mainly implements the City Road Improvement Projects on Public Private Participation (PPP) mode. The KRFB has executed city improvements on Design, Build, Finance, Operate and Transfer (DBFOT) Annuity mode. In Thiruvananthapuram City, 16 stretches of roads for length of 42.069km have been completed and now the project is in its Operation and Maintenance stage.

KRFB has completed the Kozhikode City Road Improvement Project Phase-I (A), which involved development of 22.251km over six corridors at a total concessionaire's cost of ₹211.00 crore. An amount of ₹344.50 crore has been sanctioned for land acquisition works of Mananchira-Vellimadukunnu Road (Phase-I B) and is progressing. Subsequently, KRFB initiated Kozhikode City Road Improvement Project Phase-II involving development of ten roads for a length of 29.24km and it has been submitted to government for approval.

Kannur city development project involves improvement of 44.065 km of 11 corridors at an estimated cost of ₹401.467 crore excluding land acquisition cost. Acquisition of 26 hectares of land at an estimated cost of ₹337.648 crore is involved in the project. KRFB has resolved the issues with land acquisition and decided to take up seven out of 11 corridors as Phase-I.

The KRFB has also initiated projects in cities of Alappuzha, Thrissur, Kollam, Kottayam and Malappuram. In addition to the regular PPP works, KRFB is also engaged in funding of four PWD projects under Sustainable and Planned Effort to Ensure Infrastructure Development (SPEEID) Kerala Programme and five projects in District Flagship Infrastructure Project (DFIP). After the amendment to KIIF Act, KRFB was entrusted as the SPV for KIIFB funded projects as well.

The State Government has incorporated a special purpose vehicle, namely Road Infrastructure Company Kerala Limited (RICK) under KRFB to implement State Road Improvement Project (SRIP) aimed at the development of selected State Highways and MDRs. There are two packages under the SRIP-Rehabilitation under PPP annuity mode and the upgradation with funding from multilateral funding agencies. The rehabilitation package is intended to improve 83 km of roads in two packages A and B in Thiruvananthapuram, Kottayam and Kasaragod Districts at a total cost of ₹209.91 crore on Annuity modes. The works undertaken by RICK are Uppala-Kaniyana Road (9.4km), Vidyanagar-Seethangoli Road (15.6km), Kanjirappally-Kanjiramkavala Road (36.10km), Vellanad-Chettachal Road (21.90km) and land acquisition of Karamana-Vellarada Road (35.5km). There is also a company incorporated under the State PWD, namely Roads and Bridges Development Corporation of Kerala Ltd (RBDCK) which deals with the properties and assets comprising movables and immovable including land, road projects, railway overbridge projects, toll collection rights and engage in activities like DPR preparation.

Smart City Projects: Approximately 54kms of roads have been identified to be developed as smart roads in Thiruvananthapuram Smart City project. The overall scope of the smart road project is to provide overlay design for the existing road with detailed strip plans, junction designs, cycle track and footpath design. Under this project, road design, road signage and markings have been carried out.

Research and Development in Road Sector

Research and development activities play an

anchoring role in developing innovative models and techniques to address the challenges in modernising the road system in general and technology upgradation with cost effective infrastructure measures in particular. Design, Research, Investigations and Quality Control Board (DRIQ Board), Kerala Highway Research Institute (KHRI) and National Transportation Planning and Research Centre (NATPAC) are the research organisations currently engaged in research and development of the road transport sector.

Kerala Highway Research Institute (KHRI), is acknowledged as Centre of Excellence to act as an advisory body or think tank for transforming the road sector in Kerala by prioritising the thrust areas and providing thought leadership, strategic advice and problem solving inputs. KHRI is focusing on innovation in design or construction practices, road asset management, road safety management, quality assurance and contract management, and promoting indigenous research and development.

National Transportation Planning and Research Centre (NATPAC) is the research centre conducting research and development and extension activities in the field of transportation and allied areas under Kerala State Council for Science, Technology and Environment (KSCSTE). Broadly, NATPAC focuses on transportation planning in all spheres of transportation, traffic management and road safety and providing consultancy services to Government at all levels and various user agencies in the domain area. They cover areas like road safety, traffic engineering, environmental issues, policies and programmes, urban transport, public transport issues, tourism and Inland water transport. Some of the major services provided by the Research Centre in recent years are identification and prioritisation of crash black spots in Kerala State, enhancing road safety with adaptive traffic signal system-demonstration and implementation, designing of model road safety corridors, periodic updation of price indices for different public transport and freight operations and investigation of major accident spots, causative analysis and mitigation.

Design, Research, Investigations and Quality Control Board (DRIQ Board) renders services in structural design, field investigation, project preparations and quality control works. The Design Wing of PWD undertakes structural design of bridges, buildings, DPR preparation of roads and bridges, quality control of PWD projects, research and advanced training of PWD officials. In 2020-21, design or DPR preparations of flyover (395m) across mini bypass at Panathuthazham (Kozhikode), bridge (537.5m) at Kottakkal Sand bank (Kozhikode) in Coastal Highway, DPR preparation of 5 projects under Output and Performance Based Road Contract (OPBRC), 10 projects in Kozhikode City Road Improvement Project (KCRIP) were undertaken.

Road safety Measures

The Motor Vehicles Department envisions enforcing Motor Vehicles Act and Rules effectively in order to reduce accidents and ensure road safety and to improve services and enhance motor vehicle tax collection. Major schemes implemented by Motor Vehicles Department are road safety measures, establishment of vehicle testing stations and modernisation of check posts. Under the radar surveillance system, with the help of Speed and Red Light Violation Detection Cameras, so far 28,33,817 offences were booked and ₹85.43 crore collected as per the Payment Service Module (PSM) of the Department. The budgetary support to Motor Vehicle Department is mainly used for administrative, governance and regulatory infrastructure, road safety initiatives as well as human resource development.

In 2021-22, the Department has opened 7 New Sub-RT offices in the State. The Department hired 65 electric vehicles on dry lease from ANERT for enforcement, implemented an online vehicle pollution testing system with the help of NIC, launched bilingual website, implemented e-challan system, implemented online learner's driving license application and online driving licenses related services, piloted implementation of wireless communication and allied infrastructure network project at Ernakulam, enabled all oxygen vehicle tankers with Vehicle Location Tracking Device System for real time monitoring of vehicle position to ensure incessant supply of oxygen, conducted workshop as part of Caravan Tourism promotion at Ernakulam,

conducted “VidyaVahan” for ascertaining road worthiness of Educational Institutional Buses (EIBs) after the lock down days, and conducted road safety awareness classes for drivers of EIBs. 151.562km road safety works including sign boards, road marking, erection of hand rails, surveillance cameras, reflectors, modular bumps and crash barriers were undertaken.

Kerala State Road Transport Corporation (KSRTC)

In Kerala, the road transport industry is dominated by private service providers. The road freight services are wholly owned and operated by the private sector. KSRTC is the single largest public sector undertaking, carrying out passenger transport operations in the State. The Corporation is now on the way of transformation. KSRTC aims at the development of infrastructure and modernisation of workshops and total computerisation (implementation of e-office in Chief Office and three Zonal Offices). Plans for converting the diesel buses into CNG/LNG and purchase of new electric buses within the next five years have been proposed. In the first phase 1,000 buses will be converted to CNG and the remaining 2,000 buses will be converted to CNG in consecutive years. This in turn is expected to reduce the air pollution and to reduce fuel consumption by 30 per cent.

Innovative projects for increasing the non-operating revenue have also been planned. Government is also planning to operate non-diesel buses in Thiruvananthapuram city for reducing air pollution. As an initial step for transforming public transport, KSRTC buses are being modified to that effect, followed by private buses, which is expected to result in declaring Thiruvananthapuram as a Green City.

As part of fleet renovation, KSRTC has introduced multi axle buses like Scania on wet lease basis from its dealers and operating in inter-State routes. In 2021, the number of buses on wet lease basis is 17, including nine Scania and eight electric buses. Fleet utilisation of KSRTC is only 33.59 per cent. The number of buses owned by KSRTC is given in **Appendix 11.1.18**, age-wise details of vehicles owned by KSRTC is given in **Appendix 11.1.19** and major internal indicators of KSRTC are given in **Appendix 11.1.20**.

Kerala Urban Road Transport Corporation (KURTC) is formed to uplift the city public transport system in the state. In 2008, Government of India launched a scheme for funding urban buses under the Jawaharlal Nehru National Urban Renewal Mission (JnNURM) with a concept that Urban Transport is the key driver to our countries social and economic development and also to meet the mobility needs of the people. During the first phase of JnNURM Thiruvananthapuram and Ernakulam corporations were selected for implementation of Urban Transport system. 320 buses (80 A/C buses and 240 Non A/C buses) were allotted to these cities under this scheme. Among these 320, 50 A/C low floor buses and 120 Non A/C buses are plying in Ernakulam and 30 A/C buses and 120 Non A/C buses are in Thiruvananthapuram. The funding structure of the project was 80 per cent by Central Government, 10 per cent by State Government and 10 per cent by KSRTC. The operational efficiency of KURTC is given in **Appendix 11.1.21**.

The performance indicators of KSRTC show that more than 50 per cent of buses owned by the Corporation are ten or more year’s vintage (2,998 out of 5,483 buses). Average fleet operated is 1842 and average age of fleet is 9.07 years. There are 28,089 staff in KSRTC as per the details furnished for the year 2020-21. The Driver per bus and Conductor per bus ratio is 1.8. It is 0.25 and 0.4 for ministerial and mechanical staff respectively. The average occupancy/bus/month is only 67 in 2020-21 marking a sharp decline from the previous years (603 in 2019-20 and 612 in 2018-19) The automobile industry and transport are the worst hit sectors by the Covid-19 pandemic. The nationwide lockdown consequent to the spread of the virus has put the State Transport at stake and low occupancy compared to previous years is attributed to this. The average earning per vehicle on road per day has decreased from ₹13,521 in 2019-20 to ₹9,265 in 2020-21. The fares charged by KSRTC ranges from 70 paise per km for ordinary and city buses to 145 paise for high-tech Volvo buses. The major indicators showing operational efficiency and District-wise operational statistics of KSRTC are given in **Appendix 11.1.22** and **Appendix 11.1.23**. The fare structure of KSRTC is given in **Appendix 11.1.24**.

Covid-19 affected the finances of KSRTC. The gross revenue earning of KSRTC decreased from ₹2,245.60 crore in 2019-20 to ₹628.62 crore in 2020-21. The gross revenue expenditure in 2020-21 is ₹1,546.20 crore compared to ₹3,449.66 crore in 2019-20 and operating loss in 2020-21 period is ₹174.56 crore compared to ₹143.89 crore in 2019-20. During the pre-covid days, the average daily collection of KSRTC was around ₹6.30 crore and the average monthly revenue was around ₹190.00 crore. Then the situation was worsened due to the first wave of Covid-19 pandemic and the subsequent lock down from March, 2020. The monthly revenue of KSRTC decreased to ₹3.00 crore in June, 2020. Monthly revenue of May and June, 2021 also steeply decreased to ₹8.47 crore and ₹21.19 crore respectively due to the State wide lock down from May 8, 2021 to June 16, 2021.

For revitalising the economy, KSRTC introduced new projects such as Bus on Demand (BOND), Logistics, Shop one wheels, Stay on KSRTC bus in Munnar and rationalisation of bus services. As a result, there was a slight increase in revenue and daily collection that increased around ₹3.86 crore per day in March, 2021. In order to tide over the crisis due to the second wave of Covid-19, KSRTC introduced various new projects for augmenting more non ticket revenue like KSRTC Lube Shop, retail fuel filling stations in association with Indian Oil Corporation and Hindustan Petroleum Corporation.

However since many years, the financial situation of KSRTC is grim due to an increase in operating expenditure, hike in pension commitments, increase in interest payments, operation in uneconomic routes and granting of concessional travels leading to an increase in the loss to the corporation. Heavy losses due to operational inefficiency, high bus-staff ratio, operation in uneconomic routes and unviable depots are posing great challenges to KSRTC.

KSRTC is looking forward to a radical change in its operations. It intends to provide amenities to the travelling public and increase profitability of the Corporation during the 14th Five-Year Plan period. Administrative Sanction has been issued for purchasing 100 Super Class buses and tender proceeded for conversion of buses

into CNG. The development of Intelligent Transport Management System (ITMS) is under way and installations of 300 Vehicle Location Tracking Devices (VLTD) are progressing. The Corporation moved to G-SPARK software for service matters automation and provided training to 1,283 employees including conductors, ATOs, DTOs, commercial team, AOs, ATOs, and Public Information Officers (PIOs) and assistants.

Financial Performance

The outlay and expenditure in the transport sector in 2020-21 and 2021-22 (expenditure up to September, 2021) is given in **Table 11.1.6**.

Challenges

Most of the roads in the State do not have adequate width to address the existing level of traffic. Only one fourth of the roads have either two lanes or four lane capacity while most of the roads have single lane or intermediate lane capacity. In the case of National Highways, only about 12 per cent of the roads have four lane capacities while the remaining roads have only two lanes or intermediate lane capacity. Bulk of the inter-city and inter-state traffic is carried by the National and State Highways which are only 8 per cent of the total road network. Considering the demand supply gap, there is a huge need for up gradation of existing road network. The existing road network has to undergo a qualitative improvement with the aim to reduce traffic congestion and delay, easy access to destinations and reduction in accident risks. Most of the PWD roads have to undergo massive upgradation with widening and incorporating road safety features.

Way Forward

An action plan should be made for prioritising the road works in the State. Major emphasis should be given to widening the State Highways and MDRs along with professional design and adequate drainage facilities. The new road development initiatives like the National Highway four laning, highways, coastal highways and bypasses needs to be completed during the 14th Five-Year Plan period.

The spread of the novel corona virus and the ensuing nationwide lockdown has brought

Table 11.1.6 *Outlay and expenditure in the transport sector in 2020-21 and 2021-22 (expenditure up to September, 2021), in ₹ lakh*

Sl. No	Sub Sectors	Annual Plan 2020-21		Annual Plan 2021-22	
		Budgeted Outlay	Expenditure (%)	Budgeted Outlay	Expenditure up to September, 2021 (%)
Road Development					
1	PWD (Roads and Bridges)	100616.00	216851.06 (214.04)	81432.00	112640.78 (136.82)
2	PWD (NH)	9594.00	43927.87 (493.76)	9594.00	16556.62 (19037)
	Total	110210.00	260778.93 (236.62)	91,026.00	129,197.4 (141.93)
Road Transport					
1	Kerala State Road Transport Corporation (KSRTC)	5600	100646.62 (1007.37)	9991.00	100.00 (1.00)
2	Motor Vehicles Department	4643	1954.49 (50.41)	3877.00	207.55 (5.35)
3	SCT College of Engineering	0	0.00 (0.00)	900.00	0.00 (0.00)
	Total	10243	102,601.11 (694.75)	14768	307.55 (2.08)
4	Road Transport	14768.00	102601.11 (694.75)	14768.00	307.55 (2.08)
5	Port Department	8013.00	12970.45 (101.04)	8013.00	915.01 (11.42)
6	Inland Waterways	11110.00	4,769.42 (42.93)	14610.00	4439.37 (30.39)

Source: State Budget 2020-21, 2021-22, Planspace and State Planning Board

the transport sector standstill and operators have suffered huge economic loss owing to non-operation. The situation of the private bus operators have been further aggravated by the hike in fuel prices leaving low margin for operations. In a bid to revive the reeling sector and to extend support to the private players an ambitious project has been conceived by the State Transport Department, namely "Grama Vandi" which will bring private bus operators within its ambit along with KSRTC. The scheme is conceived as cost sharing model between the local self-government and KSRTC to operate bus service to remote unconnected locations.

There is a need to undertake futuristic development of State Highways, important MDRs and city roads in the State, through geometrical

improvement, junction improvements, covering pedestrian facilities, utility ducts, re-laying the roads incorporating technical corrections and entering into maintenance contracts. Road side parking is another issue to be addressed to improve the level of service. The road sector need to be reoriented to the current needs with emphasis on private sector participation and implementation of large scale projects through multilateral assistance from agencies like Japan Bank for International Cooperation (JBIC), World Bank and Asian Development Bank (ADB).

Rail Transport

Kerala occupies a significant position on the Indian Railways map with 1,045 route km and 1,745 km of running track and 2,087km of total track length. Railway in the State comes under

Thiruvananthapuram and Palakkad divisions of the Southern Railways. Palakkad Division has a total route length of 577.74km and operates 99 mail/express and 60 passenger trains and 64 freight trains. Thiruvananthapuram division has a total route length of 623km and operates about 170 mail/express /passenger trains and 8 goods trains per day. All the railway lines passing through the State have been converted into broad gauge. There are about 200 railway stations in the State (95 under Palakkad Division and 105 under Thiruvananthapuram Division). Thiruvananthapuram Division has electrified 1,197km of routes and received revenue earnings of ₹1,703.67 crore in 2018-19. Doubling and electrification works are in progress in various parts of the State. Feasibility studies for some new lines are also underway in the rail sector.

Kerala Rail Development Corporation Limited (K-Rail)

K-Rail has been incorporated as a joint venture company with an equity share of 51 per cent and 49 per cent between Government of Kerala and Government of India. This has been formed with the objective of taking up major railway infrastructure development projects in Kerala on a cost sharing mode. The company has an initial paid up capital of ₹100 crore which can be enhanced, based on the quantum of projects to be undertaken.

The K-Rail has initiated preliminary surveys of proposed Broad Gauge (BG) line between Thalassery and Mysore (via Mananthavady) and Nilambur to Nanjangud. K-Rail has proposed a common gateway across Western Ghats to meet the requirements of both the lines. The agency has completed Kerala side survey of the Thalassery and Mysore line and the concessionaire. M/s Konkan Rail Corporation Limited has prepared the revised feasibility report for 200 km corridor. The estimated cost of the project is ₹13,987 crore. Consent from Karnataka is awaited.

DPR for development of new terminus station at Ernakulam with Commercial Development Plan has been submitted to Railway Board in December, 2017 for approval. K-Rail has also submitted feasibility report for development of Ernakulam marshalling yard as a world class coaching terminal with feasibility of integration

with the proposed Silver Line and existing Kochi Metro and commercial exploitation of land. The approval of Railway Board is yet to be received.

K-Rail is also waiting for a green signal for Angamaly-Erumeli-Sabari new railway line which was included in the 1997-1998 works programme of Indian Railways.

Silver Line Project

The Silver Line Project is a 529.45 km long semi high speed rail corridor connecting Kasaragod and Thiruvananthapuram, which will enable to run its train at an operating speed of 200 kmph. This will have 1,435 mm Standard Gauge and double track. It is proposed to have a rolling stock of 9 cars initially, which will be increased to 12 cars. This will ease the transport between North and South ends of the State and reduce the total travel time to 4 hours against the existing 10-12 hours. The project is envisaged as 100 per cent green project.

The corridor will traverse through 11 Districts and have 11 stations. It will connect airports, IT Parks, health facilities, institutions, cultural amenities, and commercial nodes. Silver Line will divert road vehicles and trucks from road, and reduce emissions of carbon dioxide equivalent approximately of 2,87,994 tonnes by 2028 and 5,94,636 tonnes by 2051. Aggregate services and feeder services are proposed for last mile connectivity and Ro-Ro service for mobility of goods.

The Kerala Rail Development Corporation Limited (KRDCL) prepared a pre-feasibility report of the project. The Railway Board however insisted for a detailed study and to submit a project report as per existing norms and practices for Railway Projects. K-Rail has prepared the feasibility report of the Silver Line Project through M/s Systoa, Paris and this has been approved by the Government of Kerala. The Ministry of Railways, Government of India has accorded In-Principle Approval (IPA) for the Project. DPR for the Project estimates the project cost to be ₹63,941 crore. NITI Aayog, Railway Board and Department of Expenditure have cleared the proposal on April, 2021 for posing the project

to bilateral/multilateral agencies by Department of Economic Affairs for funding. The State Government has sanctioned land acquisition process and declared K-Rail as SPV for this. Accordingly, the Revenue Department has started setting up Land Acquisition (LA) units/cells in districts.

Kochi Metro Rail Project (KMRP)

KMRP is the flagship project of the GoK designed to address the transportation woes of Kochi City. The project is implemented through the Kochi Metro Rail Ltd (KMRL) which is a SPV jointly owned by the GoK and GoI through equity participation. The GoI sanctioned the project in July 2012 to construct a fully elevated metro via duct with 22 stations for 25.612km stretch from Aluva-Petta at a total cost of ₹5,181.79 crore., KMRL has signed an agreement with GoI and Delhi Metro Rail Corporation Ltd (DMRC) for executing the project as per the tripartite agreement signed between GoI, GoK and KMRL.

The major section of Phase-I from Aluva to Petta (25.612km) having 22 stations was commissioned on June 19, 2017. Petta to SN Junction (1.8km) is expected to be commissioned by March 2022 and SN Junction to Thripunithura (1.2km) is expected to get completed by December, 2022. Phase-II is envisaged from Jawahar Lal Nehru Stadium to Kakkanad IT City (11km) for at an estimated cost of ₹1,957.05 crore. Construction related activities are expected to start after obtaining approval from Government of India. Preparatory works for road widening have already started.

Covid-19 had twin effect on Kochi Metro project. On one hand, it adversely affected the progress of construction activities and on the other hand, it reduced the passenger traffic and the earnings from Metro services. The gross revenue earnings of Kochi Metro have decreased from ₹39.97 crore in 2020-21 to ₹21.19 crore in 2021-22 (up to September). The gross revenue expenditure in 2021-22 is ₹49.1 (up to September, 2021 crore compared to ₹112.36 crore in 2020-21 and the gross operating loss in 2021-22 period is ₹27.91 crore compared to ₹72.39 crore in 2020-21. The number of passengers carried decreased from 38

lakh in 2020-21 to 23 lakh in 2021-22 (up to September, 2021) showing a decrease of 60.52 per cent in passengers carried. The details are given in **Appendix 11.1.25**.

KMRL is installing a solar power project with a capacity of 3.54MWp. This will increase the power generation to 10.83MW and KMRL is likely to enhance its carbon neutrality to 60 per cent.

Light Metro Rail Projects at Thiruvananthapuram and Kozhikode

Light Metro Rail Project is a Mass Rapid Transit System (MRTS) proposed to be implemented in the cities of Thiruvananthapuram and Kozhikode through a Special Purpose Vehicle (SPV), Kerala Rapid Transit Corporation Limited (KRTL). The DMRC had prepared DPRs for the projection and those were revised in December 2017 to comply with the new metro policy of Government of India. The revised project cost are ₹2,773 crore and ₹4,673 crore for Kozhikode and Thiruvananthapuram respectively. Later the KRTL decided to explore the possibility of enhancing the ridership and viability of Thiruvananthapuram Light Metro project and engaged M/s. UMTC Ltd., Hyderabad to conduct a study on the feasibility of linking Technopark to the Thiruvananthapuram Light Metro alignment. The firm submitted its report in September 2020. The Board of Directors of KRTL on October 19, 2020, approved the revised DPR of Thiruvananthapuram and Kozhikode Light Metro Rail projects, and decided to forward the same to the State Government for approval and for onward submission to the Government of India. Government has allotted land for Depots at both Thiruvananthapuram and Kozhikode. Land acquisition (LA) works in connection with the Thiruvananthapuram Light Metro Rail project, which include construction of flyovers at Sreekaryam, Pattom and Ulloor, is in progress. KRTL is gearing up to start the construction immediately after completion of LA. The work is funded by KIIFB.

As per the Ministry of Housing and Urban Affairs, Government of India's instruction, only one SPV is recommended in one State for building Metro rail in various cities in that State. Appointment of KMRL as the executing agency

for Thiruvananthapuram and Kozhikode Light metro in place of KRTL is being considered by the Government.

Water Metro Project

Kochi Water Metro Project was sanctioned by Government of Kerala in November 2015 at a total project cost of ₹748.00 crore envisaging a route length of 76km in 16 routes covering 38 Jetties. Administrative Sanction was accorded for ₹682.01 crore, of which ₹579.71 crore is loan component and ₹102.30 crore is State share for implementing the project. The tri-party agreement between GoI, KfW (Germany) and KMRL was signed in June, 2016 for 85 million Euro. General consultancy has been awarded to AECOM Consortia and agreement with the consultancy was signed on June 2, 2017. The details are given in **Table 11.1.7**.

Kochi, Kerala has become India's first city to have a water metro project after the launch of its first boat in December, 2021 namely, "Muziris" Inauguration of Water Metro boats with five terminals is expected in December, 2021. Water Metro will be fully commissioned by June, 2022 utilising 25 boats and Terminals. The Water Metro system will have an integrated ticketing with Kochi Metro Rail.

Air Transport

Air transport industry has been among the worst hit by the pandemic, with many airlines forced to suspend or close its operations, upsetting supply chains globally and leading to job losses. India's domestic passenger traffic slipped to a 10 year low in 2020-21. However the aviation sector has taken a lot of initiatives such as bringing more than 150 tonnes of Covid related medical supplies including oxygen concentrators and ventilator from different parts of the world and facilitating transportation of vaccine to contain the epidemic.

Air traffic in Kerala is distributed evenly over the four airports. Three international airports of Kerala are among the top 15 busiest airports in India. More than eight lakh domestic passengers and 50 lakh international passengers are using these airports facilities in the State every year.

Kerala has become the first State in the country to have four international airports namely, Thiruvananthapuram, Kochi, Kozhikode and Kannur. All civilian airports functioning in the State are international airports, a feature which is unique to Kerala. Thiruvananthapuram international airport is one of the major airports in south India. It plays a major role in the world aviation map, connecting and controlling about nine international air-routes and eight domestic air-routes and provides approach control service to eight major and minor aerodromes. Kozhikode International Airport is the twelfth busiest airport in India and the third in Kerala.

Cochin International Airport Ltd. (CIAL)

The first greenfield airport in India, the CIAL was ranked the third best airport in the 50 to 150 lakh passengers category based on the 2016 Airport Service Quality (ASQ) Survey conducted by Airports Council International (ACI), Montreal, Canada. Now it is experimenting with comprehensive, sustainable and cost effective innovative models.

The airport has 3,400m length with 45m wide code E runway. Total area of the renewed domestic terminal is six lakh square feet, apart from the existing one lakh square feet. It has also the state of the art facilities which include 56 check in counters, 11 gates, seven aero bridges with a capacity to handle 2,000 passengers during peak hours. The uniqueness of the airport is its modern baggage handling facility.

Table 11.1.7 Water Metro-Funding Pattern, in ₹ crore

Source	Phase I	Phase II	Ancillary infrastructure	Total
Loan	181.81	132.78	265.12	579.71
Equity(GoK Share)	32.08	23.43	46.79	102.30
Total	213.89	156.21	311.91	682.01

Source: Kochi Metro Rail Ltd

In 2020-21, 18,857 domestic and 8,129 international flights operated from the airport. But in 2021-22, as on September, 2021, it was 11,119 and 6,658 flights respectively. In 2020-21, 15,50,750 domestic and 9,19,346 international passengers travelled to various destinations. It was 8,65,650 domestic passengers and 6,81,003 international passengers in 2021-22 (up to September, 2021). In 2020-21, the volume of cargo handled were 31,756 tonnes through domestic services and 14,089 tonnes through international services. In 2021-22 up to September, 2021, 20,236 and 9,296 tonnes of cargo were operated through domestic and international services respectively. The revenue earnings were ₹253 crore in 2020-21 and ₹145.00 crore in 2021-22 up to September, 2021. On the other hand, the expenditure incurred were ₹368.00 crore and ₹183.00 crore in 2020-21 and 2021-22 (up to September, 2021) respectively.

Kannur International Airport Limited (KIAL)

Kannur International Airport Limited (KIAL) was set up by GoK to build and operate Kannur International airport. The airport project is being developed in two phases by KIAL. The first phase is envisaged to span from 2016-17 to 2025-26 and second phase would be from 2026-27 to 2045-46. The first phase was inaugurated in December 2018. The airport will help the Non-Resident Keralites (NRKs), especially working in the Middle East region and boost tourism and exports, which will open up several job opportunities.

The facilities in the airport include a runway length of 3,050m (10,006.56ft.), with a terminal building of 96,000sq.m, 20 parking stands (apron), and 22,000sq.m car/bus parking, 1,200sq.m. ATC/Technical Building and around 7,750sq.m near the apron area of Ground Service Equipment Parking area. The Board of Directors decided to extend the length of runway from 3,050m to 3,400m and the land acquisition process is in progress.

In 2021-22, as on September, 2021, 2,808 domestic flights and 1,620 international flights operated from the airport. 1,87,402 domestic passengers and 3, 04,289 international passengers travelled in 2020-21. In 2021-22 (up to

September, 2021), 1,11,955 domestic passengers and 1,75,761 international passengers travelled to various destinations. The revenue earnings were ₹42.00 crore in 2020-21 and ₹27.49 crore in 2021-22 (up to September, 2021). On the other hand, the expenditure incurred were ₹224.27 crore and ₹116.63 crore in 2020-21 and 2021-22 (up to September, 2021), respectively.

Thiruvananthapuram International Airport

Thiruvananthapuram International airport is the first airport in the State. The first flight took off on November 1, 1935. After Independence, the airport was used for domestic flights with the construction of a domestic terminal T1. The domestic terminal with an area of 99,000sqft. can handle around 400 passengers at a time. Terminal two with passenger handling capacity of 1,600, is for international operations and also handles domestic operations of Air India. Annual passenger handling capacity of the new international terminal (T2) is around 1.8 million. International operations are mostly to middle eastern and south eastern countries. The State Government has agreed to acquire 18 acres for the construction of the domestic terminal as part of further expansion of the airport

Of late, the Airports Authority of India (AAI) awarded six airports namely, Ahmedabad, Jaipur, Lucknow, Guwahati, Thiruvananthapuram and Mangaluru for operations, management and development under Public Private Partnership (PPP) for 50 years. Adani Group has won the bids for the six airports. The formal transfer of the airport to Adani Thiruvananthapuram International Airport Ltd. (ATIAL) was held on October 14, 2021.

Sabarimala Airport Project

Sabari Airport is a proposed greenfield airport project to be built in Erumely of Kottayam District for the convenience of Sabarimala pilgrims. The proposed site is spread over 2,263 acres (9.16 Sq.km) of land at Cheruvally Estate in Manimala panchayath of Kanjirappally Taluk is located on the way to the hill shrine. Government has appointed a committee to identify the most suitable area in the Malayalam Plantation known as Cheruvally estate for setting up the project and appointed a special officer for land acquisition. It has also been decided to appoint KSIDC as

the nodal agency for land acquisition for the proposed airport.

Air Strips

Besides the four international airports, Kerala may soon have a string of airstrips-heliports, which can operate small, single-engine aircraft connecting major tourist destinations. The objective of the initiative is the comprehensive development of the State's aviation sector. The airstrip-heliports are planning to commence airline service connecting the State's major tourist spots by operating tiny single-engine aircraft having 8-10 seats. The plan is to set up the proposed air strips at Bekal in Kasaragod, Kalpetta in Wayanad and in Idukki in the initial phase. The State Government has requested the Centre to include the proposed air strips under its Regional Connectivity Scheme-UDAN to operate them as feeder ports of the international airports.

Air Strips at Bakel: Feasibility report for the construction of Air Strips at Bakel had been submitted to the Ministry of Civil Aviation for approval. Memorandum of Steering Committee for land site clearance and Topographical map had been submitted to Ministry of Civil Aviation. Agreement in principle for the construction of Air Strips and AS for LA from the Finance Department, Government of Kerala is awaited.

Kalpetta Air Strip: Site identified for the Air Strip at Elstone Estate, Kalpetta, Waynad. KSIDC has been requested to submit a report on the suitability of the identified site for the construction of Air Strip towards the preparation of DPR. The feasibility report has been submitted to the Ministry of Civil Aviation. The District Collector, Wayanad was directed to set up Steering Committee for land site clearance and Topographical map.

Idukki Air Strip: The feasibility report of the air strip was submitted to the Ministry of Civil Aviation. The District Collector, Idukki was directed to set up Steering Committee for land site clearance and topographical map.

Water Transport

Water transport provides a cheap mode of transport which is safe and energy efficient, more

environment friendly and causes least carbon emission. In Kerala, water transport is a viable supplement to road and rail transport. Its huge carrying capacity and suitability for carrying bulk goods over long distances makes water transport more attractive. Primarily water transport is categorised into ocean transport, inland water transport, and coastal shipping. For enhancing the efficiency and sustainability of water transport, a comprehensive framework for the key aspects of navigation needs to be established. This section reviews the performance of the sector, effectiveness of various Government Plans and policies aimed at the overall development of ports and inland waterways facilitating and promoting coastal shipping, foreign trade, and inland water transport.

Port Sector

Maritime transport is the backbone of globalised trade and the manufacturing supply chain, as more than four fifths of the volume of world merchandise trade is carried by sea. The United Nations Conference on Trade and Development (UNCTAD) in its publication of the Statistics Manual, 2019, reports the current global trade indicators. As per the Manual, the total value of global trade (exports) stands at 19.5 trillion dollars (UNCTAD, 2019) and 793 million in TEUs (Twenty-foot Equivalent Units) were mobilised in ports around the world. This is an increase of 4.7 per cent between 2017 and 2018.

Initial expectations for the year 2020 was that it would bring moderate improvements in the economy and trade; however the unprecedented global health and economic crisis triggered by the Covid-19 pandemic severely affected the outlook of the economy. The decrease in maritime transport and trade was dramatic, with all economic indicators showing a downward trend. In the prevailing and persistent uncertainty, UNCTAD estimates that the volume of international maritime trade will fall by 4.1 per cent in 2020. (*Source:* Review of Maritime Transport 2020)

The Indian ports and shipping industry plays a vital role in sustaining growth in the country's trade and commerce. According to the Ministry of Ports, Shipping and Waterways, around 95 per cent of India's trading by volume and

70 per cent by value is done through maritime transport. India has 13 major and 205 notified minor and intermediate ports and the country stands as the sixteenth largest maritime country in the world with a coastline of about 7,517kms. The Government of India has allowed Foreign Direct Investment (FDI) of up to 100 per cent under the automatic route for port and harbour construction and maintenance projects. It has also facilitated a 10-year tax holiday to enterprises that develop, maintain and operate ports, inland waterways and inland ports. Under the National Perspective Plan for Sagarmala, six new mega ports will be developed in the country. India's key ports had a capacity of 1,534.91 million tonnes per annum (MTPA) in FY20. In FY21, all key ports in India handled 672.60 million tonnes (MT) of cargo traffic. Merchandise exports reached US \$290.63 billion in FY 2021.

To harness India's 7,517 km long coastline, 14,500km of potentially navigable waterways and strategic location on key international maritime trade routes, the Government of India has embarked on the ambitious Sagarmala Programme to promote port-led development in the country through modernisation and development of new ports, enhancing connectivity, promoting port linked industrialisation, coastal community development and promotion of Coastal Shipping and Inland Waterways in India. As on September 30, 2019, a total of 121 projects costing ₹30,228 crore have been completed and 201 projects for ₹309,048 crore are under implementation. A summary of schemes being undertaken under the Sagarmala project is provided in **Appendix 11.1.26**.

Cargo Traffic at Indian Ports

Maritime transport data is an early indicator of inflection points, recoveries and slumps in an economy. This is due to the high-frequency data collection which makes the data gathered almost real-time. Cargo traffic at the 13 major ports of India grew in April-December 2019 period just ahead of Covid crisis and the subsequent lockdowns. According to the biannual publication of the Ministry of Ports, Shipping and Waterways "Update on Indian Port Sector"- (March 31, 2021) in 2020-21, major and non-major ports in India have accomplished a total

cargo throughput of 1,251.38 million tonnes reflecting a decrease of 5.2 per cent over the corresponding period of 2019-20. In 2020-21 cargo handled at major and non-major ports registered negative growth of 4.6 per cent and 5.9 per cent respectively. The share of non-major port in the total traffic handled at Indian Ports decreased from 46.6 per cent in 2019-20 to 46.3 per cent in 2020-21. The trend in traffic handled by major and non-major ports in India is presented in **Appendix 11.1.27**.

The cargo traffic at major ports in the country has been adversely affected for the last few years. In a nutshell, cargo traffic had just begun to rise after a brief period of lull before Covid-19. The overseas cargo handled at Indian Ports decreased by 3.7 per cent and coastal cargo by 11.4 per cent during 2020-21 as compared to corresponding period of 2019-20. Coastal and overseas cargo handled at major ports in India in 2020-21 has reduced to 3.6 percent and 8.0 percent respectively as compared to the previous year. The overseas cargo handled at non-major Ports whereas decreased by 3.8 per cent and coastal cargo decreased by 17.4 per cent during the above referral period. The overseas-coastal traffic handled at Indian Ports in 2020-21 and 2019-20 is presented in **Appendix. 11.1.28**.

Among the Major Ports, Deendayal Port handled the maximum overseas cargo of 102.41 million tonnes with a share of 19.5 per cent and the least share by Kamarajar Port (2.8 per cent) in 2020- 21. As far as coastal cargo, Paradip Port handled the maximum coastal cargo of 30.75 million tonnes with a share of 20.9 per cent followed by Mumbai Port (16.1 per cent) and Kolkata Dock stands at the bottom with 0.4 per cent in 2020-21. Among the non-major ports, Gujarat Maritime Board (GMB) handled the maximum overseas cargo of 348.06 million tonnes with a share of 69.4 per cent and Karnataka handled the least of 0.1 per cent in 2020-21. Gujarat Maritime Board handled the maximum coastal cargo of 39.51 million tonnes with a share of 50.9 per cent followed by Mumbai Maritime Board (MMB) with 24.2 per cent while Goa port did not handle any coastal cargo in 2020-21. Overseas and coastal cargo handled by

major and minor ports in India is illustrated in **Figure 11.1.5**.

Capacity Utilisation for Major and Non-Major Ports

Over the years, cargo handling capacity of major ports has steadily increased to cater to the growing volume of internal and external trade. The capacity of the ports which was 172.59 million tonnes at the end of 1993-94 increased to a level of 1,534.91 million tonnes in 2020-21. The capacity utilisation for major ports was 43.8 per cent in 2020-21. The highest capacity utilisation of 74.3 per cent was achieved by SMP Kolkata Port Trust in 2020-21. The capacity utilisation for non-major ports was 58.2 per cent and the highest capacity utilisation was 71.2 per cent achieved by Gujarat Maritime Board in 2020-21. The port-wise capacity and traffic handled at major and non-major ports in India in 2020-21 are given in **Appendix 11.1.29** and **Appendix 11.1.30** respectively. Port wise (Non-Major Ports) capacity and utilisation in Kerala is provided in **Appendix 11.1.31**.

Kerala: Trends in Cargo Handled at Major and Non-Major Ports

Kerala has a coastline of 590km, with one major port at Cochin and 17 non-major ports. Apart from Cochin port, there are four non-major ports namely; Vizhinjam, Neendakara (Kollam), Beypore and Azhikkal that handle cargo in the State. The total cargo handled in 2020-21 in the State was 31.62 million tonnes as compared to 34.19 million tonnes handled in 2019-20, reflecting decline in growth by 7.5 per cent. The trend in the cargo handled at both major and non-major ports of the State during the last few years and current year are given in **Table 11.1.8**. Commodity wise cargo handled by intermediate and minor ports are given in **Appendix 11.1.32**. Category-wise break up of revenue collected at the intermediate and minor ports of Kerala in 2020-21 is provided in **Appendix 11.1.33**.

Cochin Port

Cochin Port is the only major port in Kerala. It spreads over 827 hectares. It has a water frontage of 7.5km. The port has connectivity to hinterland through NH-544, NH-66 and NH-185. Rail links to the Konkan and Southern

Figure 11.1.5 Share of Overseas Cargo and Coastal Cargo Traffic at Major and Minor Ports 2020-21

(i) Share of overseas cargo traffic at Major Ports in 2020-21

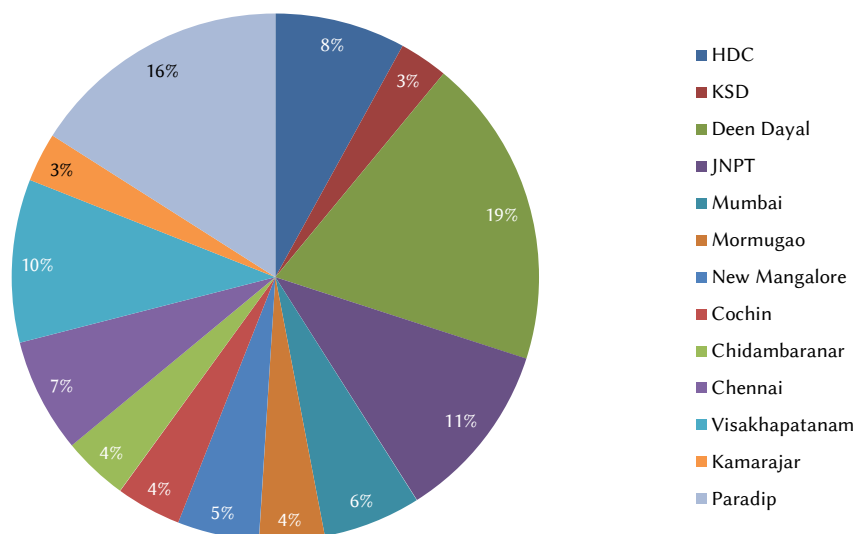
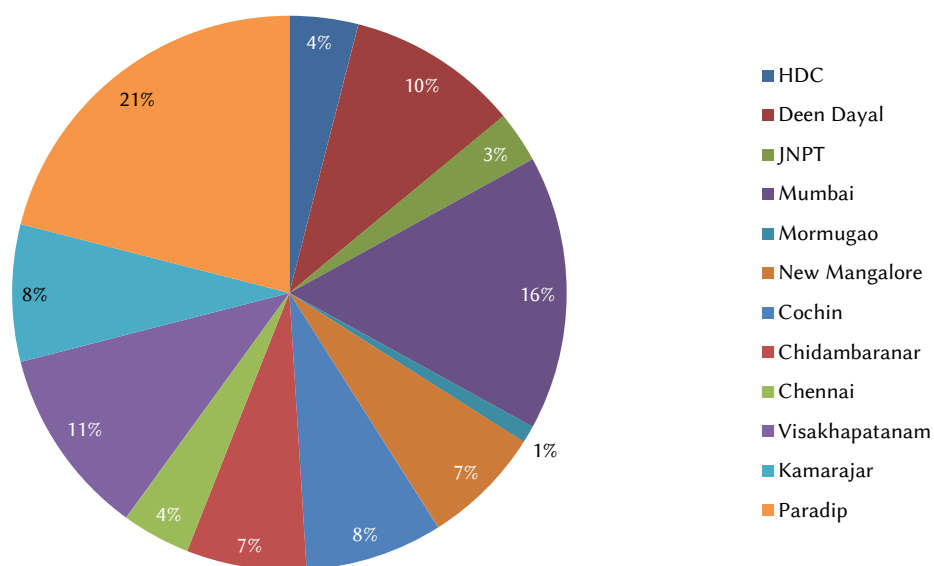


Table 11.1.8 Cargo Handled at Major and Non-Major Ports in Kerala, In Million Tonnes

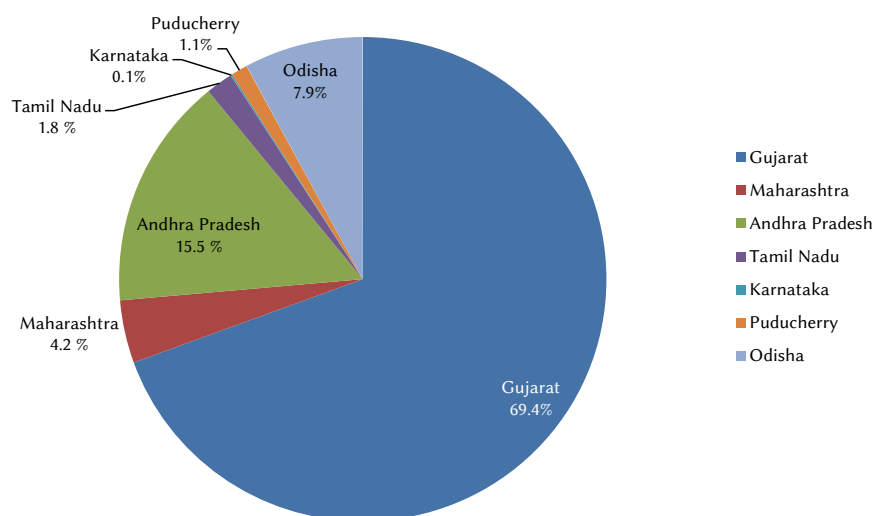
Major/Non-Major	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21 (P)
Major Port	22.10	25.01	29.14	32.02	34.04	31.50
Non-Major Ports	0.14	0.14	0.14	0.22	0.16	0.11
All Ports	22.24	25.15	29.28	32.24	34.19	31.62

Source: Ministry of Ports, Shipping and Waterways.

