District Human Development Report - 2017

Thoothukudi District

State Planning Commission
Tamil Nadu

THOOTHUKUDI

DISTRICT HUMAN DEVELOPMENT REPORT 2017

District Administration, Thoothukudi and
State Planning Commission, Tamil Nadu
in association with
Manonmaniam Sundaranar University

Contents

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MESSAGE

Tamil Nadu is a pioneer in implementing welfare programmes. The State's Twelfth Five Year Plan insists upon the betterment of Human Development status. Tamil Nadu is on the path of development for achieveing accelerated, innovative and inclusive growth.

The State Planiurig Commission had earlier published Human Development Reports for the State and 8 districts. The analysis on the inter district and intra district disparities has led to policy recommendations and formulation of specific schemes like State Balanced Grwoth Fund to address backwardness. As a sequal, State Planning Commission has taken up the preparation of Human Development Reports for all districts.

This report is prepared with an objective to address Human Development concerns at the block level. An in-depth analysis on the Human Development status through Health, Education, Standard of living, Gender, Demography, Social Security sectors has been made to study the performance of blocks at the sub- district level. This could play as an effective tool for grassroots level planning.

I take this opportunity to place on record my sincere appreciation to the District Collector and Line Department Officials for sharing data on various parameters for the preparation of District Human Development Report. I thank all the stakeholders for their contributions to this report.

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PREFACE

Human Development is an alternative development thinking which puts people at the centre of development, by expanding their choices and enhancing their capabilities. With the focus of development shifting to human development globally, many countries have brought out Human Development Reports including India.

In the recent times, initiatives are taken by the Government of Tamil Nadu in the grass roots aiming at human development. The efforts comprise programmes that vary in size, approach and strategy; and the responsibility of their execution largely lies in the hands of the district administration. The major concerns of the issues are education, health and poverty – which constitute the prime output measures of human development. Besides, programmes are launched to focus on the income-generating activities of the people through productive employment, which will ensure the sustainability of human development. The human development is discussed in terms of these set parameters, owing to the inspiration given by the pioneering efforts of United Nations Development Programme (UNDP). Human Development should necessarily be looked at from a broader perspective with a social concern –such as the welfare of women, children and those who are denied the legitimate share in development. Thus, drawing up a human development at the district level is indeed a major step in making the district a nodal agency of development.

I am immensely happy to associate myself with the UNDP and State Planning Commission sponsored assignment of preparing the District Human Development Report (DHDR). It has turned out to be a very successful joint endeavour of an academic institution Manonmaniam Sundaranar University, Tirunelveli and the District Administration. This report portrays the various facets of district development from the human development perspective highlighting the positive aspects of the Government of Tamil Nadu interventions to achieve the goals of vision document 2023. This document is unique for it serves as a ready reckoner for an administrator to understand the core issues like literacy rate, health care issues, industrial development, gender issues, social welfare programmes, poverty alleviation, rural backwardness and unemployment.

This Thoothukudi DHDR has been prepared in a participatory manner by involving various stakeholders like Village Panchayats, Block Development Office, Town Panchayats,

Municipalities and District administration. It is expected that the DHDR will be an input for the deliberations of the District Planning Committee, which is constitutionally mandated to undertake and endorse the preparation of District Plans. However, the DHDR certainly will pave a way to the policy makers to prepare plans at various levels from the human development perspectives.

I congratulate and thank the Manonmaniam Sundaranar University, Tirunelveli for readily accepting the assignment and completing the task successfully and my special appreciation to Dr.J.Sacratees, Assistant Professor & Head i/c, Department of Economics, who drafted the entire report tirelessly. I thank my colleagues, who rendered all support to the Manonmaniam Sundaranar University and other officials of the State Planning Commission, Chennai in the preparation of District Human Development Report.

I wish that this document is updated periodically, with special focus on different sectors of Human Development, so that Thoothukudi District will be able to move forward to accomplish the dream of "Vision 2023" document of the Government of Tamil Nadu.

M. Ravi Kumar

ACKNOWLEDGEMENT

The preparation of the Thoothukudi District Human Development Report (DHDR) has originated primarily from the initiative of the State Planning Commission, Government of Tamil Nadu, with the support received from the UNDP. The State Planning Commission took up the assignment as a constructive exercise towards strategizing the Government programmes to yield the intended results. The task of preparing this report has been assigned to Manonmaniam Sundaranar University by the State Planning Commission in collaboration with the District Administration. The District level core committee comprises of the District Collector as the Chairman and Me **Dr. J. Sacratees,** Assistant Professor, Department of Economics, Manonmaniam Sundaranar University as the Coordinator. This Human Development Report has been kept on track and completed with the support and encouragement of numerous people. It is a pleasant task to express my thanks to all those who contributed in many ways to the formulation of the report. First of all I would like to extend my sincere thanks to **Tmt. Santha Sheela Nair, I.A.S.,** (Rtd), Former Vice Chairman, State Planning Commission, Government of Tamil Nadu for constantly reviewing the progress of this exercise and for supplementing with valuable suggestions. I am extremely indebted to **Thiru M. Balaji, I.A.S**, the then Member Secretary, State Planning Commission, who initiated this exercise and also my thanks is due to **Thiru Sugato Dutt, I.F.S.,** the then Member Secretary i/c, State Planning Commission for providing all necessary administrative support and resources to accomplish the task. I am very much indebted to **Thiru Anil Meshram, I.A.S.,** the Member Secretary, State Planning Commission who is keen enough to extend his support to complete the assignment in a smooth and fair manner. I owe a deep sense of gratitude to **Prof.Dr.A.K.Kumaraguru**, the then Vice-Chancellor, Manonmaniam Sundaranar University, Tirunelveli, who encouraged me to involve in this assignment. I sincerely express my indebtedness to **Prof. Dr.K. Baskar**, the Vice-Chancellor, Manonmaniam Sundaranar University, Tirunelveli who extended all support and encouragement to complete the task successfully. I express my indebtedness to **Thiru M. Ravi Kumar, I.A.S.,** Collector, Thoothukudi district for providing necessary facilities in the collection of data pertaining to the district and for offering suggestions at every stage of the DHDR preparation, which helped me to bring the report in this present form.