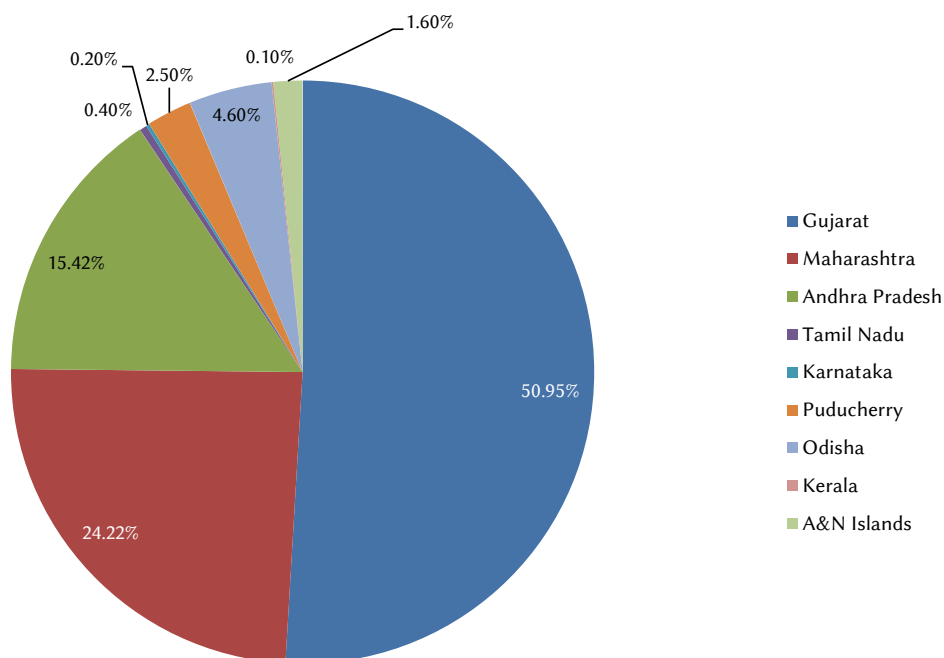
(ii) Share of coastal cargo traffic at Major Ports in 2020-21



(iii) Overseas cargo traffic handled at Non Major Ports in 2020-21



(iv) Coastal cargo traffic handled at Non Major Ports in 2020-21



Source: Ministry of Ports, Shipping and Waterways, HDC–Haldia Dock Complex, KSD- Kolkata Dock System.

Note: *Non major ports of Goa, Kerala and Andaman & Nicobar Islands recorded 0 Percent Overseas cargo traffic and Non major ports in Goa handled 0 Percent Coastal cargo traffic during the period.

Railway also give key rail access to its hinterland. An inland waterway connecting Kollam and Kottappuram is being developed on either side by the Inland Waterways Authority of India. Completion of the prestigious Vallarpadam Container Terminal project would make the Cochin Port a major hub port in the Indian Ocean region.

Meanwhile, the impact of the pandemic on shipping business across the country during the last financial year was also reflected in the cargo movement through the port, which dropped by about eight per cent for 2020-21. However, the port's handling of container cargo saw an upward swing of about 11 per cent. The port handled a total cargo of 31.50 million tonnes in 2020-21 as against the volume of 34 million tonnes during the previous financial year. However container cargo movement saw an upward swing. The port handled 6.20 lakh TEUs in 2019-20 as against 6.89 lakh in 2020-21.

The Covid-19 related pressure on the businesses of ports is seen easing a little in the first two months of the current financial year with Kochi port seeing an upswing in volume of cargo throughput. According to figures from the Indian Ports Association, Kochi, saw volume of cargo throughput go up to a total of 5.17 million tonnes during April and May, 2021 compared to 3.41 million tonnes during the same months in 2020. The upswing has been helped by substantial increase in POL products, the volume of which went up to 3.17 million tonnes during April-May 2021 compared to 2.24 million tonnes during the same months in 2020.

Vizhinjam International Seaport Ltd (VISL)

Vizhinjam International Transshipment Terminal will be the first deep water transshipment terminal in India. The main advantage of Vizhinjam port is natural depth of 18m, 10 nautical miles from the major international shipping route and minimal littoral drift along the coast. Government of Kerala has

Box 11.1.2 Kerala's concern on Port Bill, 2021

The Government of India has moved The Indian Port Bill 2021, which is an important in legislation in port sector after Indian Port Act 1908. Section 10 of the Bill, however erodes the powers of the State on non-major ports. It entrusts the monitoring of development of the non- major port in the States with the Maritime State Development Council, headed by the Union Minister in charge of Ports and the Ministers of States concerned and the Government of India officials as members. It is proposed to give the council the powers to assess the future development of existing and new ports both major and minor. This gives the council overriding powers with regard to matters which have hitherto been the exclusive domain of the States. The non-major port is included in the Entry 31 of the Concurrent List.

constituted a special purpose vehicle namely Vizhinjam International Sea port Limited (VISL). The Vizhinjam port has many geographical advantages to be developed as an international transshipment terminal. The availability of 20 m contour within one nautical mile from the coast and minimal littoral drift along the coast demanding hardly any maintenance dredging, links to national/regional road and rail network, proximity to International shipping route and flexibility to design and develop as a greenfield project are the notable advantages.

Port operation and development is planned on PPP model for an agreed concession time period. Terminal operator(s) will be required to develop the container yard, terminal buildings, and purchase and operate the cargo handling equipments. With regard to funding for the development of VISL, the largest share comes from the State Government which accounts for about 57.5 per cent out of the total funding followed by concessionaire (Adani Vizhinjam Port Private Ltd.) which accounts for 31.8 per cent and the remaining 10.62 per cent is contributed by the Government of India.

Malabar International Port and SEZ Limited (Azhikkal Port)

Malabar International Port and SEZ Limited (MIPS Ltd), a Company wholly owned by the Government of Kerala was incorporated to execute the project for development of Azhikkal Port. Azhikkal Port is envisaged as an international as well as coastal shipping seaport with inter-modal connectivity with SEZs/ industrial parks that can funnel cargo to the port and entrepreneurial resources into potential sectors in the Malabar region.

The development of a new seaport for domestic and international cargo in the open sea at Azhikkal is envisaged in 3 Phases - capable of handling up to Panamax size ships (capacity of 4,000 to 4,500 containers). A 500-metre berth is planned in Phase-I, a 300-metre berth in Phase-II and another 300-metre berth is planned in Phase-III. Once the port becomes fully operational, Azhikkal port will handle even internationally plying ships of around 4,500 TEU Panamax vessels with a dredged depth of around 14.5m in the harbour basin. The port can handle containers, liquid bulk, petroleum products, and dry bulk /break-bulk cargos.

Initially the port is to be developed with around 60 ha of Government land, available and surveyed. Additional land for the port, rail, road, SEZ/industrial parks will be attached by reclamation and land acquisition. The estimated project cost as per the Techno Economic Feasibility Report of 2019 is ₹3,698 crore altogether in 3 Phases (₹2,263 + ₹688 + ₹747 crores respectively) and the estimate for road to NH is ₹103 crore (₹48 + ₹2+ ₹53 crore) in three Phases. Rail connectivity is proposed in the third phase. DPR preparation and EIA Studies are in final stage.

Development of Non Major Ports in the State

The geographical location of Kerala is very close to international shipping route. There are 17 notified non major ports in Kerala, out of this, three are considered as intermediate ports based on berthing, cargo handling and storage facilities available in them. Kerala Maritime Board (KMB) under the Government of Kerala administers the non-major ports in the maritime state of Kerala. All port related activities, modernisation of ports and enhancement of shipping activities are the

major objectives of Kerala Maritime Board. KMB also envisions to increase the share of the State in maritime trade of India and to make Kerala coming among the top three maritime States of the country in terms of cargo volume.

The Government of Kerala has decided to develop five ports through PPP mode. These ports are Beypore, Ponnani, Alappuzha, Kollam and major projects of Azhikkal and Vizhinjam International sea port. Presently cargo operations take place only in three ports, i.e. in Vizhinjam, Beypore and Azhikkal ports. Vizhinjam handles about 1,000 tonnes, Beypore 50,000 tonnes and Azhikkal handles about 5,000 tonnes, annually. The minor ports have contributed much to the development of industry, trade, commerce and agriculture in the country, but the potential is yet to be fully tapped. Recognising the need to develop the ports in a time bound manner, Government has decided to encourage private sector participation in the sector.

The Harbour Engineering Department (HED) primarily focuses on the construction and maintenance of fishing harbours and fish landing centres, fishery infrastructures (like hatcheries, ponds, farms) shore-based tourism projects, infrastructures of ports and coastal roads. So far the department has completed the work of 21 fishery harbours and the work of other 4 fishery harbours are in progress. The Department has also implemented a lot of other social infrastructure facilities like fish landing centres, fish seed farms and hatcheries, fisheries schools, dispensaries, coastal roads, water supply and sanitation schemes in the coastal belt of Kerala to improve the living standards of the fisherfolk. The details of various centrally sponsored fishery harbour projects being implemented by the Department are furnished in **Appendix 11.1.34**.

Suchitwa Sagaram is a novel project undertaken by the Department in 2017 and it aims to collect garbage from sea bed with the help of fisherfolk and recycle the same to use in the road works under HED. This project has attracted worldwide attention. The project was first started in Neendakara Fishing Harbour and bagged the best success story award of Marine Biology Association of India in 2018. The project was

also recognised by the World Economic Forum and National Geography Magazine. Though the scheme ambitiously took off in 2017, it is yet to be revamped as a revenue generating and self-sustainable mode as it is difficult to keep the scheme afloat due to shortage of fund.

The Hydrographic Survey Wing (HSW), another agency of the State in the port sector conducts investigations and prepares hydrographic charts both in digital and printed format. Such hydrographic charts give direct information on depth of overall water mass, underwater topography, contours, shore and land features and nature of bottom of water mass.

The Wing also collects all hydrographic data and forwards to the National Hydrographic Office for updating navigational charts. As a routine, the Wing conducts about 20 surveys at various places for the Harbour Engineering Department and the Port Department every year and also collects the tide data at various places throughout the Kerala coast. The officers of Hydrographic Survey Wing initiated to establish the Kerala Institute of Hydrography and Advanced Studies (KIHAS) to conduct academic courses and supply qualified manpower the sector.

The Harbour Engineering Department (HED) in 2020-21 and 2021-22 (up to August, 2021) has completed the construction of five fishing harbours across the State. The Muthalappozhy fishing harbour constructed at a cost of ₹3,102 lakh was commissioned in June, 2020. In February 2021, the fishing harbours at Vellayil and Tanur were completed at an outlay of ₹3,930 lakh and ₹5,585 lakh respectively. Recently, in October, 2021 Koyilandy (₹6,399 lakh) and Manjeswaram (₹4,880 lakh) fishing harbours were also commissioned by the Department.

Challenges and Opportunities

Despite the deliberate and concerted efforts, the sector still faces bottlenecks in its development. Delay in land acquisition for the development of ports is a major hindrance to the development of ports. Further, the coastal belt being a very sensitive area is causing various difficulties in the implementation of port led development schemes. Ports in the State fails to attract

traffic due to various reasons, one of the major reasons being less cargo incentive. Low labour and equipment productivity due to outdated technology and lack of skilled human resources is another constraint faced in the sector along with poor end to end transportation and last mile connectivity.

Inland Water Transport

Inland Water Transport (IWT) is a viable alternative mode of transportation over road, rail transport, and air counterparts. India has an extensive network of inland waterways in the form of rivers, canals, backwaters and creeks. Freight transportation by waterways is highly underutilised in the country as compared to developed countries. India's hinterland connectivity is mainly based on road and rail with waterways. Inland Water Transport (IWT) in India has the potential to supplement the over-burdened railways and congested roadways. In addition to cargo movement, IWT sector also provides a convenient function in related activities such as carriage of vehicles {on Roll-on-Roll-off (Ro-Ro) mode of cross ferry} and tourism.

The National Waterways Act, 2016 has declared 111 inland waterways as 'National Waterways' (NWs) in the country to promote shipping and navigation on them. Inland Waterways Authority of India (IWAI), an autonomous organisation under the Ministry of Shipping Ports and Waterways is primarily responsible for the development, maintenance and regulation of those waterways which have been declared as NWs under National Waterways Act, 2016.

Waterways in the State include the main arterial Waterway, namely West Coast Canal (WCC) and feeder canals. The total length of the potential Inland Waterways in the State is 1,700 km. Total length of WCC is 616 km. There are 1,100 km feeder/link canals connecting WCC and important destinations like commercial centres, ports and tourism spots. WCC can broadly be divided into five sections namely (1) Kovalam-Kollam (74.18km), (2) Kollam- Kottappuram (Kodungallur) (168km), (3) Kottappuram- Kozhikode (160km), (4) Kozhikode-Neeleswaram (187.82km) and

(5) Neeleswaram-Kasaragod (41km) respectively. The entire navigation canal system in Kerala can ensure sufficient water throughout the year and can be developed as Smart Waterways. Out of the total length of 616km, three portions between Mahe and Valapattanam having total length of 26km are uncut portions. Further extension for 41km from Neeleswaram to Bakel is also under consideration.

Inland Waterway Transport (IWT) mode is the preferred mode for transportation of Over Dimensional Cargo (ODC) because of multiple advantages vis-à-vis land transport. Rail transport doesn't have significant flexibility to accommodate ODC cargo because of standard wagon sizes. Road transport faces significant challenges such as route and time restrictions, the requirement of multiple permissions, and significant effort in carrying out route surveys to carry ODC cargo. IWT mode allows the movement of ODC cargo in a relatively convenient manner.

In terms of tonnes, total cargo moved in NW3 in an organized way by barges in 2019-20 was 5.74 lakh tonnes, which mainly consists of sulphur, phosphoric acid, liquefied ammonia gas, rock phosphorous, etc. However the terminals are not attracting expected cargo mainly due to reluctance on the part of consignors and consignees to accept a modal shift to IWT mode.

An analysis of cargo movement in NW 3 during the last five years is given in **Table 11.1.9**.

National Waterways in Kerala

As part of a programme for developing waterways by the Central Government, the portion of West Coast Canal from Kollam to Kottapuram and Udyogamandal and Champakara Canals were declared as National Waterway 3 in 1993. The NW-3 is now extended up to Kozhikode by the National Waterway Act 2016.

After the National waterway Act 2016, three canals were added to National Waterways under class 3 specification of 2.20m draught, 6.0m vertical clearance and 32-40m width. National Waterways in Kerala are listed in **Table 11.1.10**.

Table 11.1.9 Cargo Movement in NW.3 during last 5 years in lakh million tonnes (LMT)

Financial Year	Cargo Movement (in L.MT)		Total Cargo Movements (in L.MT)
	Champakara Canal	Udyogamandal Canal	
2016-17	3.20	7.13	10.33
2017-18	2.83	1.90	4.73
2018-19	3.50	0.78	4.283
2019-20	4.44	1.30	5.74
2020-21	5.37	1.98	7.35

Source: Inland Waterways Authority of India, Kochi

Table 11.1.10 National Waterways in Kerala

Sl.No	Route	Length (in km)	NW No.
1	Kollam – Kottapuram portion of WCC	168	NW-3
	Udyogamandal canal	23	
	Champakara canal	14	
2	Kottappuram-Kozhikkode portion of WCC	160	NW-8
	Alappuzha -Changanassery	28	
3	Alappuzha- Kottayam- Athirampuzha	38	NW-9
4	Kottayam-Vaikkam	28	NW-59
5	Poovar- Erayumanthurai-AVM canal(Major portion in TN)		NW-13
Total Length (excluding AVM canal)		459 km	

Source: Inland Waterways Authority, Kochi

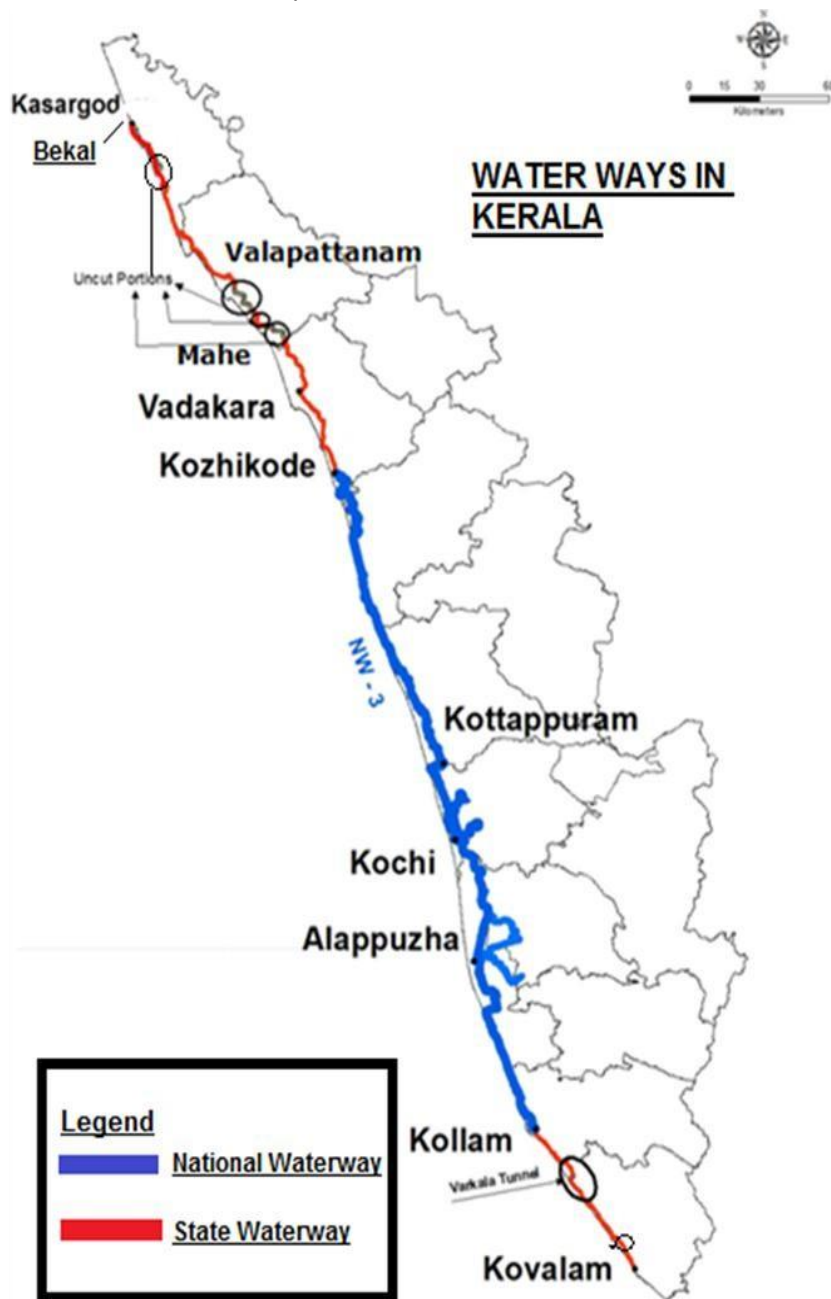
State Waterways

The state waterway portion of WCC starts from Kovalam in south and meets national waterway (NW- 3) at Kollam and has a length of 74 km. Though development activities in this stretch started 15 years back only have been partially completed due to paucity of funds and encroachments in canal banks, the works progressed slowly. Kozhikkode–Vadakara stretch is partially navigable. The canal formation of Vadakara - Mahe stretch (17.61 km) is developed utilising funds from NABARD, 13th Finance Commission and State Plan funds. This reach is developing in National Waterway Class-3 standards and works are progressing. The Mahe – Valapattanam stretch of canal has a length of 58.51km. It has three portions which are uncut having total length of 26 km. The reaches of water way north of Valapattanam up to Neeleswaram is presently navigable as per State

waterway standards. Further for extending WCC up to Bekal, Neeleswaram river and Chittari river are to be connected with new canal for a distance of 6.5km. The Government of Kerala has given priority for the development of west coast canal. The List of various reaches of WCC is given in **Appendix 11.1.35**.

In addition to WCC, there are many feeder canals and link canals connecting WCC and various commercial and tourism centers and various ports. Development of these feeder canal are to be taken up on priority basis. NATPAC has been entrusted for a study for classification, deriving development standards, prioritisation based on traffic forecast and to recommend feeder canals that need development. **Figure 11.1.6** indicates the National Waterways and State Waterways in the State and its route.

Figure 11.1.6 National and State Waterways in Kerala



Source: Inland Waterways Authority of India, Kochi

Development of Waterways in the State
 Along with the National Waterway, 9 cargo terminals have been constructed at Kottappuram, Aluva, Maradu, Vaikom, Thanneermukkom, Thrikkunnappuzha, Kayamkulam, Kollam and Alappuzha. The Alappuzha

terminal has been taken over from CPWD in February 2020. Two Ro-Ro vessels are under construction at Cochin shipyard for deployment between Willington Island and Bolghatty Jetty at a total cost of ₹24.57 crore. A total of 312 solar-powered lighted buoys and 17 beacon lights were

maintained by IWAI all along NW-3 to facilitate safe navigation round the clock.

To develop the navigation channel with the specified dimensions, an estimated volume of 40.16 L. M3 capital dredging has been completed till March 31, 2020 in all stretches except a 1.00 km long shoal in Kayamkulam Kayal and 1.10 km in Edappallikotta – Kollam stretch. As of March 31, 2020, work in the Edappallikotta – Kollam stretch is in progress. Protection of canal banks against erosion is another important activity for safe navigation in NW-3. IWAI has provided bank protection so far to 15.97 km of canal banks in Champakkara and Udyogamandal canals. In the narrow sections of the canal between Alappuzha and Kollam wherever widening was undertaken, bank protection has been provided in a length of 12.44 km.

The progress of capital dredging and widening of narrow sections in NW-3 has been experiencing delay over the years due to various local issues related to the disposal of dredged material, demand for extra bank protection and dredged spoil, frequent stoppage of works and litigations by the local people and objection by the fisherfolk. Hence to resolve such problems and take the works forward, IWAI is making regular interactions with the stakeholders, but still, the long-drawn process for allotting dumping sites is causing considerable underutilization of IWAI's dredging capacity in NW3.

Coastal Shipping and Inland Navigation Department (CSIND)

The Coastal Shipping and Inland Navigation Department is involved in the infrastructure development of waterways and promotion of inland navigation in Kerala. The Department undertook work along the state waterways and made it navigable. A special boat is operated in Parvathy Puthanar stretch from Kovalam to Akkulam canal and from Akkulam lake to Vettoor renovated, completed works of 5 stretches in Kollam canal (except third reach) in the Eravipuram-Ashtamudi lake, and Varkala lake to Eravipuram Canal made navigable. In Vadakara to Mahi canal, 10 km stretch made navigable and constructed 3 out of 6 foot bridges

and completed the construction of two road bridges (Parambil, Kallayi) and opened to traffic. Stretch from Valappattanam to Neeleswaram also made navigable. Coastal Shipping and Inland Navigation Department constructed Champakkulam Jhankar boat jetty in Alappuzha and boat jetty near KMML, Chavara for handling hazardous materials like sulphuric acid and furnace oil.

Kerala Shipping and Inland Navigation Corporation. Ltd (KSINC)

Kerala Shipping and Inland Navigation Corporation Ltd. (KSINC) is the pioneer of inland navigation in the Kerala waterways and is a Government of Kerala undertaking. KSINC owns two yards for the construction and maintenance of small vessels. KSINC maintains high standards of excellence in every aspect of building, maintaining and operating vessels catering to a wide range of customer requirements. KSINC's own cruise vessels, the premier Sagararani (1 and 2) and the exclusive luxury cruise, Nefertiti are its highlights.

KSINC started tourism operation in 2005, taking the tourists to the sea on 'Sagararani', that offer trips to the sea on regular basis to the general public and currently two vessels are in operation. It is also the pioneer in mechanised cargo movement in Kerala and still the largest player. KSINC now operates two cargo barges, four petroleum barges, one acid barge, and two jhankars. Operational statistics of the Inland Water Transport Agencies in Kerala is provided in **Appendix 11.1.36**.

A solar/electric powered vessel is planned to be introduced at Kozhikode on similar line of Sagararani. Nefertiti – a new 200 pax sea going day cruise vessel is already launched. This will be a luxury vessel suitable for multipurpose activities like meetings, parties etc. besides regular excursions. Amenities on Board includes Restaurant (60 pax), Auditorium (200 pax) TV Room (20 pax), Mini Conference Room (10 pax), Games Room (TV with Play station gaming console), souvenir shop, bar counter, play area for children, fishing rods and deck for sea viewing.

Table 11.1.11 Department wise Plan outlay and Expenditure from 2019-20 to 2021-22, ₹ in lakh

Department /Agency	Annual Plan 2019-20		Annual Plan 2020-21		Annual Plan 2021-22	
	Budgeted Outlay	Expenditure	Budgeted Outlay	Expenditure	Budgeted Outlay	Expenditure
SWTD	2811	637.9	2610	1384.7	2761	490.6
CSIND	8762	1381.3	7482	534.2	867	0.0
KSINC	1572	1011	1018	322	10982	4674.8

Source: Plan Space, State Planning Board

Kerala Waterways and Infrastructures Ltd (KWIL)

For developing the waterways, State has formed a Special Purpose Vehicle named Kerala Waterways and Infrastructures Ltd (KWIL) with equal shares by State Government and CIAL Cochin International Airport Ltd (CIAL) in 2017. The main sources of funds are the funds provided by Kerala Infrastructure Investment Fund Board (KIIFB). During 2017-2021, KWIL has undertaken preliminary works for land acquisition and canal cleaning works in various portions of WCC as directed by Government from time to time.

State Water Transport Department (SWTD)

The State Water Transport Department is an essential service and caters to the traffic needs of the inhabitants of the waterlogged areas of the Districts of Alappuzha, Kottayam, Kollam, Ernakulam, Kannur and Kasaragod. The Department handles about 160 lakh of passengers per annum using wooden/steel/solar based fibre glass passenger boats.

The Department is geared up to introduce the first fully solar powered station office at Vaikom. It is also planning to purchase solar boats to replace old wooden boats in this region, to minimise operating costs and pollution considerably. To transport dangerous and most hazardous products mainly chemicals, petroleum products etc, the Department has initiated a project for utilising the potential of National Waterways. The department plans to procure 5 air filled dinghy boats. Construction of double deck passenger cum tourist vessels, especially designed for both normal commuter and tourists of Ashtamudi lake in Kollam district is in the finishing stage. To ferry service commuters

living in water logged areas, the Department has decided to build four solar electric vessels of 30 passenger capacity. The financial performance of Department/Agencies is given in **Table 11.1.11**.

Challenges and Opportunities

The Government should prepare a mid-term and long-term vision that will ensure sustainable development of the IWT sub-sector in line with Integrated Multimodal Transport Policy. Modal options for the development of the transport sector should be based on social and environmental advantages.

Inland waterways network should be reclassified according to sustainable navigability and traffic importance. The core waterways should include fairways connecting Thiruvananthapuram and Bakel and other National waterways, connecting all ports including the inland port at Kottayam and connecting local towns. Network development and dredging strategy should be prepared in line with the Waterway Management Plan. The new dredging strategy should coordinate and integrate programme of CSIND and Kerala Waterways Infrastructure Ltd (KWIL).

More private participation should be ensured in the field of waterway management and operations, development of IWT infrastructure, dredging and maintenance of waterways, mechanisation of cargo handling, development of inland container terminals and container traffic in the waterways. To this end, new guidelines and procedures should be prepared which will include the streaming of the existing regulatory mechanism of inland ship safety and ship construction, ship design, supervision of ship construction, awarding survey certificates, determining work force required for each ship etc. Competency certificates to different

categories of crew should be awarded by training institutes after successful completion of service and training modules for each category.

A composite master plan needs to be devised for the holistic development of waterways in the State focussing on development activities along with the movement of passengers and cargo, operate waterway of Kovalam-Kasaragod stretch as per national standards by 2025, provide incentives for procuring modern vessels as well as passenger and freight movement, establish terminal facilities and connectivity between ports and hinterlands, formulate plans to promote riverine industrial corridors and tourism, improve water quality in inland waterways and take steps to reduce liquid and solid pollution in waterways and promote waterway based industrialisation. terminal facilities and connectivity between ports and hinterlands, formulate plans to promote riverine industrial corridors and tourism, improve water quality in inland waterways and take steps to reduce liquid and solid pollution in waterways and promote waterway based industrialisation.

11.2 ENERGY

Power Sector – Indian Scenario

India is the world's third largest producer and third largest consumer of electricity. The Central Government lays special emphasis on reduction in transmission and distribution (T&D) losses and demand side management (DSM) to optimise resource utilisation. Concerted efforts are going on to make power available to all in a sustainable manner, through policy initiatives, such as the development of power projects through tariff based bidding, private sector participation in transmission sector, the National Mission on Enhanced Energy Efficiency, focus on development of renewable energy sources (RES) and flexible use of coal for generating power from India's cheapest source of generation. According to World Economic Forum (WEF) report, India has been ranked at the 87th position among 115 countries in the Energy Transition Index (ETI), which measures performance of energy systems of countries across three dimensions: economic development and growth, environmental sustainability, and energy security and access indicators and readiness to transition to secure, sustainable, affordable, and inclusive energy systems. By 2022, solar energy is estimated to contribute 114 GigaWatt (GW), followed by 67GW from wind power and 15 from biomass and hydropower.

The national grid has an installed capacity of 3,88,134MW as on August 31, 2021. In India,

electricity from thermal energy is the dominant source of power. It constitutes nearly 60 per cent of the total installed capacity in the country as on September 30, 2021. Contribution of electricity generation from different sources to the national grid and the comparison with the previous years is given in **Table 11.2.1**. Of late, renewable sources have emerged as the second largest electricity source in the country relegating hydroelectric power to the third position. In the sector-wise breakup of total energy generation as given in **Table 11.2.2**, the contribution of the State sector is 1,03,921MW (26.80 per cent), Central sector 97,637 MW (25 per cent) and private sector 1,86,576 MW (48.10 per cent).

Table 11.2.2 All India installed capacity as on August 31, 2021

Sector	Installed Capacity (MW)	per cent
State Sector	1,03,921.00	26.77
Central Sector	97,637.00	25.15
Private Sector	1,86,576	48.06
Total	388134.00	

Source: Central Electricity Authority (CEA)

Power Sector in Kerala

Kerala is the first State in the country to attain 100 per cent household electrification. Electricity is being provided throughout the State

Table 11.2.1 All India installed capacity as on August 31, 2021

Fuel	Installed Capacity (MW) as on October 31, 2019	per cent	Installed Capacity (MW) as on October 31, 2020	per cent	Installed Capacity (MW) August 31, 2021	per cent
1	2	3	4	5	6	7
Thermal	229,401.42	62.86	2,31,320.72	62.01	2,34,258.00	60.40
Hydro	45,399.22	12.44	45,699.22	12.25	46,412.00	12
Nuclear	6,780.00	1.86	6,780.00	1.82	6780	1.70
Renewable Sources	83,379.50	22.84	89,229.42	23.92	1,00,684.00	25.94
Total	3,64,960.14		3,73,029.36		3,88,134.00	

Source: Central Electricity Authority (CEA)

Box 11.2.1 Electricity Amendment Bill 2021

India's electricity sector continues to reel with problems of operational inefficiencies, liquidity, and financial solvency although it has made significant progress in electricity generation, transmission and distribution. In this context, Ministry of Power, GoI had proposed for amendment to Electricity Act, 2003 with broad objectives of ensuring consumer centricity, promoting Ease of Doing Business, enhancing sustainability of the power sector and promoting green power. Sustainability of costs, focus on tariff and cross subsidies, performance of contracts related to purchase or sale or transmission of power, Renewable and Hydro energy are other key aspects of the draft policy.

The bill has been subject to criticisms from many states notably Kerala. The State Legislature has passed joint resolution demanding the withdrawal of the bill in the early week of August 2021 (6th August, 2021).

One of the major concerns raised by the State is a possible increase in electricity tariff to vulnerable sections of the society including poor households, farmers and those in rural areas. The draft Bill seeks to de-license the distribution sector to provide choice to consumers. However the Bill seems to provide choice to distributors to selectively pick and choose profitable areas within the system. This will affect the cross subsidy support that is currently provided to vulnerable sections. There needs to be adequate safeguards in the draft Bill to protect the vulnerable sections from high tariffs. The State Government is of the view that electricity sector should remain in public sector.

The draft Bill allows new entities to operate without bringing in significant investments in distribution infrastructure. This will have impact on the aggregate technical and commercial losses in the sector. The proposal also contains the provision for bringing the functions of State Electricity Regulatory Commission under the control of central Government.

NITI Aayog, Government of India, has also recommended State specific reforms instead of "one size fits all" approach.

Source: Press Information Bureau PIB, GoI

24x7x365 without any power cut or load shedding. Having achieved universal electrification, the State is now concentrating on the modernisation of the grid to meet the ever increasing customer aspirations with respect to reliability, to attain the lowest level of system losses, to meet the requirements thrown up by decentralised renewable generation and to ensure safety of installations. In addition to all these, the State has also embarked upon a mission to build a state of the art transmission network by constructing new lines, substations and modernising existing systems, to be ready for taking in the projected boom in e-mobility. The State has kicked off the ambitious "Oorja Kerala Mission" which is a bouquet of five inter related projects namely, "Dyuthi 2021", "Soura, Filament free Kerala" "Transgrid 2.0" and "e-safe", woven together as a combination of priorities set by the above aspects. The underlying spirit of all the projects envisaged in the power sector of the State is to contain the challenges of climate change and to reduce the carbon foot print of the power sector.

The power sector in the State is fully alive to the technological advances that have taken place in the recent two decades in the country and the State's strategy in the sector is drawing on the benefits of this advancement. It is also leveraging on a number of new innovative ideas and initiatives to maintain its growth in the new era of sustainability. Especially in the era of renewables, newer forms beyond solar and wind need to be considered and evaluated for development and deployment in the State. The interaction between State's science and technology as well as the technological higher education institutions would be mutually beneficial to both these institutions as well as the power sector itself. Kerala State's power scenario for 2020-21 is given in **Table 11.2.3**.

Power Demand

Peak demand of the State in 2020-21 was 4,284MW, indicating a slight fall from 4,316MW in 2019-20. The fall in peak demand

Table 11.2.3 Kerala State's Power scenario for 2020-21

Sl. No.	Particulars	Energy in MU
1	Gross generation KSEBL	7109.09
2	Power purchase from CGS at Kerala periphery	9167.26
3	Power purchase through long term/medium term/short term contracts /swap at Kerala periphery	8628.08
4	Total Power purchase from IPPs/CPPs inside the State	467.01
5	Total power purchase at Kerala periphery [Row 2+3+4]	18262.34
6	Energy injected by Private IPP's at generator end for sale outside the State through open access	38.66
7	Energy availed through open access at Kerala Periphery	407.41
8	Auxiliary consumption to be deducted.	51.19
9	EXPORT-Energy sales by KSEBL , SWAP Return by KSEBL and Energy injected by Private IPP's at KSEB periphery for sale outside the State through open access	633.39
10	Total energy input to Kerala periphery for meeting the consumption of the State including energy wheeled through open access [Row 1+5+6+7-8-9]	25132.93
11	Total energy at consumer end including energy wheeled through open access	22540.32

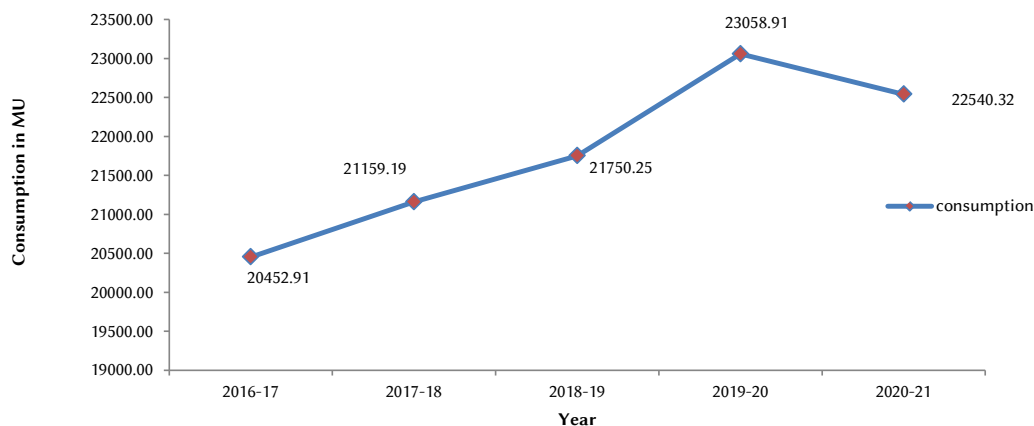
Source: KSEBL

in 2020-2021 is due to lower economic activities in the wake of Covid-19. Peak demand of 4,284MW in 2020-21 was on March 31, 2021 between 22:00 hours and 22.30 hours. Morning peak demand was 3394 MW on March 19, 2021. Average demand for 2021 was 3,392MW and average day demand was 2,870MW.

Pattern of Power Consumption

In Kerala, electrical energy consumption has decreased to 22,540.32 MU (includes open access consumption) in 2020-21 from 23,058.91 MU in 2019-20, a decrease of 2.24 per cent. Electrical energy consumption in Kerala from 2016-17 to 2020-21 is depicted in **Figure 11.2.1**. The details of the pattern of power consumption and

Figure 11.2.1 Electrical energy consumption in Kerala



Source: KSEBL

revenue collected in 2020-21 are furnished in **Appendix 11.2.1**.

Aggregate Technical and Commercial (AT & C) Losses

In 2020-21, AT&C loss has decreased to 7.76 per cent from 13.15 per cent and transmission and distribution (T&D) loss came down to 10.32 per cent from 12.08 per cent. The increase in AT&C loss in 2019-20 and decrease in 2020-21 was due to the corresponding decrease or increase in collection efficiency in respective period. The impact of AT&C loss reduction during the last five years is shown in **Appendix 11.2.2**. The AT&C loss and T&D loss from 2016-17 to 2020-21 is illustrated in **Figure 11.2.2**.

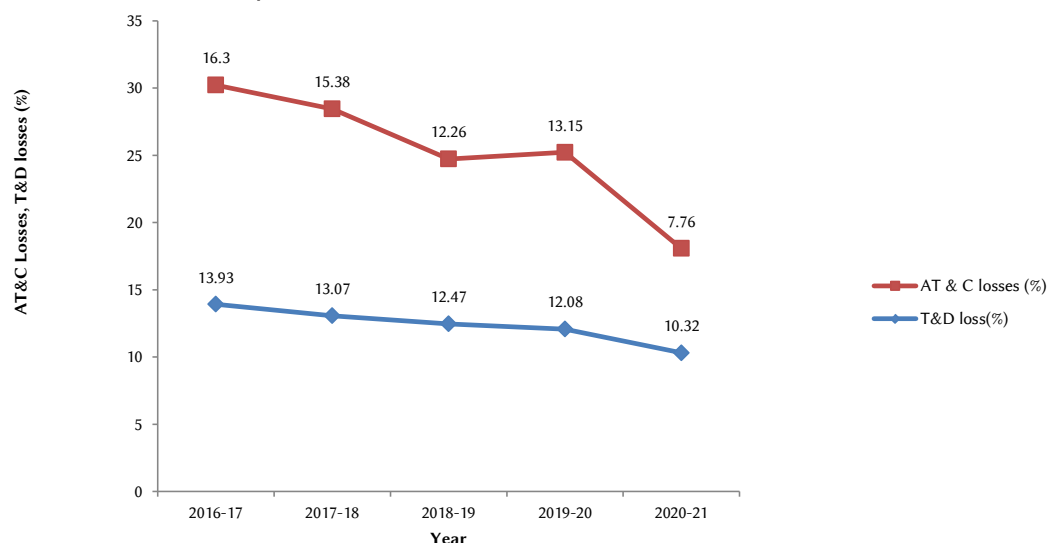
Performance of Power Sector Agencies

Power development activities in the State are carried out mainly through four agencies, namely, Kerala State Electricity Board Limited (KSEBL), Agency for Non-conventional Energy and Rural Technology (ANERT), Energy Management Centre (EMC) and Electrical Inspectorate. The outlay and expenditure of these departments in Annual Plan 2020-21 and Annual Plan 2021-22 are shown in **Table 11.2.4**.

Kerala State Electricity Board Limited (KSEBL)

Kerala State Electricity Board Limited is a power utility company incorporated under Companies Act 1956 (Central Act 1 of 1956). It is fully

Figure 11.2.2 Aggregate Technical and Commercial (AT&C) losses, and transmission and distribution losses (2016-17 to 2020-21), in per cent



Source: KSEBL

Table 11.2.4 Outlay and expenditure in the Annual Plan 2020-21 and Annual Plan 2021-22, ₹ in lakh

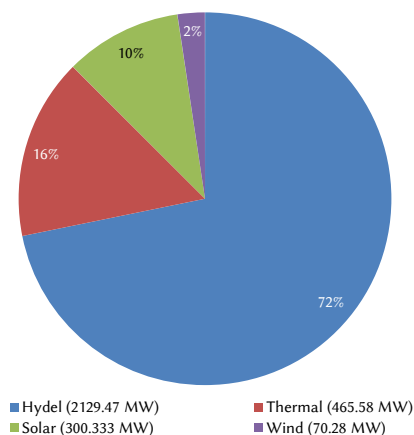
Sl No	Name of the Department/ Agency	Annual Plan 2020-21			Annual Plan 2021-22		
		Outlay	Expenditure	per cent	Outlay	Expenditure up to October 31, 2021	per cent
1	KSEBL	170821.00	137868.41	80.70	109375.00	54667.71	49.98
2	ANERT	4180.00	2144.12	51.29	4313.00	276.91	6.42
3	EMC	763.00	673.41	88.25	763.00	159.09	20.85
4	Electrical Inspectorate	693.00	121.80	18	560.00	37.16	6.63
	Total	176457.00	140807.74	79.79	115011.00	55140.87	47.94

Source: Plan space

owned by Government of Kerala, under the provisions of Section 131 of the Electricity Act 2003 by re-vesting (under sub section (2) of Section 131 and 133 of the Act) the functions, properties, interest, rights, liabilities, proceedings and personnel vested in State Government from erstwhile Kerala State Electricity Board.

KSEBL is a single holding company with Distribution, Transmission and Generation strategic business units with separate accounting and is responsible for the generation, transmission and distribution of electricity in the State. As on March 31, 2021, the total installed capacity of generation units of KSEBL was 2174.27 MW. The number of transmission substations owned by KSEBL is 421. KSEBL is directly supplying electricity to 99 per cent of the consumers in the State. The distribution network of KSEBL carries 3.62 lakh km line and 83,339 distribution transformers. In 2020-21, KSEBL has sold 22,151.60 MU power to 1,31,42,910 consumers including 11 bulk licences. The total revenue from sale of power, including sales to other utilities outside the State is ₹14,420.64 crore.

Figure 11.2.3 Total Installed capacity (MW) in Kerala in 2020-21



Source: KSEBL

Generation

Total installed capacity of power in the State as on March 2021 is 2,965.66 MW, of which, hydel power contributed the major share of 2,129.42 MW (71.80 per cent); while 465.58 MW was contributed by thermal projects (15.70

per cent), 300.33 MW (10.13 per cent) from solar and 70.28 MW from wind (2.37 per cent).

Figure 11.2.3 highlights the total installed capacity of Kerala from hydel, thermal and renewable sources.

Kerala State Electricity Board Limited owns 38 hydel stations of capacity 2058.76MW, one wind farm of 2.03MW, one thermal plant of 96MW and solar plants of 17.48MW. Details are shown in **Table 11.2.5**.

Table 11.2.5 KSEB Internal Generation

Sl. No.	Particulars	Capacity as on 31.3.2021 (MW)	Total Internal Generation in 2020-21 (MU)
1	2	3	4
1	Hydel	2058.76	7071.37
2	Thermal	96.00	7.84
3	Wind	2.03	1.14
4	Solar	17.48	28.73
	Total	2174.27	7109.08

Source: KSEBL

Appendix 11.2.3 gives the details of energy source and its installed capacity during the last five years while sector-wise details are presented in **Appendix 11.2.4**. Of the total installed capacity 2,965.66MW in 2020-21, the contribution of State sector is 2,174.274MW (73 per cent), central sector 359.58MW (12 per cent) and private sector 431.81 MW (15 per cent). The details of power availability during the last five years are illustrated in **Appendix 11.2.5**

Ongoing Generation Projects

KSEBL is executing 9 Hydel projects in the State with installed capacity of 187.65 MW, to be completed by 2023. The details of the ongoing hydroelectric projects in the State are given in **Table 11.2.6**. Details of other hydroelectric projects, which are in the pipeline, are listed in **Appendix 11.2.6**.

Renewable Energy (RE) Projects

KSEBL is considering all option to harness renewable power. Besides development of solar power through *Soura* project, installation of other renewable plants are expedited. The target is to meet 50 per cent of energy requirements

Table 11.2.6 Ongoing Hydroelectric Projects in the State

Sl. No.	Name of Scheme	District	Installed Capacity (MW)	Generation (MU)
1	Thottiar HEP	Idukki	40	99
2	Sengulam Augmentation	Idukki		85
3	Poringalkuthu SHEP	Thrissur	24	45.02
4	Bhoothathankettu SHEP	Ernakulam	24	83.50
5	Upper Kallar SHEP	Idukki	2	5.14
6	Pallivasal Extension	Idukki	60	153.90
7	Pazhassi Sagar	Kannur	7.5	25.16
8	Chinnar SHEP-I	Idukki	24	76.45
9	Peruvannamoozhy SHEP	Kozhikode	6	24.70

Source: KSEBL

from renewables by 2026 and adding 3,000 MW RE is the target set for the next five years. The details of existing solar plants of KSEBL are given **Appendix 11.2.7**.

Transmission–Normal

Kerala has 426 transmission substations with 13,614.64 circuit km lines of which 421 substations are owned and operated by KSEBL. In 2020-21, a total number of 17 transmission stations and 696.10 circuit km lines with capacity addition of 1,581(MVA) were commissioned. It is targeted to complete another 45 substation of different voltage level and 1,300 circuit kilometre of transmission lines by March 2022.

Kerala’s transmission infrastructure consisting of substations, its targets and achievements and network details as on March 31, 2021 is given in **Appendix 11.2.8 and Appendix 11.2.9**.

Distribution

The distribution network as on March 31, 2021 has 66,000 circuit km of 11 kV lines, 2,95,697 circuit km of LT lines and 83,399 distribution transformers with step down capacity of 10,166 MVA. The target and achievement of the distribution infrastructure in 2020-21 are given in **Appendix 11.2.10**. The infrastructure development of distribution system is included in *Dyuthi 2021* project, under Oorja Kerala Mission. During Covid-19 lockdown, KSEBL

implemented several relief measures to consumers to support them during hard times. Also customer care centre was strengthened and new services introduced to achieve customer loyalty and facilitate care of service. A programme to provide all services rendered by KSEBL to public as well as consumers at their door steps on call was introduced in 2020-21. The facility is available to consumers in 368 electrical sections. ‘*e-samayam*’, a virtual queue to visit section offices of KSEBL is being implemented as pilot in Kesavadasapuram and Vellayambalam section in Thiruvananthapuram.

Oorja Kerala Mission

Government of Kerala launched the “Oorja Kerala Mission” on June 14, 2018, aimed at the integrated development of electricity sector in the State and the objectives of the mission are targeted through five projects. These projects, which aim to elevate the distribution grid of KSEBL to international level, are being implemented by the power sector agencies in the State. The status of five projects is as follows.

Soura

KSEBL intends to achieve a cumulative capacity of 1,000MW to its renewable sector through solar projects namely roof top, ground mounted and floating projects.

Filament Free Kerala

Filament-Free Kerala project is to replace all the existing CFL and filament bulbs in domestic and

street lighting sector in the State with energy efficient and long lasting LED lamps targeting reduction in peak demand, global warming and mercury (Hg) pollution. As on March 31, 2021, a total of 14 lakh consumers have registered for LED lamps for 118 lakh bulbs and 84.18 bulbs were distributed.

Dyuthi 2021

Dyuthi 2021 is a comprehensive network based distribution plan for providing uninterrupted, quality power to all, with lowest technical and commercial losses, maintaining best safety standards and to develop a system capable of integrating renewable energy sources. As on March 31, 2021, works amounting to ₹1,457.06 crore have been completed.

Transgrid 2.0 – Second Generation Transmission Network

This project aims at strengthening of transmission network to meet the future energy requirement of the State and is scheduled to be implemented in two phases. The first phase of the project is scheduled for execution during 2017-2022 and second phase for 2019-2024. The works included in the first phase of the project are grouped into 13 packages and comprises of construction of 12 substations and 2084 circuit kilometre of EHT lines. Out of these 12 substations, four are Air Insulated Substations (AIS) and the remaining eight are Gas Insulated Substations (GIS). 12 substations (AIS-3 and GIS-9) are included in Phase-II of the project which is grouped into 12 packages. The detail of completed projects is listed below:

1. 400 kV MCMV line from Malaparamba to Areakode (86 ckt.km), 220 KV MCMV line from Malaparamba to Kizhissery (59.82 ckt.km), 220/110 KV MCMV line from Kizhissery to Chelari (20.2 ckt.km) and Chelari to Nallalam (24.74 ckt.km), 110 KV line from Areakode to Kizhissery (14.87 ckt. km)
2. 220kV substation Chalakkudy to Kothamangalam
3. 220/110 KV Balaramapuram to Thuthiyoor (7.87 km) and Kothamangalam to Aluva (68 km)
4. 220kV GIS at Aluva and Kaloor
5. 220 KV cable laying work from Thuthiyoor to Kaloor (14km)

6. 220kV line Chalakkudy–Konnakuzhy portion of North South interlinking package (22.3 km)

e-Safe

The e-Safe project, intending improved safety, jointly mooted by Electrical Inspectorate and KSEB aims at zero electrical accidents in the State. A total number of 43,378 works amounting to ₹1,632.00 crore are included in the four year project. As on March 31, 2021, 26,145 works amounting to ₹775.00 crore were completed and 17,390 safety inspections were carried out by safety officers.

Flagship Projects of KSEBL

In addition to five projects included in Oorja Kerala Mission cited above, the following four projects also form the flagship projects of KSEBL.

E-Mobility

The State of Kerala is one among the first in India, which declared its e-mobility policy. KSEB has been designated as the State nodal agency to ensure deployment of e-vehicle charging stations across the State. With State funding of ₹8.2 crore, KSEBL has planned to set up 32 charging stations covering all districts of the State for ensuring state wide charging facility for e-vehicles. Of this six stations are completed and the work for remaining stations are in progress. Under central funding through Department of Heavy Industries, the Faster Adoption and Manufacturing of Electric Vehicles in India (FAME-India) Phase-II scheme, 30 charging stations are being installed in seven cities with over one million population. KSEB is also establishing state wide network of charging points for three wheelers and two wheelers and pilot project of ten charging poles have been commissioned in Kozhikode.

Kerala Fibre Optic Network (K-FON)

The scope of the project is to build a Wide Area Network (WAN) across the State in order to provide cost effective and high speed internet connection to 30,000 Government offices and educational institutions and free internet access to 20 lakh BPL families. Implementation and maintenance of the network will be carried out by a Special Purpose Vehicle (SPV) with equity partnership of KSEBL, (KSITIL) and the State

Government in the ratio 49:49:2. Among other benefits to KSEBL, the project ensures high speed internet connectivity to all its offices. KSEB will get pole rent plus four fibres free of cost along the distribution line (47,289km). It will meet additional data communication requirements for control and protection, smart grids and smart metres and Internet of Things. The assets created will vest with KSEBL.

The works are awarded in two packages-two Package A with PAC ₹1,028.2 crore funded by KIIFB, which consists of K-FON works and Package – B, reliable communication and data acquisition network (RC & DA network) with PAC ₹99.2 crore funded through Power System Development Fund (PSDF). The operational expenditure for Package A and B for seven years is ₹363.42 crore.

From September 30, 2021, works of NOC Non IT, Point of presence (PoP) - civil foundation works for 119/ 375 PoPs and Prefab erection for 85/375 PoPs, Optical Ground Wire (OPGW) – 42.511/ 2,600.066 and all dielectric self supporting cable – 5,535/ 35,000km have been completed.

Communicating Fault Pass Detectors (CFPD)

Communicating Fault Pass Detectors has been developed for locating high tension feeder faults. Being very user friendly, this facility would help in pinpointing location of faults on 11kV lines on the high tension GIS PMU map. As on September 30, 2021, 8,400 CFPDs are manufactured at Palakkad and 6,600 were put to use across the State.

Central Government Schemes

The details of implementation of important central Government power sector schemes in Kerala are detailed below.

Ujwal DISCOM Assurance Yojana (UDAY)

This is the financial turnaround and revival package for electricity distribution companies (DISCOMs) initiated by the Government of India. Kerala Government and KSEBL signed MoU with Government of India. The objective of signing MOU is improvement in internal efficiency of KSEBL. No financial assistance is included in MOU. KSEBL has achieved important operational targets.

Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY)

Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY) is a Government of India scheme, for the rural areas and was implemented in Kerala for rural electrification and strengthening of sub-transmission and distribution infrastructure, including metering at distribution transformers, feeders and consumers end. The details of financial and physical progress of implementation of DDUGJY are shown in **Appendix 11.2.11**.

Pradhan Mantri Sahaj Bijli Har Ghar Yojana Saubhagya

Under *Saubhagya* scheme free electricity connections to all households (both APL and poor families) in rural areas and BPL families in urban areas including single point wiring were envisaged. ₹95.75 crore was sanctioned to Kerala to reconnect 3,19,171 households which were de-electrified during 2018 floods.

Integrated Power Development Scheme (IPDS)

IPDS Stage-1 was implemented in 25 distribution circles in the State to strengthen sub-transmission and distribution networks, metering of distribution transformers, feeders and consumers in urban area. Closures of IPDS (system strengthening) for 25 Circles are in progress for submission to PFC Ltd.

Pradhan Mantri Kisan Urja Suraksha Evam Uttahan Mahabhayan (PM KUSUM)

PMKUSUM envisages utilisation of barren agriculture land for installing solar plants, providing a permanent income to farmers from power generation and solarisation of agriculture pumps which will reduce utilisation of power from grid and in turn reduce financial support from Government in the form of subsidies. Government of India will provide financial support up to 30 per cent of the cost of solarisation and States should also provide at least 30 per cent of the cost of solarisation and balance cost to be shared by the beneficiary farmer. The programme has three components: Component A is envisaged for setting up of 10,000MW of decentralised grid connected renewable energy power plants on barren land. Component B is for installation of 17.50 lakh stand-alone solar agriculture pumps. Component C is for solarisation of 10 lakh grid connected agriculture

pumps. Minister of New and Renewable Energy MNRE has allotted 40MW solar plants to the state in component-A of the scheme and more than 200 acres were reported by farmers in various districts. GoI has sanctioned additional capacity to suit requirement of 2,000 pumps in the State under component C and 11MW is the expected capacity addition.

KSEBL is implementing the scheme and has put forward two models for land owners. The first one is the lease model where panels are installed on lease (EPC/RESCO method) and second one is the investment model (PPA method) where investment is done by land owners itself. Agency for non conventional and Energy and Rural Technology (ANERT) is entrusted to implement solarisation of grid connected pumps.

Sustainable Rooftop Implementation for Solar Transfiguration of India (SRISTI)

SRISTI is Phase-II grid connected rooftop solar programme of Government of India, with a target for achieving cumulative capacity of 40,000 MW from Rooftop Solar (RTS) projects by 2022, with total central financial support of ₹11,814 crore with Power Distribution companies (Discoms) as implementing agencies. Domestic consumers with ceiling of 10KWP plants are eligible for central financial assistance. 50MW has been allocated to the state in this subsidy scheme. The project is implemented under *Soura* Phase-II. 75 per cent of the project will be executed by KSEBL and rest 25 per cent by ANERT. The total registration as on October 30, 2021 is for 93MW (26,000 consumer premises) and MNRE has allotted 200 MW for 2020-21.

Unnat Jyoti by Affordable LEDs for All (UJALA)

This scheme provides LED bulbs to domestic consumers with a target to replace incandescent bulbs in the country with LED bulbs. Kerala has completed initial phase of the programme by achieving a target of 150 lakh bulbs.

Perform Achieve and Trade (PAT)

PAT scheme is a flagship programme of Bureau of Energy Efficiency under the National Mission for Enhanced Energy Efficiency (NMEEE).

The second cycle of PAT, notified in March, 2016 covers DISCOMs also. The Kerala State Electricity Board Limited has complied with all requirements mandated by the PAT Rules. KSEBL has ensured prompt and timely satisfaction of all action points stipulated in the PAT scheme, as part of the PAT Cycle-II.

PGCIL Inter State projects

Pugalur-Trichur HVDC project This project is an extension of 600MW Raigargh – Pugalur HVDC corridor to Kerala. The Raigargh – Pugalur corridor has been test charged on May 2020. This 320kV DC line of length 153.5km has 92km inside Kerala. Of this, 64km up to Vadakkanchery is as overhead and rest 28km is through under ground cable. The line has 2,000MW capacity. The HVDC line was commissioned on October 10, 2021.

Externally Aided Projects (EAP)

Dam Rehabilitation and Improvement Project (DRIP)

Dam Rehabilitation and Improvement Project (DRIP) aims to improve the safety and also promote sustainable performance of existing dams and associated structures with the assistance of World Bank through Government of India. It is a flagship project of Ministry of water resources, river development and Ganga rejuvenation (RD&GR), Government of India. The components of DRIP are rehabilitation (remedial measures and improvement of basic facilities of 12 hydro electric projects consisting of 37 dams), institutional strengthening and project management. Out of project outlay of ₹134 crore, ₹125 crore has been utilised by KSEB.

In line with ongoing DRIP projects, Central Project Management Unit (CPMU), Central Water Commission (CWC) is perusing with second and third phases of DRIP through World Bank Assistance.

Power Theft

Cases of power theft and connected abnormalities are very low in the State due to strict enforcement of law and awareness in society. KSEBL has Anti Power Theft Squad (APTS) constituted to detect

pilferage and misuse of electricity in all districts. Field staff is also given monthly targets for inspection. In 2020-21, 379 cases were detected.

Collection of Arrears

The total arrears receivable to KSEB as on September 30, 2021 is ₹3,074.72 crore. The outstanding dues of private consumers as on September 30, 2021 are ₹1,198.63 crore. The Government due, both Central and State together at the end of first quarter is ₹1,150.89 crore. Of this ₹1,079.53 crore is attributed to State Government Departments and State Public Sector Undertakings. (PSUs) The major chunk of arrear belongs to Kerala Water Authority.

Major Physical Achievements of KSEBL in 2021-22

- Provided power for all on demand without imposing any restrictions
- A total number of 3.72 lakh new service connections were provided, 2,372 new distribution transformers were installed, 2,195 km of 11kV line and 3,650km of LT lines were constructed.
- Commissioned HVDC Pugalur-Madakkathara Pole-I and II and 400kV Kozhikode-Madakkathara double circuits
- Constructed four 220KV, one 66KV, two 33KV substations in the transmission sector
- Achieved a capacity addition of 63.25MW generation
- Transmission and Distribution losses (10.32 per cent) and AT & C loss (7.76 per cent) for distribution strategic business unit were reduced to an all time low.

Challenges and Issues

- Ensuring quality power to all: Elimination of urban – rural gap in quality of services provided
- Issues related to capacity addition
- Hindrances in developing RE power: Scarcity of barren land to install solar plants and limited wind energy potential
- Inadequate power corridors to import power from Northern grid and insufficient network of intra state transmission lines
- Challenges in Distribution: Poor networking of old and under rated lines, lack of alternate feeding facility, low HT/LT and non-standard structures

- Task of installation of smart metres in distribution as envisaged by Government of India

Non-Conventional and Renewable Sources of Energy

Energy can be generally classified as non-renewable and renewable. Over 85 per cent of the energy used in the world is from non-renewable supplies. Most developed nations are dependent on non-renewable energy sources like fossil fuels (coal and oil) and nuclear power. Renewable or potentially renewable sources are solar, geothermal, hydroelectric, biomass and wind. Most developing countries have abundant renewable energy resources.

The implementing and regulating agencies associated with the non-conventional and renewable sources of energy in Kerala are (i) Agency for Non-conventional Energy and Rural Technology (ANERT), (ii) Energy Management Centre (EMC)

Agency for Non-Conventional Energy and Rural Technology (ANERT)

Agency for Non-conventional Energy and Rural Technology (ANERT) is an autonomous body under the Power Department, GoK. ANERT is the nodal agency for the implementation and propagation of non-conventional sources of energy in the State. It is also the nodal agency for the Ministry of New and Renewable Energy Sources (MNRE), GoI, to carry out the Central Government programmes in Kerala.

Achievements of ANERT in 2020-21

- 100kW solar hybrid power plants have been installed
- Commissioned Solar Water ATM which are automated water dispensing machine – 3,000 lpd water purification system which utilise 3kW solar at Alappuzha and Kannur
- Commissioned solar power plants in Government buildings with capacity of 619kW and 1,350kW
- Four projects of academic institutions were funded by ANERT
- 135 electric vehicles being provided on hire to Government departments and institutions

in a tie-up with Energy Efficiency Sciences Limited (EESL).

- Solar agro farming: Installed 25kW solar in farm lands without affecting the crops at Chittoor, Palakkad

Challenges and Issues

- No clear policy on power procurement from renewable energy sources
- Availability and accessibility of land
- Resource constraints for promoting renewable energy projects.
- Non-adherence to Renewable Purchase Obligation (RPO) targets and compensation thereon.
- Lack of Standard Operating Procedures (SOP's) for Renewable Energy (RE) Projects and relaxation on wheeling and transmission charges

Energy Management Centre (EMC)

Energy Management Centre (EMC) is the State designated agency of Bureau of Energy Efficiency, Ministry of Power GoI for promoting energy conservation, energy efficiency and enforcing Energy Conservation Act, 2001 in the State. EMC also promotes small/mini/micro hydel schemes. Small Hydro Promotion (SHP) Cell constituted by GoK, under Power Department, is also attached in EMC to give impetus for development of Small Hydro Promotion through private participation.

Achievements of EMC in 2020-21

- EMC bagged the first place in the National Energy Conservation Award instituted by the Ministry of Power, Government of India in the category of State designated agency.
- Energy conservation efforts in the State saved 337.6 MU of electricity and 17,647.8 kilolitres of oil.
- Energy Metre Calibration Laboratory of EMC has been granted with NABL Accreditation in accordance with IS/ISO/IEC 17025:2017 for the discipline of electro-technical calibration.
- Implemented energy efficiency projects at Six Government hospitals Government Medical College Thiruvananthapuram, Government Medical College Thrissur, Government Medical College Kalamassery, Government Chest Hospital Thrissur, General Hospital Pala, and District Hospital Thrissur.

- Installed 10 kWp Off-Grid solar PV system at Perumbalam Public Health Centre , Condensate Recovery Unit at Milma Wayanad Unit
- Conducted energy audit at various parts of the State.

Challenges and Issues

- Protocols and policies for adoption of energy efficiency in domestic sector.
- High land costs and forest clearance issues in small hydro power development.
- Mechanism to handhold and implement energy management projects
- Emission reduction and climate change mitigation not mandatory
- Commercial sector activities not mandated to follow energy efficiency in design/ construction stages
- Energy Conservation Building Code Rules (ECBC) needs to be adopted by PWD, LSGD departments and Developers
- Demand aggregation of existing inefficient appliances and their replacement.
- Adoption of energy efficient methods or processes in the agricultural value chain sector.

Department of Electrical Inspectorate

The Electrical Inspectorate and Metre Testing and Standards Laboratory (MTSL) is functioning under the Department of Power, GoK. Safety inspections are carried out and sanction for energisation for all HT/EHT and other medium voltage installation in the State are issued by the Inspectorate. The motto of Meter Testing and Standards Laboratory (MTSL) is to provide testing and calibration of various types of electrical equipment. At present, calibration facilities is available for voltage, current, resistance, frequency, power, power factor, and energy. The testing facilities include pre-commissioning tests for protection relays and instrument transformers. Also, pre-commissioning tests are conducted for power transformers, cables and circuit breakers. All calibrations and tests are conducted as per national and international standards. Enquiry into all electrical accidents occurring in the State, forwarding the reports to the State Government and taking actions against responsible person/ authority are also done by Electrical Inspectorate.

Achievements of Electrical Inspectorate in 2020-21

- Renovated Regional Metre Testing Laboratory at Revenue Tower, Ernakulam with the facility of testing 20 energy metres at a time.
- The work of new regional testing laboratory at Alappuzha has been completed.
- Procured single phase relay test set.
- The regional testing laboratory at Kollam district is renovated and upgraded to NABL standards.
- Purchased two lakh energy metre seals for Meter Testing and Standards laboratories.
- Conducted technical training programmes including service quality management as per ISO 15700:2018.
- NABL accreditation maintained at Meter Testing and Standards Laboratory-Thiruvananthapuram and Regional testing laboratories at Kottayam, Thrissur, Palakkad, Malappuram, Kozhikode, Wayanad and Kasaragod.
- Webinars on electrical safety have been conducted throughout the State.

Challenges and Issues

- Lack of sufficient number of modern testing equipment for conducting inspections
- Lack of laboratories to test specimen collected from fire accident spot

Kerala State Electricity Regulatory Commission (KSERC)

The Kerala State Electricity Regulatory Commission, a quasi-judicial statutory organisation was established in 2003. The Commission is responsible for maintaining a fair, transparent and objective regulatory system in the power sector of the State. The major function of the Commission is determination of tariff for generation, supply, transmission and retail sale of electricity in the State. It is also vested with other functions such as approval of power purchase agreements of distribution licensees in the State, resolving disputes among licensees and generating companies, issues relating to tariff and determination of compensation as per the provisions of the Act. The Commission has published the draft of the Kerala Electricity Regulatory Commission (Terms and Conditions for determination of tariff) Regulations, 2021 for inviting comments of the general public and

stakeholders. In 2020-21, 111 court hearings on petitions were carried out by the Commission.

Electricity Ombudsman

Electricity Ombudsman is a statutory authority appointed by the Commission under sub-section (6) of Section 42 of the Electricity Act, 2003, to settle grievances of consumers, aggrieved by non-redressal of their grievances by the Consumer Grievance Redressal Forum. Of the 41 petitions disposed in 2021, 27 appeals and one review were in favour of the consumers.

Consumer Grievances Mechanism (CGRF)

CGRF has been set up under the Electricity Act 2003, for the redressal of the grievances of the consumers by all distribution licensees in the State. KSEB had set up three consumer grievance redressal forums for settling the disputes or grievances of consumers. Of the total number of complaints disposed in 2021, 233 were in favour of consumers.

Consumer Advocacy Cell (CAC)

Consumer Advocacy Cell is formed for creating awareness among the consumers about the power sector and the regulatory process thereby ensuring consumer participation in the electricity regulatory process. CAC aims to enlighten the consumers about the Regulatory mechanism and their role in the functions of the Electricity Regulatory Commission by conducting classes at various centres and publishing newsletters, and pamphlets. Compliance examiner is entrusted with the responsibilities relating to consumer advocacy, consumer protection, and awareness initiatives of the Commission.

11.3 COMMUNICATIONS

Telecommunications

Telecommunication is one of the prime support services needed for rapid growth and modernisation of the economy. Telecommunication services in India have improved significantly since Independence.

Telephone Subscriber Data

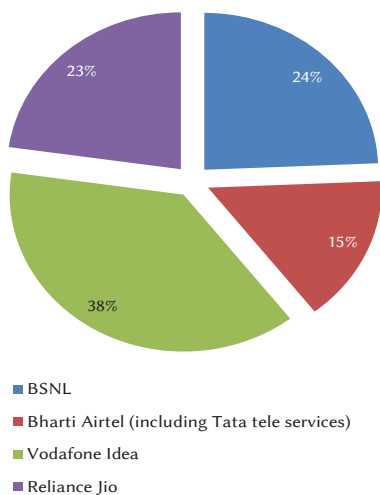
India is currently the world's second largest telecommunications market with a total telephone subscriber base that rose from 1,173.83 million at the end of December, 2020 to 1,201.20 million at the end of March, 2021, registering a growth rate of 2.33 per cent over the previous quarter. This reflects Year-On-Year (Y-O-Y) growth rate of 1.97 per cent over the same quarter of the last year.

The overall tele-density in India has also increased from 86.38 to 88.17 per cent in QE Mar-21 (1,180.96 million wireless and 20.24 million wire-line subscribers).

The Kerala Scenario

As far as Kerala is concerned, the overall tele-density is at 129.47 per cent and the telephone subscriber base is 46.04 million (44.84 wireless and 1.21 wireline).

Figure 11.3.1 Market share of wireless service providers

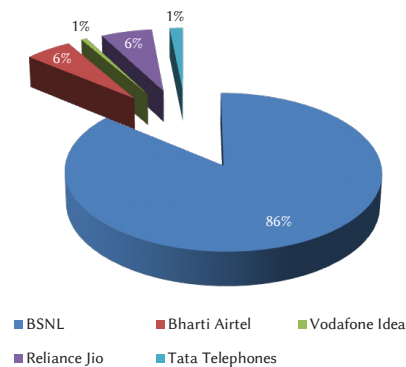


Source: TRAI

In Kerala, total number of wireless subscribers is 4,48,37,822. Vodafone has largest wireless connectivity with 1,69,34,704 numbers, followed by BSNL with 1,09,12,516 and Reliance Jio with 1,01,96,287 subscribers. Bharti Airtel (including Tata teleservices) has 67,93,854 while Reliance communications has only 461 subscribers. The market share of various wireless service providers is given in **Figure 11.3.1**.

Total number of wireline subscribers is 1,206,471. BSNL has largest wired line connectivity with 10,33,144 numbers, followed by Reliance Jio with 73,093 subscribers. Reliance communications has only 5,699 subscribers. The wireline market share of service providers is given in **Figure 11.3.2**.

Figure 11.3.2 Wireline telephone subscriber base of Kerala



Source: TRAI

Internet Subscriber Data

The total number of internet subscribers in India stands at 825.30 million by the end of March 31, 2021. The number of subscribers accessing wireless internet connection constitutes the major chunk with over 1,180.96 million subscribers contributing to 96.95 per cent of internet subscribers while the wireline subscriber base stood at 20.24 million contributing to 3.07 per cent of the internet subscribers.

Kerala has 31,713 telephone towers. Reliance Jio has the largest number of telephone towers with 10,101 towers, followed by Vodafone Idea 8,593 towers. BSNL has only 6,012 towers.

Kerala telecom circle serve the whole of Kerala State, the Union Territory of Lakshadweep and part of Union Territory of Puducherry (Mahe). The circle has 11 major Secondary Switching Areas (SSAs) and one minor SSA of Lakshadweep. 1,355 telephone exchanges are working under the Circle with an equipped capacity of 21,51,842 numbers. Number of working connection under the Circle is 1,17,48,612 (1,08,38,814 Mobile and 9,09,798 landline connections). The State has a teledensity of 350 per thousand populations. The district wise details of telephone network of BSNL Kerala as on June 30, 2021 is given in **Appendix 11.3.1**.

Communication Infrastructure

Core infrastructure for e-governance in the State consists of Kerala State Wide Area Network (KSWAN), Secretariat Wide Area Network, State Data Centre (SDC), State Service Delivery Gateway and public WiFi project. KSWAN is the backbone of the State Information Infrastructure (SII), connecting Thiruvananthapuram, Kochi and Kozhikode and extending to 14 districts and 152 block Panchayats of the State. The network will also connect 3,500 offices of Government departments through wireless and a large number of offices through leased lines and Local Area Network. KSWAN is seamlessly integrated with two SDCs which enable the network to provide large number of Government to Government, Government to citizens' services hosted in SDCs to the Government institutions through a secure intranet.

Postal Network

Kerala Postal Circle includes the entire State of Kerala, the Union Territory of Lakshadweep islands, and Mahe under the Union Territory of Puducherry. In Kerala, every village has at least one post office. As on September 30, 2021, there are 5,063 post offices in the Circle, of which 1,509 are Departmental post offices and the remaining 3,554 are Extra Departmental post offices, (Branch Post Offices). On an average, each post office in the State serves an area of 7.7

square km and a population of 6,613 as against the national average of 21.21 square km and a population of 7,175 people. 82.2 per cent of these post offices are in the rural areas.

The District-wise distribution of the post offices in Kerala as on September 30, 2021 is given in **Table 11.3.1**.

Table 11.3.1 District-wise distribution of post offices as on September 30, 2021

Sl. No	Name of District/ Union Territory	Number of Post Offices
1	Kasaragod	231
2	Kannur	382
3	Wayanad	163
4	UT of Puducherry (Mahe only)	4
5	Kozhikode	407
6	Malappuram	438
7	Palakkad	455
8	Thrissur	484
9	UT of Lakshadweep	10
10	Ernakulam	391
11	Idukki	296
12	Kottayam	409
13	Alappuzha	300
14	Pathanamthitta	312
15	Kollam	367
16	Thiruvananthapuram	414
Total		5063

Source: Chief Post Master General, Kerala Circle, Thiruvananthapuram

Given the vast reach of the network in the State, continuous efforts are being made to increase access to postal facilities in newly developed urban/rural areas by opening new post offices or by upgrading existing Extra Departmental Branch Offices (EDBOs) to full time post offices. All Post Offices in Kerala have improved their functioning as a citizen hub. Every citizen now has access to this hub close to his or her doorstep. Details are shown in **Appendix 11.3.2, 11.3.3, 11.3.4 and 11.3.5**.

Mail network in the State has been revamped with 14 speed post processing centres under five national hubs to facilitate technology induction for the purpose of monitoring and to provide track and trace facilities from the point of booking to delivery thereby increasing the quality of service. In the category of registered mails too, track and trace facility is now offered to customers. As part of a national policy, the circle has also revamped the network for processing ordinary mails to ensure better quality of service in this sector. All the 1,509 departmental post offices in the circle are computerised.

The new e-based and value added services of Kerala postal circle is give in **Table 11.3.2**.

Business Initiatives Undertaken by Kerala Circle

- Tie-up with APJ Abdul Kalam Technological University for the collection, booking and delivery of sensitive examination materials of the university to 152 engineering colleges throughout Kerala.
- Tie-up with Controller of Technical examinations, Kerala for the booking and dispatch of sensitive examination materials from 73 Polytechnic colleges, 11 Technical High Schools and 17 Government Commercial Institutes.

Table 11.3.2 e-based and value added services of Kerala Postal Circle

Sl. No.	Type of Service	Functions
1	'e post'	Service to send a communication quickly to the destination avoiding physical transmission but retaining the last mile reach through the Postman. As on March 31, 2021, 1338 post offices have been provided with this facility.
2	Many to One	This facilitates sending of same ePost message from many senders to one recipient on recipient's email box
3	One to Many	It facilitates sending of same ePost message from a sender to multiple recipients on recipient's email inbox
4	eMO	This service was introduced in 2008 for remitting money to and from addressees within the country. Today, 98 per cent of the entire money order traffic is handled electronically. Today the number of post offices offering this service in Kerala is 1508.
5	e-payment	The service enables collection of bills including utility bills on behalf of various service providers from all the computerised post offices and payment centrally to the client organisation as per the periodicity desired by them. This service is available in all 1508 (Head Post Offices and Sub Post Offices) Post offices in Kerala Postal Circle.
6	International Speed Post or EMS	This is a facility that is available from India to 99 countries.
7	Direct Post	Direct Post is a product which allows establishments/ firms to reach their present or prospective clients through targeted marketing. Any pamphlet, brochure, or hand bills can be sent as unaddressed mail to them under Direct Post and they will be delivered in areas where the target customers reside, based on a selection of locations by the post offices in consultation with the customer.
8	Pack Post Service	PACK Post is the way to send items up to 30 kg anywhere in the world. Parcel Packaging facility is made available to the customers in major Post Offices.

Source: Chief Post Master General, Kerala Circle, Thiruvananthapuram

- Post Office Passport Seva Kendra's have been established at Pathanamthitta, Kavaratti, Kasaragod, Chengannur, Kattappana, Olavakkode, Attingal and Nenmara to facilitate the process of getting passport to the customers.
- In collaboration with UIDAI, Aadhaar Enrollment cum Updation Centres has been started.
- Sale of Ganga Jal sourced at Gangothri is being done.
- Kerala Postal Circle has entered into an agreement with M/s Energy Efficiency Services Ltd. for sale of LED bulbs, tube lights and energy efficient fans distributed under Unnath Jyoti by Affordable LEDs for All (UJALA) scheme.
- Introduced a business product named "Gift Post" along with a campaign titled "Acharya Devo Bhavo" to commemorate the efforts put forth by the teachers. Under this service, the students can either send e-Post messages to their teachers or fill up an order form, in the nearby Post Office, from which he/she can select some gifts from the catalogue.
- Agreement with Travancore Devaswom Board for booking and delivery of Sabarimala Swamy Prasadam through Speed Post to the devotees of Lord Ayyappa all over India.
- Special bookings for NDA, State PSC, UPSC, SSC are done by arranging special speed post booking counters at the post offices of choice of the organisations.
- Department of Post has undertaken the project of distribution of Census material of Registrar General of India for Census 2021 to the administrative authorities up to Tehsil and Taluk level addresses throughout India.

Philately

As part of the efforts to promote philately as a hobby, various measures are being adopted by the Kerala postal circle. Kerala postal circle has four Philatelic bureau, 47 Philatelic counters, 44 My Stamp counters, and 33 authorized counters for promotion of philately. Four philatelic bureaus have been set up for this purpose at Trivandrum GPO, Ernakulum H.O, Thrissur H.O, and Kozhikode H.O.

Postal Exhibition - Thrissurpex

Department of Posts organises philatelic exhibitions at all levels namely State and District level as a part of its philately promotion programme. It is the objective of the Department to organize exhibitions on a regular basis in all the states and districts of the Country. The exhibitions are organized in cooperation with the philatelic organizations active in the area.

The District level virtual philatelic exhibition of Kerala circle was held in September, 2021 on the theme "India's Rich Cultural Heritage" as per schedule in connection with "Azadi Ka Amrit Mahotsav" (India @ 75) programme. In view of the Covid-19 pandemic situation, the exhibition was conducted virtually. As the country is cautiously coming out of the lockdown, the exhibition helped to open up immense philatelic opportunities and re-ignited philatelic activity.

Life Insurance

India Post provides insurance coverage to the citizen through Postal Life Insurance and Rural Postal Life Insurance. Postal Life Insurance is an insurance scheme offered to employees of the central and state governments, defence personnel, local bodies State PSUs and scheduled /commercial banks. Now, this has been extended to the teaching and non-teaching staff in all private educational institutions and professionals.

Kerala postal circle has initiated a special campaign to empower the women, by way of insuring their lives with Rural Life Insurance.

11.4 DRINKING WATER

Supplying potable water to everyone is a challenge faced by countries across the world. Improved water supply and sanitation, and better management of water resources, can boost countries' economic growth and can contribute greatly to poverty reduction. Almost two-thirds of the diseases in India are caused by the type of water that people drink; one-third of fatalities are attributable to water-borne diseases. Climate change, depleting groundwater level, over exploitation and deteriorating water quality are some of the major challenges to provide drinking water to all. India constitutes 16 per cent of the world's population, but the country has only four per cent of the world's freshwater resources.

NITI (National Institution for Transforming India) Aayog has developed a Composite Water Management Index (CWMI) to enable effective water management in Indian States in the face of the growing water crisis. The CWMI

is an important tool to assess and improve the performance of States and Union Territories in efficient management of water resources. According to the Water Management Index Report both in 2018 and 2019, Kerala occupies the twelfth position. CWMI 2019 findings conclude that Kerala has restored 95 per cent of the irrigation potential of identified water bodies and utilises 80 per cent of its irrigation potential. The State has mapped less than 30 per cent of major groundwater recharge areas and only five per cent of such mapped areas are covered with recharge. More than two-third of rural population and one-third of urban population remain uncovered under piped drinking water supply. Even though most of the people in Kerala depend on open dug wells for all their domestic water needs, it is not considered as safe drinking water under Jal Jeevan Mission (JJM) as well as by CWMI.

Box No.11.4.1 WHO/UNICEF Joint Monitoring Programme (JMP) Report 2021 - Salient Highlights

The WHO/UNICEF Joint Monitoring Program Report¹ presents estimates on household access to safely managed drinking water, sanitation and hygiene services over the past five years, and assesses progress toward achieving the sixth sustainable development goal (SDG) of ensuring availability and sustainable management of water and sanitation for all by 2030. Achieving universal coverage by 2030 requires a quadrupling of current rates of progress in safely managed drinking water services, safely managed sanitation services, and basic hygiene services.

According to UNICEF policy on drinking water:²

- Universal access to safe drinking water is a fundamental need and human right.
- Securing access for all will go a long way in reducing illness and death, especially among children.
- “Safely managed” drinking water services represent an ambitious new rung on the ladder used to track progress on drinking water.
- Since 2000, 2 billion people have gained access to safely managed services (i.e., accessible on-premises, available when needed and free from contamination). In 2020, 5.8 billion people used safely managed services and a further 2 billion people used basic services (improved sources within 30 minutes per round trip to collect water).
- However, 771 million people still lacked even a basic level of service, including 282 million who used a “limited” water service (improved source from which water collection exceeds 30 minutes), 367 million who used unimproved sources and 122 million who still collected drinking water directly from rivers, lakes, and other surface water sources

Source: ¹ WHO/UNICEF JMP 2021 Report for Water Supply, Sanitation and Hygiene - Progress On Household Drinking Water, Sanitation and Hygiene-2000-2020: Five years into the SDGs.

² UNICEF data on *Access to Drinking Water*

Kerala is perceived to have a higher water demand than the national average because of established social norms and demand for better hygiene and sanitation. According to Census 2011, 62 per cent of the population uses wells as their main drinking water source, while 29 per cent of the population has access to piped water-supply. In terms of accessibility, 78 per cent households have a water source within the premises and 14 per cent households use water sources near the premises. State sanitation coverage, based on Census 2011, showed that 67 per cent households had water sealed toilets, and 95 per cent had a toilet facility within the premises.

In Kerala, Kerala Water Authority (KWA) and Kerala Rural Water Supply and Sanitation Agency (KRWSA) are the major implementing agencies in drinking water sector. Local Governments also play an important role in this.

Kerala Water Authority (KWA)

KWA was established in 1984 for the development and regulation of water supply and waste water collection and disposal in Kerala. Its major functional units are operation and maintenance, projects, project planning and development, quality control, consultancy and sewerage verticals.

The KWA has an elaborate water quality control setup with a State Referral Institute at Kochi and has 14 district labs and 32 sub divisional labs. In addition to State lab, district labs of Thiruvananthapuram, Kollam, Pathanamthitta, Idukki, Ernakulam, Kozhikode, Kannur and Palakkad have obtained NABL (National Accreditation Board for Testing and Calibration Laboratories) accreditation conforming ISO/IEC/17025:2017 standards.