I also express my sincere thanks to **Thiru Ashish Kumar, I.A.S.,** the then Collector, Thoothukudi district for having chosen our University to carry out this assignment and offering his support immensely.

With a deep sense of gratitude, I gratefully acknowledge all the help extended to me at every stage of this report by **Dr. A. John D Britto,** the Registrar and **Dr.T.Tamizh Chelvam,** the then Registrar i/c, **Dr. S. Prabhakar,** the Controller of Examinations, Manonmaniam Sundaranar University, Tirunelveli.

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I also appreciate the services of **Thiru Sudalaimani**[1] and **Thiru Nagarajan**, Statistical Inspectors, **Tmt. Megala,** Assistant and other staffs in the District Planning and District Panchayat Office, Thoothukudi for their sustained help in the collection of data. I also extend my thanks to all those who have offered their valuable suggestions while preparing this report.

I also thank all the officials and the staff in the District Government Departments for their interest and for providing the adequate data.

I am grateful to **Dr.S. Manickam,** Former Professor & Head, Department of Economics, Manonmaniam Sundaranar University, Tirunelveli and **Dr. Uma Maheswari R.M.** Assistant Professor of English, S.T. Hindu College, Nagercoil for their support and encouragement throughout the preparation of the report.

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CHAPTER 1
THOOTHUKUDI DISTRICT - A PROFILE

Chapter

1

Thoothukudi District - A Profile

Human development, as an approach, is concerned with what I take to be the basic development idea: namely, advancing the richness of human life, rather than the richness of the economy in which human beings live, which is only a part of it."

Prof. Amartya Sen
Professor of Economics, Harvard University
Nobel Laureate in Economics, 1998

Topography

The etymology of the word "Thoothukudi" can be traced back to the period when the locals used to tap drinking water by digging small ponds (oothu in Tamil). Oothukudi, meaning to dig and drink, later came to be known as Thoothukudi. Thoothukudi District is located in extreme Southern Parts of Tamil Nadu and it was carved out of Tirunelveli District on 20th October 1986. It has certain rare features. The mixed landscape of the sea and the 'their (waste) lands has imbibed some special traits in the character of the sons of the soil. The district is located lies between 0.8 and 45 of the northern latitude and 78 and 11 of the eastern longitudes. The district is roughly triangular in shape and is bounded by Virudhunagar and Ramanathapuram districts in the north, Gulf of Mannar in the east and Tirunelveli District in south and west.

History

Thoothukudi is traditionally known as "Pearl City" on account of the prevailing Pearl fish in the past has a fascinating History. Forming part of the Pandian Kingdom between 7th and 9th Century A.D, Thoothukudi remained in the hands of the Cholas during the period between 9th and 12th century. The emergence of Thoothukudi as a maritime port attracted travellers, adventures, and eventually colonizers. The Portuguese were the first to arrive in Thoothukudi in 1932 A.D., followed by the Dutch in 1658 A.D. The English Captured Thoothukudi from the Dutch in 1782 and East India Company established their control over Thoothukudi in the same year. Thoothukudi became the citadel of freedom struggle in the early in the 20th century. It was in Thoothukudi that the illustrious patriot V. O. Childambaram established the first swadesi Stream Navigation Company, sailing the first steamer S.S.Gaelia to Thoothukudi on 1st June 1907.

The minor port Thoothukudi anchorage port with lighter age facilities has had flourished traffic for over a century. The first wooden Jetty of this port was commissioned in 1864. This port was being used for export of salt, cotton yarn, senna leaves, palmyrah stalks, palmyrah fibers, dry fish, country drugs, etc. to neighbouring countries and for import of coal, cotton, copra, pulses, and grains. The minor port of the