Sewerage

KWA has the mandate for collection and disposal of waste water. But the presence of KWA in this sector is very minimal and has been carried out only in Thiruvananthapuram and in Kochi Corporations to some extent. Presently, the main activities taken up under this head include enhancement of undersized lines to the desired size, to repair damaged manholes so as to avoid overflow of sewage, to provide sewerage facility to

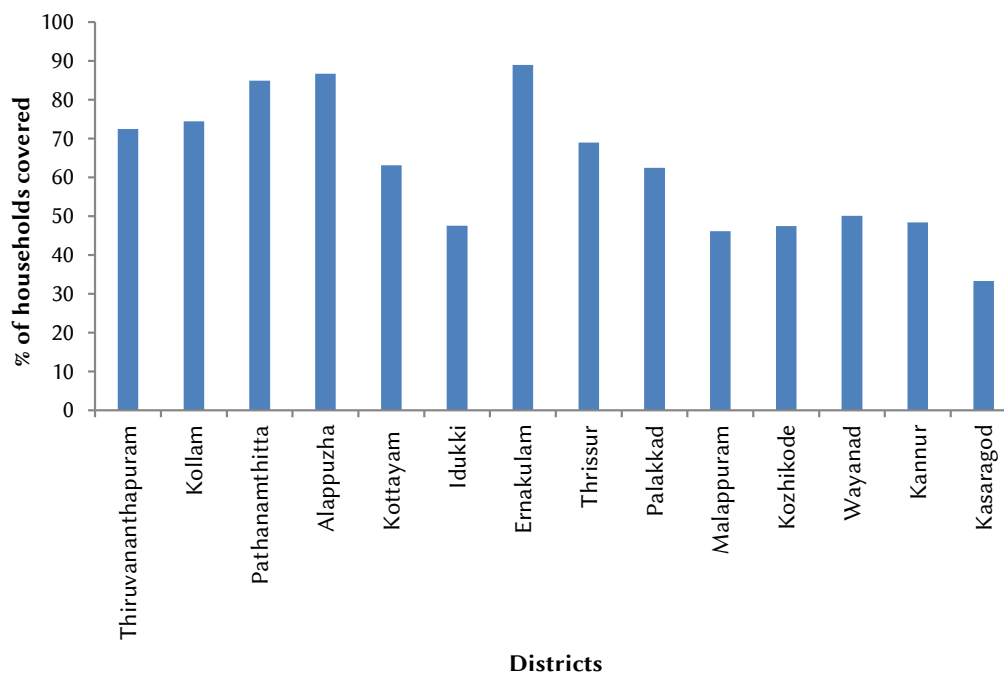
areas by minor extensions where no other source of sewerage disposal system exist. In order to overcome the threat of environmental damages, adequate attention is essential for strengthening the existing sewerage system. The need for more focused attention in sewerage sector is essential. However, issues related to funds, public protest against sewage plants and pump houses, delay in getting land and sanctions for road cutting have to be addressed before taking up sewerage projects. KWA envisages to take up new small-scale projects taking 2 to 3 wards as a cluster and provide small decentralized treatment plants of various capacities to treat sewerage up to 20 mld. Latest technologies incorporating the reuse of treated effluent as specified by National Green Tribunal (NGT) is proposed to be used in these projects.

In Guruvayoor, the sewerage scheme was commissioned on September 30, 2021. In 2020-21, 17 works which includes replacing the old sewer lines, extension of sewerage network, rehabilitation of old manholes and construction of new manholes were completed. The total expenditure in 2020-21 was ₹742.13 lakh out of the budgeted outlay of ₹800.00 lakh.

Water Supply Coverage

KWA provides water supply to nearly 2.36 crore people from its 928 Water Supply Schemes maintained by it, through 33.71 lakh connections and 2 lakh public taps in Kerala. The average per capita availability of piped water is 84.76 litre per day (the lpcd is varying in different habitations in all the districts). It has made remarkable progress in the rural and urban water supply sectors, commissioning various water supply schemes implemented with the help of Central/State Government grants and Schemes (JJM, NABARD, State Plan, NRDWP, KIIFB, AMRUT). Projects worth more than ₹14,000 crore are in various stages of implementation. On completion of these projects 1,400 MLD (million litres per day) of water will be additionally available for distribution in the next three years. New projects have been sanctioned under KIIFB, RKI in addition to projects being taken up under State Plan and NABARD. In 2020-21, 19 schemes under State Plan, five projects under NABARD, 21 projects under AMRUT and 34 projects under KIIFB were completed. 4.04

Figure 11.4.1 District wise proportion of households covered by water supply schemes as on August 31, 2021



Source: KWA

lakh Functional Household Tap Connections (FHTCs) were provided under Jal Jeevan Mission (JJM). As on August 31, 2021, 63.98 per cent population of Kerala has been covered with piped water supply from the existing KWA schemes (59.48 per cent in rural and 79.28 per cent in urban).

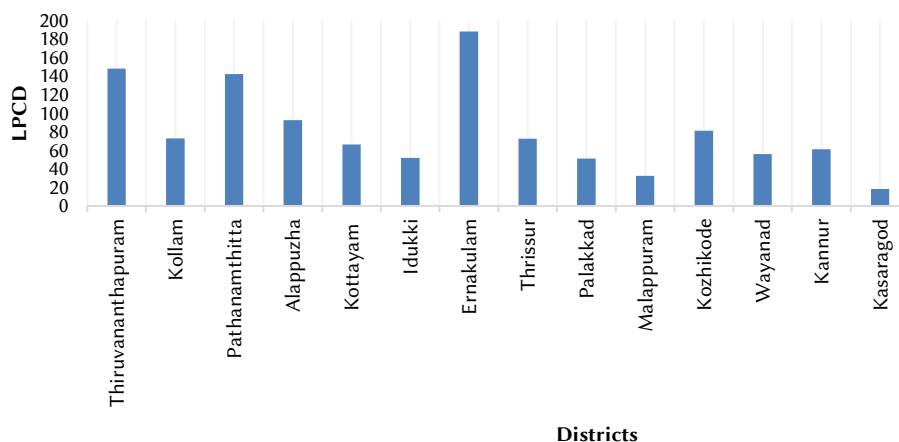
District-wise population covered by water supply schemes as on August 31, 2021 is shown in **Figure 11.4.1**. Ernakulam District with coverage of 88.89 per cent population shows highest coverage among 14 districts of Kerala, followed by Alappuzha District (86.66 per cent). In Kasaragod District, the coverage is the least (33.26 per cent). Details are given in **Appendix 11.4.1**. District-wise and category-wise analysis shows that Thiruvananthapuram has the highest number of water supply schemes (96) and Wayanad has the least (24). Kozhikode has the highest number of urban water supply schemes (16) while Palakkad has the lowest number (1) as on August 31, 2021 (**Appendix 11.4.2**).

KWA distributes water through House Service Connections (HSC) and street taps. The total number of domestic, non-domestic, and industrial connections is 31,28,238, 2,40,365 and 2,601 respectively. Out of the total 1,94,859 street tap connections, 1,46,783 are in Panchayats, 29,220 in Corporations, and 18,856 in Municipalities **Appendix 11.4.3** as on August 31, 2021. Number of rural water supply schemes of KWA transferred to local bodies as on August 31, 2021 is 567 and the total population coverage in all the 14 Districts is 13,36,362. District-wise details of water supply schemes transferred to Local Governments are given in **Appendix 11.4.4**. As per District-wise water availability data as on August 31, 2021 shown in **Figure 11.4.2**, Ernakulam District has the highest availability (188.18 lpcd) and Kasaragod has the lowest availability (18.19 lpcd) which is same as in last year (**Appendix 11.4.5**).

Revenue

The major income for KWA is from the sale of water and Kerala is the only State in the country with 100 per cent metered water connections. The water tariff is uniform across the State

Figure 11.4.2 District wise per capita water availability as on August 31, 2021



Source: KWA

with block tariff structure (increasing rate with increasing consumption). The last revision in water tariff was on October 1, 2014. The total revenue collected in 2020-21 was ₹601.46 crore. The major sources of income for KWA are revenue from sale of water, Non-Plan Grant from GoK, Plan fund from GoK, NABARD, NRDWP and JJM funds from GoI.

In 2020-21, income from water charges of domestic, non-domestic and industrial schemes, was ₹51,047 lakh and that from street taps was ₹9,099 lakh. The total income from water charges in 2014-15 which was ₹369.65 crore (including domestic/non-domestic, industrial and from street taps) increased to ₹601.46 crore in 2020-21. **Appendix 11.4.6.**

State Plan Schemes

Survey and investigation

The aim of KWA is to supply water to all parts of Kerala. For this, detailed surveys are to be conducted for preparing a shelf of projects. In 2020-21, nine works were completed and a total expenditure of ₹66.56 lakh has been booked.

NABARD Assisted Rural Water Supply Schemes - Rural Infrastructure Development Fund

With the loan assistance from NABARD, KWA implements water supply schemes in the rural areas of Kerala. Out of the total 29 projects sanctioned, 8 projects have been completed and

4 projects were dropped. It is expected that eight projects will be commissioned in this financial year (Balance work of tranche XX and XXII and some works in tranche XXIII and XXIV). Some important works such as Water Supply Scheme (WSS) to Konni Medical College in Pathanamthitta District, Comprehensive Water Supply Scheme (CWSS) to Agali and adjoining Panchayats in Palakkad and WSS to Seethathode Panchayat, Nilakkal Plappally area in Perunad Panchayat, WSS to Poovar Panchayat, WSS to Kulakada and WSS to Vithura Tholicode were sanctioned under NABARD. WSS to Muttam, Karimkunnam and Kudayathoor Panchayats and WSS to Melila Panchayaths were the two major sanctioned schemes in 2020-2021 under Tranche XXVI. Sanction was again granted this year as the schemes could not be taken up in 2020-21 because of Covid-19. WSS to Kunnathur Poruvazhi and Sooranadu North Panchayats of Kunnathur Taluk and Thazhava Thodiyur and Kulasekharapuram Panchayat of Karunagappalli Taluk in Kollam District and WSS to Mangattidam Zone III in Mangattidam Panchayat of Thalassery Taluk of Kannur District are the two major schemes sanctioned in 2021-2022.

Manufacturing units for Bottled Water

The aim of this project is to set up a bottled water plant at Thiruvananthapuram for providing good quality packaged/ bottled water through KWA at reasonable price to public. The civil and mechanical works are completed. The

bottled water plant has been handed over to Kerala Irrigation Infrastructure Development Corporation Limited (KIIDC). Now the plant is operated and maintained by KIIDC.

Renovation of Existing Civil Structures Owned by KWA

The major aim of this scheme is to renovate the structures which are in damaged condition because of lack of timely repair, protection and renovation. Annual maintenance of various civil structures like office buildings, treatment plants, intake, water tanks, pump houses and staff quarters are to be done throughout the State and the maintenance of the civil structures is proposed to be done in a phased manner for protecting the assets created and to improve the quality of service. Construction of compound walls around the WTPs, KWA offices and vacant plots is also taken up under this scheme. This will help to clearly demarcate the lands owned by KWA so as to prevent encroachment and ingress of anti-social elements.

With the budget allocation of ₹300 lakh in 2020-21, 31 works including maintenance of office buildings, guest houses, tanks, staff quarters and pump houses located in various Districts have been completed. The expenditure incurred was ₹289.08 lakh.

Innovative Technologies and Modern Management Practices

The major aim of this scheme is to improve service delivery and quality by adoption of new technologies and modern management practices. Some issues which cannot be solved or optimised can be resolved or improved by practicing innovative ideas. By installation of automated networks, flow meters and smart meters, measures to reduce Non-Revenue Water (NRW) loss could be taken up. The project envisages procurement of bulk meters in all major schemes and to integrate these with Supervisory Control and Data Acquisition (SCADA). This scheme also aims at procurement of leak detection equipments, automation of pump houses, use of dual media for augmentation of Water Treatment Plants (WTPs) and efficiency study of pumps for improving energy efficiency in pumping for ensuring increase in efficiency of the water supply schemes, reduction in wastage of

treated water and increase in revenue. 11 works were completed in 2020-21. The works included the installation of solar panels in the roof top of KWA building, automation of pump houses and purchase of new and highly sophisticated instruments for the State Quality Control Lab at Nettoor, Ernakulam.

Human Resource Development, Research & Development and Quality Control

The engineers and other staff need to be updated and equipped with modern project management practices and tools for the timely execution of projects and maintenance of new high-tech systems. A major achievement in 2020-21 is that 62 in house and outstation training courses were conducted in which 2,154 persons participated. Online trainings were conducted in 2020-21.

Rehabilitation and Improvement Works of Urban Water Supply Scheme

The objective of the scheme is to achieve 100 per cent coverage in urban areas, taking up of new schemes in uncovered Urban Local Bodies (ULBs) and laying distribution systems in schemes where production components are completed. Presently, interim augmentation of Kochi city and adjoining areas are being carried out. In 2020-21, one major urban scheme, improvements to WSS to Manjeri - Veetikunnu Ward No. 28, 29, 30, 31 and 32 of Manjeri Municipality were completed. The total expenditure in 2020-21 was ₹1,894.04 lakh.

Rural Water Supply Schemes

This scheme aims at improving the water supply to rural households where many do not have access to safe drinking water through piped water supply. As on April 1, 2020, only about 34 per cent of rural households have piped water supply. More emphasis has been given in this sector with the launch of Jal Jeevan Mission which aims to provide piped water supply to all households by 2024. New rural schemes, completion of ongoing rural schemes, revamping of existing schemes are proposed under this head. In 2020-21, three projects worth ₹10 crore and above were completed and three minor works for improvement of water supply to rural population has been completed. The total expenditure in 2020-21 was ₹7,143.20 lakh.

Water Supply Scheme to Specified Institutions/locations

This scheme is intended for providing uninterrupted water supply to some specified institutions and locations such as Medical Colleges, Taluk hospitals, District hospitals, rural schools and other educational institutions, water supply to Government institutions like Civil Station compound, prisons and correction homes and also to provide sufficient quantity of drinking water to pilgrims to visiting centres such as Sabarimala. In 2020-21, three works were completed.

Modernisation of Aruvikkara Pumping Station

Modernisation of Aruvikkara is a prime project of KWA to meet the increasing demand of water supply to Thiruvananthapuram city. The major works under this scheme include replacement of old and damaged pumps, motors, civil, electrical and mechanical installations in the Water Treatment plants, pump houses and substations at 86 MLD campus, Chithirakkunnu, Aruvikkara. The main works have been satisfactorily completed and the minor works are expected to be completed by December 2021. The expenditure under this scheme in 2020-21 is ₹632.08 lakh.

Optimisation of Production and Transmission

The main objective of the works taken up under this scheme is to optimise the output in the existing schemes. It is intended to ensure uninterrupted water supply, reduction of water loss from leakage and breakage and energy conservation. In 2020-21, 156 works were completed, which includes renovation of old water treatment plants, pipe replacement of existing WSS, pipe line extensions and replacement of obsolete pumps and motors. The total expenditure in 2020-21 is ₹12,623.18 lakh.

Source Improvement and Water Conservation

The objective of works undertaken in this scheme is to ensure that sufficient water is available at the source in summer and drought season and enhance storage capacity at water sources. This will help in improving scheme efficiency and bridge the seasonal variations in water level. In 2020-21, several works for strengthening the source and increasing the storage capacity were undertaken. These works mainly included construction of check dams and regulators. The

improvement works of tube wells, open wells, infiltration gallery and leading channel are to be carried out. Protection works to reservoirs, side protection of weirs and check dams are to be provided and repair works need to be done to the existing structures. By this activity, the water stress in summer could be mitigated to a large extent. Nine works have been completed in 2020-21 and an expenditure of ₹24.24 lakh has been made in 2020-21.

Drinking water - Drought Mitigation

Drought relief activities and unforeseen emergency interventions are undertaken in this scheme. Besides natural calamities, emergency situations of calamitous proportions like damages to properties in case of large diameter pipe bursts, damages to water supply installations, water supply to emergency relief camps during natural calamities are also taken up under this scheme. Pipeline extensions to drought-hit areas, additional pumping and capacity enhancement during drought period are also included. The entire budgeted amount in 2020-21 (₹1,000 lakh) has been expended.

ADB Assisted Kerala Urban Water Supply Improvement Project – KUWSIP

ADB assisted KUWSIP aims at improving the water supply in Kochi and Thiruvananthapuram Corporations by rehabilitating the old production components and the supply network. The project envisages to achieve 24x7 water supply in the above areas by considerable reduction of Non-Revenue Water (NRW) and overall improvement of efficiency. The existing production facilities are age old and need rehabilitation. Similarly, the network is leaky and results in a high NRW. The Management Information System (MIS) also is to be strengthened.

Enterprise Resource Planning (ERP), E-governance, GIS and Information Management

This scheme aims to develop a well-equipped web based management system in KWA. Implementation of ERP in KWA involves system study, preparation and approval of software requirement specification documents, procurement of licences, hardware and system integration by project monitoring consultants and consultants for KWA.

The main achievements in 2020-21 under this programme are as follows:

- Software for payment of pension developed by NIC.
- Development of new in-house software for various wings in KWA is in progress.
- Revamped e-Abacus completion activities.
- Quick pay portal implemented.
- Bharat Bill Payment System (BBPS) implemented.
- POS machines, based on banks willingness introduced at all revenue centres.
- Implemented mobile application for meter readers and spot billing of water charges wherever required by the consumer.
- Implemented the 24 Hours Call centre for complaint redressal (1916).

KIIFB

Government of Kerala (GoK) had accorded sanction for 72 drinking water projects of KWA under KIIFB. Approval has been given for funding of 71 projects for an amount of ₹4,453.74 crore. Under KIIFB funding, a total of 23 water supply projects for an amount of ₹1,257.1 crore are being implemented in 68 packages in 2016-17. Out of these, 59 packages have been tendered and are under various stages of execution and 36 packages have already been completed. In addition to this, 11 projects under “Replacement of old Transmission mains in 11 circles” has been approved by KIIFB for an

amount of ₹407.61 crore and the works in 11 circles are under various stages of execution.

Under KIIFB, Government of Kerala had accorded in-principle sanction and funding for 35 projects amounting to ₹2,468.62 crore in 2017-18. These projects are being implemented in 90 packages. Out of these 90 packages, 60 packages have been tendered, and are under various stages of execution and 11 packages are already been completed. The remaining packages require land acquisition. Under KIIFB in 2018-19, Government of Kerala had accorded in-principle sanction for two projects and KIIFB had accorded approval for funding for two projects amounting to ₹320.41 crore. These projects are being implemented in 10 packages. Out of these 10 packages, two packages have been tendered and agreement has been executed for these two packages.

Atal Mission for Rejuvenation and Urban Transformation (AMRUT)

Under Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Kerala Water Authority is the implementing agency for water supply and sewerage works. Ministry of Urban Development (MoUD), Government of Kerala has selected nine cities in Kerala - Thiruvananthapuram, Kollam, Kochi, Thrissur, Kozhikode, Kannur and three Municipalities, namely, Alappuzha, Guruvayoor and Palakkad

Box 11.4.2 Comprehensive e-solutions under KWA

eAbacus, the Enterprise Billing Application having online transaction processing system for consumer management by Kerala Water Authority has been rolled out to all subdivision offices and section offices. 32 lakh consumers are enrolled in the application. All consumers of KWA have been brought under the system and this is a remarkable mile stone. As part of revamping the existing billing application, an User Requirement Specification (URS) has been prepared after collecting feedbacks from all officers from field staff to Chief Engineers. Work of revamping the billing application is in progress.

Comprehensive IT solution in KWA involves system study, preparation and approval of software requirement specification documents, procurement of licenses and hardware, development of relational data base management system and system integration. Development of comprehensive IT solution is in progress.

Geographic Information System (GIS) is an important tool that will help the Kerala Water Authority in managing the water distribution system in the State. Geospatial information will help to keep track of data related to all aspects of the organisation including network assets, operation and maintenance, customers, and financial records. A GIS cell in KWA will enable the organisation to prepare, update and manage the water distribution assets and related resources in a common repository.

Source: KWA

for implementation of the programme. The project period initially was five years from 2015-16 to 2019-20. It has been now extended upto March 31, 2022. An administrative sanction of ₹1,445.5 crore has been accorded to KWA for executing 173 water supply works and 116 sewerage projects in the above cities. The funding pattern is such that the total project fund is divided among Central, State and respective ULBs, as 50: 30: 20 share respectively. KWA has tendered works for ₹1,345.87 crore from which works of ₹1,277.2 crore has been arranged. Out of this the works for ₹429.78 crore has been completed so far and the balance are in different stages of execution.

Rebuild Kerala Initiative (RKI)

Under Rebuild Kerala Initiative (RKI), seven water supply projects have been sanctioned in March 2020 for an Administrative Sanction (AS) amount of ₹182.6 crore. They include the improvement of WSS to Cheranalloor Panchayat, distribution network for RWSS to Thiruvananthapuram Panchayat, WSS to Kaduthuruthy and adjoining villages, WSS to Erumely zone distribution system, WSS to Pavaratty and Mullasheri Panchayats in Chavakkad Taluk phase two, CWSS to Sulthanbathery municipality, Noolpuzha and Muttill grama panchayat in Wayanad District, WSS to Erumely Panchayath laying distribution system in zone four - Kanakapallam. AS has also been received for an amount of ₹8 crore in 2020-21 for preparation of DPR for rehabilitation of existing system and providing sewerage/septage management system for Thiruvananthapuram Corporation and ₹30 lakh for conducting the energy audit of the pumping stations maintained by KWA. All the KWA- RKI works are in different stages of execution

Japan International Cooperation Agency (JICA) Assisted Kerala Water Supply Project.

JICA assisted Kerala Water Supply Project envisages the implementation of five water supply schemes in Thiruvananthapuram, Meenad, Cherthala, Kozhikode and Pattuvam.

All the five projects have been commissioned and water supply is effected to the beneficiaries. The distribution networks envisaged for Thiruvananthapuram, Cherthala and Pattuvam

have been completely laid. The rehabilitation works of two WTPs at Thiruvananthapuram are getting completed. For Kozhikode and Meenad Schemes, all components except a part of distribution system have been completed and schemes partially commissioned. The project will benefit a population of about 41 lakh in five districts namely, Thiruvananthapuram, Kollam, Alappuzha, Kozhikode and Kannur by 2036.

Jal Jeevan Mission (JJM)

Jal Jeevan Mission (JJM) is a project of Government of India to provide safe and adequate drinking water through individual Functional Household Tap Connections (FHTC) by 2024 to all households in rural India. The mission aims to ensure that every rural household has drinking water supply in adequate quantity of prescribed quality on regular and long-term basis at affordable service delivery charges leading to improvement in living standards of rural communities. This Mission will focus on integrated demand and supply side management of water at the local level, including creation of local infrastructure for source sustainability like rainwater harvesting, groundwater recharge, and management of household wastewater for reuse in agriculture. The Mission will converge with other Central and State Government schemes to achieve its objectives of sustainable water supply management across the country. In Kerala, the share of Central and State governments is 50:50. Out of the 50 per cent State share, 15 per cent to be borne by the panchayat and 10 per cent should be ensured as beneficiary contribution.

In 2020-21, projects for an amount of ₹6,657.00 crore aiming to provide 21.64 lakh household connections were sanctioned under JJM. The State received ₹301.18 crore from the Government of India as central share. Out of the total, ₹304.29 crore has been utilised from central share including the opening balance. The total fund utilised under JJM including the State matching share in 2020-21 was ₹621.90 crore. Kerala provided 4,04,464 rural household connection under JJM. Eventhough it was planned to provide 21.42 lakh connections, due to the Covid-19 pandemic the target was not achieved.

Box 11.4.3 Achievements of Kerala Water Authority (KWA) in the 13th Five-Year Plan

- Automation of pump houses: 439 pump houses under various water supply schemes have been automated to reduce human intervention, optimise operating costs, and improve the functioning of KWA pumping stations.
- 24 x 7 call centre and AQUALOOM: A 24 hour complaint redressal unit has been established at the head office at Jalbhavan to resolve consumer and public issues. To improve the quality of the complaint redressal mechanism, “AQUALOOM,” a software for tracking and monitoring the progress of registered public complaints, has been installed.
- FFAS (Flow Failure Alert System): An alert system called FFAS (Flow Failure Alert System), which provides an immediate notification anytime a pumping main breakage occurs has been designed. The system has been implemented in seven wastewater treatment plants in the northern region and has proven to be very successful. Steps are being taken to gradually roll it out to other major WTPs in the southern and northern regions.
- Mechanised Manhole Cleaning: The Bandicoot robot developed by Gen Robotics Innovation Pvt Ltd under the KWA Innovation zone is a promising technology to eradicate manual scavenging. Currently, it is being used in a pilot project to clean manholes under the Sewerage Division, Thiruvananthapuram.
- Energy Management and Energy Audit: The full energy audit of six High Tension (HT) connections has already been performed and final findings have been submitted to KWA.

Source: KWA

Jalanidhi

Kerala Rural Water Supply and Sanitation Agency (KRWSA) was constituted as a special purpose vehicle to implement Jalanidhi, a World Bank Aided project. KRWSA has successfully implemented two phases of Jalanidhi project that is, Jalanidhi Phase-1 during 2000-2008 and Phase-2 during 2012-2019. The Gram Panchayats have a pivotal role in implementing community based water supply projects under Jalanidhi. KRWSA has also established a wide network of NGOs in mobilising communities towards implementing the participatory, community driven water supply and sanitation facilities owned and managed by them. This model of scheme implementation under Jalanidhi has demonstrated successfully an equitable, inclusive and decentralised delivery system mainly benefiting the SC, ST and BPL category of rural households in Kerala.

KRWSA is also the nodal agency of the State Government for the implementation of the scaling up of rain water harvesting programme in the State. For this, the “Rain Centre” a separate cell for monitoring the activities, was set up under KRWSA. Rain Centre was constituted in 2004 to promote rain water harvesting (RWH) and ground water recharge activities in the State. The assistance of the programme is now extended to schools belonging to both government and aided sector. The programme named as “Jala

Sowhrudha Vidyalayam” was implemented State wide in selected government/aided schools to construct RWH structures. Further KRWSA is appointed as Water and Sanitation Support Organisation (WSSO) of Government of Kerala to coordinate water related activities in the State. Government of Kerala has selected KRWSA as one of the implementing agency for the implementation of Jal Jeevan Mission in the State during the period 2020-2024.

District wise details of water supply connections of Jalanidhi as on August 31, 2021 are given in **Table 11.4.1.**

Project Achievements

In Jalanidhi Phase-1, 3,694 small water supply schemes and 16 large water supply schemes were commissioned benefiting 10.56 lakh population altogether. In addition to water supply schemes, other components like ground water recharge activities, latrines, environmental sanitation measures and rain water harvesting were also undertaken and successfully completed under the project. The project was implemented in 112 Grama Panchayats (GPs) and ₹411 crore was expended. Jalanidhi Phase-II Project was implemented in 115 Grama Panchayats. 2,173 water supply schemes were commissioned and transferred to beneficiary group for operation and maintenance after imparting necessary capacity building and

Box 11.4.4 Achievements of Jalanidhi project in the 13th Five Year Plan

- 811 water supply schemes have been commissioned under Jalanidhi Phase-2 project benefiting 1.61 lakh households.
- 146 single Grama Panchayat KWA per GP schemes rehabilitated and handed over to beneficiary groups for operation and maintenance under Jalanidhi Phase-2 project.
- 483 Ground Water Recharge (GWR) structures constructed.
- 2003 sanitation structures constructed.
- Restored 448 partially/fully defunct schemes to functional schemes as on August 31, 2021 under sustainability support. Restoration works are ongoing in another 604 schemes.
- 9,625 Functional Household Tap Connections (FHTCs) have been provided as on August 31, 2021 under Jal Jeevan Mission (JJM).
- 2,745 rain water harvesting structures of 10,000 litre capacity and 2,471 open well re-charge structures have been completed as on August 31, 2021 as part of Rain Centre activities.
- KRWSA bagged the award for the best disbursement project in 2017-18 (in October and November 2017) among World Bank assisted projects in India.
- KRWSA MIS system has received the SKOCH Award for providing real time monitoring and evaluation of the project. The system has helped in tracking delays or hurdles in the project.

Source: KRWSA

Information, Education and Communication (IEC) measures. The water woes of 11.57 lakh people have been addressed by the project. ₹1,360 crore has been spent for the project.

Table 11.4.1 District-wise details of water supply connections of Jalanidhi as on August 31, 2021

Sl. No.	District	Domestic Connections
1	Thiruvananthapuram	4,572
2	Kollam	20,285
3	Pathanamthitta	5,977
4	Alappuzha	0
5	Kottayam	50,541
6	Idukki	38,143
7	Ernakulam	2,173
8	Thrissur	64,954
9	Palakkad	50,407
10	Malappuram	86,354
11	Kozhikode	50,716
12	Wayanad	36,274
13	Kannur	23,492
14	Kasaragod	22,416
	Total	4,56,304

Source: KRWSA

At present, Kerala has 22 lakh Jalanidhi beneficiaries in 227 Grama Panchayats, both Jalanidhi Phase-1 and Phase-2 put together. Jalanidhi model has successfully demonstrated that communities, including the poorest and the vulnerable groups, can demand, plan, design, implement, and manage water supply and sanitation schemes, contribute to partial capital investment and bear total cost of operation and maintenance. Jalanidhi schemes are no more a burden on the public exchequer as the entire operation and maintenance cost are borne by the communities. Jalanidhi demonstrated efficient and sustainable rural drinking water supply management for the last 19 years.

Considering the District-wise rural population covered by the water supply schemes of Jalanidhi, Wayanad has the highest (24.41 per cent) coverage. Kozhikode has the highest number of schemes (1,052) while Alappuzha has no scheme. A total of 22,21,046 rural population are covered by 5,883 schemes of Jalanidhi (as on August 31, 2021). Out of the total 4,56,304 water supply domestic connections as on August 31, 2021 Malappuram has the highest number (86,354) and Thrissur has the second highest number of connections (64,954). As per Jalanidhi project

guidelines, after commissioning of schemes, entire operation & maintenance management has to be done by beneficiary groups. Hence, water rates vary from scheme to scheme, as decided by the respective scheme management committee. The average cost per household per month charged for 10,000 litres is ₹100 in most of the schemes. The lpcd water availability of water supply schemes of Jalanidhi in all the Districts is 70 lpcd.

Performance assessment conducted by Comptroller and Auditor General of India (CAG) in 2015 found that nearly 35 per cent of the schemes have become partially or fully non-functional after being handed over to the beneficiary groups in 2008 with technical, social and financial issues cropping up during continued operation for more than a decade. In order to ensure “sustainability of investments made, Government of Kerala has introduced a project named sustainability project to reinstate all partially or fully defunct community managed schemes to functional schemes” and allocated budget provision from 2018 onwards. KRWSA could reinstate 448 schemes as on August 31, 2021 under this project.

District-wise achievements of sanitation activities of Phase 1 and Phase 2 shows that Malappuram District has 26,385 meters drainage coverage which is the highest among 14 Districts and Kottayam has the highest number of Biogas plants (557) as on August 31, 2021 (**Appendix 11.4.7**). Total number of Ground Water Recharge (GWR) structures as on August 31, 2021 is 2,912. Most numbers of GWR structures are in Kottayam (988). Similarly, total number of rain water harvesting (RWH) tanks installed by KRWSA in the State is 32,466 as on August 31, 2021. The highest number is in Idukki (9,928) and the lowest is in Wayanad (251) (**Appendix 11.4.8**). As per KRWSA data, as on August 31, 2021, out of 5,883 schemes, 5,353 are small water supply schemes and 41 are large/bulk water supply schemes which are functional and the schemes cover 4,56,304 households (**Appendix 11.4.9**).

11.5 HOUSING

In the last five years, the Government of Kerala has paid special attention to providing homes to the needy and to the quality of people's housing. The major programme in the field of people's housing is the LIFE Mission. Other agencies in this sector are i) Kerala State Housing Board, ii) Housing Commissionerate/Technical Cell of Housing, iii) Kerala State Nirmithi Kendra and iv) Public Works Department. The SC Development Department, Kudumbasree, Rural Development Commissionerate and the Local Self Government Institutions are also involved in implementation of housing scheme in the State.

I. Local Self Government Department (LSGD), Livelihood, Inclusion and Financial Empowerment (LIFE) Mission

The Government of Kerala initiated the LIFE Mission in 2016 as a flagship programme to address the issues of houselessness in the State. It is envisioned as a time-bound programme through a multi-pronged approach to address the ground level issues. The Mission provides housing for the houseless-poor along with a comprehensive rehabilitation programme aimed at sustainable livelihood through skill development, to ensure financial self-reliance and inclusive development. Apart from the completion of incomplete houses, the Mission address restoration of existing dilapidated houses, provide financial support to construct houses for houseless with own land, and rehabilitate the landless-houseless beneficiaries into apartment complexes. LIFE converges multiple services including primary health care, geriatric support, skill development and provision for financial services. The poorest sections of the society including the coastal population, plantation workers, and those who stay in temporary shelters in the Government lands are given the top priority in the project.

Achievements of LIFE Mission as on November 2, 2021

The activities of the LIFE Mission are structured in three phases. The first phase was aimed to address the issue of incomplete houses. In the second phase, financial assistance was provided

for constructing houses to those who have their own land. In the third phase, landless and houseless beneficiaries are being rehabilitated. The LIFE mission aims to provide over one lakh houses to the beneficiaries by the end of 2021. The total number of houses constructed by the LIFE Mission in the State is 2,76,009 as on November 2, 2021. Details are given in **Table 11.5.1**.

The Mission is planning to rehabilitate its houseless beneficiaries into housing complexes. All the housing complexes under Phase III would be constructed using Prefab technology to save time and labour. One of the most important issues that the beneficiaries of LIFE faced was the high cost of materials for the construction of houses. In the backdrop of the recurring floods and landslides, the Mission is poised to fast track the housing for houseless through sustainable and environment friendly prefabricated construction. Sustainability, speed and safety without compromising structural performance will be the hallmark of the technologies introduced by the Mission.

The Pradhan Manthri Awas Yojana (PMAY), is a centrally sponsored scheme and its unit assistance for house construction is ₹72,000 for the rural areas and ₹1.5 lakh for the urban areas. The Pradhan Manthri Awas Yojana (Urban) is implemented in the State in convergence with the LIFE mission. Under the PMAY(U) scheme the Central Share is ₹1.5 lakh and the remaining is 2.5 lakh (₹50,000 state share and ₹2 lakh urban local body share). Through the scheme PMAY (Urban) 70,454 houses were completed till 2021 (**Table 11.5.1**).

II. Kerala State Housing Board

Kerala State Housing Board (KSHB), one of the major implementing agency in the housing sector under Government of Kerala has been providing residential facilities to prospective beneficiaries through its public housing schemes apart from cash loan assistance for house construction. A total of 25 houses in 2020-21 and nine houses in 2021-22 upto August 31, 2021 were constructed

Table 11.5.1 District wise Details of Houses Constructed by the LIFE Mission as on November 02, 2021

DISTRICT	PHASE 1	PHASE 2	PHASE 3	PMAY (U)	PMAY (R)	SC DEPT.	ST DEPT.	FISHERIES DEPT.	MINORITY DEPT.	ADDITIONAL LIST	TOTAL
Thiruvananthapuram	6049	15170	624	10437	3077	2384	3	1617	152	50	39563
Kollam	3617	8440	1058	5555	1477	1956	3	770	107	18	23001
Pathanamthitta	1176	1987	438	1403	800	1248	7	10	75	106	7250
Alappuzha	2728	9203	386	4343	796	1278	10	607	193	204	19748
Kottayam	1102	4222	777	2050	617	1240	42	79	81	171	10381
Idukki	3129	9989	1261	1722	783	1227	114	15	97	48	18385
Ernakulam	1059	5411	906	9147	799	1944	53	329	79	178	19905
Thrissur	2997	4939	729	6984	1666	2228	22	117	118	163	19963
Palakkad	7611	11936	517	5737	2149	2763	493	14	127	32	31379
Malappuram	2729	6232	863	9265	2436	2553	29	481	678	16	25282
Kozhikode	6483	4924	266	5541	1212	1311	12	345	124	204	20422
Wayanad	8440	3680	356	2513	934	1073	1716	0	218	30	18960
Kannur	2644	2396	252	4113	708	777	345	212	176	174	11797
Kasargode	2871	3450	425	1644	639	623	50	122	138	11	9973
Total	52635	91979	8858	70454	18093	22605	2899	4718	2363	1405	276009

Source: LIFE Mission

Note: Data as on November 2, 2021

through various housing schemes of KSHB. A total of 905 houses have been constructed from 2017-18 to 2021-22 (upto August 31, 2021) under the Grihasree Housing scheme. KSHB has constructed 12 Working Women's Hostels in 2021-22 (upto March 31, 2021). In 2020-21, Administrative Sanction was obtained for the construction of a two storeyed 75 bedded building in 50 cents of land owned by Thrissur Medical College under the scheme Aswas Rental Housing.

III. Housing Commissionerate (Housing Technical Cell)

The Housing Commissionerate was formed in 1980 with the objective of achieving technical excellence and planning and co-ordination in the activities in the housing sector. This office is engaged in policy formulation and technical assistance to various agencies in the housing sector, creating awareness about emerging housing technologies, data collection on housing

and its interpretation, and facilitating decision making in the housing sector. In 2020-21 under the plan scheme 'Promotion of Innovative Building Technology and Housing Literacy Programme', technical leaflets containing guidelines on disaster prevention building construction technologies were prepared in cooperation with the Kerala State Disaster Management Authority (KSDMA) and was printed by C-Apt.

IV. Kerala State Nirmithi Kendra

Kerala State Nirmithi Kendra (KESNIK) is an accredited agency under Housing Department, Government of Kerala. KESNIK is constructing a model sustainable village at Kattakkada comprising of 30 dwelling units with livelihood options. In 2020-21, KESNIK has carried out artisan training for imparting skill development in construction sector benefitting 281 beneficiaries. A handbook on

sustainable habitat technology was published in 2020-21. In 2021-22, KESNIK had proposed to conduct three courses in Finishing School in Thiruvananthapuram and Ernakulam for Civil and Architecture engineering graduates for making them expert professionals in the construction field.

V. Housing Schemes under Kudumbasree

Kudumbasree is the state level nodal agency for the Pradhan Mantri Awas Yojana (PMAY-U) project, which is being implemented jointly by the Central and State Governments and Municipalities. Pradhan Mantri Awas Yojana (PMAY-U) is a joint venture between the Central and State Governments to provide housing for all by 2022. Under affordable housing scheme, Kudumbasree in co-operation with LIFE Mission was able to provide sanction for 774 housing units for the landless, till date. The LIFE beneficiaries were provided 18,28,305 employment days through PMAY (U) through convergence with the Ayyankali Urban Employment Scheme. 63,449 houses was provided for insurance coverage.

VI. Commissionerate of Rural Development

The Rural Development Department is primarily concerned with addressing the needs of the people in rural areas in matters of sustainable economic activity, shelter and hygiene concerns, rural infrastructure and connectivity. The housing schemes implemented by the Rural Development department is the Pradhan Manthri Awaas Yojana-(Grameen). PMAY-G aims to provide a pucca house with basic amenities to all houseless households and households living in kutchra and dilapidated house in rural area by 2022. The physical achievement of PMAY-G scheme (including spill over) in 2020-21 is 711 houses. Of these, 217 houses were provided to SC households, 49 to the ST households 197 to the Minorities and 248 houses to the other category.

VII. Department of Fisheries

The aim of Department of Fisheries, Government of Kerala is to promote welfare practices for long-term development of fisher folk community. In 2016, ₹100.00 crore was allotted for the housing scheme, under basic infrastructure facilities and human development

of fisher folk. In 2019, the Government of Kerala has granted permission for the implementation of a project for rehabilitation of fisher folk families residing within 50m High Tide Line (HTL). The total project cost was ₹2,450.00 crore of which ₹1,398.00 crore was to be sourced from CMDRF and the remaining ₹1,052.00 crore from the budget provision of Fisheries Department. The project named as 'PUNARGAEHAM' is implemented by the Fisheries Department in three phases. The amount for the project for the first phase is ₹998.61 crore, ₹796.54 crore for the second phase and ₹ 654.85 crore for the third phase. In 1st phase it is aimed to rehabilitate 8,487 families, 5,099 families each in the 2nd and 3rd phases. LIFE Mission also implements housing schemes for the fisher folk in all the 14 districts of the State. The total number of houses constructed under the LIFE Mission for the fisher folk families till November 2, 2021 is 4,718 (Table 11.5.1).

VIII. Scheduled Caste Development Department

Government of Kerala provides financial assistance for purchasing land to the landless Scheduled Caste families. As per the estimates of SC Development Department, 1,00,475 SC households are landless. Of which, 3,507 families were assisted under this scheme in 2020-21. Out of the budgeted outlay of 185.00 crore, 140.79 crore (76.10 per cent) was expended in 2020-21. A total number of 22,605 houses were constructed by the LIFE Mission for the SC community till November 2, 2021 (Table 11.5.1).

IX. Schedule Tribe Development Department

As per the Socio Economic e-survey of ST households conducted by ST Development Department in 2020-21, it is estimated that 16,070 tribal families possessing land are houseless and 7,930 tribal families are landless. In 2020-21, out of the budgeted outlay of ₹5,720 lakh provided to the ST Development Department for housing schemes, an amount of ₹6,163.54 lakh (107.75 per cent) was expended. From 2017-18 onwards housing programme was implemented through LIFE Mission. A total number of 2,899 houses were constructed by the LIFE mission for the ST community till November 2, 2021.

X. Kerala State Co-operative Housing Federation

Kerala State Co-operative Housing Federation Ltd is the apex body for financing primary co-operative housing societies in the State for the construction of houses at minimum possible cost on easy repayment terms for its members. The main sources of funds of the federation are share capital contribution from member societies and Government of Kerala and borrowings from LIC, National Housing Bank and other Commercial Banks. Kerala State Co-operative Housing Federation provided house loan to EWS, MIG and for repair/maintenance. During the period from 2016-17 to 2021-22, an amount of ₹8,574.00 lakh was disbursed as housing loan by KSCHF. Details are given in **Appendix 11.5.2**.

XI. Housing Finance

Finance is a crucial instrument to provide affordable housing in the long period. Finance for housing include loans from banks, subsidies and grants from Centrally Sponsored Schemes, State Schemes, own fund of panchayats, local government share and loans. All the major scheduled banks coming under the RBI rules provide housing loans through various bank schemes. Banks offer loans through various housing schemes of the Government to Economically Weaker Section, Lower Income Group, Middle Income Group and High Income Group. The financial institutions which provide loans for house construction along with the government agencies in the State are Nationalised Banks, Kerala Gramin Bank, Private Sector Commercial Banks, Kerala State Co-operative Banks, Kerala State Co-operative Agriculture and Rural Development Bank Limited (KSCARD), Small Finance Banks like HOUSEFED, HUDCO and HDFC. The interest rates of housing loans change according to the announcements by the Gol and the Reserve Bank of India. The interest rates on housing loans of various financial institutions as on August 31, 2021 are given in **Appendix 11.5.3**.

Issues, challenges and way forward

Although there exist many agencies in the field of social housing, it was LIFE Mission which received 9,20,260 applications from houseless families state wide and its verification process is now in the completion stage. There are many

landless houseless in State who are considered very poor and cannot afford to have their own house. They mostly belong to SC/ST fisher community and the migrants. In addition to this, there exists wide economic inequalities in the housing sector. While substantial investments are made by the private sector in housing, investments in the public schemes for housing is relatively low. Rehabilitation of people living in slum areas is yet another problem. Both the central government and state governments have undertaken various projects for slum development. In order to reduce the cost of construction, indigenous technology and prefab based construction has to be encouraged. The construction should be economical as well as environment friendly. There is a need for a climate resilient housing policy. Housing sectors in the State need to be regulated in order to ensure judicious use of natural resources. Inclusive housing should be promoted in the State

The Government of Kerala aims to provide safe and secure shelter for the landless houseless people in State. The right to decent living should be honoured and demand based approach should be instituted to fulfil the housing needs, by integrating cost effective modes of construction and quality services.

11.6 REBUILD KERALA INITIATIVE

Kerala faced two successive extreme rain fall events in 2018 and 2019. These triggered floods and mudslides that cause widespread damage to the physical infrastructure of the State and the loss of lives and livelihoods. In order to build a disaster resilient Kerala, Government of Kerala started the Rebuild Kerala Initiative (RKI). The initiative intends to bring about a perceptible change in the lives and livelihoods of the people in the State by adopting higher standards of building infrastructure, and developing ecological and technical safeguards so that restructured assets can better withstand floods in the future.

The key sectors covered by RKI are Water Resource Management, Water Supply, Sanitation, Urban focus, Roads and Bridges, Transportation, Forestry, Agriculture, Animal Husbandry and Dairy, Fisheries, Livelihoods and Land. In addition to these key sectors, there are four cross-cutting sectors namely, disaster risk management and resilience, environment and climate change, strengthening institutional efficiency and resilience, and open data.

Financing of Rebuild Kerala Development Programme (RKDP)

The State earmarked ₹1,000 crore each in 2019-20 and 2020-21 and ₹1,830 crore in 2021-22 to facilitate the smooth and timely implementation of the projects under RKI. Funds are being released based on the requirement specified by various Departments and their implementing agencies.

World Bank Development Policy Loan (DPL)

The World Bank has offered financial assistance for Kerala's resilient recovery programme by a Development Policy Loan (DPL) through two Development Policy Operations (DPO). As a part of the loan, the State has adopted certain prior actions as shown in **Table 11.6.1**.

The Prior Actions (PAs) for availing first tranche of loan under DPO-1 were completed by various departments and the World Bank approved

DPL-1 and released US\$ 250 million in 2019. These Prior Actions have triggered policy and institutional reforms to enhance resilience to enable holistic river basin management, sustainable and climate resilient agriculture, risk-informed land-use planning and multi-year capital planning, and disaster management plans at all levels. The World Bank expressed its willingness to support Development Policy Operation (DPO)-2 as the 2nd phase of its partnership with the Kerala State. However, due to the Covid-19 outbreak and a change in India's strategy in using World Bank financing, the Government of India dropped its request for DPO-2.

As majority of key policy actions have been achieved by the Government of Kerala, a joint World Bank – KfW team proposed financial assistance to the State. In 2020, the Government of India and the German Development Bank (KfW) signed a loan agreement of 100 million EUR and a grant agreement of 2 million EUR, under the “Climate Loan Kerala Programme” to support the Government of Kerala's reform agenda to enhance the State's resilience against the impacts of natural disasters and climate change

Programme for Results (PforR) Financing in DPL-2

World Bank (WB) proposed an innovative financial instrument Programme for Results (PforR). The PforR is intended to translate the policy actions under the DPO-1 into results on the ground. The relevant sectors of the PforR are agriculture, Disaster Risk Financing and Insurance (DRFI), Disaster Risk Management (DRM), fiscal and governance, health, road, urban, and water resource management.

Preliminary Project Report (PPR) for \$350 million has been approved by the Department of Economic Affairs, Ministry of Finance, Government of India. The World Bank has proposed the joint financing of the project

Table 11.6.1 Prior Actions – Development Policy Operations (DPO)-1

- Adopted the Rebuild Kerala Development Programme for enhancing disaster and climate resilience through an inclusive and participatory approach.
- New flood cess adopted for financing resilient recovery efforts
- Adopted new protocols for enhancing emergency preparedness and response capacity of various departments.
- Established a cross- sectoral State-level committee to draft a River Basin Conservation and Management Authority Act establishing a River Basin Conservation and Management Authority (RBCMA).
- Notified the establishment of five agro ecological zones and the reorganisation of the Agriculture Department along agro ecological zones.
- Notified the criteria for the identification of the core road network and mandated the review of PWD road policies, construction codes and manuals to ensure the resilient design, construction and maintenance of core road network .
- Established a committee to revise the Town and Planning Country Act (TPCA) to make master plans risk- informed and to revise the annual expenditure in planning and budget guidelines for urban local bodies to undertake multi-year municipal infrastructure investments
- A cross-sectoral committee was set up to prepare a policy and institutional programme for strengthening water supply and sanitation services and their resilience to disasters and impacts of climate change.

with Asian Infrastructure Investment Bank (AIIB) on a 50:50 basis and approved the project. The Programme Agreement and Loan Agreement have been signed for \$250 million with the World Bank in July 2021 and the co-financing of \$125 million by the AIIB in August 2021. The programme will be implemented over a period of five years (FY 2022-27).

Implementation of RKDP

As on September 30, 2021, Administrative Sanction (AS) has been issued for ₹7,803.95 crore for projects under 12 Departments. Details are given in **Table 11.6.2**.

Department-wise Project Achievements as on September, 2021

Public Works Department (PWD)

For the rehabilitation and upgradation of 31 flood damaged State Highways and Major District Roads (MDRs), administrative sanction of ₹5,173.77 crore was issued and projects worth ₹3,965.88 crore were tendered. ₹159.29 crore has been spent.

Local Self Government Department (LSGD)-Roads

Administrative sanction of ₹515.15 crore was accorded for the rehabilitation and reconstruction of the flood damaged 516.04 km of roads and five bridges. Out of this, worth ₹359.70 crore

have been tendered and ₹15.48 crore was expended. 20 per cent of physical targets have been achieved.

Local Self Government Department (LSGD) – Kudumbashree Mission

Projects worth ₹250.00 crore have been issued administrative sanction for providing disaster relief to 2,00,000 beneficiaries and creative livelihood opportunities to 1,60,000 beneficiaries. Under disaster relief fund, 28,490 Neighbourhood Groups (NHGs) were covered and ₹26.00 crore was spent. So far ₹187.9 crore has been expended. More than 60 per cent of the targeted activities have been achieved.

Local Self Government Department (LSGD) – Sanitation

Administrative sanction of ₹16.69 crore has been issued to Clean Kerala Company Ltd. for the following four projects setting up of material collection facility (MCF) in all Government offices, setting up of District level sorting and segregation facility in Thiruvananthapuram (Muttathara), Thrissur and Kasaragod districts, integrated plastic waste management facility in Malappuram District and land development and construction of compound wall for Clean Kerala Company Ltd.'s plant. The activities are progressing and 20 per cent of physical targets are completed. Also an amount of ₹5 crore has been sanctioned to IMPACT Kerala Limited for the establishment of septage management facility for Cherthala Municipality.

Table 11.6.2 Details of projects for which administrative sanction has been issued as on September 30, 2021, amount in ₹ crore

Sl. No.	Sectors	Department	Implementing Unit	Amount (in ₹ crore)
1	Roads and Bridges	Public Works Department	Public Works Department- Roads	5173.77
2.1	Roads and Bridges	Local Self Government Department	LSGD-Project Management Unit/ Roads	515.15
2.2	Livelihoods	Local Self Government Department	State Kudumbashree Mission	250.00
2.3.1	Sanitation	Local Self Government Department	Clean Kerala Company Ltd.	16.69
2.3.2	Sanitation	Local Self Government Department	Impact Kerala Limited	5.00
3.1	Integrated Water Resources Management	Water Resources Department	Irrigation	152.05
3.2	Water Supply	Water Resources Department	Kerala Water Authority	182.90
3.3	Sanitation	Water Resources Department	Kerala Water Authority	14.00
4	Agriculture	Agriculture Development and Farmer Welfare	Agriculture Development and Farmer Welfare	520.48
5.1	Animal Husbandry	Animal Husbandry Department	Animal Husbandry Department	163.12
5.2	Dairy Development	Dairy Development	MILMA	5.40
6.1	Fisheries	Fisheries and Ports	Agency for Development of Aquaculture Kerala/ Kerala Aqua Ventures International Ltd.	6.11
6.2	Fisheries and Ports	Harbour Engineering Department	Harbour Engineering Department	52.90
7	Forest and Wildlife	Forest Department	Forest Department	130.41
8	Environment and Climate Change	Environment	Kerala State Biodiversity Board	5.00
9	Disaster Risk Management	Power	Kerala State Electricity Board	53.55
10	Disaster Risk Management / Open Data	Electronics and Information Technology	Electronics and Information Technology	4.24
11.1	Disaster Risk Management	Revenue and Disaster Management	Department of Revenue and Disaster Management	198.38
11.2	Land	Revenue and Disaster Management	Survey and Land Records Department	339.44
11.3	Disaster Risk Management	Revenue and Disaster Management	Kerala State Disaster Management Authority (KSDMA), Kerala Institute of Local Administration (KILA) and Centre for Development of Imaging Technology (C-DIT), Nammal Namukkayi	7.30
12	Disaster Risk Management	Women and Child Development Department	Women and Child Development Department	8.06
Total				7803.95

Source: RKI

Water Resources Department

Administrative sanction for an amount of ₹348.95 crore was accorded for projects being implemented in Integrated Water Resources Management, water supply and sanitation sectors. Out of this, projects worth ₹208.85 crore were tendered and expended ₹67.13 crore. More than 30 per cent of the targets have been achieved. The major projects including repair and maintenance of 99 irrigation structures, five community micro irrigation systems, development of Kerala Water Resources Information System, Detailed Project Report (DPR) for the Room for River Project, establishment of River Basin Conservation and Management Authority (RBCMA), completion of seven KWA schemes targeting 30,700 new connections and benefiting about 1.25 lakh flood affected people, DPR preparation for sewage and septage management in Thiruvananthapuram, and topographical survey in 28 selected Urban Local Bodies and preparation of Disaster and Emergency Response for implementing sewerage system in four urban local bodies.

Department of Agriculture and Farmer's Welfare

The key projects envisaged under this sector are integrated farm management for holistic development of District Agricultural Farm (DAF), Neriamangalam, infrastructural development works for extensive paddy cultivation in Chengannur constituency targeting 4,000 hectares, covering 6,800 beneficiaries, infrastructural development of Pampoorichal Padasekharam in Ramamangalam Panchayat, improved infrastructural facilities to overcome flood and drought in Thrissur Ponnani Kole Lands, strengthening agro service centres and *Karshika Karma Sena* units, eco-restoration of flood and landslide affected areas in the State to rejuvenate around 22,841 hectare of land affected by flooding, enhancing livelihood through integrated farming with special focus on Idukki and Wayanad districts, sustainable development of Kuttanad rice ecosystem, development of Kaippad organic tided wetlands of Northern Kerala through mechanized farming, rice germplasm conservation and biodiversity based farming, enhancement of the livelihood security of tribal minority groups at Athirappilly through sustainable farming, value addition

and strengthening market network in Kerala, setting up of Centre of Excellence (CoE) for vegetables and flowers at Ambalavayal, Wayanad, comprehensive and sustainable agricultural development programme for Attappady Tribes, and expansion of existing State Biocontrol Laboratory. Administrative Sanction of ₹520.48 crore has been issued including ₹456.13 crore for livelihood projects of which projects of ₹264.06 crore were tendered and ₹117.61 crore was utilised for achieving 50 per cent of the activities. The implementation of these projects is targeted to benefit more than 2.83 lakh persons directly.

Department of Animal Husbandry and Dairy Development

Administrative sanction of ₹163.12 crore issued to Animal Husbandry Department for the implementation of four projects namely, Kerala Chicken Project, Livelihood Support Package, Mobile Tele-Veterinary Units on regional basis, Pilot project of implementation of GIS mapping and Radio Frequency Identification (RFID) tagging in Pathanamthitta District and Establishment of 12 Mobile Tele-veterinary Units. An amount of ₹5.40 crore sanctioned to Dairy Development Department for the establishment of fodder hubs in the flood prone area. A total amount of ₹61.00 crore was utilised so far for achieving more than 30 per cent of the activities. It is estimated that more than 20.80 lakh persons will be directly benefitted from these projects.

Department of Fisheries

Administrative Sanction was issued for five projects for a total outlay of ₹6.11 crore targeting more than 800 persons, including fish production in cages through participatory approach in Banasurasagar reservoir and ₹2.91 crore to Kerala Aqua Ventures International Limited (KAVIL) for the production and export of ornamental fishes. Out of this, ₹4.39 crore was expended and about 55 per cent of the activities were completed.

Harbour Engineering Department

Administrative Sanction of ₹52.90 crore issued for the implementation of two river training projects in Puthiyangadi in Kannur district and Shiriya in Kasaragod district, for protecting adjoining areas from routine flooding

and improving water management systems in estuaries, alignment with the “Room for River Project”. The project is expected to benefit about 782 active fisherfolk and population of 17,588 in three villages of Puthiyangadi, and about 704 active fisherfolk and a population of 11,995 in Shiriya. The Environmental Impact Assessment (EIA) studies for both the projects have been completed and CRZ clearance is in progress. The projects are expected to get completed by December 2022.

Department of Forest and Wildlife

The Forest Department is implementing four projects for addressing the larger issue of arresting forest fragmentation and consolidating the forest cover. Administrative Sanction was accorded for an amount of ₹130.41 crore and the activities are progressing. The expected date of completion of the projects is April 2023 and that of studies are April 2024 and April 2025.

Department of Environment

The Kerala State Biodiversity Board has proposed the following three projects namely, database of tradable/commercially potential bio resources, riverine biodiversity rejuvenation and conservation of agro biodiversity. Administrative sanction has been issued for ₹5 crore. The activities are progressing and are expected to be completed by March 2022.

Department of Power

Administrative sanction of ₹53.55 crore accorded for three projects, namely, upgradation of 66kV Substation to 110kV at Kuttanadu, construction of new 110kV substation at Kavalam, and construction of 33kV substation, Kidangara. Projects worth ₹10.51 crore were tendered and the entire project is expected to be completed by December 2022.

Department of Electronics and IT

For efficient planning and implementation of programmes aimed at improved disaster resilience, administrative sanction of ₹4.24 crore has been issued for the “Mapathon” project, envisaging participative development of the detailed and localised map of Kerala in Open Street Map Platform.

Department of Revenue and Disaster Management

Administrative sanction was accorded for an amount of ₹537.82 crore for reconstruction of 255 village offices and 38 other revenue buildings and for the first phase of the “Digital Resurvey” of 1,550 villages in the State. The activities are progressing and projects worth ₹43.41 crore were tendered, and ₹6.64 crore was disbursed by RKI.

Box.11.6.1 Strategy Adopted for Implementation of RKI projects

The Rebuild Kerala Initiative (RKI) aims to “Build Back Better” ensuring new ideas, technologies and methods for sustainable growth. The strategy adopted for planning and implementation of RKI projects involves the following.

- Adoption of higher standards of infrastructure in repair and reconstruction
- Building ecological safeguards and standards into structures
- Redesigning infrastructure to ensure greater resilience and sustainability
- Adoption of non-conventional methods which are more cost-effective, less resource-intensive and give greater value for money
- Ensuring social inclusion and gender empowerment to facilitate benefits for the most needy and vulnerable
- Adoption of modern new and innovative technologies
- Ensuring fair and equitable rehabilitation practices
- Facilitating institutional strengthening and capacity building
- Establishment of robust asset management frameworks to ensure sustainability of public investment.

Source: RKI

Department of Revenue and Disaster Management

“Nammal Namukkayi” Campaign is a programme to gather inputs and insights from people across geographies, sectors and professions on key themes towards enhancement of the

State's resilience to natural calamities and climate change. "Nammal Namukkayi" portal was established in 2019. An amount of ₹7.30 crore was sanctioned and the full amount was utilised.

Women and Child Development Department

₹8.06 crore was sanctioned for the construction of 29 smart *anganwadis* centres across eight districts in Kerala. Out of this, projects worth ₹2.58 crore was tendered and the activities are progressing.

Department of Finance – Unified Registry

The project is to set up a unified registry in the State which would act as a centralised platform to identify and select beneficiaries of various social security schemes along with an Aadhaar Vault including the software to manage systems, hardware and human resources at an expense of ₹34.32 crore.

The strategy adopted for the implementation of RKI projects is given in **Box 11.6.1**.

11.7 KERALA INFRASTRUCTURE INVESTMENT FUND BOARD (KIIFB)

Kerala Infrastructure Investment Fund Board (KIIFB) was set up in 1999 as an agency to mobilise funds for capital expenditure on behalf of the Kerala Government. Envisaging a broader role and mandate for KIIFB in infrastructure development, the Government amended the Kerala Infrastructure Investment Fund (KIIF) Act in 2016. The Act articulated the role and the terms of operations of KIIFB in infrastructure development of the State. KIIFB has now transformed to become the nodal infrastructure-funding agency of the State Government, focussing on strategic projects that are crucial for the economy.

KIIFB facilitates planned and sustainable development of physical and social infrastructure (including major land acquisition) that is integral to development, using financial instruments approved by Securities and Exchange Board of India (SEBI) and Reserve Bank of India (RBI). It joins hands with State and Central Public Sector Agencies to have them on board as Special Purpose Vehicles to support the Administrative Departments in developing infrastructure.

Spectrum of Projects

KIIFB undertook infrastructure development projects as well as projects exclusively for land acquisition. As of September 2021, it approved 912 infrastructure projects to the tune of ₹44,323.59 crore in healthcare, education, roads and transportation, irrigation and water supply, power, ports, inland navigation, drainage

and solid waste management. Under the land acquisition pool, six massive land acquisition projects worth ₹20,000 crore has been approved. In 2020-21, KIIFB approved 206 infrastructure projects with an aggregate outlay of ₹9,340.03 crore and in the first half of financial year 2021-22 (till September, 2021) it approved 15 projects worth ₹1,074.59 crore. Consolidated detail of project approved is shown in **Table 11.7.1** and department wise project approved is given in **Appendix 11.7.1**.

Major share of KIIFB projects pertain to roads and road transport sector, which is ₹18,748 crore. KIIFB sanctioned 211 road projects, 87 bridges, 53 rail over-bridges, 14 flyovers, one underpass and 6 coastal highway stretches, as on September, 2021. For improving public transport, KIIFB has sanctioned purchase of 310 CNG buses and 50 electric buses to KSRTC, besides approving the conversion of 400 diesel buses into LNG. It has also sanctioned projects for construction of Alappuzha Mobility Hub and modernising water transport in Alappuzha Canals. Details of sector-wise KIIFB funding is illustrated in **Figure 11.7.1**.

Water resources (₹5,594 crore) and Power (₹5,200 crore) sectors follow the road and transport sector in terms of allocation of KIIFB funds. Reformation of damaged sunken sea wall and construction of groyne field project at Chellanam is one of the important project undertaken in water resources sector costing

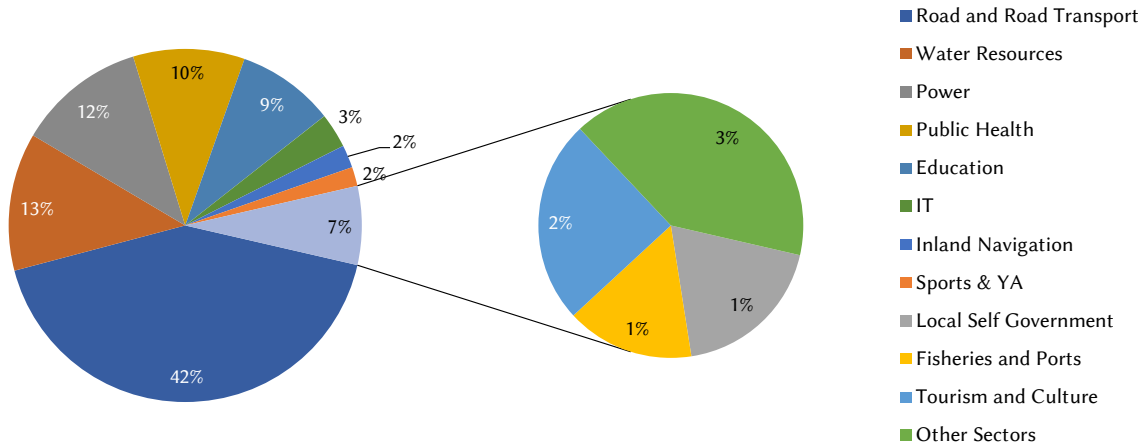
Table 11.7.1 Consolidated details of KIIFB Approved Projects as on September, 2021, ₹ in crore

Type of Project	2020-21		2021-22*		Total (2016-22)	
	Number	Outlay	Number	Outlay	Number	Outlay
Infrastructure Projects	206	9,340.03	15	1,074.59	912	44,323.59
Projects under Land Acquisition Pool					6	20,000.00
Total					918	64,323.59

Source: KIIFB

Note: *Details till September, 2021

Figure 11.7.1 Sector-wise KIIFB funding



Source: KIIFB

₹344.2 crore. In addition to that, five sea pier works, two canal improvement works, construction of ten check dams and drinking water projects have been taken up under KIIFB funding. KIIFB accelerated the rejuvenation of West Coast Canal by awarding rehabilitation and resettlement parcel for ₹247.2 crore (provisionally) in inland navigation sector and also sanctioned urban regeneration and Integrated Water Transport System in Kochi for ₹556.51 crore.

KSEBL initiated the plan for Transgrid 2.0 with a mission to enhance the reliability and security of electricity transmission system and to reduce system losses with minimum disturbance to the environment and the public and a green vision for better energy management with KIIFB funding. KIIFB allocated ₹5,200.00 crore for the Transgrid plan. It is expected that the implementation of the projects envisaged will bring about a reduction in peak load system loss of about 107.8 MW and corresponding annual energy savings of 522.21 MU.

KIIFB has approved ₹4,531 crore for health and family welfare, including projects in Ayush. This is 10 per cent of the total projects approved by the KIIFB. It includes projects for development of 55 Hospitals across the State, including Taluk Hospitals, General Hospitals, District Hospitals, Medical Colleges and speciality hospitals like

Cochin Cancer Centre and Speciality Hospital Mattannur. In addition to this, construction of 10 bedded isolation wards in 140 Lok sabha Assembly Constituencies is also approved for ₹236.30 crore in 2021-22. Construction of 10 CCU, 10 Cathlab and 56 Dialysis units are also under way. Under Ayush Department, Establishment of International Research Institute for Ayurveda was sanctioned in Mattannur for ₹69.05 crores in 2019-20.

KIIFB earmarked an amount of ₹3,966 crore to the education sector. Projects approved for renovation of 51 Arts and Science Colleges, 6 Engineering Colleges, 8 polytechnics, 5 heritage colleges and 5 universities in Higher Education Sector at the tune of ₹1,094.19 crore. In general education sector, two projects are taken up to upgrade the laboratories of 11,300 schools and constructing high-tech class rooms for 44,705 schools at a total cost of ₹2,871.77 crore.

Considering the limitations of telecom companies in providing better access to rural areas, the State Government with KIIFB funding sanctioned KFON (Kerala Fiber Optic Network) project for setting up of a state-wide core optical fibre network capable of efficient service delivery, assured Quality of Service (QoS), reliability, redundancy, security and scalable in nature for meeting future bandwidth demands. It provides access to all service providers and will connect

more than 30,000 government institutions and provide free internet to economically backward families and subsidized internet for others. KIIFB is also funding development of two IT Parks in the IT sector.

KIIFB has been funding 38 projects for ₹774.7 crore in sports sector, including construction of an aquatic complex, 44 stadiums and development of two sport schools. It also funds tourism and culture projects like Alappuzha and Thalassery Heritage Projects, renovation of canals and beaches, construction of nine theatre complexes and seven cultural complexes, and renovation of film city, as on September 2021.

KIIFB Fund Mobilization

Borrowings: KIIFB has put in place a system/process of computation of Asset Liability Management which is currently a Beta version. The fund mobilisation plan of KIIFB is currently based on this system. In 2020-21, KIIFB has availed of ₹663.02 crore from market. During the period April to September of 2021, KIIFB has mobilised ₹6,290.41 crore from market. The total fund mobilisation as of September 2021 from various international and domestic channel is ₹11,990.04 crore. The details are given in **Table 11.7.2**.

Share of Motor Vehicle Tax and Cess on petroleum from Government: As per the KIIF Act, 2016 the State has to transfer specific share of MVT and Cess collected on petroleum to KIIFB for meeting the expenses under purposes specified in the Act. Accordingly, in 2020-21, KIIFB has received ₹1,633.86 crore as share of MVT and ₹1,058.67 crore during the half-year till September, 2021. The fund received under share of petroleum cess is ₹539 crore in 2021-22 and ₹396.71 crore from April to September, 2021. It is estimated that the total share of MVT and Cess on petroleum received from the Government is ₹9,201.09 crore. Details are given in **Table 11.7.3**.

Performance of Project Implementation

KIIFB has completed construction of 58 works out of 918 works sanctioned; 390 works in progress. As of September 2021, Technical Sanction (TS) has been cleared for 26 works and processed for 6 works. Another 46 works are awarded and 47 tendered as of the period referred above. The physical performance of KIIFB projects is depicted in **Figure 11.7.2**.

During this period, KIIFB has also crossed the milestone of ₹10,000 crore project disbursement.

Table 11.7.2 Status of fund mobilisation by KIIFB ₹ in crore

Year	2017-18	2018-19	2019-20	2020-21	2021-22*	Total
Loan from Banks/Financial Institutions	100.80	850.00	1,764.20	300.00	6,062.12	9,077.12
Rupee Denominated Bond issue	-	2,150.00	-	-	-	2,150.00
Bonds to KSFE Ltd (Pravasi Chitty)	-	5.768	109.26	245.29	142.45	502.77
Loan from NORKWB (Dividend Scheme)	-	-	56.58	123.77	79.52	260.15
Year wise Total	100.80	3,005.77	1,930.04	669.06	6284.09	11,990.04

Source: KIIFB

Note: *Details as on September, 2021.

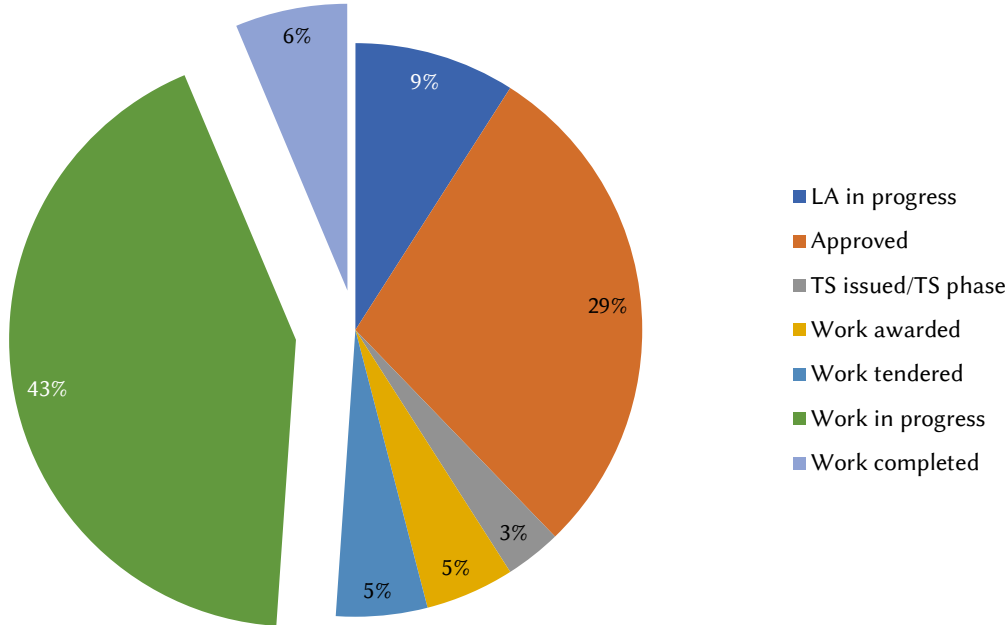
Table 11.7.3 Share of MVT and Cess of Petroleum received from Government by KIIFB, ₹ in crore

Year	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22*	Total
Share of MVT to KIIFB	281.43	621.45	1,098.86	1,650.00	1,633.86	1,058.67	6,344.27
Share of Cess to KIIFB	448.10	421.19	501.82	550.00	539.00	396.71	2,856.82
Total	729.53	1,042.64	1,600.68	2,200.00	2,172.86	1,455.38	9,201.09

Source: KIIFB

Note: *Details as on September, 2021.

Figure 11.7.2 Physical Performance of KIIFB projects as on September 2021



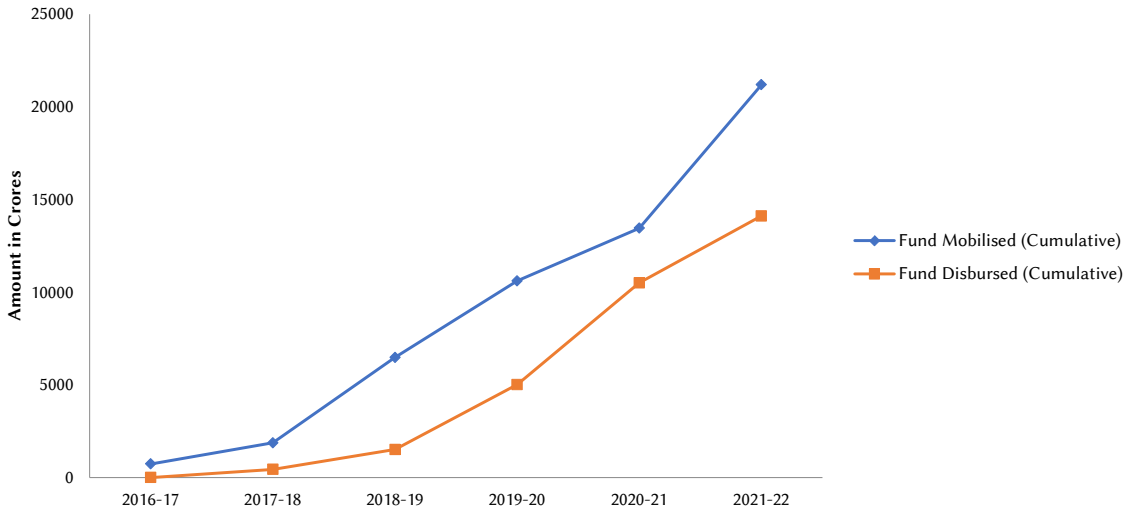
Source: KIIFB

Table 11.7.4 Disbursement of KIIFB Approved Projects under Infrastructure and land acquisition pool, ₹ in crore

Projects	No. of projects	Outlay	Amount disbursed
Infrastructure Projects	912	44,323.59	7,673.75
Projects under Land Acquisition Pool	6	20,000.00	6,436.42
Total	918	64,323.59	14,110.17

Source: KIIFB

Figure 11.7.3. Financial Performance of KIIFB as on September 2021, ₹ in crore



Source: KIIFB

In 2020-21 KIIFB released ₹5,484.88 crore and during 2021-22 up to September it released ₹3,611.12 crore for project funding. The total disbursement towards various KIIFB approved projects have reached ₹14,110.17 crore as on September, 2021 which is detailed in **Table 11.7.4**.

KIIFB has disbursed an amount of ₹6,436.42 crore exclusively on land acquisition projects that is around 45 per cent of the total disbursement. Of which ₹4,084.63 was for National Highways, ₹1,756.26 crore for three projects of Industrial Parks, ₹145.60 crore for taking over of land from Hindusthan Newsprint Ltd and ₹449.93 crore for Kochi - Bangalore Industrial Corridor. The financial performance of KIIFB as on September, 2021 is given in **Figure 11.7.3**.

The KIIFB has raised ₹21,190.85 crore as against disbursement of ₹14,110.17 crore, as on September, 2021. S&P Global Ratings has affirmed the KIIFB's rating to "BB-/B" and stable outlook and also affirmed the "BB-" issue rating on the company's outstanding debt.

11.8 KASARAGOD DEVELOPMENT PACKAGE

Dr. P. Prabhakaran Commission was appointed by the Government of Kerala to prepare an integrated developmental plan for Kasaragod district. The Commission identified various backward sectors and areas and put forth a package for the comprehensive development of the district. The Package envisages a total outlay of ₹11,123.07 crore covering various sectors of which ₹2,524.56 crore is proposed as share of Government of Kerala, ₹756.19 crore as share of Government of India, ₹543.00 crore as share of external agencies, ₹7,264.16 crore as share of central PSUs and ₹35.16 crore as share from other sources.

Table 11.8.1. Kasaragod Development Package Financial Progress (as on 31.10.2021) in ₹ Lakh

Financial Year	Budgeted Outlay (in lakh)	A.S Amount	Expenditure
2013-14	2500.00	2790.67	2309.05
2014-15	7500.00	9332.94	5367.07
2015-16	8500.00	9751.49	4718.33
2016-17	8798.00	14299.84	5271.38
2017-18	9000.00	7629.72	2137.90
2018-19	9500.00	7882.22	275.27
2019-20	9065.00	9048.73	2102.91
2020-21	7500.00	7500.00	4932.17
2021-22	7832.00	2033.88	4238.42
Total	70195.00	70269.49	31352.51

The projects mentioned in the Kasaragod Development Package commenced in 2013-14. An amount of ₹70,195 lakh was allocated in the State budget for the implementation of Kasaragod Development Package up to 2021-22. From 2013-14 to October 2021 a total number of 503 projects with an outlay of ₹70,269.49 lakh were sanctioned under the package of which 309 projects have been completed and 194 projects are in the various stages of completion.

The major projects undertaken in the agriculture and allied sectors are irrigation and water conservation for ensuring the availability of water in the summer season and for agricultural activities. The total value of the projects for the sector is ₹1,651.19 lakh. In the education sector, infrastructure development of schools and colleges were given prime importance with sectoral allocation of ₹1,490.52 lakh. In health sector, projects like construction of Kasaragod Medical College and related infrastructure developments, upgradation of PHCs and CHCs to Aardram standards, sewage treatment plant in hospitals, lab upgradation etc. are being implemented with a total outlay of ₹1,743.37 lakh.

Table 11.8.2. Kasaragod Development Package Physical Progress (as on 31.10.2021) in number

Financial Year	Projects Sanctioned	Projects Completed	Ongoing Projects
2013-14	28	28	0
2014-15	25	23	2
2015-16	79	72	7
2016-17	81	72	9
2017-18	64	50	14
2018-19	82	43	39
2019-20	50	16	34
2020-21	73	5	68
2021-22	21	0	21
Total	503	309	194

The Government has recently constituted a District Level Committee of 16 members under the chairmanship of District Collector for granting administrative sanction for projects below ₹5 crore under Kasaragod Development Package. At the State level, the State Level Empowered Committee (SLEC) under the chairmanship of Chief Secretary and State Planning Board reviews the implementation progress under Kasaragod Development Package regularly.

CHAPTER

12

LOCAL GOVERNMENTS AND
DECENTRALISED PLANNING

LOCAL GOVERNMENTS AND DECENTRALISED PLANNING

Decentralised Planning – An Overview

Kerala's achievements in decentralised planning are a model for the other States of India. Kerala made its first attempt to decentralise power to local level democratic institutions as early as in 1957, immediately after the re-organisation of the State. In 1961, the State Assembly passed the Kerala Panchayat Act 1961, which paved the way for the formation of local bodies all over the State. The establishment of District Councils in 1987 took administrative decentralisation to the district level. Following to the Indian Constitutional amendments in 1992 (73rd and 74th), the Kerala Legislative Assembly passed the Kerala Panchayati Raj Act in 1994. Two years later, the Government (led by the Left Democratic Front) launched the People's Planning Campaign (PPC) for democratic decentralization.

Decentralisation of governance is one of the most important features of administration in Kerala. Local governments in Kerala have been meaningfully empowered through a large-scale transfer of resources, functionaries and administrative powers. Over the years, Local Governments have emerged as effective instruments for the formulation and implementation of development programmes and for co-ordinating the work of various agencies involved in local area development. The pivotal role played by them is clearly evident in the exemplary work done by them during the floods of 2018 and 2019 and the Covid-19 pandemic. There are 1,200 Local Governments in Kerala, which includes 941 grama panchayats, 152 block panchayats, 14 district panchayats, 87 municipalities, and 6 municipal corporations.

The most prominent feature of Kerala's decentralisation is the devolution of funds

in a formula based, non-discretionary, and equitable manner. Funds are devolved to the Local Governments in three streams as per the recommendations of State Finance Commission:

- General Purpose Fund for meeting the expenditure on traditional functions and establishment expenses;
- Maintenance Fund for the maintenance of assets of Local Governments including those transferred as part of decentralisation; and
- Development Fund (Plan allocation) for meeting the development expenditures.

In 2021-22, the State transferred 3.5 per cent of its Own Tax Revenue as a General Purpose Fund and 6 per cent of its Own Tax Revenue as a Maintenance Fund to Local Governments. Twenty six per cent of the State's Plan outlay was devolved as Development Fund. Formula-based devolution has ensured that funds reach every corner of the State, and more so its backward areas. The transfer of resources has ensured that adequate funds reach all areas, thereby giving a boost to local area development and improving the lives of people.

Major Initiatives and Policy Changes Introduced in the 13th Plan

Kerala has twenty-five years of experience in people's planning. There have been many studies, researches and discussions in the State in this regard. In the light of these studies and discussions, some changes, aimed at revitalising the system of decentralised democratic governance, were initiated during the last five years. These changes included rescheduling of the plan process so as to enable the local governments to prepare their plans on time, integration of plan and budget, timely implementation and better utilisation of funds, opportunity for formulation and

effective implementation of innovative projects, increasing allocation of funds to the productive sector, preparation of district plans and planning with the district as focus, formation of District Resource Centres and efficient disaster preparedness in the wake of natural disasters. Important among them are summarised below.

1) Amelioration of plan guidelines and timely preparation of local plans

In the very first year of the 13th Plan, some major changes were introduced in the guidelines for formulation and implementation of the Local Government Plans. An important objective of the new guidelines was to simplify the procedures so that delays could be avoided. The introduction of new guidelines ensured simplified procedures and rationalised the stages of planning, which resulted in early submission of Plans. During the first year (2017-18) all Local Governments in the State could complete the process of formulation of their Annual Plans by June 15, 2017. This is an unprecedented achievement in the history of local-level planning in the State. Accordingly, the year also witnessed early beginning of the implementation process; thereby getting around 10 months' time for Plan implementation.

Based on the experience of the first year of the 13th Five-Year Plan, the Plan guidelines as well as the subsidy guidelines were modified for the remaining four years. Modification of the guidelines became necessary to incorporate the experience gathered from the first year and to address issues raised by Local Governments. Modified guidelines were issued sufficiently early so as to enable the Local Governments to get the Annual Plan 2018-19 approved well before the beginning of the financial year. Accordingly, 1,147 Local Governments in the State could complete the process of formulation of Annual Plans for the year 2018-19 before April 1, 2018 leaving a full year for Plan implementation.

The process of formulation of the local Plans for 2019-20 began on October 2, 2018. The process was initiated early so as to finalise the Plan proposals well before the issuance of notification for the general election to the 17th Lok Sabha. Most of the Local Governments (1,181 Nos) submitted Plans before the notification was issued. Whereas in 2020-21, even in the midst

of Covid-19 pandemic, 818 Local Governments were able to submit their Plans by March 31. Of the remaining LGs, all but four submitted Plans by April 21. In 2021-22, 1,141 Local Governments submitted their annual plans on February 26, 2021 itself. The experience of the last five years reveals that the Local Governments have now realised the importance of timely preparation of Plans and also the importance of time bound implementation.

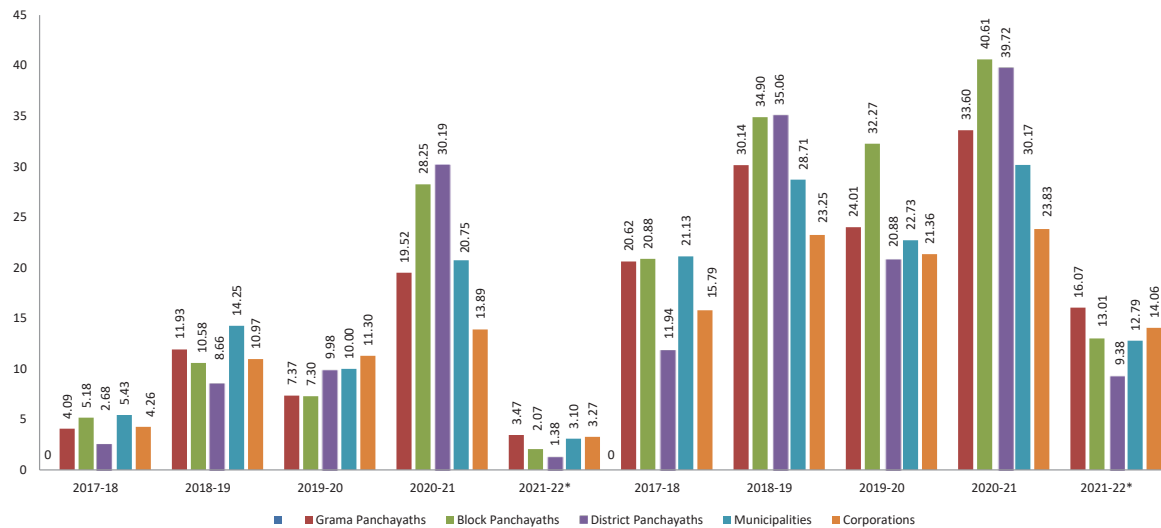
Early start of the Plan implementation resulted in higher expenditure also. In the past, the money could be spent only in the last months of the financial year as Plans were approved only at the end of the year. Now from the first month onwards, Plan expenditure is recorded and the Plan activity has become a year-round process. **Appendix 12.1.1 and Figure 12.1.1** shows the details.