Thoothukudi had the distinction of being an intermediate port, handling the highest traffic tonnage of over 1 million per annum. The salient feature of the district includes its lengthy curvy and scenic sea coast, which was an international cynosure from the days of yore for its pearl fisheries; beautiful coastal villages with their sacred temples, churches and mosques like Tiruchendur, Manappadu and Kayalpattinam respectively. Adhichanallur, one of the cradles of the ancient civilizations, Korkai, an ancient port of the Sangam Pandyas, Kayal, the confluence of the river Tamirabarani with the Bay of Bengal, one of the five illustrious rivers of Tamil Nadu. Panchalamakurichi, the capital of Veerapandiya Kattabomman, an early martyr, for the cause of freedom, Ettayapuram, the birth place of the great poet Subramanya Bharathi, Ottapidaram, the home town of V.O. Chidambaram Pillai, who dared to sail ships as a measure to combat British Imperialism; Maniyachi, where Vanchinathann assassinated Ashe, the British Collector for this high – handedness against the leaders during Swadeshi Movement; Kulasekarapattinam and Kurumbur where patriots showed their anger against alien rule, temple towns like Srivaikundam, Meignanapuram, one of the cradles of Christianity. Thoothukudi besides, being a major port, the earliest settlement of the Portuguese and the Dutch, the tall and dense Palmyra groves and the bushy Odai trees, the Teris and the adjacent coral islands. Idayankudi and Manappadu and the adjacent places which became the headquarters of great missionaries like G.U. Pope, Veeramamunivar, Caldwell and others who besides their missionary work contributed a lot to the development of Tamil Language and literature and above all the enterprising and hard working people who now constitute a major trading community in the State.

Language

There is a traditional belief that the Tamil language originated from the Pothigai Malai, a hill situated in Western Ghats near Papanasam, a small village in the Tirunelveli district. As per Brahminical legend, Lord Shiva sent the two saints Vyasa and Agatyar (in Sanskrit Agastya) to create the divine languages, Sanskrit and Tamil. Agatyar came to Papanasam and established the Tamil culture from the Pothigai Malai. Tamil is the main language spoken here and is called Nellai Tamil, while English is also widely used. Since Tamil was born in Pothigai Malai, the Nellai Tamil is the first form of Tamil and also the pure form. It is also the sweetest form of Tamil. Nellai Tamil is very fast when compared to other forms of spoken Tamil. The version spoken here is considerably different from others. Missionaries like G.U.Pope, Veerama Munivar and Caldwell stayed here and contributed a lot to the Tamil language and literature. As per the 2001 census, the total population of the district was 1,572,273. Hindus form the majority of the population (78.58 percent), followed by Christians (16.71 percent) and Muslims (4.63 percent) and others with religious brotherhood (0.08 percent).

Art, Architecture and Culture

The huge Sri Subrahmanya Swami Devasthanam is located at Tiruchendur on the shore of Bay of Bengal. Tiruchendur temple is the second of the six abodes of Lord Murugan, enshrining Senthilandavar and is very popular with pilgrims. Alwarthirunagiri is one of the most well known festivals of Sri Vaishnavam. It is celebrated to mark the birth of Swami Namalwar, who was born in the month of Vaikasi and the star of Visakam and that had been consecrated as Vaikasi Visakam. Arulmigu Mutharamman

Temple is a famous temple located at Kulasekarapattnam. This temple is famous for Dasara festival and it is a 10 day festival. The main thing about this festival is Dasara Kuzhu. The town is a centre for folk art and there are handicraft centres. Sri Sankara Rameshwarar Temple (Lord Shiva Temple), it is believed that Lord Shiva and Goddess Parvathi were on their way to Tiruchendur and halted near the holy tank *Vancha Pushkarani***.** The Lord Shiva explained the secrets of the *pranava-mantra* to Goddess Paravathi, and the reason for this place being called Thirumanthira Nagar and where the temple is now built. Today this place is called Thoothukudi. This temple is situated near old bus stand. *Hare Island:* The Island lies adjoining the port. It is a very good picnic spot for holiday seekers and the domestic tourist. Many tourists visit here during the Pongal holidays when special buses are operated for the benefit of the tourists. Sri Vaikundapathy Temple is built by the Pandya King Sankara Pandyan. Nava Thirupathy, Srivaikundam are present near banks of Tamirabarani. Sinthalakarai near Ettayapuram is one of the famous Saktipeedam. Kazhugu Malai, near Kovilpatti is famous for the Jain Cave Temple and Jain Architeture Kalugsalamoorthy Temple is also present here, Kottampuli Santhana Muthu Mariyamman Temple festival function is on Avani 2nd Tuesday.

Our Lady of Snows Basilica, Thoothukudi Church was built in the 16th century with Portuguese architecture. St. Fracies Xavier visited the church in 1542. The Church of Our Lady of Snows celebrated its 432nd anniversary in 2014; Pope John Paul II raised it to the status of Basilica. St. Michael and all Angels' Church in Mudalur is one of the oldest churches in Thoothukudi. The height of the church tower is 193 feet. Meignanapuram church is one of the famous churches and its height is 196 feet. Church of Holy Cross was built 1581; Manapad contains the true fragments of Holy Cross. Manapad is the Ist place where St. Fracis Xavier landed in India, 1542.

Mohiyedeen Jumma Mosque, Maqbara of Hazrat Kazi Syed Aaluddin, Kayalpattinam and Hazrat Shamsudeen Shaheed Raziyallah Dargah, Vaippa are located in Thoothukudi district. Another uniqueness of the district is having a Black buck sanctuary on an isolated hillock with scrub forest and a Police shooting station (Arms Firing Training) which is one of the best in India at Vallanadu. With above enriching cultural values and beliefs, the people of the district live in harmony, signifying the attitude of the people towards secularism as the main principle of the Indian Constitution.