It is evident from the chart that the expenditure percentage in 2020-21 is high when compared to previous years. Another important achievement of timely preparation of Plan is that the Annual Plan of the Local Governments could be integrated with the Budget presented and passed in March. Until the beginning of the Thirteenth Plan, the practice existed in Local Governments was to integrate the Annual Plan with the Budget in the middle of the financial year. By integrating it with the budget in March itself, the relevance and sanctity of Budget has also increased.

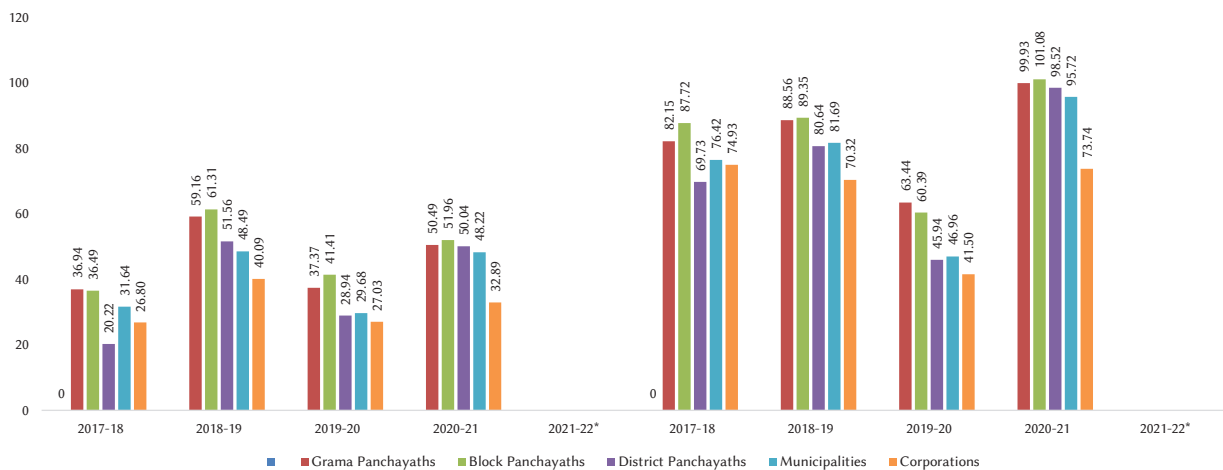
2) Engaged more Vetting Officers and Implementing Officers

One factor that hindered the smooth implementation of projects, especially in construction projects, was the lack of facilities to scrutinise and approve projects in the respective Local Governments. Normally, appraisal (vetting) of a project is done by an officer who is senior to the Implementing Officer of the project. In the past, only the senior most officer among the officers transferred in a sector, was allowed to be engaged as the Implementing officer of projects in that sector. Because of this condition, Local Governments were forced to send projects to another office for vetting, which resulted in much delay. For instance, construction projects of District Panchayats and Corporations had to be scrutinised by the Superintendent Engineer

Figure 12.1.1 Quarter-end Plan Expenditure of Local Governments, 2017-18 to 2021-22 April to September, in per cent



Quarter-end Plan Expenditure of Local Governments, 2017-18 to 2021-22 September to March, in per cent



Source: Information Kerala Mission, 2021

or Chief Engineer. This problem was addressed by allowing more Implementing Officers and vetting officers in lower tiers. This has helped in expediting the approval process.

3) Change in Approval System –Plan Approval Followed by Project Appraisal

In the past, the Annual Plan used to be submitted to the District Planning Committee for its approval, after the projects were scrutinised by the vetting officers concerned. The Annual

Plan could be submitted only on completing the approval process for all projects. To avoid this, it was decided to submit the Annual Plan to the DPC for approval first and then conduct appraisal of projects, after approval. This has helped the local governments avoid long delays in approving Annual Plans and hasty project vetting. Vetting officers now get enough time to scrutinise the projects in detail and rectify the deficiencies. This has resulted in improving the quality of projects significantly.

4) Restructuring the Appeal Committee System

A serious criticism that arose in the 12th Plan period was that the district-level appeal committee for reconsidering the projects rejected by vetting officers was bureaucratic in its approach. The committee was reconstituted under the chairmanship of the Chairperson, District Planning Committee to make it more facilitative.

5) Preparation of District Plans

Another notable initiative introduced in 2017-18 was the preparation of District Plans by District Planning Committees (DPCs). It is a constitutional mandate (Article 243 ZD) that the DPCs make District Plans aimed at designing an integrated approach for the holistic development of the District. All the DPCs in Kerala could complete this task, following the detailed guidelines issued by the State Government and ensuring that the suggestions in the District Plans were incorporated in the Annual Plans of Local Governments. DPCs have been instructed to issue District specific guidelines every year based on the District Plans before the process of preparation of local Plans starts. Preparation of District Plans is a major achievement in the history of decentralised planning in Kerala.

6) Incentivising District Plans

Since integration of projects at various levels of the three tier local governments is important, DPCs had undertaken the task of converting some of the ideas on large scale projects that

emerged in the District Plans into implementable projects so as to implement them jointly by Local Governments and other agencies. Government had introduced a scheme, viz: Incentivising District Plans, for promoting such integrated projects in the District Plans.

7) Focus on Urban Issues

The 13th Five-Year Plan of the State had given special emphasis on issues due to rapid urbanisation in Kerala. There is an impending need to develop appropriate strategies and programmes to address the challenges and opportunities thrown up by the process of urban growth. Keeping this in view, the Government had issued a separate set of guidelines for Plan formulation in urban Local Governments in the 13th Plan, for the first time.

8) Enhanced Outlay for Productive Sector

From the beginning of the People's Plan, it was stipulated that a fixed percentage of normal share under General sector fund should be set apart for productive sector. However, in the beginning of 12th Five-Year Plan this was totally done away with. The experience in the first four years of the 12th Plan was reviewed by the present Government when it assumed office in May 2016 and a decision was taken to restore the mandatory minimum allocation with 20 per cent under productive sector, for the Annual Plan 2016-17. This was again revised in the beginning of the 13th Plan and the mandatory minimum ceiling in the productive sector was enhanced

Table 12.1.1 Share of Productive sector expenditure in the total expenditure under normal share of general sector funds of Local Governments (2015-16 to 2021-22), ₹ in crore

Year	Productive sector expenditure under normal share of General sector Funds	Total Expenditure in Normal share of general sector funds	Percentage share of productive sector expenditure in normal share under general sector expenditure (%)
2015-16	242.43	2,400.98	10.10
2016-17	373.42	2,040.85	18.30
2017-18	660.46	2,750.19	24.02
2018-19	674.26	3,330.11	20.25
2019-20	454.92	2,445.03	18.61
2020-21	1009.23	3580.34	28.18
2021-22*	32.40	541.43	6.00

Source: Information Kerala Mission, 2021* upto September 2021

to 30 per cent in the case of Grama Panchayats, Block Panchayats and District Panchayats whereas in the case of Urban Local Governments it was fixed at 10 per cent. This facilitated the Local Governments to allocate more funds and take up more projects in the productive sector. This signifies the emphasis given to enhance production as outlined in the Approach Paper to the 13th Plan. Details are given in **Table 12.1.1**.

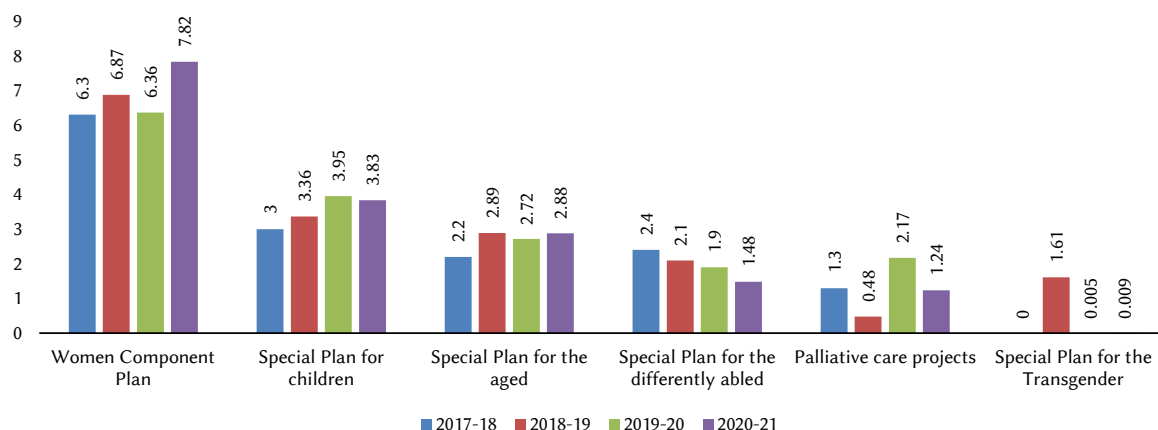
9) More Focus and Higher Outlay for Plans for Special Groups

Till the 12th Plan, it was stipulated that LGs should set aside 5 per cent of the Development Fund for the development of children, the elderly and persons with physical and intellectual disabilities. In order to give higher priority to the development of special needs groups, it

was decided in the beginning of the 13th Plan, to increase the allocation to 10 per cent and to include the transgender community under special groups. Now, Local Governments have to earmark 5 per cent for the development of children, persons with disabilities and transgender, and another 5 per cent for the welfare of the elderly and the palliative care projects. **Appendix 12.1.2 and Figure 12.1.2** shows the details.

The share of Women Component Plan in Development Fund is 8 per cent, plan for children is 3.88 per cent, plan for elderly is 2.88 per cent, plan for disabled is only 1.48 per cent and plan for transgenders is the least i.e. 0.009 per cent only.

Figure 12.1.2 Share of special sectors in sum total of Normal share of General sector fund, SCP and TSP (2017-18 to 2020-21), in per cent.



Source: Economic Review, Various Years and Information Kerala Mission, 2021

Table 12.1.2 (a) Women Component Projects-Number of projects and allocation (13th Five-Year Plan) - Local Body wise consolidated details (₹ in crore)

Sl.No.	Type of Local Governments	No of Projects	Allotment
1	Grama Panchayaths	28751	949.31
2	Block Panchayaths	3180	293.5
3	District Panchayaths	560	157.13
4	Municipalities	2295	119.49
5	Corporations	447	70.34
Total		35233	1589.8

Source: Information Kerala Mission, 2021

Table 12.1.2 (b) Women Component Projects – Number of projects and percentage of expenditure (13th Five-Year Plan) – Sector Wise Details

Sl. No.	Type of Local Governments	Agriculture		Animal Husbandry		Dairy		Fisheries		Small Scale Industries		Self-Employment, Industries	
		No of Projects	%	No of Projects	%	No of Projects	%	No of Projects	%	No of Projects	%	No of Projects	%
1	Grama Panchayaths	8039	59.78	14764	54.76	976	61.27	916	7.63	444	23.02	3612	32.95
2	Block Panchayaths	562	52.11	356	52.98	307	64.61	264	7.41	184	44.81	1507	48.26
3	District Panchayaths	51	32.41	46	45.14	14	60.21	65	1.56	34	35.95	350	45.16
4	Municipalities	611	48.88	860	38.93	45	53.09	145	1.68	102	38.26	532	26.00
5	Corporations	151	41.70	61	43.15	3	44.49	45	3.44	20	9.75	167	30.71
Total		9414	56.14	16087	53.41	1345	62.38	1435	5.11	784	33.78	6168	39.66

Source: Information Kerala Mission, 2021

An Analysis of Women Component Projects

The key objective of WCP is to mainstream development of women in the overall development strategy and programmes of Local Governments. The focus is on increasing the activities that improved the income of women and also on activities that will ensure improvement in status of women. Major sectors include agriculture, animal husbandry, dairy, fisheries, small scale industries and self-employment schemes. (Table 12.1.2 a)

The details of projects in different sectors and percentage expenditure in each sector (13th Five-Year Plan) is shown in Table 12.1.2 (b)

10) Special Window for Innovative Programmes

Another prominent feature of 13th Plan was the introduction of ‘Special Window of Innovative Programmes’ for designing schemes that are relevant and innovative in nature but cannot be taken up by the LGs as per the subsidy guidelines. One of the key objectives of decentralised planning is to analyse a specific problem in the area and formulate appropriate solutions based on the resource potential of that area. However, many of the projects thus conceptualized may be difficult

to be implemented in accordance with the existing subsidy norms. A District-Level Expert Committee chaired by the District Collector was constituted to examine the innovative projects of the Local Governments and provide approval. Table 12.1.3 shows the number of innovative projects taken by local bodies as on August 31, 2021.

In the innovative project category, there were 111 projects in production sector and 152 projects in service sector. There are no projects in infrastructure sector of innovative nature. It is seen that the LSGIs have been reluctant in utilizing the possibility of taking innovative ideas and projects.

11) Broadening the scope of subsidies

A notable change in the 13th Plan is that the subsidy norms have been comprehensively revised. Scope of subsidies that could be disbursed through Local Government Plans has been broadened by including more items. Further, subsidy rates have been increased and unified with the Department rates. Local Governments are permitted to take up those schemes which are not in the subsidy guidelines but existing in the Departments, in accordance with the Department guidelines. Besides, income ceiling of beneficiaries has been enhanced

Table 12.1.3 Innovative projects - Local Government Wise Consolidated Details of Projects as on August 31, 2021, ₹ in crore

Sl No	Type of Local Governments	Production			Service			Total		
		No of Projects	Allocation	Expenditure	No of Projects	Allocation	Expenditure	No of Projects	Allocation	Expenditure
1	Grama Panchayaths	11	25.00	11.99	9	16.17	11.89	20	41.17	23.89
2	Block Panchayaths	29	26.38	15.51	11	10.75	8.71	40	37.14	24.22
3	District Panchayaths	8	2.07	1.16	1	1.50	.89	9	3.57	2.05
4	Municipalities	2	.80	.77	1	.50	0	3	1.30	.77
5	Corporations	61	7.85	3.15	19	5.81	3.42	82	13.67	6.5
Total		111	62.12	32.60	41	34.74	24.91	152	96.87	57.51

Source: Information Kerala Mission, 2021

substantially. In the agricultural sector, benefits can be given to marginal and small farmers. For paddy cultivation benefits can be given to farmers who have more than five acres of land also. For animal husbandry, dairy and fisheries sectors the income limit has been raised to ₹5 lakh. The income limit for housing has been raised to ₹3.00 lakh. For other schemes income ceiling has been enhanced to ₹2.00 lakh for general category and ₹3.00 lakh for SC category. In the case of Scheduled Tribes income limit has been waived.

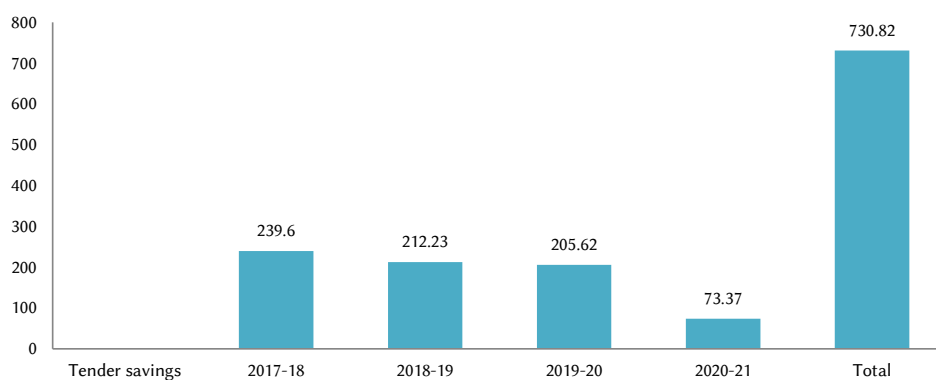
In the light of Covid-19 pandemic, in 2020, the Government of Kerala formulated

Subhikshakeralam scheme for enhancing production in primary sector including agriculture, animal husbandry, dairy, and fisheries. The subsidy pattern was revised and was increased as part of the programme. More items were included in subsidy guidelines, especially in the fisheries sector.

12) More tender savings and investments

There were widespread complaints about the construction works carried out by the Beneficiary Committees. In order to address this issue and to ensure transparency in the system, in the beginning of 13th Plan, competitive

Figure 12.1.3 Tender savings out of Plan and Maintenance Fund of various tiers of LGs in 2017-18, 2018-19, and 2020-21, ₹ in crore



Source: LSGD Engineering Wing

tendering was introduced in the execution of public works in the place of Beneficiary Committees. The financial ceiling of projects that can be implemented through the Beneficiary Committee has been reduced from ₹5 lakh to ₹50,000. However, this does not apply to Approved Agencies such as the Parent Teachers' Associations. Permission was granted to entrust works upto ₹25.00 lakh to such committees.

As a result of competitive tendering, there has been substantial increase in tender savings to the tune of ₹730.82 crore in the first four years of the 13th Plan, which helped the Local Governments to take up additional projects. Details are given in **Figure 12.1.3**.

13) Initiatives for Enhancing People's Participation and Providing Technical Support

Enhanced public participation in local Plans is one of the main objectives of the 13th Plan. With this objective, some reforms were initiated. Important among them are the decisions to increase the participation of experts and use the services of volunteers. Local Planning committees were formed in all the LGs to help them in Plan formulation, implementation, and monitoring. It was also suggested to use the services of a volunteer expert to assist the Local Governments. Permission was also given to Local Governments

to give an honorarium of ₹5,000 per month to the resource persons so appointed. LGs were given complete freedom in selecting resource persons.

In order to make the planning process more participatory, a Gramasabha portal was developed to receive the views of public, including expatriate Malayalees. Another initiative introduced for enhancing the knowledge content of the Plans prepared by the Local Governments is the formation of District Resource Centres. In September, 2019 Government directed all DPCs to form District Resource Centres consisting of professionals from development, research, and technical institutes as well as retired experts from Government departments. The main functions of DRC are: (a) conduct studies in areas and topics required by the DPC as well as the Local Governments (b) give technical advice so as to improve the knowledge content of the Local Government Plans, (c) prepare DPRs on projects as required by the Local Governments, (d) scrutinise the Plans prepared by Local Governments and point out the weaknesses and suggest measures to improve it e) to study the model projects and bring it to the attention of the State and f) revision of the District Plan every year. It is expected this will help in improving the quality of Plans of the Local Governments and in turn give emphasis to areas that require core attention.

Table 12.1.4 Plan Outlay (Development Fund) to Local Governments, ₹ in crore

Year	State Plan Outlay	Allocation to LGs				Total	% to State Plan Outlay
		General Sector		Scheduled Caste Sub Plan	Tribal Sub Plan		
		Normal share	Central Finance Commission Award				
2016-17	24,000	2,995.04	1,310.06	1,038.90	156.00	5,500.00	22.92
2017-18	26,500	3,371.57	1,507.88	1,172.05	176.00	6,227.50	23.5
2018-19	29,150	3,777.58	1,739.56	1,289.26	193.60	7,000.00	24
2019-20	30,610	3,604.62	2,338.55	1,353.84	202.99	7,500.00	24.5
2020-21	27,610	3,534.60	1,964.15	1,221.15	183.10	7,158.00*	25.9
2021-22	27,610	3363.75	1538.63	1221.15	183.10	7280.00#	26

Source: Budget Documents, various years

Note: * Includes ₹255 crore for the World Bank aided project of Kerala Solid Waste Management Project (KSWMP) in Municipalities

Includes ₹973.37 crore as the CFC allocation.

Table 12.1.5 Devolution of Maintenance Fund and General Purpose Fund to Local Governments , ₹ in crore

Year	Maintenance Fund			General Purpose Fund
	Non-Road	Road	Total	
2016-17	645.93	1,291.86	1,937.79	1,233.14
2017-18	655.03	1,528.41	2,183.44	1,364.66
2018-19	703.16	1,640.72	2,343.88	1,426.71
2019-20	822.34	1,918.78	2,741.12	1,626.09
2020-21	883.15	2,060.68	2,943.83	1,717.23
2021-22	883.15	2,060.68	2,943.83	1,949.80

Source: Budget Documents, various years

Table 12.1.6 Plan Outlay and Expenditure (Development Fund) to Local Governments, ₹ in crore

Year	Plan Outlay	Expenditure	Expenditure Percentage	Including pending bills	Expenditure Percentage Including pending bills
2017-18	6194.62	5292.71	85.44	5580.47	90.09
2018-19	6721.91	5696.08	84.74	6250.24	92.98
2019-20	7209.10	4027.44	55.87	5664.41	78.57
2020-21	7276.66	6927.83	95.21	6953.73	95.60

Source: LSGD website

14) Plan Outlay of Local Self Governments

Plan outlay for the Local Governments has been gradually increased. The Government has implemented the decision in the Action Taken Report (ATR) on the Recommendations of the 5th State Finance Commission that the Plan outlay should be enhanced by 0.50 per cent every year from 2017-18. The decision in the ATR to increase gradually the Maintenance Fund allocation from 5.5 per cent to 6 per cent of the State's own tax revenue has also been implemented. In addition 3.5 per cent of State's Own Tax Revenue was given as General Purpose Fund. Details on devolution of untied funds are shown **Table 12.1.4** and **Table 12.1.5**.

Table 12.1.6 shows the outlay and expenditure details in the 13th Plan period. Development fund increased from 23.5 percent in 2017-18 of State Plan to 26 percent in 2021-22.

Modification in plan guidelines and ensuring adequate time for project implementation has helped in increasing the expenditure level of Local Governments.

Other initiatives in the 13th Plan

Preparation of Disaster Management Plans Over the last few years, frequent natural disasters and climatic variations have been affecting the State. Natural disasters such as flood, coastal erosion, drought and landslides are posing serious challenges to the State. To mitigate the impact of such disasters and to improve disaster preparedness, for the first time in the country, all GramaPanchayats and Urban Local Governments in the State had prepared Local Disaster Management Plans in 2019-20. The Disaster Management Plan of the Local Government consist of the following components, a) Profile of LGs, b) Hazard and Vulnerability profile, c) Capacity and Resources of the Local Government, d) Response Plan and e) Preparedness, Mitigation and Community Resilience Plan. The Local Governments have to include projects of disaster management and mitigation in their Annual Plans considering the susceptibility of the respective Local Governments to natural disasters as well as their existing capacity to tackle it. Considering the intensity, frequency, and uncertainty of natural disasters ravaging the State, the Disaster

Table 12.1.7 (a) Details of Local Body wise Disaster Management projects, as on August 31, 2021, ₹ in crore

Sl No	LB Type	Production			Service		
		No of Projects	Allocation	Expenditure	No of Projects	Allocation	Expenditure
1	Grama Panchayat	1024	257.93	16.512	2060	502.71	247.37
2	Block Panchayat	62	49.04	30.66	75	40.74	20.89
3	District Panchayat	12	36.62	11.58	20	60.81	58.93
4	Municipality	172	74.06	41.57	205	161.43	74.25
5	Corporation	12	8.86	7.95	118	110.07	59.50
	Grand Total	1282	426.53	256.89	2478	875.78	460.96

Table 12.1.7 (b) Details of Local Body wise Disaster Management projects, as on August 31, 2021, ₹ in crore

Sl No	LB Type	Infrastructure			Total		
		No of Projects	Allocation	Expenditure	No of Projects	Allocation	Expenditure
1	Grama Panchayat	2042	180.53	124.24	5126	941.18	536.73
2	Block Panchayat	21	14.61	10.43	158	104.39	61.99
3	District Panchayat	0	0.00	0.00	54	97.44	70.51
4	Municipality	83	14.85	3.59	460	250.36	119.42
5	Corporation	5	.80	0.00	135	119.73	67.46
	Grand Total	2173	210.80	138.28	5933	1513.12	856.14

Source: Information Kerala Mission, 2021

Management Plan is a novel and pertinent measure taken by the Government. The status of disaster management projects is shown in **Table 12.1.7**.

As on August 31, 2021, a total of 5933 projects have been taken up Local Governments. Out of which, 1282 are in productive sector, 2478 in service sector and 2173 in infrastructure sector. Out of the total cost of ₹1513.12 crore for the 5933 projects, ₹856.14 crore expended.

Kerala Tops in Successive Years - Mission Antyodaya Survey

Mission Antyodaya is a convergence and accountability framework aiming to bring optimum use and management of resources allocated by 27 Ministries/ Department of the Government of India under various programmes for the development of rural areas. It is envisaged as state-led initiative with Gram Panchayats as focal points of convergence efforts.

Annual survey in Gram Panchayats across the country is an important aspect of Mission Antyodaya framework. It is carried out coterminous with the People's Plan Campaign (PPC) of Ministry of Panchayat Raj and its' purpose is to lend support to the process of participatory planning for Gram Panchayat Development Plan (GPDP). Kerala has been continuously achieving the top position in this survey in successive years.

- **Decentralisation Round Survey** - In 2020-21 the Government started a data collection round called the 'Decentralisation round' survey; where data regarding the achievements of Local Governments with respect to subjects dealt by them was collected based on a questionnaire. This data collection helps in assessing the functioning of the Local Governments and to plan future programmes and priorities. It will help in identifying model projects, learn from the functioning of exemplary Local Governments; learn from past

experiences, and acquire new knowledge. The data collection and compilation responsibility was entrusted to the Directorate of Economics and Statistics personnel. It is planned to conduct this round every five years. The first round survey was completed in February 2021.

- **Good Governance initiatives** - Some of the reforms initiated aimed at good governance. These reforms are as follows:
- **Common Service for the Local Self Government Department** - The Integrated Local Self Government Department has been formed, unifying five Departments of LSGD, with a view to strengthen Local Government system and ensure better service delivery. It is expected that the functioning of various Local Governments now coming under different Departments can be better coordinated. The existing Departments of Panchayats, Urban Affairs, Rural Development, Town Planning and Engineering Departments will come under the new umbrella.
- **Integrated Local Governance Management System (ILGMS)** - Integrated Local Governance Management System (ILGMS), a comprehensive software developed by the Information Kerala Mission (IKM), has been deployed across 303 Grama Panchayats in October 2020, to ensure greater transparency, accountability, accuracy, punctuality and technical supervision in providing various services to the citizens. Since 1998, IKM has developed several software applications for Panchayats, Municipalities and Corporations. Now the circumstances invariably demanded the development of a comprehensive technologically advanced software system. This forced the Government to rethink about the existing software systems and it led to the evolution of Integrated Local Governance Management System. It is a vision for typical governance management with a suite of satellite software applications integrated to a stem software application (workflow platform).
- **Rise of Local Governments in Kerala to ISO standards** - The Approach Paper to the 13th Plan States that all Local Governments in Kerala would be raised at par to the ISO standards.

This has now been almost accomplished and the Local Governments in Kerala are in the forefront in delivering quality service to the people in a time bound manner. Of the 941 Grama Panchayats in Kerala, 939 GPs and all Block Panchayats have achieved ISO 9001: 2015 (an international certification for quality management system). Remaining Grama Panchayats, Corporations, Municipalities, and District Panchayats are expected to adopt the ISO for the current fiscal year.

The ISO certification is given only if the system is designed such that people receive uninterrupted services and the local bodies provide a people-friendly and accurate front office system, a computerised record keeping system that can arrange and keep records in a very short time, and an orderly office system. The work done by Local Governments to achieve international certification is a major step towards the goal of providing a quality service to the people and being a people-friendly organisation.

Role Played by the Local Governments in Tackling Covid-19

The Covid-19 pandemic is marked by heterogeneity in terms of its differentiated impact on health, economic and fiscal parameters across States, districts and cities. In response, all tiers of the government came together to work in coordination in order to contain its spread, mitigate its deleterious impact and alleviate the scars it left on lives and livelihoods. In this effort against the pandemic, the role of Local Governments has been pivotal, particularly from the point of view of mobilising a community-wide response. It is in this context that the theme “Coping with the Pandemic: A Third-Tier Dimension” has been chosen for this year’s report on State Finances, by RBI as a sequel to its last year’s theme by RBI “Pandemic and its Spatial Dimensions in India” in the report on State Finance: A Study of Budgets of 2020-21”.

Among the Indian States, Kerala was the first State affected by Covid-19. The State Government’s prompt response to the pandemic in rallying Local Governments along with the Health Department has been noticed globally. Social investments in rural health care, universal

education, decentralisation of powers and resources and women empowerment are cited widely as the reasons that helped Kerala to fight against the coronavirus. The core functions of Local Governments had to be scaled up rapidly during the pandemic to meet multiple objectives, viz., emergency healthcare need of the people, implementation and enforcement of lockdown restrictions, and uninterrupted delivery of essential services.

Local Governments played a key role in containing as well as tackling this pandemic. Important among them are 1. Setting up and managing community kitchens during lockdown, 2. Cleaning and disinfecting activities, 3. Organising and running “break the chain” social distance campaign and awareness programmes, 4. Providing accommodation, food and other essential support to guest workers (migrant labourers), 5. Managing the coordination of home quarantine, counseling and isolation, 6. Setting up institutional quarantine to manage those who returned to the State from other States and abroad, 7. Setting up and managing Covid First Line Treatment Centres, 8. Engaging of personnel in Health institutions managed by Local Governments, 9. Purchase of medicines and other equipment to the hospitals run by the Local Governments, 10. Distribution of free medicines, 11. Implementing local economic Plans to help the people who lost jobs and plans for increasing food production and self-sufficiency in the field of agriculture under

the banner “SubhikshaKeralam”, 12. Providing arrangement for local dissemination of online schooling internet connectivity. Details of Covid special projects undertaken by LSGIs are shown in **Table 12.1.8**.

As a part of Covid -19 prevention and mitigation activities, LSGIs were allowed to take special projects as a part of their annual plan. A total of 751 projects in service sector with an allocation of ₹735.98 crore and 33 projects in infrastructure sector with ₹9.99 crore were taken by various tiers of LSGIs. Medicines, Covid First Line Treatment Centres, Food, amenities to hospitals, break the chain activities etc. are part of these projects. These projects played an important role in controlling Covid-19 pandemic in Kerala.

- **Ensuring Food Security – Subhiksha Keralam Initiative** - Subhiksha Keralam scheme was started by the State Government in 2020-21 to combat food scarcity against the backdrop of Covid-19 outbreak. It aims at large scale production of paddy, fruits, vegetables, tubers, and grains. Along with revival of production, the scheme also aims to promote livelihood by providing assistance to raise cows, goats, rabbits, pigs, and fish as part of achieving self-reliance in food production within the next five years. The scheme envisages joint action by Local Governments, various Departments and agencies like Kudumbashree, Haritha Keralam Mission; including public sector undertakings and NGOs. The convergence of various

Table 12.1.8 Covid Special projects - Local Body Wise Consolidated Details of Projects as on August 31, 2021, ₹ in crore

Sl No	LB Type	Service			Infrastructure			Total		
		No of Projects	Allocation	Expenditure	No of Projects	Allocation	Expenditure	No of Projects	Allocation	Expenditure
1	Grama Panchayat	578	33.95	11.95	32	.89	.66	610	34.84	12.61
2	Block Panchayat	53	2.90	2.02	0	0	0	53	2.90	2.02
3	District Panchayat	18	7.91	7.50	0	0	0	18	7.91	7.50
4	Municipality	91	18.31	11.49	1	.10	.09	92	18.41	11.59
5	Corporation	11	10.52	4.89	0	0	0	11	10.52	4.89
	Grand Total	751	73.59	37.86	33	.99	.76	784	74.59	38.62

Source: Information Kerala Mission, 2021

employment schemes such as Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Ayyankali Urban Employment Guarantee Scheme (AUEGS) are also ensured. Local Governments have been entrusted with the key role of formulating Plans and converging activities at the Local Government-level.

The main objective in the agricultural sector in Subhiksha Keralam was cultivation in fallow land, implementation of integrated farming system, planting one crore fruit plants, promoting rain shelter cultivation, strengthening agricultural development and providing necessary loans to farmers.

Fallow land cultivation

The objective was to identify and cultivate arable land lying barren within the limits of each local body, mainly paddy, vegetables, fruit crops, tubers, pulses and millets. It was aimed at cultivating 25,000 hectares of land through this project and schemes of Local Governments. Following are the details of cultivation of fallow land implemented in 2020-21:

- a. Paddy: A grant of ₹40,000 per hectare was provided for cultivating 5,000 hectares of fallow land in the State. 9,070 hectares was cultivated against the target.
- b. Vegetable cultivation: Arable barren land was identified in each Panchayath. The objective was to extend cultivation of vegetable to additional 7,000 hectares. As a special incentive, ₹40, 000 per hectare subsidy was provided and 4,527 hectares of fallow land was brought under cultivation.
- c. Fruit crops: ₹40,000 per hectare subsidy

was provided for the expansion of fruit plants in 7,000 hectares of land in 2020-2021. 3,381 hectares were cultivated against the target.

- d. Tuber crops: An assistance of ₹30,000 per hectare of fallow land was provided as incentive to cultivate tuber crops. 4,908 hectares of fallow land have been cultivated with tubers.
- e. Pulse cultivation: An assistance of ₹30,000 per hectare was provided for cultivation of pulses. 636 hectares of fallow land have been cultivated against a target of 500 hectares.
- f. Millets: An assistance of ₹30,000 per hectare was provided for cultivating of millets. 325 hectares of fallow have been cultivated against a target of 500 hectares. Though fallow land cultivation, it is estimated that around 1,49,163 labourers could be engaged in agriculture. Fallow land cultivation is one of the main components of the scheme, where in interested land owners, farmers, self-help groups, voluntary organisations, Kudumbashree units, youth organisations, expatriates and institutions in both public and private sector can participate.

One of the noteworthy features of this scheme is introduction of base prices designed to protect farmers from adverse price fluctuations in the market. The base prices (per kg) that came into force in the State from November 1, 2020, are as follows: tapioca (₹12), nendran banana/ Wayanadan nendran (₹30/₹24), pineapple (₹15), ash gourd (₹9), cucumber (₹8), bitter gourd (₹30), snake gourd (₹30), string beans

Table 12.1.9 Subhiksha Keralam - Local Body and Sector Wise Consolidated Details of Projects as on August 31, 2021, ₹ in crore

Sl.No.	Type of Local Bodies	Total no. of Projects	Total Allotment	Total Expenditure	%
1	Grama Panchayaths	21439	1218.09	694.43	57.01
2	Block Panchayaths	1532	233.09	126.04	54.08
3	District Panchayaths	711	220.46	125.18	56.78
4	Municipalities	1984	127.58	65.08	51.01
5	Corporations	469	71.07	39.18	55.13
Total		26135	1870.30	1049.93	56.14

Source: Information Kerala Mission, 2021

Table 12.1.10 Subhiksha Keralam - Local Body and Sector Wise number of Projects as on August 31, 2021.

Sl No	Type of Local Bodies	Agriculture	Fisheries	Animal Husbandry	Dairy Development	Food Processing	Total
1	Grama Panchayaths	10141	1531	7753	1963	51	21439
2	Block Panchayaths	801	76	183	412	60	1532
3	District Panchayaths	477	43	145	43	3	711
4	Municipalities	946	213	688	128	9	1984
5	Corporations	285	57	102	21	4	469
Total		12650	1920	8871	2567	127	26135

Source: Information Kerala Mission, 2021

(₹34), tomato (₹8), ladies' finger (₹20), cabbage (₹11), carrot (₹21), potato (₹20), beans (₹28), beet root (₹21) and garlic (₹139). The produce will be procured through the outlets of the Agriculture Department, VFPC and HortiCorp, and the Primary Agricultural Credit Cooperative Societies. The details are shown in **Appendix 12.1.3, 12.1.4, Tables 12.1.9, 12.1.10 and 12.1.11.**

Table 12.1.11 Subhiksha Keralam - MNRGES/AUGES details

Sl No	Name of Activity	Target	Completed
1	Farm ponds	4000	995
2	Cattle shed	25000	5383
3	Goat shed	15962	3988
4	Poultry Shed	10000	3643
5	Fodder cultivation (hec)	500	146.7
6	Azola tank	5000	698
7	SHG workshed	100	40
8	Compost pit	100000	3400
9	Soak pit	100000	5969
10	Well recharging	51000	821

Source: Data from MNREGS State Mission

A total of 26,135 projects with an amount of ₹1,870.30 crore were carried out under Subhiksha Keralam programme by the Local Governments in various tiers which includes

projects in agriculture, fisheries, animal husbandry, dairy development, and food processing.

Majority of the Subhiksha Keralam projects were under agriculture, i.e. 12,650 projects. 881 projects were under animal husbandry sector. Fisheries sector had only 1,920 projects. But, above all, a serious concern is about the less number of projects in food processing sector. Diversification and value addition programmes need to be provided thrust under Subhiksha Keralam as well as the productive sector in general.

- Twelve Point Programmes Government had announced a 12 point programme to be executed with the support of Local Governments in the Annual Plan 2020-21. 'Hunger-free Kerala' and "Take a Break Refreshment Centres" are the two major projects under the package. 'Hunger-free Kerala project' aims to set up 1,000 restaurants (Janakeeya hotels) which would provide meals at a subsidised rate of ₹25 per meal. One restaurant would be set up in each Grama Panchayat and Municipality and in Corporation, one restaurant would cater to 10 wards. 1,000 Janakeeya hotels have been started. Low rates and home delivery service have contributed to its popularity especially during lunch hours. Rent, electricity and water charges of the hotels are borne by the Local Governments.

- The objective of ‘Take a Break Refreshment Centres’ is to set up quality community sanitary complexes across the State and thereby to address the long-standing demand for good toilet complexes. These facilities would offer quality amenities including refreshment options for the public and travellers. The remaining 10 projects under the ‘Twelve Point Programme’ are 1. Vayo Clubs’ (Recreation Clubs for Elderly People), 2. SuchithwaKeralam – (Comprehensive sanitation status for all LSGIs), 3. Cleaning of Streams, 4. Planting and Maintenance of one crore saplings of fruit trees, 5. Promoting Organic Vegetable Cultivation, 6. Local Employment Assurance Programme (LEAP), 7. Public Education Rejuvenation Mission, 8. Palliative Care projects in all LSGIs, 9. Development of Scheduled Caste/Scheduled Tribes and 10. Comprehensive Disaster Management Plan (Nammal Namukkayi).
- Linking Local Plans with SDG Goals:- There is a need to develop protocols that will facilitate Local Governments towards acquiring the targets of SDGs within the stipulated time. Different Indicator framework may be required for both the Urban and rural Local Governments.

GPDP: Emulating People’s Plan Campaign at the National Level

Kerala has contributed in evolving a new methodology to local planning which is now emulated all over the nation. The successful experience of Kerala’s People’s Plan has been finally accepted at national level as the Central government decided to implement Gram Panchayat Development Plans (GPDP), Block Panchayat Development Plans (BPDP) and District Panchayat Development Plans (DPDP). Ministry of Panchayati Raj, Government of India decided to launch the People’s Plan Campaign also known as ‘Sabki Yojana, Sabka Vikas Campaign’. The campaign was designed to be an intensive and structured exercise for planning at Gram Sabha level through convergence between Panchayati Raj Institutions (PRIs) and concerned Line Departments of the States. Special Gram Sabha meetings were held and Gram Panchayat Development Plans (GPDPs) were discussed and finalized all over the country.

Award of 15th Central Finance Commission Grants and Reorientation of Local Government Plans (2020-21).

The 15th Central Finance Commission (15th CFC) has made a significant departure from the previous Central Finance Commissions in its recommendations particularly in urban areas. In the rural areas, the Commission has recommended to give grants to all tiers of Panchayats including Block and District Panchayats; whereas 14th FC provided grants to Village Panchayats only. In the case of Urban Local Governments the Commission has recommended grants to cities under two categories for the first time: (a) fifty Million-Plus urban agglomerations¹/cities and (b) all other cities and towns with less than one million populations.

The guidelines issued by the Kerala Government for the utilisation of 15th FC Award, stipulate preparation of a CFC sub plan by the Local Governments. It was quite a challenge to prepare Plans for an Urban Agglomeration Area instead of the usual practice of preparing separate Plan for each Local Government that comes under an UA. For the purpose of preparation of Plan for the UA area, the District Planning Committees concerned were asked to constitute a Joint Planning Committee (JPC) with the elected head of the Principal LSG as the Chairperson of JPC and the Chairpersons of other Local Governments within the UA area and Secretaries of all LGs concerned being the members of the JPC. The guidelines issued by the Government stipulate mandatory spending of a portion of the allocation in areas other than the principal LG of UA.

There is an increase in allocation to Kerala in the first year (2020-21) of the 15th FC Award period from the last year (2019-10) of the 14th FC Award period. However, flexibility in spending is reduced to a considerable extent. In a major departure from the 14th FC, that gave bulk of the funds as ‘Basic Grant’ and allowed all expenses related to basic civic services including maintenance of community assets and roads in the case of both rural and urban Local Governments under Basic grants, the 15th FC has made all the grants to the million-plus cities as conditional (Tied grants), and 50 per cent of the grants to other cities and rural Local

Table 12.1.12 Central Finance Commission Grant - Untied Fund Projects Local Body Wise Consolidated Details of Projects as on August 31, 2021, ₹ in crore

Sl. No.	Type of Local Bodies	No of Projects Untied fund	Total Allocated amount (untied)	Expenditure (untied)	% (untied)
1	Grama Panchayaths	36123	961.85	825.31	85.80
2	Block Panchayaths	1745	99.82	82.68	82.83
3	District Panchayaths	593	100.96	70.22	69.55
4	Municipalities	8055	414.73	333.84	80.49
5	Corporations	2040	213.40	181.19	84.91
Total		48556	1790.79	1493.25	83.38

Source: Information Kerala Mission, 2021

Table 12.1.13 Central Finance Commission Grant - Tied Fund (for Sanitation and Drinking Water only) Projects Local Body Wise Consolidated Details of Projects as on August 31, 2021, ₹ in crore

Sl. No.	Type of Local Bodies	SANITATION				DRINKING WATER			
		No of Sanitation Projects	Amount	Expenditure	%	No of Drinking Water Projects	Amount	Expenditure	%
1	Grama Panchayaths	6185	260.67	95.62	36.68	6762	259.86	131.04	50.43
2	Block Panchayaths	622	46.36	21.66	46.72	767	47.74	24.75	51.86
3	District Panchayaths	305	39.60	14.55	36.75	370	58.46	26.02	44.51
4	Municipalities	1477	135.48	46.71	34.48	805	104.86	68.12	64.97
5	Corporations	594	169.95	65.92	38.79	153	106.86	62.62	58.60
Total		9183	652.09	244.48	37.49	8857	577.80	312.56	54.10

Source: Information Kerala Mission, 2021

1. An urban agglomeration is a continuous urban spread comprising of a town and its adjoining outgrowths (OGs), or two or more physically contiguous census towns/statutory towns together with or without outgrowths of such towns.

Governments as conditional (Tied Grants).

Further, only two critical services, water and sanitation, are allowed under tied grants. All these will affect the functional freedom of Local Governments in Kerala in a big way. The details are shown in **Appendix 12.1.5, 12.1.6, Tables 12.1.12, 12.1.13, and 12.1.14.**

There are 48,556 projects undertaken by LSGIs, using CFC untied fund. Total untied fund allocation was ₹1,790.79 crores. In tied fund, 183 projects were taken under sanitation sector and 8,857 projects under drinking water sector. Fund allocation was ₹652.09 crores and ₹577.80 respectively.

Table 12.1.14 Allocation to Million-Plus Urban Agglomerations in Kerala

Urban Agglomeration	Population (in lakh)	Allocation in Crore (based on population)
Thiruvananthapuram	16.8	47.00
Kollam	11.1	31.00
Kochi	21.2	59.00
Thrissur	18.6	52.00
Kozhikode	20.3	57.00
Kannur	16.4	46.00
Malappuram	17.0	47.00
Total		339.00

Source: Information Kerala Mission, 2021
Note: Allocation is based on population

Table 12.1.15 Distribution of Development Fund for different tiers of Local Governments 2020-21, ₹ in crore

Local Governments	General Sector			Scheduled Caste Sub Plan (SCSP)	Tribal Sub Plan (TSP)	Total
	Normal share	14th FC Award				
		Basic Grant	Tied Grant			
GramaPanchayats	1413.43	610.5	610.5	609.9962	102.1852	3346.6135
Block Panchayats	423.85	101.75	101.75	203.332	34.0618	864.7461
District Panchayats	423.85	101.75	101.75	203.332	34.0618	864.7461
Municipalities	440.96	223.9011	269.5	125.0918	9.4859	1068.9454
Corporations	562.35	76.878	292	79.398	3.3053	1013.9314
Total	3264.45	1114.7791	1375.5	1221.15	183.1	7158.9825

Source: Revised Budget Allocation - G.O. (P) no.87/2020/Fin, dated 29.06.2020

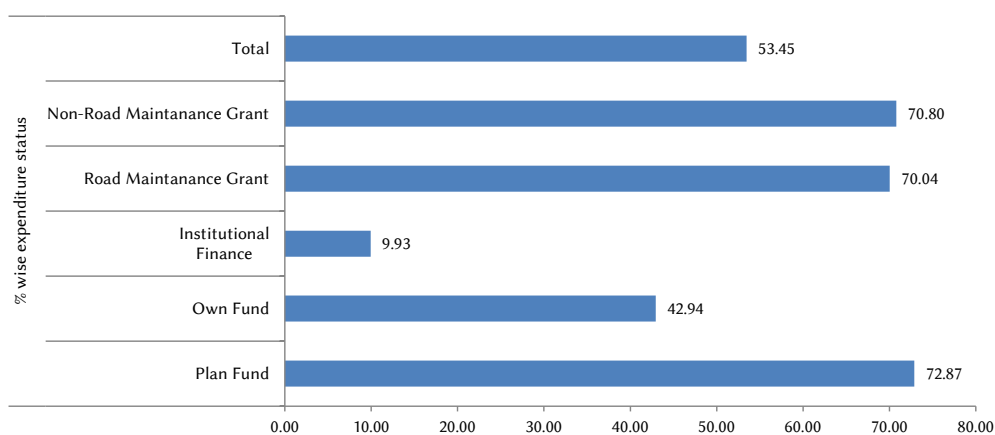
Financing of Local Government Plans - 2020-21

Plan allocation is devolved to Local Governments in two streams – the first stream consists of the untied Plan grant (Development Fund) and the other stream consists of Plan assistance for specific sponsored schemes. For Plan Grant, Local Governments have full autonomy in deciding their priorities, formulating the projects and implementing them subject to Plan guidelines issued by the State Government. As already mentioned, the Plan allocation for Development Fund for Local Governments is fixed in accordance with the Action Taken Report (ATR) on the recommendations of State Finance Commission (SFC). As per the 5th SFC, the Plan allocation for Local Governments is to be fixed as a per cent of State Plan outlay. Allocation of Development Fund in 2021-22 is shown in **Table 12.1.15**.

In addition to the Development Fund (fixed

percentage of the State Plan), the Local Governments have their own fund, maintenance fund, as well as other funds to finance the projects undertaken. The total outlay of Plans of all Local Governments together in 2020-21 was ₹11,820.03 crore; and the expenditure was ₹9,592.88 crore. A break up of the expenditure pattern of the Local Governments reveals that of the total expenditure incurred largest expenditure was incurred out of Development fund (72.87 per cent) followed by Road Maintenance Fund (70.04 per cent), Non Road Maintenance Fund (70.80 per cent) and Own Fund (42.94 per cent). Other sources of fund like CSS, loan from co-operatives, beneficiary contribution etc. contribute 21.00 per cent of the expenditure of the Local Governments. Development Fund expenditure absorbed the predominant share implying that Local Governments are largely dependent on this fund to finance their projects.

Figure 12.1.4 Share of various sources in the total expenditure of Local Governments



Source: Information Kerala Mission, 2021

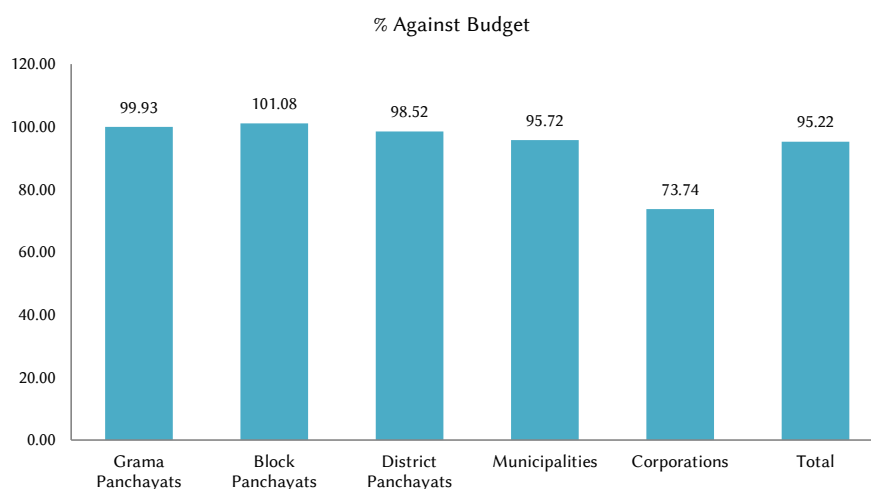
A considerable amount of the total expenditure (16.65 per cent) is also expended on the maintenance of roads as well as other transferred assets. Details are given in **Figure 12.1.4** and **Appendix 12.1.7**.

Development Fund Tier-wise

As already mentioned, Development Fund is the main source of funding for the Local Governments. In 2020-21, the total budgeted outlay under Development Fund for Local

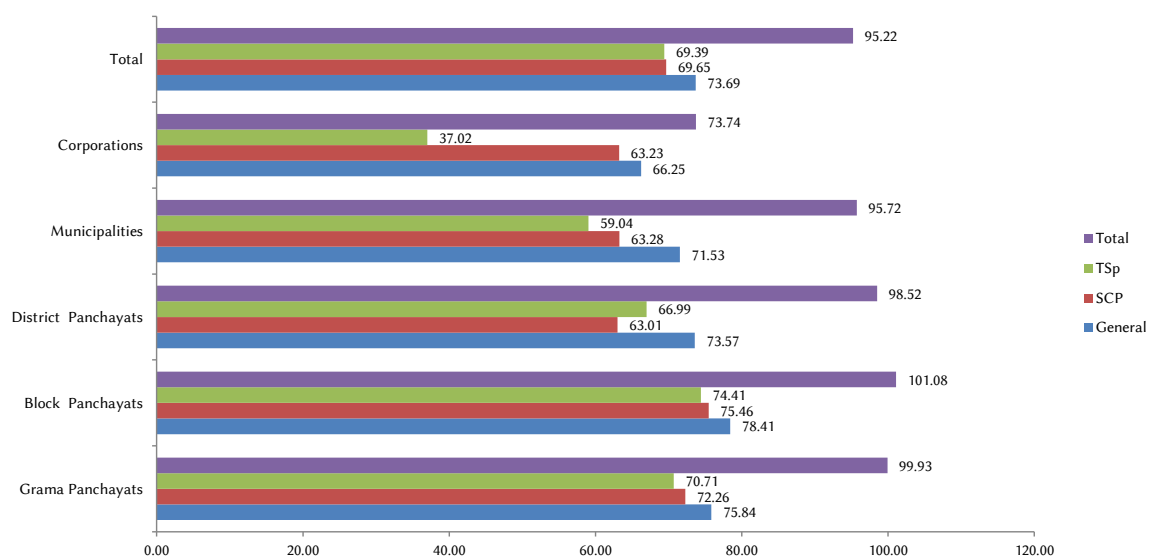
Governments was ₹7,158.00 crore. As an amount of ₹117.42 crore was additionally allocated to Municipal Corporations, the total budget amount increased to ₹7,276.66 crore. The expenditure was ₹6,928.49 crore, which was 95.22 per cent of the amount released as Development Fund. The expenditure in 2020-21 as compared to the previous two years was high. The overall expenditure performance with regard to GramaPanchayats, Block Panchayats and District Panchayats has been above

Figure 12.1.5 Expenditure performance of various Local Governments against amount distributed, 2020-21, in per cent



Source: Information Kerala Mission, 2021

Figure 12.1.6 Category-wise expenditure of Local Governments against release in 2020-21 (in per cent)



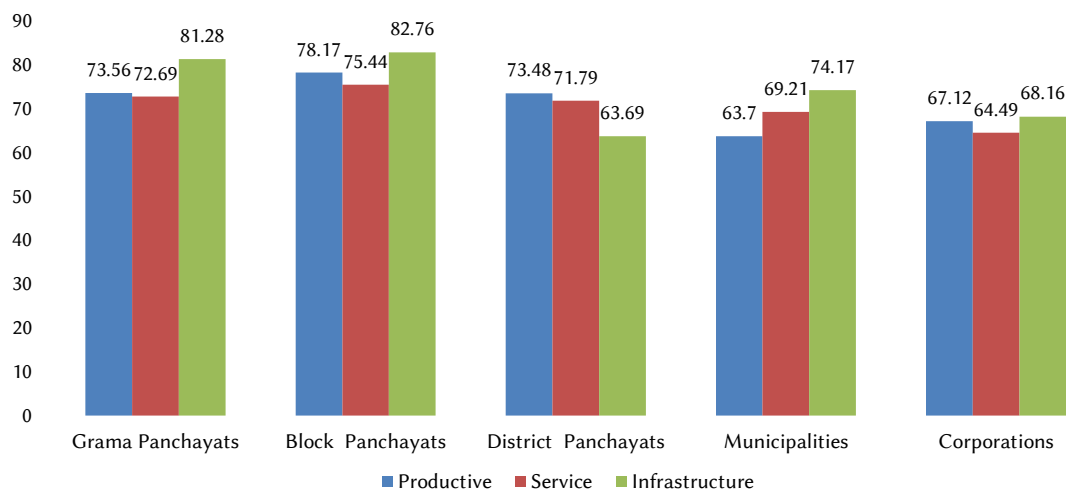
Source: Information Kerala Mission, 2021

95 per cent; and Urban Local Governments (Municipalities) has been also above 90 per cent. The expenditure of Municipal Corporations has been above 70 per cent. The tier-wise expenditure details are given in **Figure 12.1.5**.

- Category-wise expenditure The allocation of Development Fund to Local Governments falls in three categories – General Sector, Scheduled Caste Sub Plan (SCSP) and Tribal Sub Plan

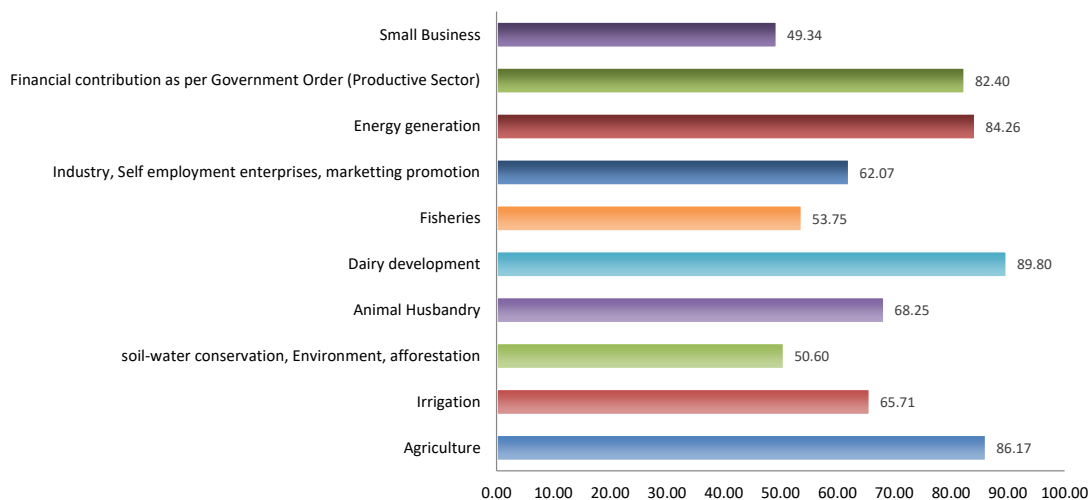
(TSP). Out of ₹7,276.66 crore released as Development Fund, ₹3,264.45 (44.87 per cent) was released as General category, ₹1,221.15 crore (16.78 per cent) under SCP category and ₹183.10 crore (2.52 per cent) as TSP category. In the case of Grama Panchayats, the expenditure performance with regard to SCSP and TSP is less compared to General Sector funds. Urban Local Governments have incurred higher expenditure under SCP

Figure 12.1.7 The share of various sectors in the total expenditure incurred by the Local Governments in 2020-21



Source: Information Kerala Mission, 2021

Figure 12.1.8 Sub sector-wise productive sector expenditure incurred by the Local Governments in 2020-21, in per cent



Source: Information Kerala Mission, 2021

as compared to General Sector funds. The details are given in **Appendix 12.1.8** and **Figure 12.1.6**.

Sectoral Analysis

The Annual Plan guidelines require that the Local Governments are to allocate funds in three sectors viz; production, service and infrastructure based on sectoral norms. The sector-wise performance is given in **Figure 12.1.7**. The share of production sector in the total expenditure is 73.06 per cent, while the share for the service sector is 71.27 per cent. The share of infrastructure sector is recorded as 76.44 per cent. Details are given in **Appendix 12.1.9**.

Production Sector

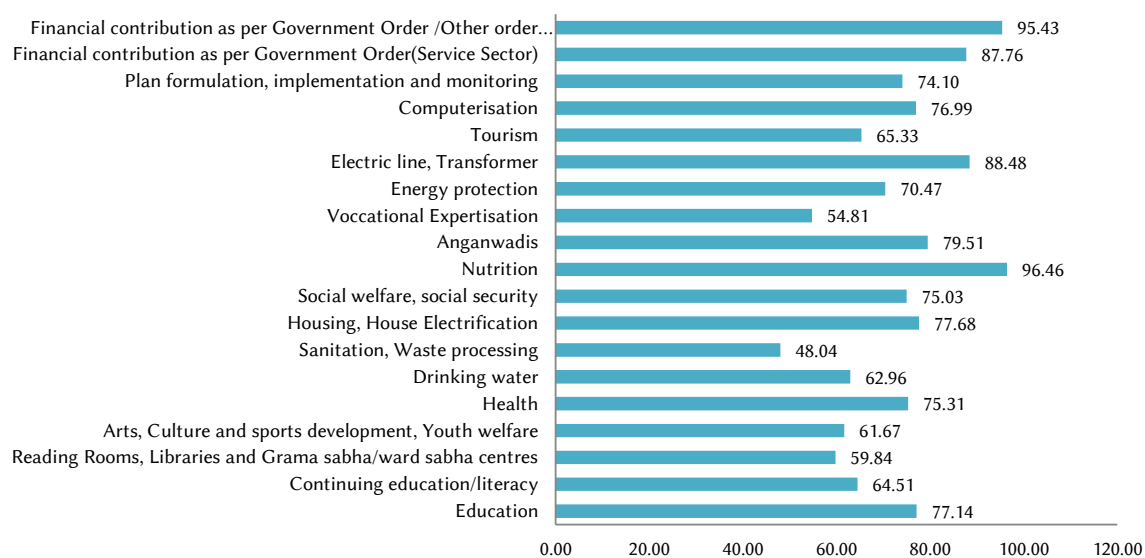
Figure 12.1.8 shows the subsector-wise expenditure of Local Governments in production sector. Of the total expenditure incurred in sub sectors under production sector, 86.17 per cent was for Agriculture, followed by Dairy Development (89.80 per cent), Animal Husbandry (68.25 per cent), Irrigation (65.71 per cent), Industry and self-employment (62.07 per cent). Expenditure in fisheries accounted for just 53.75 per cent while for soil and water conservation it was 50.60 per cent. Details are given in **Appendix 12.1.10**.

Table 12.1.16 Annual Plan 2020-21- Share of Production Sector in the Normal share expenditure under General sector fund (₹ in crore)

Sl No	Type of LSGs	Production Sector expenditure in the Normal share of General sector fund	Total Expenditure in the Normal share of General sector fund	% of Expenditure in Production Sector
1	Gram Panchayats	493.24	2221.89	22.20
2	Block Panchayats	193.69	564.59	34.31
3	District Panchayats	180.98	429.44	42.14
4	Municipalities	78.17	491.78	15.90
5	Corporations	63.13	327.83	19.26
	Total	1009.23	4035.56	25.01

Source: Information Kerala Mission, 2021

Figure 12.1.9 Sub sector-wise expenditure in service sector in 2020-21, in per cent



Source: Information Kerala Mission, 2021

As per the sectoral norms set for the Annual Plan 2020-21, rural Local Governments had to allocate 30 per cent of their Normal share of General sector funds towards production sector activities while for the Urban Local Governments it was 10 per cent. **Table 12.1.16** shows the production sector expenditure share of Local Governments in their General Sector (Normal share) fund. All types of Local Governments have incurred less than the stipulated expenditure for productive sector because of the restrictions imposed in the treasury in the context of Covid-19.

Service Sector

The sub sector-wise Service sector expenditure undertaken by Local Governments is shown in **Figure 12.1.9**. There are 19 sub sectors under service sector including housing, education, social welfare, sanitation and waste processing, health etc. When considering the expenditure side of these sub sectors, 77.68 per cent of expenditure was incurred in housing and house electrification sector. The mandatory allocation towards housing by all Local Governments explains the high expenditure in housing. Local Governments

have to mandatorily earmark 20 per cent of the sum total of funds under Normal share of general sector, SCP, and TSP towards housing as well as expenses of PMAY etc. Expenditure figures show that Local Governments are giving utmost importance to providing housing and house electrification. As much as 77.14 per cent was spent for education and 75.03 per cent for social welfare and social security and 62.96 per cent for drinking water and 48.04 per cent for sanitation. Details are given in **Appendix 12.1.11 and Figure 12.1.9**.

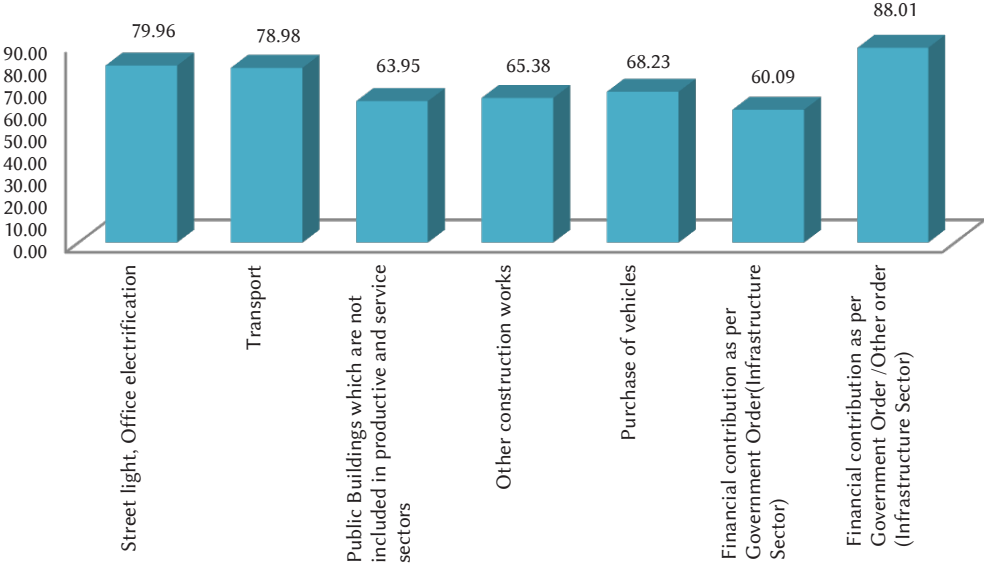
Infrastructure

There are 7 sub sectors under infrastructure sector including transport, public buildings, street lights etc. In 2020-21, out of the total expenditure under infrastructure sector, a major portion (78.98 per cent) has been utilised for transport sub-sector comprising roads and bridges. Sub sector-wise expenditure details under infrastructure sector in 2020-21 are given in **Figure 12.1.10 and Appendix 12.1.12**.

Performance under Special Sector Plans

The Women Component Plan (WCP) and Plans

Figure 12.1.10 Sub sector-wise expenditure in infrastructure sector in 2020-21



Source: Information Kerala Mission, 2021

Table 12.1.17 Expenditure for Special Sector Plan 2020-21 - in per cent

Sl No	Special Sectors	% share of expenditure in sum total of Normal share of General sector fund, SCP and TSP
1	Women Component Plan	7.82
2	Special Plan for children	3.83
3	Special Plan for the aged	2.88
4	Special Plan for the differently abled	1.48
5	Palliative care projects	1.24
6	Special Plan for the Transgender	0.009

Source: Information Kerala Mission, 2021

for other groups such as aged, children, differently abled, palliative care and transgender by the Local Governments are the noteworthy features of Kerala's decentralised planning. The Local Governments have to mandatorily earmark 10 per cent of the sum total of Normal share of General sector funds, SCP and TSP towards Women Component Plan (WCP) and 5 per cent for children, persons with disabilities and transgender and another 5 per cent for the development of aged and palliative care projects. The expenditure on WCP in 2020-21 as per cent to total expenditure (incurred under the categories of Normal share of General sector funds, SCP and TSP together) is 7.82 per cent. In the case of special programme for children and persons with disabilities, the expenditure was 3.83 per cent and 1.48 per cent respectively and a total of aged was 2.88 per cent and for palliative care it was 1.24 per cent. The expenditure of Local Governments under these special sectors is not according to the required-level implying that more attention is required in initiating such projects. The details of expenditure for special sector Plans in 2020-21 are given in **Table 12.1.17**. To sum up, Local Governments have become important and strong institutions of governance in the State. Decentralised Planning, which is now into its 25th year, has helped in making development an inclusive and participatory process. The experiences of the last 25 years are also a lesson to be learnt in terms of achievements, gaps, and the corrective measures required to strengthen the process. Kerala, far ahead of other States in the participatory planning process, aims to further deepen, strengthen and expand it so as to ensure development to all sections of the society.

REVIEW OF CENTRAL AND STATE PROGRAMMES IMPLEMENTED BY LOCAL GOVERNMENTS

Kerala is getting increasingly urbanised posing new challenges to the State Government in terms of meeting the diverse needs of the urban population. This involves designing programmes to provide basic facilities to improve citizen services and standard of living of the urban poor. The State implements Centrally Sponsored Schemes (CSS) and supplements them with funds from own programmes for critical infrastructural development. The initiatives of the State for establishing urban amenities, creating rural connectivity, establishing sanitation and waste management infrastructure, constructing houses in rural and urban areas and generating employment and livelihood options are detailed in the following sections.

I. Infrastructure Development

Kerala's decentralised planning has made it unique among Indian States with excellent level of social and service infrastructure, comparable with that of many advanced countries. Housing and other basic amenities like drinking water, sanitation and drainage are the core indicators of quality of life and decent standard of living.

i. Housing

Housing is one of the most important priority of the Government of Kerala and massive efforts have been initiated to provide housing to the houseless community. Efforts have been taken to integrate with Government of India programmes on housing.

Pradhan Mantri Awaas Yojana (PMAY) is the housing scheme of the GoI with the participation of State Governments for rural and urban areas, namely PMAY-Gramin and PMAY – Urban. PMAY-G aims at providing pucca houses with basic amenities to all houseless households living in kutcha and dilapidated houses in rural area by 2022. PMAY-G beneficiary is entitled with wages for 90 days unskilled work performed for house construction from MGNREGS and for the construction of toilets, an amount of ₹12,000 is provided from Swachh Bharat Mission (Gramin).

Though, PMAY-G had targeted to construct 32,559 new houses in 2016-17 and 9,872 new houses in 2017-18, the target was not achieved as the norms of beneficiary selection pursued by GoI could not be complied with because of different conditions that prevailed in the state. In 2019-20 and 2020-21, target was not given by GoI, and houses constructed for the corresponding financial years is against the target for 2016-17 and 2017-18 (i.e. 42,431). In 2019-20 construction of 1,364 houses were completed. In 2020-21, 711 houses were completed out of which 217 were for SC beneficiaries and 49 were for ST beneficiaries. The financial and physical progress of PMAY-G in 2020-21 and 2021-22 (up to September 30, 2021) are given in **Appendix 12.1.13 and 12.1.14** respectively.

GoI had relied on Socio Economic and Caste Census (SECC) 2011 data for beneficiary selection. Identification and selection of the beneficiaries is done through Grama Sabha based on the housing deficiency and other social deprivation parameters. Each beneficiary will be facilitated to avail loan from financial institutions up to an amount of ₹70,000. All payments are made through Direct Benefit Transfer (DBT) to beneficiary's Bank/Post office accounts registered in Awaas Soft MIS.

Pradhan Mantri Awaas Yojana (Urban) - LIFE (PMAY(Urban)-LIFE) aims to address the housing requirement of urban poor including slum dwellers with the mandate of providing 'Housing for All' by 2022. The approved total project cost for PMAY (Urban) -LIFE, as on September 30, 2021 is ₹3,938.65 crore, where the central and state shares released are ₹941.87 crore and ₹402.56 crore respectively.

Under the major component viz; Beneficiary Led Construction (New), 577 Detailed Project Reports (DPRs) of 93 urban local governments and 34 Grama Panchayaths under the purview of Greater Cochin Development Authority (GCDA), Goshree Islands Development Authority (GIDA) and Thiruvananthapuram Development Authority (TRIDA) for the construction of 1,11,835 dwelling units were approved by the MoHUA, GoI. Moreover, 11 DPRs for the construction of housing complexes with the support of LIFE Mission consisting of 970 units at a total project cost of ₹113.69 crore were also approved by the MoHUA, GoI under 'Affordable Housing in Partnership' component. Based on these DPRs, construction of 87,001 houses have been started and 59,839 houses have been completed up to September 30, 2021. Credit Linked Subsidy (CLS) component aims to expand the institutional credit flow to the housing needs of urban poor. Under CLS, interest subvention is provided for eligible urban poor for acquisition or construction of house. Out of the 25,832 identified beneficiaries under CLS, subsidy was released to 23,104 beneficiaries. Under PMAY- Urban, funds will be released by Central Government in three installments (40 per cent, 40 per cent, 20 per cent). The financial progress of PMAY(Urban)-LIFE upto September 30, 2021 are given in **Appendix 12.1.15** and urban local government-wise progress of Beneficiary- Led Construction component and Affordable Housing component of PMAY(Urban)-LIFE upto September 30, 2021 are given in **Appendix 12.1.16 and Appendix 12.1.17** respectively.

Apart from providing habitable houses, support is also provided to beneficiaries through convergence with programmes such as National Urban Livelihood Mission and PM Ujwal Yojana. Convergence with National Urban Livelihood Mission envisages enhancement of the quality of life of urban homeless through skill upgradation and setting up of self-employment ventures. As part of this programme, 750 members of PMAY (U)-LIFE beneficiary families were given orientation and 240 were given placement under the Employment Skill Training and Placement (EST&P) component of NULM. Under the self-employment component of NULM, 60 beneficiary family members have started new enterprises. Under

PM Ujjwala Yojana, free gas connection was given to 215 beneficiaries of PMAY (U) -LIFE scheme across the State. Through convergence with Ayyankali Urban Employment Guarantee Scheme (AUEGS) of the State Government, 90 person days were provided to PMAY(U) -LIFE beneficiaries.

PMAY, being a centrally sponsored scheme, the unit assistance for house construction from Government of India for rural and urban areas is ₹72,000 and ₹1.5 lakh respectively. The State Government realised that this subnominal assistance would not be sufficient to give momentum to housing scheme in the State. It was in this backdrop, the state government adopted a comprehensive approach to address the housing issues and initiated the LIFE (Livelihood, Inclusion and Financial Empowerment) Mission as a flagship programme to provide houses for the homeless people in the State. The assistance under LIFE Mission for houseless having land is ₹6 lakh for ST beneficiaries in remote ST hamlets and ₹4 lakh for all other beneficiaries. The details are discussed in Chapter 11.5 of this Review.

ii. Sanitation and Waste Management

Lack of access to sanitation facilities is a basic indicator of poverty. Proper sanitation and waste management facilities are pre requisites for accomplishing better living standard of the people. As waste management is a very serious issue, Government of Kerala has been keen in addressing this issue through various interventions. Suchitwa Mission is the nodal agency for evolving implementation strategy and providing technical support to the state government and local governments for formulating and implementing solid and liquid waste management policies and projects.

It is estimated that Kerala generates 10,504 tonnes per day (TPD) of solid waste; out of which 3,472 tonnes are generated by Urban Local Governments and 7,032 tonnes by Grama Panchayats. It has been further estimated that 49 per cent of the waste is generated in households, 36 per cent in institutions and 15 per cent in public places. Out of the total waste generated, 77 per cent (6,410 TPD) is biodegradable, 18 per cent is non-biodegradable, and 5 per cent is inert

waste. The 6,410 TPD biodegradable waste and 592 TPD of plastic waste are the major segments of solid waste which need to be handled on a priority basis. In the context of Covid-19, there is also an increasing trend of bio-medical waste and plastic.

Currently, 70 per cent of biodegradable waste is treated at households, institutions and community level. With the currently proposed projects for installation of 14,89,000 household level composting or bio-methanation units, waste treatment capacity will increase to 85 per cent. Non-biodegradable waste is collected from sources and temporarily stored in Material Collection Facility (MCF) centers. The segregated waste is transported to Resource Recovery facilities (RRF) where the materials are shredded or baled. There are 1018 operational MCFs and 177 Resource Recovery Facilities (RRF) across the State. Harithakarmasena operations have been undertaken by 1005 LSGIs. District wise details of Haritha Karma Sena, MCF centers and RRFs are given in **Appendix 12.1.18 and 12.1.19** respectively.

Non-biodegradable waste is collected from the door-steps of 46 lakh sources (35.7 lakh in rural local governments and 10.3 lakh in urban local governments) by Haritha Karma Sena units and other partner collection agencies. This non-biodegradable waste thus collected from households and other sources are temporarily stored in MCFs and Mini MCFs operated across the state. The plastic wastes stored in the MCFs are then sub-segregated and sold to partner companies for recycling or processing (shredded and baled) in RRF. This is sold to Clean Kerala Company to be reused particularly for road-tarring. The Government has also issued an order for mandatory use of shredded plastic for road tarring as part of public works.

In 2019-20 and 2020-21, Clean Kerala Company collected e-wastes of 173 tonnes and 77 tonnes respectively. The e-waste collected are now being transported to recycling plants of other states since Kerala does not have its own e-waste recycling facilities. An e-waste processing plant of five TPD capacity is under construction at Kuttippuram, Malappuram. The Local Governments have also partnered

with the Indian Medical Association Goes Eco-friendly (IMAGE) to handle biomedical waste. Kerala has a common bio-medical waste treatment plant of 55.8 TPD in Palakkad and another two are proposed to be constructed at Brahmapuram and Ambalamugal in Ernakulam. Industries themselves are legally bound to manage hazardous wastes to prevent them from entering the ecosystem. A common hazardous waste disposal facility of 130 TPD capacity is functioning at Ambalamugal, Ernakulam managed by Kerala Enviro Infrastructure Limited.

Suchitwa Keralam (Rural and Urban)

The State Government gives utmost priority to source level treatment of waste in the management of solid waste. Unit cost of operation and equipment has been determined by identifying suitable technologies for bio-waste treatment. The Government provides partial funding for projects undertaken by grama panchayats and urban local governments in the area. Pre-monsoon cleaning activities are spearheaded by the Local Governments to control the spread of infectious diseases in the state. This campaign is implemented in collaboration with the Directorate of Health Services, National Health Mission and Haritha Keralam Mission. During this reporting period, ten urban local governments has implemented solid waste management projects under Suchitwa Keralam Urban Scheme at a total outlay of ₹5.61 crores and 25 GPs under Suchitwa Keralam Rural Scheme at an outlay of ₹4.13 crores. Awareness campaigns are conducted with the aid of audio-visual and print media to promote habits towards for scientific waste management by the people.

About 70 per cent to 80 per cent of the total waste generated is bio-waste and is wet. During 2021-22, the slogan “My waste is my responsibility” was propagated massively and statewide arrangements were made to treat it at source. Bio-waste is treated in about 60 per cent of households using waste treatment systems. Waste management at the institutional and community level is also done at source. Considering the scalability and ease of operation and maintenance, bio-stream technologies such as composting and bio-methanation using different modes of techniques are used to handle bio-waste

at the source itself. There are mini, medium and major bio-waste treatment systems at the household, institutional and community levels and it serves the waste management needs of 1,99,806 households and institutions in the state.

Swachh Bharat Mission (Grameen)

The Mission aims to ensure that all rural families have access to safe toilets. The State was declared Open Defecation Free (ODF) from November 1, 2016 onwards in rural areas and is now focusing on ODF sustainability and ‘ODF Plus’ activities. The State became Open Defecation Free (ODF) by constructing 1,74,720 Individual Household Latrines (IHHL) at villages. The incentive amount provided under Swachh Bharat Mission (Gramin) SBM (G) to Below Poverty Line (BPL) /identified APL households is up to ₹12,000 for construction of one unit of IHHL and to provide for water availability including storage for hand-washing and cleaning of the toilet. Central share of this incentive for IHHLs from SBM (G) is ₹7,200 (60 per cent) and the State share is ₹4,800 (40 per cent).

ODF Plus

Sanitation in villages will not be complete unless open defecation is fully avoided. Therefore, the Government is taking initiatives to build toilets and public toilets in every household and community in villages. The Grama panchayats are now endeavouring to achieve ODF Plus status by meeting all the criteria set by Department of Drinking Water and Sanitation, GoI. The conditions for ODF Plus include the following - all the residents should have access to toilets, proper usage of toilets, scientific management of solid and liquid waste and public sanitation facilities etc. The Grama Panchayats will be able to achieve ODF Plus status only if they are able to make necessary arrangements for liquid waste management facilities effectively. Blackwater discharge from constructed toilets are not be allowed to enter open spaces, water sources or other water bodies or to contaminate surface water. Septic-tanks and twin-pits are the suggested solution for managing blackwater. Grey-water should be treated through sock-pits/leach-pits. Now 381 villages are declared as ODF Plus. It is targeted to achieve ODF Plus status for all Grama Panchayaths in a phased manner.

So far, a total sum of ₹28.33 crore has been spent on 8,165 solid and liquid waste management projects across the State. Altogether, 46 sanitary complexes / public toilets have been constructed for which ₹91.17 lakh have been spent till date as part of community sanitary complexes/public toilet components. Various IEC / capacity building activities for ODF Sustainability have also been undertaken in 2020-21. As part of IEC/ capacity building activities under SBM (G) ₹2.88 crore has been spent.

In the first phase of SBM (G) the total assistance under for SLWM projects was worked out on the basis of total number of households in each GP, subject to a maximum of ₹20 lakh for GPs having more than 500 households. Funding for SLWM project under SBM (G) is provided by the Central and State Government in the ratio 60:40. The first phase of SBM (G) came to an end and the projects are nearing completion. Now GPs have started projects under the second phase.

Under Swachh Bharat Mission (Grameen) Phase-II, solid and liquid waste treatment is a major component. This must lead to the setting up of systems for scientific disposal of waste. The Community /Grama Panchayat has to be motivated to come forward, demand such a system, and subsequently operate and maintain it. States have to decide the technologies suitable to their areas. Collection, segregation and safe disposal of household garbage, decentralized systems like household composting and biogas plants shall be permitted. Activities related to maximum reuse of organic solid waste as manure should also be adopted.

Details of Community Sanitary Complexes (CSC) projects taken up by LSGIs in each Districts under SBM (G)

It is made mandatory by Swachh Bharat Mission (G) that ODF + villages with more than 100 households must have at least one CSC which may cater to the sanitation needs of floating/migrant population. While identifying the locations, priority should be given to the locations with predominant SC/ST habitations, poorest of poor in the village and/or those visited by migrant labourers, floating population.

Community sanitary complexes comprising of an appropriate number of toilet seats, bathing cubicles, washing platforms, wash basins, etc. can be set up in the village at a location acceptable and accessible to all. Such complexes can be developed at public places, markets, bus stands; where large scale congregation of people takes place. The maximum support per unit prescribed for a Community Sanitary Complex is ₹2.00 lakh. Sharing pattern amongst Central Government, State Government and the community shall be in the ratio 60:30:10. The community contribution, however, can be made by the Panchayat out of its own resources.

Swachh Bharat Mission (Urban)

Swachh Bharat Mission (Urban) intends to ensure hygiene, waste management and sanitation across the nation. Its objectives are elimination of open defecation, eradication of manual scavenging, scientific solid waste management, and bring in behavioural change regarding healthy sanitation practices. The project has 5 components namely individual household latrines, public toilets, solid waste management, office expenses and capacity building, information education and communication activities.

In urban areas, 29,578 IHHLs were constructed and 92 ULBs could get ODF certificates from Quality Council of India. Central Government incentive for the construction of individual household toilets is ₹4,000 and States will contribute a minimum of ₹2,667. In 2020-21, 1064 new beneficiaries are identified for IHHL. Projects worth ₹70.93 lakh have been formulated and more than 97 percent of the target was achieved during the period. A total of 30 ULBs including Kochi, Kollam, Kozhikode and Thiruvananthapuram Corporation got ODF+ Certification.

In the case of public toilets, the revised target set for the construction of public toilet seats in the State is 1,294. Of this, construction of 587 toilet-seats has been completed and the remaining are progressing. Central government incentive for the construction of public toilets and urinals will be in the form of 40 per cent grant/VGF, for each toilet block constructed. The base unit cost of public toilet is calculated at ₹98,000 per seat,

wherein the VGF/grant will be ₹39,200 per seat. States will contribute a minimum of ₹26,134 per seat towards public toilet projects to match central share of ₹39,200 per seat. For urinals, base unit cost is calculated at ₹32,000 per seat, wherein the VGF/ Grant will be ₹12,800 per seat.

Solid Waste Management (SWM) under SBM (U)

Central Government incentive for the SWM projects are in the form of a maximum of 35 per cent grant. In 2021-22, 82 ULBs in the State had prepared the DPR and have placed before the State Level Empowered Committee (SLEC) for Sanitation. The Committee has approved the proposals for a total project cost of ₹295.09 crore (central share: ₹103.28 crore; state share: ₹68.75 crore ULB share ₹123.05 crore). The Ministry of Housing and Urban Affairs (MoHUA), Government of India has approved all the 82 DPRs. A total of ₹78.53 crore has been released to 82 ULBs as first installment. 82 ULBs have taken up 633 projects with a total outlay of ₹295.09 crore, the progress of which is being monitored on a monthly basis.

Projects for the supply of more than four lakh source level waste management devices have been formulated by the ULBs in the State as per approved DPRs under Swachh Bharat Mission-Urban. Out of this, 1,38,983 units have been supplied/ installed which forms 33 per cent of the envisaged target and the rest is targeted to be achieved by March 2022. When the envisaged target is achieved, more than 10 per cent of urban households will have own waste management devices through SBM urban project.

New Initiatives

GOBAR DHAN (Galvanizing Organic Bio-Agro Resources DHAN) Scheme

Gobardhan, an integral component of SBM (G) launched on April 2018 is intended to manage bio-waste including animal waste, kitchen left overs, crop residue and market waste into biogas. In 2020-21, 21 projects of Gobardhan-biogas plants were initiated in the State out of which 12 have been completed. In addition to this, another 40 projects were envisaged in 2021-22 and

project formulation for these projects has been initiated. The estimated cost of these 40 projects under the scheme is ₹446.00 lakh and this would help the processing of almost 12 tonnes of biodegradable waste.

Take a Break (TAB)

'Take a Break' was an innovative programme envisioned by the State Government to establish refreshment facilities and toilet complexes to address the issue of shortage of quality public toilets in the State. The facility would be set up alongside the National and State highways, transport stations, shopping complexes etc. Safety, quality upkeep and cleanliness standards would be of high priority in TABs. Napkin vending-machines, napkin-destroyers, waste-bins, cleaning agents and utensils, coffee shops and rest area are also part of some of the TABs. It is planned to have 2,365 TABs across the State in a phased manner by way of constructing minimum two high quality toilets in each Grama Panchayats, five in Municipalities and eight in Municipal Corporations. So far, Local Governments in the State have taken up 1,213 TAB projects and tendering procedures of 1,063 are completed. Construction of 524 TABs have already been initiated. As part of the Chief-Minister's 100 days programme, 100 TABs have been completed. Through the project, the State is also expecting to solve the long pending demand for public sanitation facilities by tourists. This would greatly contribute to the development of tourism industry in the State.

Declaration of Suchitwa Padavi

Suchitwa Padavi is given to the Local Governments which provide basic facilities for bio and non-bio waste treatment, effectively implement door-to-door waste collection activities, carry out the activities of the Harithakarma Sena and install public toilets and latrines in all households. The Local Governments which were given this status were able to implement Green Protocol, control the consumption of disposable plastics, and were successful in spreading public awareness on waste management. As a result of the co-ordinated efforts of the Local Government Institutions in collaboration with Haritha Kerala Mission, Sanitation Mission, Mahatma

Table 12.1.18 Details of LGs that have attained Suchitwa Padavi Status

Name of the Districts	Grama Panchayats	Municipalities	Corporations	Total
Thiruvananthapuram	67	4	1	72
Kollam	68	4	1	73
Pathanamthitta	42	2	0	44
Alapuzha	57	6	0	63
Kottayam	70	6	0	76
Idukki	39	2	0	41
Ernakulam	44	9	0	53
Thrissur	46	7	0	53
Palakkad	64	5	0	69
Malapuram	56	10	0	66
Kozhikode	46	5	1	52
Wayanad	22	2	0	24
Kannur	66	7	0	73
Kasargod	30	2	0	32
Total	717	71	3	791

Source: Suchitwa Mission, GoK

Box 12.1.1 Smart Garbage Management

Smart Garbage Management is an IT enabled waste management monitoring system that create complete database of origin of waste generation and provides solution to reduce the waste and segregate for proper processing. It would act as an online platform for citizens to participate and promote cleanliness standard of the State. This would be a centralized online aggregation platform with a centralized control room for the State and call-centre facility at each LGI level.