Another important historical place is called Panchalankurichi located 25km from Thoothukudi and 55 km from Tirunelveli. The Great warrior Kattabomman is popularly known as "Veerapandiya Kattabomman" who raised his voice against the British regime in the 17th century AD. The existing memorial Fort was constructed in 1974, by the Government of Tamil Nadu. The Memorial hall has beautiful paintings that depict the heroic deeds of the saga which give a good idea about the history of the period. Sri Devi Jakkammal Temple, the hereditary Goddess of Kattabomman, is located in the fort complex. Cemetery of British soldiers can also be seen near the fort. The rest of the old fort is protected by the Department of Archaeology. During the Kattabomman festival season, small bullock cart race is conducted. There are other historical places which attract many tourists in Thoothukudi district as follows:

Meignanapuram: It is 13 km from Tiruchendur and is said to be an ancient village. The Pari Pauvlin Church here was built in 1847. It is 110 feet long, 55 feet wide with steeple at the front soaring into the sky to a height of 192 feet. This is one of the biggest churches with the tallest steeple in India.

Ettayapuram: Ettayapuram is the birth place of the revolutionary poet Subramaniya Bharathiyar and is located 76 kms from Tirunelveli and 22 kms from Kovilpatti and 35 kms from Thoothukudi. His home has now became a monument Umarupulavar Dhansha is also located here.

Kayathar: Kayathar is situated about 25 kms from Tirunelveli on the way to Madurai. Kattabomman was one of the earliest freedom fighters who fought against the British rule in India, was hanged by the British rulers in 1799 at the place. A memorial has been built here by the Tamil Nadu Government to commemorate the memory of this great freedom fighter.

Kayalpattinam Beach: Kayalpattinam was a famous port next to Korkai in the 12th and 13thcenturies, situated 30 kms from Thoothukudi and 18kms from Tiruchendur between Thoothukudi and Tiruchendur highway. It has a fine beach on the Bay of Bengal.

Adichanallur: Adichanallur is 20km from Tirunelveli on the way to Tiruchendur. From an Archaeological point of view, this place has a glorious past and it is located on the banks of river Tamirabarani. It is assumed that, in ancient times a civilized habitation flourished here. Urns (burnt-clay vessels which were used for burying dead bodies of the very old people) small mud vessel were found near the river Tamirabarani and they are supportive evidence, for the civilization. This place is now under the supervision of the Tamil Nadu State Archaeological Department.

Ayyanarsunai: It is 10 km from Tiruchendur and 40 kms from Tirunelveli. Natural water gushes out from the spring at this place. A temple dedicated to village deity. It is a good picnic spot.

Sinthalakkarai: Sinthalakkarai is one such pilgrim center where Goddess Sri Vetkaliamman of 42 feet height wonders the people. It is on the way of Thoothukudi to Madurai four way track road (3 Km from Ettayapuram). The statue of Mahavishnu of 72 feet length with Rajasayanam on the snake in Thiruparkadal is also there.

Vanchi Maniyachi: It is a Railway Junction in between Kovilpatti and Tirunelveli at a distance of 31 Kms from Thoothukudi. The original Maniyachi Railway Station was renamed as Vanchi Maniyachi in the memory of freedom fighter Vanchinathan who revolted against the British and assassinated the then British Collector Ash in 1911 as a vengeance against the Britisher's oppression.

Vanathirupathi: This beautiful temple is dedicated to Lord Vishnu and is situated in a small hamlet called Punnaiyadi. The temple is getting popular among the tourists and locals. This temple is about 45 kms from Tirunelveli and around 20 km from Tirunchendur. The nearest railway station is Kachanavilai on the Tiruchendur to Tirunelveli road.

Navathirupathi: The nine Vishnu Temples are located very close to one another. They are all in Toothukudi district. The Vaishnava shrines are having an interesting legend. The shrines are notable for nine stone carvings and temple architecture. Most of the Thirupathi are located on the main road from Tiruchendur to Tirunelveli. Among the nine, two temples i.e. Alwarthirunagiri and Srivaikundam are

located on the main road between Tiruchendur and Tirunelveli. The other seven temples are located little interior from the main road. The pilgrims, those who are visiting Tiruchendur they will pay a visit to Alwarthirunagiri and Srivaikundam. These two temples are situated on the bank of the river Tamirabarani. In these two temples every year a festival is celebrated in the month of September for 10 days on a large scale. Every year in the month of September to October (Tamil month Purataci) all Saturday's the Tamil Nadu State Transport Corporation ply special buses to these Navathirupathi Temples from Tirunelveli New Bus Stand.

Chairman Arunachalasamy Temple –Eral: This Temple is dedicated to an ordinary man called Arunachalam who lived in this town and dedicated his life for the welfare of the people. The people of this village believed that he is the incarnation of god and thereby began to worship him after his death. A Temple was constructed in the village. In due course of time this temple town began to attract large number of devotees. The festival is celebrated in a grand manner for 12 days before Adi Amavasai and Thai Amavasai every year.

Ottappidaram: This is the birth place of freedom fighter Thiru. V. O Chidambaranar. This place is located at a distance of 25 kms from Thoothukudi and 2 Kms from Kattabomman Memorial Fort Panchalankurichi. The house in which he lived has been converted into a Memorial. He was instrumental in the freedom struggle in the district and operated the Swadesi shipping company during the rule of the British.

Karkkuvel Ayyanar Temple – Kuthiraimozhitheri –Therikudiyiruppu: The famous Karkkuvel Ayyanar Temple is situated in the forest in the Kurthiraimozhitheri –Therikudiyiruppu village near Kayamozhi. It is believed by the people of this region that a notorious thief was killed by a king called Vanniyaraja as ordered by the village deity Karkkuvel Ayyanar and saved the people. Annual "Kallar Vettu" (Killing the thief) festival is held during the Tamil Month of Karthigai (November/December) which attracts thousands of pilgrims from all over Tamil Nadu

Location

Thoothukudi district is situated in the extreme South-Eastern corner of Tamil Nadu. It is bounded on the north by the districts of Tirunelveli. The district of Virudhunagar and Ramanathapuram is located on the east and southeast by the Gulf of Mannar and on the west and southwest by Tirunelveli district. The total area of the district is 4621 Sq. Km. The administrative headquarters is an urban agglomeration and is also one of the taluk headquarters within. Thoothukudi district was bifurcated from Tirunelveli district in 1986.

The district of Thoothukudi was carved out of a separate district on 20th October 1986 and as a result of bifurcation of the Tirunelveli district of Tamil Nadu State. Thoothukudi is a port town situated in the Gulf of Mannar about 125 km North of Cape Comorian and 720 km south of Thoothukudi and its environs from part of the coastal belt which forms a continuous stretch of the flat country relieved here and there by small rock out crops. The region, surrounding Thoothukudi is liberally dotted with rain fed

tanks. Red soils found on the southern side of the Thoothukudi town are composed of quartz and variable quantities of fine red dry dust. The port is an all weather one. The bay is formed by the Hare Island.

The district is a fast growing industrial belt of South India. Realizing the importance of the town, the Department of Town and country Planning notified Thoothukudi city and its surrounding 29 villages as Local Planning Area and constituted the Thoothukudi Local Planning Authority to guide and control the development in an orderly manner.

Population Trends

In 2011, Thoothukudi had a population of 1,750,176 of which male and female were 865,021 and 885,155 respectively. In the 2001 census, Thoothukudi had a population of 1,572,273 of which males were 766,823 and remaining 805,450 were females. The density of population per Sq.km is 376 as against the 555 for the State. The sex ratio is 1024 females for every 1000 males and become the ranking first in the Sex Ratio in Tamil Nadu. The percentage of literacy is 86.52. The district has 20% of SC population to the total population as per 2011 population census. The average literacy rate of Thoothukudi in 2011 was 86.16 compared to 81.52 of 2001. If things are looking out at gender wise, male and female literacy were 91.14 and 81.33 respectively. For the 2001 census, same figures stood at 88.32 and 75.13 in Thoothukudi district. Total literate in Thoothukudi district was 1,349,697 of which male and female were 703,106 and 646,591 respectively. In 2011 census, the child sex ratio is 963 girls per 1000 boys compared to figures of 953 girls per 1000 boys.

According to the 2011 Census, the Thoothukudi district population is approximately 1.74 million as opposed to 1.57 million in 2001. The sex ratio works out to 1023 in 2011 as compared to 1050 in 2001. The decadal (2001-2011) growth rate is 10.56 per cent. The density of population in Tamil Nadu, a true indicator of population distribution, is 340 persons per sq. km in 2001, as against 369 in 2011. Thoothukudi district is today the most urbanized district in the State with 50.15 percent of its population living in urban areas.

Fig: 1.1. District Map

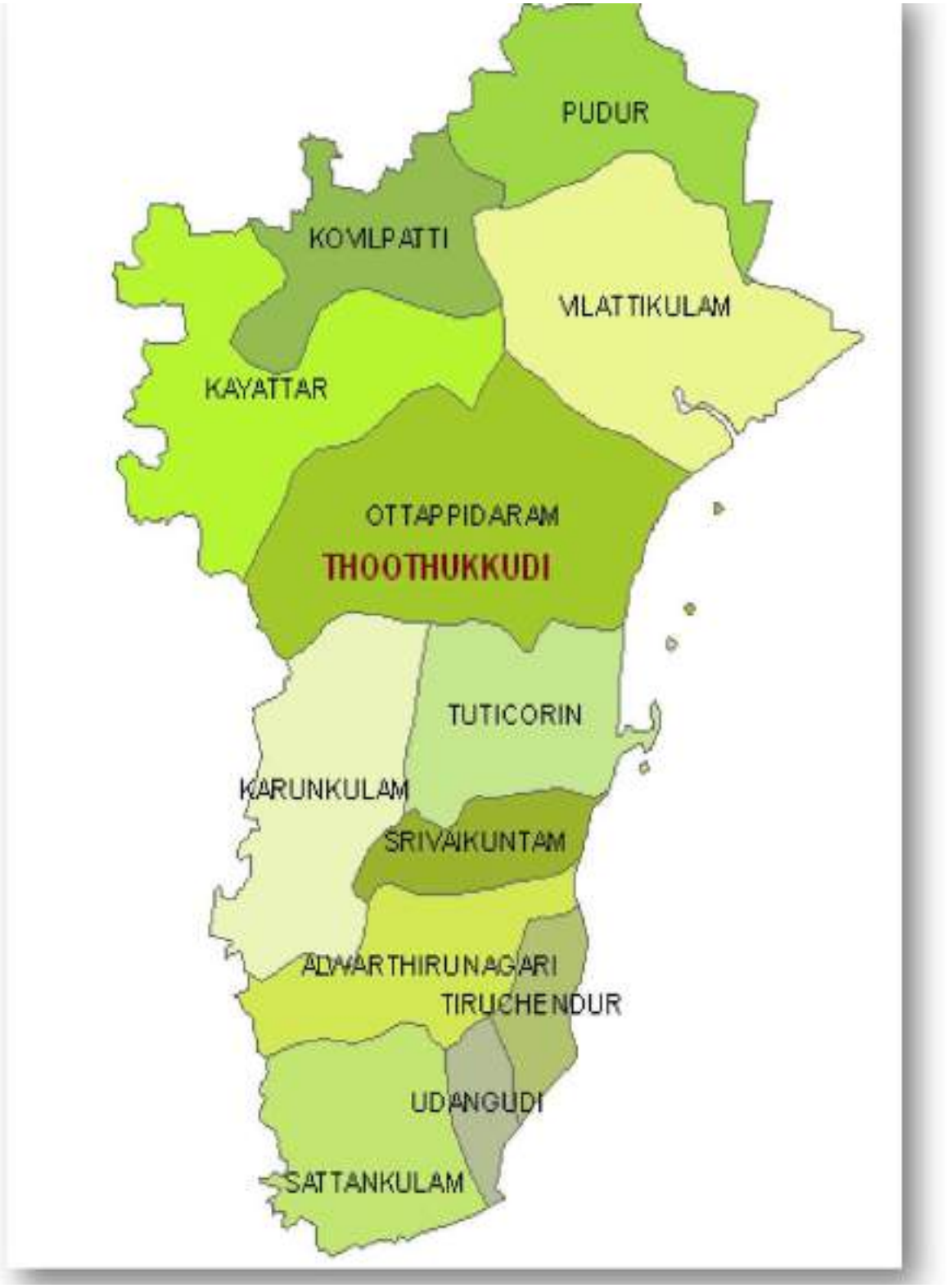


Table:-1.1 Basic Demographic Indicators

S. No.	Indicators	2001	2011
1	Population	15,92,769	17,38,376
2	Decennial growth (%)	8.0	10.56
3	Population Density (Persons per sq. km)	347	378
4	Urban population (%)	42.28	50.15
5	Sex ratio	1050	1024
6.	Percentage of 0-6 years old	1,86,426 (11.70)	1,70,507 (9.81)

Source: Census documents 2001 and 2011

This district is divided into 3 revenue divisions Kovilpatti, Thoothukudi and Tiruchendur and further into 8 taluks for administrative purpose and 13 blocks for rural and urban development. The 8 taluks are Thoothukudi, Tiruchendur, Sathankulam, Srivaikundam, Ottapidaram, Kovilpatti, Ettayapuram and Vilathikulam. The 13 revenue blocks are, Thoothukudi, Tiruchendur, Udangudi, Sathankulam, Srivaikundam, Alwarthirunagiri, Karunkulam, Ottapidaram, Kovilpatti, Kayathar, Vilathikulam, Pudur and Corporation. The district has 1 Municipal Corporation, Thoothukudi and two Municipalities Kayalpattinam and Kovilpatti, 19 Town Panchyats, 480 Villages and 408 Village Panchayats.

Economy

Agriculture

The majority of the population in the district derives their livelihood from activities related to agriculture and livestock rearing. Agriculture is the main occupation in which 70% of the people depend on it. The main food crop in this district is paddy. Out of the total area of 470724 hectares, 178623 hectares are brought under the cultivation of different crops which is nearly 38 % of the total area of the district. The important food crops in the district are paddy, Cholam, cumbu, ragi, varagu, samai and commercial crops like cotton, chilly, sugar cane and groundnut. There are strong links between agriculture and economic growth. Most of the area is covered with sandy soils since the district has a long coastal area of 163.5 kms. There are opportunities to develop cold storage units to increase agricultural exports via Thoothukudi port. There are ample opportunities to promote new crop varieties and new technologies such as precision farming and system of rice intensification as the farmers are now educated on these aspects and is willing to adapt the new varieties and technologies.

However, in the process of development, the share of agriculture in the sectoral distribution of gross district domestic product (GDDP) gradually declines due to higher productivity and production in the non-agricultural sectors. In Thoothukudi district, the contribution of agriculture (inclusive of crop, livestock, fishery and forestry) to GDDP has declined from 9.98 percent in 2009-10 to 8.81 percent in 2010-11 and again it shoots up to 10.42 percent in 2011-12. On the other hand, the share of the secondary sector has not show any significant improvement over the two years in 2009-10 and 2010-11 where as in 2011-12 the share has come down to 24.67. But the share of tertiary sector has improved from 63.15 percent in 2009-10 to 65.04 percent in 2010-11 and again it has come down to 64.91 percent in 2011-12

(see Table- 1.2). It highlights the sectoral distribution of GDDP in Thoothukudi district during 2009-12. During 2009-10, the district GDDP of ₹ 10, 61,784 lakh at constant prices of 2004-05 has grown constantly to ₹ 12, 28,777 lakhs during 2011-12. Of this, the contribution of tertiary sector is very high (64.91) followed by secondary (24.67) and primary (10.42) sectors respectively. The share of primary sector contribution to the GDDP was a little lower than the other two sectors due to various factors such as fertility of land, monsoon behaviour, rainfall, irrigation, and application of fertilizers, climatic conditions, marketing facilities, prices, availability of agricultural labourers etc., to determine the low level impact on agricultural development. Chillies, black gram, green gram and maize are the major crops grown in Thoothukudi district. These crops did not produce good yields as we expected due to low level rainfall. The normal rainfall of the district is 662.2 mm. South West monsoon accounts for 9%, North East monsoon accounts for 65%, winter account for 9% and on summer receives around 17% of total rainfall. Thoothukudi district depends mainly on North East monsoon rains brought by formulation of low pressure in the south Bay of Bengal between October and December. Other specific reasons for greater decline in the growth of agriculture are erratic and inadequate monsoons that lead to declining trend of net area sown, diversion of fertile agricultural lands to non-agricultural purposes, low cropping intensity, depletion of ground water, increase of fallow lands, deterioration of soil quality, yield gaps, inadequate potential seed availability and overuse of chemical fertilizers and leaching away of organic matter of the soil.

Table – 1.2 Sectoral Distribution of Gross District Domestic Product

Sector	GDDP – At constant (2004-05) Price (in Lakhs)		
	Thoothukudi		
	2009-10	2010-11	2011-12
Primary	1,06,010 (9.98)	1,01,258 (8.81)	1,28,034 (10.42)
Secondary	2,85,246 (26.86)	3,00,405 (26.15)	3,03,199 (24.67)
Tertiary	6,70,528 (63.15)	7,47,302 (65.04)	7,97,544 (64.91)
Total	10,61,784 (100.0)	11,48,965 (100.0)	12,28,777 (100.0)

Source: Department of Economics and Statistics, Govt. of Tamil Nadu, 2014.

Wells, tanks and rivers are the major sources of irrigation. The cultivators and agricultural labourers, together account for 35.45% of the total workforce of the district. Thoothukudi has been identified as a most ideal place for spices cultivation, particularly chillies, coriander etc. Scope for industries with spice based products is bright, as these products have both domestic and export demand. The district accounts for 11% of the State's total area under banana cultivation. The average yield is more than State's average. Spices are cultivated in a large area and accounts for 28.77% of the State's total area of spices cultivation. The cashew nut based industries have a good export demand. The cultivation of horticultural crops viz fruits and a vegetable is in an upward trend, as the local farmers show interest, in view of profits. There is a scope for fruits and vegetables based industries in the district.

Industries

Thoothukudi has a host of industries including power, chemicals, and fisheries. The industries in Thoothukudi are SIPCOT Estate, SIDCO Industrial Area and Co-operative Industrial Estate; Tuticorin Thermal Power Station (TTPS) has five 210 megawatt Generation Plants. The first plant was commissioned in July 1979. The joint venture thermal power plant of NLC – TANGEDCO of 1000 MW has been completed. In addition to this there are several private plants like India Barath Power Limited, Coastal Energen and Captive Power plant. SPIC (fertilizers and chemicals), TAC fertilizer plan, Dharangadhara Chemicals (chemicals) and Kilburn Chemicals (titanium dioxide), heavy water plant, (A unit of BARC), NFC (Nuclear Fuel Complex) – Titanium and Zirconium sponge plant, Trans world Garnet Industries, AVM Jumbo Bags (SIPCOT), Sterlite (copper), Ramesh Flowers, Nila Sea Foods, St. John Freight Systems Limited, Kilburn Chemicals, Madura Coats, Export of Senna leaves (medicinal value) and Salt industry. Thoothukudi city is the headquarters Tamil Nadu Merchantile Bank Limited. It is one of the fastest growing banks in India during the period of 2007-12. Its total business is worth of 360 billion. The bank targets a total business of 500 billion INR in 2014-15. The city also has a research institute set up by Central Marine Fisheries Research Institute and Spices laboratory set up by Spices Board of India.

Windmills at Mullakkadu, readymade garments, safety matches, textile, spinning mills, boat making (traditional), edible oil, rice mills, bakery products, fish processing industry and Thoothukudi Port trust are located in the district. Besides, there are several medium and small industries, including traditional ones, are situated in Thoothukudi and its neighbourhood. The city is also famous for the production of salt. Salt pans in and around the city contribute in a major manner to the economy of the city. The salt pans produce 1.2 million tonnes of salt every year, contributing to 90 percent of the salt produced in the State and 50 percent needed by the chemical industries of the State. The district occupies the first place in salt production in the state. There is a good scope for development of salt based marine chemical industries, namely bromine from sea bittern, free flow iodized salt, sodium chloride (analytical and pharmaceutical), magnesium sulphate. Fishing industry is one of the largest contributors to the local economy. Tuticorin Fishing Harbour is one of the oldest and largest in Tamil Nadu. The coastal area is a focus of expansion and diversification of economic activity. The coastal zone has a high concentration of human settlements and is the preferred site for urban development. Many of the earth's most productive economic systems are found in the coastal area. Over 95 percent of all marine fisheries are derived from sea water. The necessity of developing and expanding the marine fisheries has assumed greater importance on account of the shortage of food on land and also to meet the protein deficiency in the Indian diet. One of the greatest challenges before modern fisheries in recent times is to develop and implement selective fishing, in order to minimize ecological and environmental impacts of fishing.

The availability of skilled labour, major port, electricity generating plant, container facility has made Thoothukudi a major destination for industry and business. The airport at Vagaikulam, Koodankulam Nuclear Power Plant improved road and rail infrastructure and Nanguneri Special Economic Zone (SEZ) is expected to make Thoothukudi a hot destination for business investment. Thoothukudi has been a centre

for maritime trade and pearl fishery for more than a century. The natural harbour has a rich hinterland which activated the development of the port, initially with wooden piers and iron screw pile pier and connections to the railways. Thoothukudi was declared as a minor anchorage port in 1868 since then there have been various developed ports over the years. Since independence, the minor port of Thoothukudi witnessed a flourishing trade and handled a variety of cargo meant for the neighboring countries of Sri Lanka, Maldives etc. and the coastal regions of India. To cope with the increasing trade through Thoothukudi, the Government of India sanctioned the construction of an all-weather Port at Thoothukudi. On July 11, 1974, the newly constructed Thoothukudi Port was declared as the 10th major port on 1st April 1979, the erstwhile Thoothukudi minor port and the newly constructed Thoothukudi major port were merged and the Thoothukudi Port Trust was constituted under the Major Port Trusts Act, 1963. Thoothukudi port is on the south eastern coast adjoining the Gulf of Mannar in Thoothukudi district, about 600 km south of Chennai. It enjoys a unique advantage of its strategic location close to the East - West international sea route, barely 125 nautical miles from it. It is the first Indian port to receive ISO 9002 Certification. Thoothukudi Port offers round the clock service and it records 1, 03,000 TEUS per annum with an average growth rate of about 10 % per annum. The large number of existence of Palmyra and coconut trees in the district have bright prospects for development of rural industries. The total length of coastline is 121 kms. It also exports marine food production from the old port of Kulasekarapatinam in Udangudi block, in view of tremendous export demand for seafood and fish based products, which can earn foreign exchange. The ready-made garment industry, which is in tiny sector, is an asset of the district. Limestone deposits in the district pave way for starting a mini cement plant. A major portion of production of safety matches comes from handmade sector. The Sethu Samudram Ship Canal Project is under process which is aimed at deepening the Palk Straits in the Gulf of Mannar which will help not only the hinterland to flourish with the activities of trade and industry, but also overall economic development of the southern districts of Tamil Nadu.

Income

The all-round development of the district over the last five decades can be seen from the increased contribution from the agriculture (primary), industries (secondary) and services (tertiary) sectors of the real income of the district's economy. The Thoothukudi district performance during the different plan periods compared to the performance of the State as a whole (at constant prices) shows that district per capita income is relatively high in all eight years than the State per capita income. It is understood that the district economy is progressively moving forward than the State's economy.

Table – 1.3 Per Capita Income

All Constant Price (2004-05) in ₹		
Year	Thoothukudi	Tamil Nadu
2004-05	44,884	33,998
2005-06	50,658	38,435
2006-07	57,749	43,941
2007-08	57,720	46,293
2008-09	59,921	48,473
2009-10	65,105	53,359
2010-11	70,249	59,967
2011-12	74,933	63,996

Source: Department of Economics and Statistics, Government of Tamil Nadu, 2014.

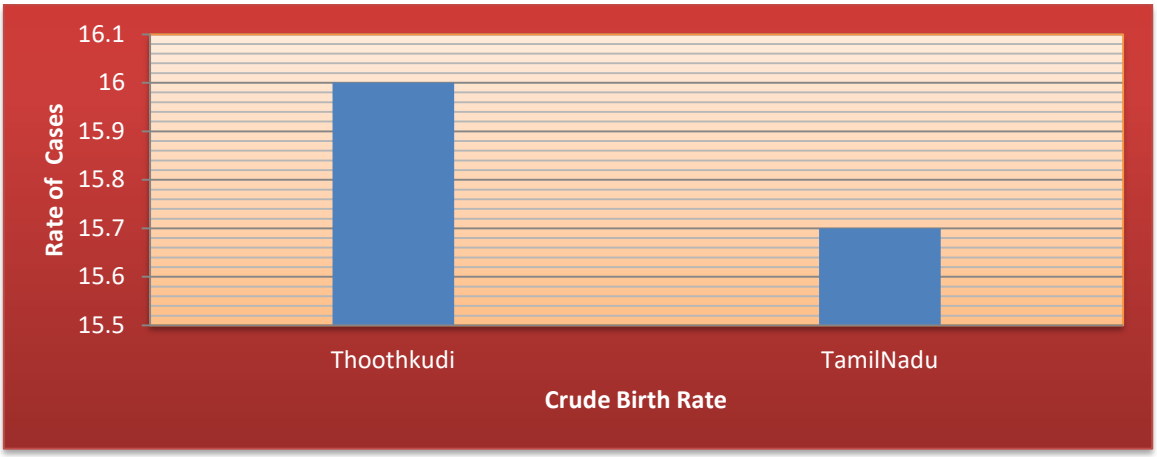
However, during 2004-05 the district per capita income was ₹44, 884 and it occupied the 4th place in the State and now it has increased to ₹ 74, 933 in 2011-12 and occupied in the place of 5th in the State. It reveals that the district economy is progressively increasing at a faster rate than the State economy but the neighbouring district of Kanyakumari per capita income during 2004-05 was ₹ 42, 832 and occupied in 5th place in the state but whereas in the year 2011-12, the per capita income of the district was ₹