Highlights of the App

- Stakeholders can avail continued and comprehensive monitoring facility on fingertip
- Decentralised community level organic waste composting can be achieved
- Ensures citizen participation in solid waste management
- Citizen will get an idea of available waste management facilities
- Can ensure that littering never happens in public places
- Business tie-ups and linkage can be achieved through the system
- Improved waste management governance will be achieved
- Facilitate total sanitation coverage through local self-governing bodies
- Facilitate the coordination among various departments

Gandhi Employment Guarantee Scheme, Ayyankali Urban Employment Guarantee Scheme, Kudumbasree Mission and Clean Kerala Company, 791 LGIs could attain sanitation status by November 2021. Details of Local Governments that have attained Suchitwa Padavi Status is given in the **Table 12.1.18**.

The next step is to install waste treatment facilities in all the LSGIs to provide complete sanitation facilities to treat other wastes such as liquid waste, toilet waste, building waste, meat and hair waste. Local Governments have been able to strengthen waste and bio-waste collection, implement Green Protocol, control the consumption of single-use plastics

and raise public awareness, enable recyclability and utilize them for road tarring. In addition, steps have been taken to treat bio-waste at source. It is estimated that 12,684 tonnes of organic manure are produced annually by the local bodies. Atigreen, Jaivasree, Enviro Green, Krishimithram, Samatha Green, Karshakamritham, Haritam, Nattupachcha, Amritakam, Samridhi, Vermi compost, Compost, Jivo, and Nirmal compost are the brands produced by Local Governments. Thus, substantial efforts are on to bring all the local bodies in the State to the level of complete hygiene.

Green Office Campaign

As part of compliance with the Green Protocol in the State, steps have been taken to convert 10,000 government offices in the State into green offices. The campaign lasted for about a month as part of the green office campaign. District level teams conducted inspections and selected the green offices on the basis of their report. On January 26, 2021, the Hon'ble Chief Minister announced the Green Office status for 11,510 offices across the State.

iii. Urban Infrastructure

Economic development of the State, inter alia depends on its capacity to develop better infrastructure for sustained urban growth as well. For improved service delivery, urban local governments need to function as facilitators and development project needs to emphasise options of public-private-social/community-partnership modes.

Urban infrastructure development covers schemes such as water supply, waste management system, city sanitation plans, establishment and enhancement of public comfort facilities, implementation and improvement of sewerage schemes, storm water drainage schemes, effective parking policy and modern mechanised parking system, beautification of cities and creation of green cities and non-motorised urban conveyance. The State has initiated and implemented various programmes for developing urban infrastructure. They have been planned to complement already existing programmes in the sector. Major infrastructure development

programmes being implemented in the State are discussed as follows.

Atal Mission for Rejuvenation and Urban Transformation (AMRUT)

AMRUT aims to address the basic challenges of urban physical and institutional infrastructure development covering the components of water supply and sewerage, septage, storm water drainage, urban transport, green spaces and parks and capacity building. Six Municipal corporations and three Municipalities (Alappuzha, Palakkad and Guruvayoor) in the State have been selected under AMRUT. The duration of the mission was five years (2015-2020), but now the period is extended up to March 2022. The projects were approved in three State Annual Action Plans (SAAPs) (2015-16, 2016-17, 2017-19) covering 1,000 projects costing ₹2,357.69 crore. The fund sharing pattern between Centre, State and ULB is in the ratio of 50:30:20. Out of 1,000 projects, 996 projects have been tendered, 983 projects have got work awarded and 738 projects have been completed as on September 30, 2021.

The priority sectors are water supply, septage and sewerage. Water supply projects aim to ensure that every household has access to a tap with assured supply of water. The project comprises of works such as rejuvenation of water sources, construction of water treatment plants, water tanks, laying new pipe lines and replacing old pipes. Administrative sanction was accorded for 173 projects costing ₹1,124.97 crore under this sector. Kerala Water Authority is implementing 165 projects and the remaining is implemented by the ULB. So far, 115 projects have been completed.

Septage and sewerage management aims to manage liquid waste in AMRUT cities scientifically and to ensure that every household has access to a sewerage connection. Administrative sanction worth ₹560.11 crore have been accorded for 137 projects under septage and sewerage. Kerala Water Authority is implementing 114 projects and the remaining are being implemented by the ULB. The project includes 9 septage plants and 18 sewerage plants, of this, 84 projects have been completed.

Storm water drainage sector aims to eliminate flooding in cities by the construction and improvement of drains and storm water drains. It comprises of 496 projects costing ₹365.21 crore, out of which, 427 projects have been completed.

Urban transport sector aims to facilitate non-motorised transport in cities. It includes construction of skywalk, footpaths/walkways, sidewalks, foot over-bridges and multi-level parking. There are 122 projects costing ₹204.96 crore, of which, 71 projects have been completed.

Under green space and parks sector, there are projects for development of green spaces and parks with special provision for child-friendly components. There are 72 projects costing ₹46.40 crore. Of this, 41 projects have been completed. The financial progress of AMRUT project up to September 30, 2021 is given in **Appendix 12.1.20**. The progress of AMRUT project in nine cities is shown in **Appendix 12.1.21** and sector-wise progress is shown in **Appendix 12.1.22**.

Incentive for reforms is one of the important purposes of the Mission in order to improve governance through a set of reforms. During the Mission period, 11 reforms would be implemented. Ten per cent of the annual budget allocation shall be kept apart and given to the States/Union Territories (UTs) every year as incentive for achievement of reforms. The Mission will give incentives for the previous year at the start of the succeeding financial year. The National Mission Directorate, on receipt of the self-assessment, will announce the award of incentive to the States. Kerala has received reforms incentives continuously for the last four years and bagged 7th rank at the national level. So far, the State has received an amount of ₹59.52 crore as par of reform incentives.

Smart Cities Mission

Smart Cities Mission is a major infrastructure development programme launched by the MoHUA in 2015 to promote cities to provide core infrastructure and give a decent quality of life to its citizens, provide a clean and sustainable environment and encourage application of smart solutions. Kochi city was selected under

the Mission in the first phase and subsequently Thiruvananthapuram in the third phase.

The total estimated project cost of the Smart City Kochi is ₹2076.00 crores. Of this, central share is ₹500.00 crore and State share is ₹500.00 crore, Kochi corporation would provide ₹70.00 crore and ₹1006.00 crore would be realized by converging other projects.

The Smart City project of Kochi aims at planned and integrated development of Fort Kochi-Mattancherry area by improving the civic infrastructure. Smart City Kochi envisages 42 projects, of which, 12 projects have been completed, 22 projects are under implementation, two projects are in tendering stage and two projects to be tendered and four projects are to be converged with other programmes. The completed projects include construction of modern grade walkways in hospital road, grid connected solar roof top system in government building, integrated command control and communication centre, Integrated Traffic Management System, e-health solution at General Hospital, household bins and street bins, upgradation of Dutch Palace entry area, open air theatre, Fort Kochi, beach front upgradation at Vasco square, Health ATM, police kiosks and open space corridor linking from DH ground to Mangalavanam.

The total estimated project cost of the Smart City Thiruvananthapuram is ₹1,538.20 crores. The project has a Central share of ₹500.00 crore and State share of ₹500.00 crore, Thiruvananthapuram corporation would provide ₹135.7 crore. An amount of ₹260.10 crore would be realised from convergence of other projects and ₹142.40 crore would be drawn from public private participation.

Smart City Thiruvananthapuram Limited (SCTL) envisages 44 projects, out of which 13 projects have been completed, 26 projects are progressing, four projects are yet to be tendered and one project is in DPR preparation stage. Major project components include construction of multi-level car parking at Palayam and Thampanoor, rain water harvesting, development of integrated command and control centre,

integrated social housing complex project at Rajaji Nagar, upgradation of public health centre at Rajaji Nagar, rehabilitation block for TRIDA, construction of open air theatre and park at Putharikandam, solar rooftop at five locations, construction of children's park at Kerala Water Authority, upgradation of anganawadis, construction of interactive information kiosks and installation of drinking water kiosks. Thirteen projects have been completed including procurement of 15 electric autos and 15 electric rickshaws and smart EV Charger, upgradation of Anganwadi at three locations, open gym and child play equipment, smart bus shelter, interactive information kiosks and display boards, renovation and redevelopment of public toilets, implementation of solar PV power plant by ANERT, redevelopment and landscaping of Ponnara Sreedhar park, smart mosquito density system at 12 locations and biomining of waste at Palayam.

iv. Rural Connectivity

Rural road connectivity is a key component of rural development which intends to promote access to economic and social services and thereby generate increased agricultural incomes and productive employment opportunities. Rural roads facilitate better goods distribution, promote the development of market centres and provide incentives to farmers to generate more marketable surplus. Integrated road network also facilitates farm mechanization, better mobilization of man power, effective utilization of resources and increase in use of rural infrastructure facilities.

In Kerala, Pradhan Mantri Gram Sadak Yojana (PMGSY) has been a key programme to provide rural connectivity. The primary objective of the PMGSY is to provide connectivity, by way of an all-weather road (with necessary culverts and cross-drainage structures, which is operable throughout the year), to the eligible unconnected habitations in rural areas with a population of 500 persons and above in plain areas. With respect to the hill and the desert and the tribal areas, the objective would be to connect eligible unconnected habitations with a population of 250 persons and above. Roads constructed under PMGSY are long lasting roads with high quality and durability as there exists a three-tier quality management system at the district level, state

level and national level. In Kerala, the Local Self Government (Rural) Department is the nodal department and Kerala State Rural Roads Development Agency (KSRRDA) is the State nodal agency for implementation of the scheme. The funds provided by GoI under PMGSY have to be used only for meeting the actual estimate cost of the works. However there is no provision for utilising the fund for tender excess, shifting of utilities and also for maintenance of completed roads. To meet these additional expenses which are necessary pre-requisites for the successful implementation of such projects the State Government sets aside adequate funds over and above the stipulated share of 40 per cent through the 'State support scheme for PMGSY'.

At the national level PMGSY has completed two phases and third phase has been launched with the target allocation of ₹1.25 lakh km all-weather road connectivity. More than 6.44 lakh km road length has been constructed so far under the Scheme. PMGSY-III guidelines envisage consolidation of existing rural road network by upgradation of existing roads that are connected to grameen agricultural markets, higher secondary schools and hospitals. In Kerala, in 2020-21, 104.56km road was sanctioned for a cost of ₹8,285.50 lakh of which 76.78km has been completed. The District-wise details of laying of roads under PMGSY scheme in 2020-21 and 2021-22 (upto September 30, 2021) are given in **Appendix 12.1.23.**

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)- Watershed Development Component (WDC)

The Government of India merged the erstwhile Integrated Watershed Management Programme (IWMP) with the Pradhan Mantri Krishi Sinchai Yojana (PMKSY) in 2015-16 and thereafter IWMP is implemented as the watershed component of the PMKSY. The funding pattern of the scheme between Central and State Governments is in 60:40 ratio. Agriculture Department is the nodal department for the implementation of PMKSY.

Prevention of soil erosion, regeneration of natural vegetation, rain water harvesting, recharging of ground water and reclamation of cultivable wasteland are the outcomes envisaged in the

programme. This enables multi cropping and introduction of diverse agro-based activities, which help to provide sustainable livelihoods to the people residing in the watershed area. The project area is a cluster of 5-10 micro watersheds with area ranging from 4,000 to 6,000ha. This project is implemented in Block Panchayats. The project cost varies from ₹12,000 per ha for plain areas to ₹15,000 per ha for hilly areas.

An amount of ₹2,831.00 lakh and ₹1,546.98 lakh were spent in 2020-21 and 2021-22 (up to September 30, 2021) respectively under PMKSY. Under Batch II, 26 projects at a cost of ₹203.96 crore were completed by March 2018. Under Batch III, 15 projects were completed by September, 2020 respectively.

II. Employment Generation And Livelihood Support

Employment generation is the key intervention to alleviate poverty. Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), the most prestigious Employment Generation Programme of GoI plays a significant role in providing rural employment. It proposes to enhance the livelihood security of the households in rural areas of the country by providing at least 100 days of guaranteed wage employment to the adult members who volunteer to do unskilled manual work of every household in every financial year.

At the national level 311.92 crore person-days were generated in FY 2020-21 (as on 21.01.2021) which is an all-time high. Of the total person-days, person-days for women is 52.69 per cent, SC is 19.9 per cent and ST is 17.8 per cent. Around 61 per cent of total works taken up during FY 2020-21 (as on January 21, 2021) pertain to individual beneficiary schemes and 68.37 per cent of the total expenditure is on agriculture and allied works. MGNREGA assets worth ₹4.24 crore have been geo-tagged and made available in the public domain. As much as 99 per cent of wages were paid electronically into the accounts of the MGNREGA workers in 2020-21 as against 37.17 per cent in 2013-14.

In Kerala, in 2020-21, a total of 10.22 crore person days were generated, of which 18.3 per cent were for Scheduled Castes and 6.53 per

cent were for Scheduled Tribes. In 2021-22, as on September 30, 3.07 crore person days were generated. The financial and physical progress of MGNREGS in 2020-21 and 2021-22 (upto September 30, 2021) are given in **Appendix 12.1.24, 12.1.25, 12.1.26 and 12.1.27** respectively. From 2017-18 onwards, MGNREGS activities in the State is converged with 'Haritha Keralam Mission'. To utilise the full potential of MGNREGS through convergence with other departmental schemes, following major initiatives are taken up in the State in 2019-20 and 2020-21.

With the aim of contributing productive assets to agriculture, irrigation, animal husbandry, fisheries, dairy development and forest, thrust is given to generate individual as well as public assets for maximising production and development in these areas. Construction works to generate public assets such as compound wall and playground for schools and anganwadi construction were taken up. Individual livelihood assets like cattle sheds, goat sheds and poultry sheds were also provided. In 2019, Government of Kerala, issued orders for taking up MGNREGS works in Geographic Information System (GIS) based Integrated Planning at Grama Panchayat level incorporating all permissible works. In this regard, 100 Grama Panchayats were selected for preparation of GIS based integrated Plans under MGNREGS on a pilot basis. Special emphasis was given to Subhiksha Keralam to create productive assets for strengthening livelihood resource base of poor.

Special assistance to Scheduled Tribes (State sponsored component) Tribal plus scheme-This Scheme aims to provide additional 100 days of job to Scheduled Tribe households using special financial assistance from the State Government. In order to motivate the participation of ST workers under the scheme, State Government has initiated a system to give advance payment as wages to ST workers from State Plan fund of Scheduled Tribes Development Department through Kudumbashree. The State Government has devised a system to pay the unskilled wages every week, to the beneficiaries using a corpus fund set apart by the Scheduled Tribes Development Department and to recoup the already paid advance amount from the

beneficiaries' bank accounts, with their consent, as soon as the wages under MGNREGS is credited to the respective bank accounts. As a result of these innovative programmes, there was substantial improvement in the participation of ST families under MGNREGS. The number of person days of employment for Scheduled Tribes increased from 55.27 lakh in 2019-20 to 66.90 lakh in 2020-21. The number of families who completed 100 days of employment also increased from 21,726 in 2019-20 to 31,870 in 2020-21.

However, the implementation of MGNREGS in Kerala faces a few functional constraints which have to be addressed by GoI. The delay in transferring wage payments to the beneficiary accounts an important issue. Undue delays in releasing wage payments has resulted in forced labour with no returns. Kerala was also excluded from the list of States that were given a wage hike while wage rates in Tamil Nadu and Puducherry have been increased by ₹17, in Assam by ₹11 and in West Bengal ₹9. Kerala, still continues to have ₹291 as the unskilled wage rate. It is to be noted that the minimum wage rate in Kerala in the agriculture sector is ₹490 signaling at the stark differences in cost of living in the State and the rest of the country.

MGNREGS is applicable only in rural areas. Drawing lessons from the impact of the scheme on rural poverty alleviation, GoK started Ayyankali Urban Employment Guarantee Scheme (AUEGS), a State funded programme, intended to enhance livelihood security in urban areas by providing at least 100 days of guaranteed wage employment to every household whose adult members are willing to do unskilled manual labour. The State Government has launched the Ayyankali Urban Employment Guarantee Scheme in the pattern of MGNREGS in 2009-10. The fund has to be utilised for creating durable assets in urban local governments.

In 2020-21, an amount of ₹75.00 crore has been earmarked for Ayyankali Urban Employment Guarantee Scheme. The expenditure incurred was ₹90.47 crore (including additional authorization) and the programme created 32,53,802 person days in various Municipalities and Corporations. In 2020-21, job card was issued to

1,91,722 persons in general category, 44,497 in Scheduled Castes and 4,357 in Scheduled Tribes. The beneficiaries included 27,247 males and 2,13,329 females. During this period, 92,663 households and 85,217 women were provided employment and 4,406 families completed 100 days employment.

In 2021-22, the outlay provided was ₹100.00 crores. As on October 31, 2021, ₹54.76 crore was expended and 14,75,740 person days was created. Up to October 31, 2021, 58,500 households and 54,863 women were provided employment and 1,083 families completed 100 days employment. During this period, job cards were issued to 2,13,387 persons in general category; 49,842 in Scheduled Castes and 5,152 persons in Scheduled Tribes. The beneficiaries included 31,470 males and 2,36,911 females. Dairy farming was also introduced under the scheme in 2019-20 and the farmers who have more than two cattle are given employment and wages through the scheme as per norms. Details of the Local Government-wise distribution of funds under AUEGS in 2020-21 and 2021-22 up to October 31, 2021 are given in **Appendix 12.1.28** and district wise details of physical achievements of the scheme are given in **Appendix 12.1.29**.

While MGNREGS and AUEGS guarantee wage employment, due emphasis has also been given on livelihood development. Livelihood activities have direct impact on poverty eradication and employment generation thereby increasing the standard of living of the people. The major initiative of Government of India to provide livelihood options are the Deendayal Antyodaya Yojana–National Rural Livelihood Mission (DAY-NRLM) for rural areas and Deendayal Antyodaya Yojana–National Urban Livelihood Mission (DAY-NULM) for urban areas with a funding pattern of 60:40 between centre and state respectively.

DAY-NRLM is a demand driven programme for encouraging self-employment among rural poor. Deen Dayal Upadhyaya Grameen Kausalya Yojana (DDU GKY), Start-up Village Entrepreneurship Programme (SVEP) and Mahila Kisan Sashaktikaran Pariyojana (MKSP) are the sub components of DAY-NRLM. DDU GKY is the skill and placement initiative under

DAY-NRLM. As on September 31, 2021, 58,440 persons were given training out of which 46,549 persons got employment. SVEP helps to start and support rural enterprises in order to stimulate economic growth and reduce poverty and unemployment in the villages. The SVEP provides the supported enterprises with business skills, exposure, loans for starting the enterprises and business support during the first critical six months of the enterprises by using the Community Based Organisation (CBO) network. As on August 31, 2021, a total of 18,536 enterprises were formed under SVEP and Community Enterprises Fund (CEF) worth ₹43.82 crore was released to 11,696 enterprises. MKSP focuses on reducing the gender gap in agriculture, by promoting drudgery reduction systems and sustainable agricultural practices to be followed by women farmers. In Kerala, MKSP project is implemented through the network of Kudumbashree Joint Liability Groups (JLGs).

DAY-NULM aims to reduce the poverty and vulnerability of the urban poor. The scheme is being implemented in all the Urban Local Governments in the State. DAY-NULM has identified 3,195 homeless persons in the “shelter to the urban homeless” component of the programme. Upto September 30, 2021, 24,643 street vendors have been identified in the ‘support to urban street vendors component’ and identity cards were issued to 13,509 street vendors. Under the component, ‘employment through skill training and placement’, 2654 candidates have been enrolled, out of which 1907 candidates were certified and 677 candidates got placement during 2020-21 upto September 30, 2021. Skill training has been imparted to the unemployed urban poor youth in 74 trades across the sectors like cyber security, accounting, health care, automation, plastic technology, electronics, electrical, ayurveda nursing, hospitality, telecom, food processing. Under the self-employment programme of DAY-NULM, 1,048 individual micro-enterprises and 236 group enterprises were established. Under the ‘social mobilisation and institution development’ component of DAY-NULM, opportunities are given to set up neighbour groups. Through this, 2,720 new NHGs were formed, 2557 NHGs and 172 Area Development Societies (ADSs) were supported with revolving fund. Based on this

accomplishment, State has received the national award for the best performing State for three years and received an additional financial assistance of ₹45.94 crore over and above the normal allocation. Financial and physical achievement of DAY-NULM scheme is given in **Appendix 12.1.30 and Appendix 12.1.31** respectively. List of district-wise micro enterprises and details of linkage banking NHGs are given in **Appendix 12.1.32 and Appendix 12.1.33** respectively.

Kudumbashree

Kudumbashree, the State Poverty Eradication Mission, was formed with the objective of poverty eradication through the empowerment of women. It is an innovative, women based, participatory poverty alleviation programme launched by GoK in 1998 with a participation of 45 lakh women. Kudumbashree is also the nodal agency for implementing various Centrally Sponsored Programmes namely, Deendayal Antyodaya Yojana–National Rural Livelihood Mission (DAY-NRLM), Deendayal Antyodaya Yojana–National Urban Livelihood Mission (DAY-NULM) and Pradhan Mantri Awas Yojana (Urban). In addition to this, Kudumbashree Mission enters into various activities in the State. The following are the major achievements of Kudumbashree in 2019-20 and 2020-21 (upto September 30, 2021).

For the rehabilitation of the poorest of the poor, ‘Asraya’ was scaled up and renamed as ‘Agathirahitha Keralam’ Destitute Free Kerala (DFK). The needs of destitute are assessed in a convergent mode at local bodies and based on it detailed project reports were prepared. Forty per cent of the total project cost limiting to ₹40 lakh in case of general DFK projects and ₹50 lakh in case of ST projects are met through Kudumbashree known as the Challenge Fund. Through this project, ₹1.56 lakh beneficiary families are supported. A total of 1,034 Local Governments have started implementing DFK, covering 1,57,381 beneficiary families. So far, Kudumbashree released Challenge Fund to all the approved projects to meet basic care services of beneficiaries like food, medicine and education.

BUDS institutions for children with disabilities functioning under LGs are monitored through

Kudumbashree machinery. In 2018-19, Kudumbashree allocated ₹12.5 lakh to 200 LGs to start new BUDS institutions. Till September 2021, 342 BUDS institutions had been started. In 2020-21, online class for BUDS children and online therapy programme for the parents and BUDS children had started with the support of Composite Regional Centre, Kozhikode. Agri-therapy programme named 'Sanjeevani' envisages mental and physical development of the individuals. Through BUDS/BRC, the children were given training on vegetable cultivation. In this project, a minimum of 2 cents of land was used for cultivation by the students. A total of 342 BUDS institutions (177 Buds school for children with disabilities under 18 years of age) and 165 BRC (for intellectually disabled persons above 18 years of age) are functioning under LGs.

Niramaya Health Insurance Scheme was initiated as a huge help for the persons with autism, cerebral palsy, mental retardation and multiple disabilities, under the purview of National Trust Act, 1999. Through this scheme, the beneficiaries can avail an insurance coverage up to ₹1 lakh. In 2020-21, in a span of one month all the children in the BUDS institutions were enrolled for this health insurance scheme.

Balasabha is a platform for children that voices their opinion, ensures their involvement in decision making, nurtures their evolving capacities and reinforces the relevance of children's participation. As of now, there are 28,690 Balasabhas, covering 3,88, 348 children. Pencil Camp, an initiative put forward by Haritha Kerala Mission in connection with the Kudumbashree Balasabha programme aims to propagate healthy lifestyle in children thereby to build a healthy family and society. Pencil Camp programme has completed the training sessions in District, Block, Village Panchayat and City Corporation level.

Over 450 weekly markets/Nattuchanthas have been provided with the infrastructure support and other revolving funds, resulting in sales realisation of ₹14 crore and leading to sales of more than 2,918 tonnes of vegetables, banana and tubers by the JLGs. A total of 5,732 markets have been conducted in 2020-21. As part of Subhiksha Keralam campaign, 4481 new JLGs

were formed and 1,575 inactive JLGs were activated. As much as 2,130.21 Ha of land was made arable and 1,787.49 ha of fallow land were brought under cultivation. With regard to entrepreneurship in the productive sector, 631 micro enterprises and 2,714 units were formed in the area of animal husbandry as part of the campaign.

To scale up and strengthen agricultural activities among the tribal communities, tribal JLGs and tribal Joint Liability Group Evaluation Agent (JEVA) were formed. As part of this 1,057 new tribal JLGs and 34 JEVA have been formed across Kerala which practice traditional agriculture. In order to support these JLGs financially, revolving fund was given to the 188 newly formed JLGs at 15000/JLG.

The scheme 'Prathyasha' mainly aims at the formation of microenterprises among vulnerable women who belong to the category of mothers of intellectually disabled children, person with disabilities, elderly, victims, widows and dependents of severely ill/bed ridden patients. Under this scheme, 520 micro enterprises were formed which benefited total of 668 women entrepreneurs.

Kudumbashree provides training to the members of Haritha Karma Sena in Local Governments for undertaking waste management activities. Through this, 28,000 women were trained and 19,911 Haritha Karma Sena members are working across 917 Local Governments.

One of the major health sector initiatives undertaken by Kudumbashree in 2018-19 was 'Harsham-Elder Care Project'. Developing a pool of trained care givers in health care sector to meet livelihood requirement is the major goal of this programme. In 2019-20, 645 Kudumbashree members were trained to work as care givers.

In order to grab the opportunities in the construction sector, Kudumbashree members who are interested in construction activities are identified, trained and registered in respective Local Governments and are entrusted with construction projects of Local Governments. As of now, 288 women construction groups (257 rural groups and 31 urban groups) with 2,376

members have been formed across the State and given training. These groups have constructed 512 houses under various State government schemes.

'Relationship Kerala' programme was designed for including differently abled persons, transgender and the elderly. Various campaigns, medical camps, meetings and tours were conducted in this regard and in 2019-20, this programme has been able to form 16,195 elderly NHGs (1,78,902 members), 1,847 NHGs of persons with disabilities (PWD) (15,001 members) and 12 Transgender NHGs (140 members) were formed.

For the strengthening of coastal areas through the development of coastal communities 'Theerashree' was initiated by Kudumbashree. Service of 91 Coastal Community Volunteers were drawn on for this and in 2019-20, 707 new NHGs (8,730 members) were formed and 179 defunct coastal NHGs were revived. As much as, 1,761 coastal NHGs were bank linked and they availed a loan of ₹107.00 crores. Two sub programmes Prathibha theeram and Kaayika theeram were initiated as part of this. Prathibha theeram aims to provide special tuitions and life skill education to the students during evenings. As part of this programme, 62 centres were started and 1,312 children from coastal areas were benefitted. Kaayika theeram aims at creating opportunities for the coastal youth to take part in sports and games activities.

During the pandemic period, 1095 Janakeeya Hotels (Hotel network set by Kudumbashree in convergence with Local Government to provide meals at ₹20) have been started to achieve the Government's mission to make Kerala Hunger Free. On an average these hotels sell 1.65 lakh meals per day.

As part of post flood activity for resurgent Kerala, Kudumbashree has started a skill campaign viz; ARISE. The aim of this programme is to provide skill training to 50,000 candidates in 10 selected areas. The ten areas of training are housekeeping, house maid, plumbing, electronic repair, electrical work, day care, agriculture labour, sales, data entry and laundry and ironing. As on

September 30, 2021, around 14,049 candidates were trained, 219 Multi Task Teams were formed and 4,883 candidates were provided with job through ARISE.

Auxiliary Groups, a new generation system of Kudumbashree is being formed with the aim of creating a new space for the social, cultural, livelihood upliftment of young women. Auxiliary Groups aim at adding more young women to the Kudumbashree fraternity, bring them to the mainstream of the society and to give them awareness on various social, financial, women empowerment related issues. It is envisaged to create an avenue to introduce the activities of various agencies that function for the welfare and development of the youth such as Youth Commission, Youth Welfare Board etc. It also aims at creating awareness about various livelihood projects implemented by Central and State Governments and Cooperative Department, thereby creating opportunities to make sustainable livelihood possible.

Every CDS would form Women Auxiliary Groups at all wards in their limits. Women between 18 and 40 years of age are eligible for membership in the groups. More than one member (between the age of 18 and 40) from a family can take membership. It is planned to form 20,000 groups. The maximum number of members that can be included in a single group is 50. If more than 50 women come forward in a ward, more groups could be formed. The groups could be registered at the District Missions with the recommendation of the respective CDSs.

Kudumbashree 'Kerala Chicken' was initiated to ensure availability of quality broiler chicken meat at reasonable price to consumers throughout Kerala. It is a scheme implemented by Kudumbashree in convergence with the Department of Animal Husbandry as well as KEPSCO. Under this scheme one day old chicks are given to farmers along with feed and medicines and after 40 days they are bought back. As of now there are 248 farms and 84 outlets supplying Kerala Chicken across the State. As part of these, 152 farmers were given training in farm management and contract farming. Across the State, 350 women have found their livelihood

through farming and setting up network of outlets under this project.

Kudumbashree Initiative for Business

Solutions (KIBS)

KIBS is a registered society of Kudumbashree established to provide facility management services like housekeeping, customer service, gardening, canteen and call centre services. Services of KIBS are being availed by Kochi Metro with 631 employees including 10 transgenders. In addition to Kochi Metro, 115 people are extending various services such as housekeeping, parking fee collection, security etc at various institutions such as Vytilla Mobility Hub, NUALS, Kerala University of Health Sciences.

Activities during the Covid-19 Pandemic

In view of the current Covid-19 pandemic, several initiatives have been undertaken under the Mission to trim down the infection rate. Efforts have been undertaken to identify new opportunities for enabling the society earn a sustainable livelihood.

- Programmes to create awareness through social media, care for the elderly and destitute, special attention to migrants and support to street vendors were organized.
- ME units that were engaged in production of soaps and detergents and cloth bag units were converted into enterprises to produce masks, sanitisers, hand wash, surgical gowns and PPE kits.
- The Asraya families / destitute were supported by distributing food kits and required medicines at their door steps.
- Temporary shelters were allowed for migrant labourers where food was provided along with health check-ups.

GLOSSARY

Basic Price

Basic price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any tax payable, and plus any subsidy receivable, by the producer as a consequence of its production or sale. It excludes any transport charges invoiced separately by the producer.

Casual Labour

A person who casually engages in others farm or non-farm enterprises (both household and non-household) and, in return, receives wages according to the terms of the daily or periodic work contract, is considered as a casual labour.

CDS

The current daily activity status for a person is determined on the basis of his/ her activity status on each day of the reference week using a priority-cum-major time criterion.

Consumer Price Index (CPI)

CPI is designed to measure the changes overtime in the level of retail prices of a fixed set of goods and services (consumption basket) consumed by an average family of a defined population group at a particular place.

CWS

The current weekly activity status of a person is the activity status obtained for a person during a reference period of 7 days preceding the date of survey. It is decided on the basis of a certain priority cum major time criterion. According to the priority criterion, the status of 'working' gets priority over the status of 'not working but seeking or available for work', which in turn gets priority over the status of 'neither working nor available for work'.

Density of Population

Density of population is one of the important indices of population concentrations. It is defined as the number of persons per sq. kilometre. The geographical unit is ward, town, district and state.

Gross National

Income (GNI)

It is GDP less net taxes on production and imports, less compensation of employees less property income payable to the rest of the world plus the corresponding items receivable from the rest of the world (in other words, GDP less primary incomes payable to non-resident units plus primary incomes receivable from non-resident units); an alternative approach to measuring GNI at market prices is as the aggregate value of the balances of gross primary incomes for all sectors; (note that gross national income is identical to gross national product (GNP) as previously used in national accounts generally).

Gross value Added (GVA)

GVA is the measure of the value of goods and services produced in an area, industry or sector of an economy, in economics. In national accounts GVA is output minus inter-mediate consumption; it is a balancing item of the national accounts' production account.

GVA at Basic Prices

Gross value added at basic prices is defined as output valued at basic prices less intermediate consumption valued at purchasers' prices. Here the GVA is known by the price with which the output is

valued. From the point of view of the producer, purchasers' prices for inputs and basic prices for outputs represent the prices actually paid and received. Their use leads to a measure of gross value added that is particularly relevant for the producer

Infant Mortality

The infant mortality rate is an estimate of the number of infant deaths (death before the first birthday of an infant) for every 1,000 live births.

Old age dependency ratio

The number of persons in age group 60 years and more divided by the number of persons in age group 15-59 years.

Parity Index

Parity Index is a relative measure of the gains or loss to farmers as a consequence of the price fluctuations in the economy. The index is a function of cost of farm cultivation, domestic expenditure, and market rate of farm products.

Protection of Children from Sexual Offences Act, 2012

An Act to protect children from offences of sexual assault, sexual harassment and pornography and provide for establishment of Special Courts for trial of such offences and for matters connected therewith or incidental thereto.

Labour force

Persons who were either 'working' (or employed) or 'seeking or available for work' (or unemployed) constituted the labour force.

Labour Force Participation Rate (LFPR)

Labour force participation rate is the ratio between the labour force and the overall size of their cohort (national population of the same age range).

Literary Rate

Literacy rate is defined as the percentage of population aged 6 years and over who can both read and write with understanding a short simple statement on his/her every-day life.

Retail Price

Retail Price of a commodity is defined as the price which the ultimate consumer pays for relatively small transactions of the commodity.

Wholesale Price Index (WPI)

Wholesale Price Index measures the average changes in the prices of commodities for bulk sale at the level of early stage of transaction.

Worker Population Ratio (WPR)

WPR is defined as the percentage of employed persons in the population

ABBREVIATIONS

AAV:	Anthyodaya Anna Yojana	CPS:	Coconut Producer Societies
ADB:	Asian Development Bank	CSO:	Central Statistics Office
AHIDF:	Animal Husbandry Infrastructure Development Fund	CWRDM:	Centre for Water Resources Development and Management
AI:	Artificial Insemination	CZMP:	Coastal Zone Management Plan
AIIB:	Asian Infrastructure Investment Bank	DCS:	Dairy Co-operative Society
AKC:	Agricultural Knowledge Centres	DES:	Directorate of Economics and Statistics
AMUL:	Anand Milk Union Limited	DoECC:	Directorate of Environment and Climate Change
ANERT:	Agency for Non-conventional Energy and Rural Technology	DPL:	Development Policy Loan
ANP:	Annapoorna Scheme	DRFI:	Disaster Risk Financing and Insurance
APCOS:	Anand Pattern Co-operative Societies	EDC:	Eco Development Committees
APEDA:	Agricultural and Processed Food Products Export Development Authority	EEZ:	Exclusive Economic Zone
APL:	Above Poverty Line	EPI:	Environmental Performance Index
ARD:	Authorised Retail Distributors	ePoS:	Electronic Point of Sale
ARMS:	Animal Resource Management System	ERSS:	Emergency Response Support System
ASC:	Agro Service Centres	FAO:	Food and Agriculture Organization
ASCAD:	Assistance to States for Control of Animal Diseases	FCI:	Food Corporation of India
ASEAN:	Association of South East Asian Nations	FDA:	Forest Development Agency
BMC:	Biodiversity Management Committees	FPO	Farmer Producer Organization
BMW:	Biomedical Waste	FTA:	Free Trade Agreement
BOD:	Biochemical Oxygen Demand	GDP:	Gross Domestic Product
BPL:	Below Poverty Line	GIS:	Geographic Information System
CAAQMS:	Continuous Ambient Air Quality Monitoring Stations	GNI:	Gross National Income
CAMPA:	Compensatory Afforestation Fund Management and Planning Authority	GSDP:	Gross State Domestic Product
CAPEX:	Kerala State Cashew Workers Apex Co-Operative Society	GSVA	Gross State Value Added
CBD:	Convention on Biological Diversity	GVA:	Gross Value Added
CBWTFD:	Common Biomedical Waste Treatment and Disposal Facility	GoI:	Government of India
C-DAC:	Centre for Development of Advanced Computing	HDCK:	Handicrafts Development Corporation of Kerala
CHC:	Community Health Centre	HUDCO:	Housing and Urban Development Corporation Limited
CHC:	Custom Hiring Centre	IIITM-K:	Indian Institute of Information Technology and Management Kerala
CHIS:	Comprehensive Health Insurance Scheme	IPBES:	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
COTPA:	Cigarettes and Other Tobacco Products Act	IWRM:	Integrated Water Resources Management
CPC:	Centralized Processing Centre	JICA:	Japan International Cooperation Agency
CPC:	Coconut Producer Company	JJ:	Juvenile Justice
CPF:	Coconut Producers Federations	JNTBGRI:	Jawaharlal Nehru Tropical Botanical Research Institute
CPI:	Consumer Price Index	KARSAP:	Kerala Antimicrobial Resistance Strategic Action Plan

KASP:	Karunya Arogya Suraksha Padhathi	LFPR:	Labour Force Participation Rate
KAVIL:	Kerala Aqua Ventures International Limited	LGs:	Local Governments
KCC:	Kissan Credit Card	LIFE:	Livelihood, Inclusion and Financial Empowerment
KCEMS:	Kerala Captive Elephant Management System	LPG:	Liquefied Petroleum Gas
KCMMF:	Kerala Co-operative Milk Marketing Federation	LSGD:	Local Self Government Department
KESRU:	Kerala Self-Employment Scheme for the Registered Unemployed	MDDT:	Multi-Disciplinary Diagnostic Team
KFWFB:	Kerala Fishermen's Welfare Fund Board	MFP:	Minor Forest Produce
KIIFB:	Kerala Infrastructure Investment Fund Board	MGNREGS:	Mahatma Gandhi National Rural Employment Guarantee Scheme
KINFRA:	Kerala Industrial Infrastructure Development Corporation	MPI:	Meat Products of India
KITTS:	Kerala Institute of Tourism and Travel Studies	MSME:	Micro Small Medium enterprises
KITE:	Kerala Infrastructure and Technology for Education	MT:	Metric Tonne
KKS:	Karshika Karma Sena	NABARD:	National Bank for Agriculture and Rural Development
KLDB:	Kerala Livestock Development Board	NABL:	National Accreditation Board for Testing and Calibration Laboratories
KFON:	Kerala Fibre Optic Network	NAFED:	National Agricultural Cooperative Marketing Federation of India Ltd
KRDCL:	Kerala Rail Development Corporation	NAMP:	National Ambient Air Quality Monitoring Programme
KRFB:	Kerala Road Fund Board	NAPCC:	National Action Plan for Climate Change
KSAMM:	Kerala State Agricultural Mechanisation Mission	NCDC:	National Cooperative Development Corporation
KSBB:	Kerala State Biodiversity Board	NDDB:	National Dairy Development Board
KSCADC:	Kerala State Coastal Area Development Corporation	NDP:	Net Domestic Product
KSEBL:	Kerala State Electricity Board Limited	NDPS:	Narcotic Drugs and Psychotropic Substance
KSERC:	Kerala State Electricity Regulatory Commission	NETFISH:	Network for Fish Quality Management and Sustainable Fishing
KSIDC:	Kerala State Industrial Development Corporation	NFHS:	National Family Health Survey
KSIE:	Kerala State Industrial Enterprises Ltd	NFSA:	National Food Security Act
KSINC:	Kerala Shipping and Inland Navigation Corporation Limited	NHAI:	National Highways Authority of India
KSITIL:	Kerala State Information Technology Infrastructure Ltd	NHM:	National Health Mission
KSITM:	Kerala State Information Technology Mission	NNI:	Net National Income
KSLMA:	Kerala State Literacy Mission Authority	NORKA:	Non Resident Keralite Affairs
KSPCB:	Kerala State Pollution Control Board	NPCA:	National Plan for Conservation of Aquatic Ecosystems
KSPDC:	Kerala State Poultry Development Corporation	NPS:	Non Priority Subsidy
KSLMA:	Kerala State Literacy Mission Authority	NRCB:	National Research Centre for Banana
KSWIFT:	Kerala Single Window Interface for Fast and Transparent Clearance	NSO:	National Statistical Office
KVASU:	Kerala Veterinary & Animal Science University	NSS:	National Sample Survey
		NSSO :	National Sample Survey Organisation
		NTFP:	Non Timber Forest Produce
		NUALS:	National University of Advanced Legal Studies
		NULM:	National Urban Livelihood Mission

NWMP:	National Water Quality Monitoring Programme	SWMP:	State Water Quality Monitoring Programme
OFP:	Operation Flood Programme	SWTD:	State Water Transport Department
PBR:	People's Biodiversity Register	TDS:	Targeted Distribution System
PDS:	Public Distribution System	TSG:	Technical Support Groups
PFMS:	Public Financial Management System	UN DESA:	United Nations Department of Economics and Social Affairs
PfR:	Program for Result	UPASI:	United Planters Association of Southern India
PHH:	Priority Household	VAT:	Value Added Tax
PLFS:	Periodic Labour Force Survey	VFPC:	Vegetable and Fruit Promotion Council, Kerala
PPC:	Primary Processing Centers	VSS:	Vana Samrakhana Samithis
PROUD:	Programme for Removal of Unused Drugs	WHO:	World Health Organisation
PSUs:	Public Sector Undertakings	WPI:	Wholesale Price Index
RBCMA:	River Basin Construction and Management Authority	WPR:	Worker Population Ratio
RBDCK:	Roads and Bridges Development Corporation of Kerala		
RCC:	Regional Cancer Centre		
RCEP:	Regional Comprehensive Economic Partnership		
RKDP:	Rebuild Kerala Development Programme		
RKI:	Rebuild Kerala Initiative		
RUSA:	Rashtriya Uchathaar Shiksha Abhiyan		
SAF:	Society for Assistance to Fisherwomen		
SAMP:	State Ambient Air Quality Monitoring Programme		
SAPCC:	State Action Plan on Climate Change		
SDG:	Sustainable Development Goal		
SFAC:	Small Farmers Agribusiness Consortium		
SFC:	State Finance Commission		
SHE:	Scheme for Her Empowerment in Engineering education		
SHGs:	Self Help Groups		
SHM:	State Horticulture Mission		
SI-MET:	State Institute of Medical Education and Technology		
SJD:	Social Justice Department		
SLBC:	State Level Bankers Committee		
SLBP:	Special Livestock Breeding Programme		
SLEC:	State Level Empowered Committee		
SMP:	Skimmed Milk Powder		
SONTR:	State's Own Non Tax Revenue		
SOTR:	State's Own Tax Revenue		
SPB:	State Planning Board		
Supplyco:	Kerala State Civil Supplies Corporation Limited.		



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DESIGN AND LAYOUT : C-DIT
GOVERNMENT PRESS

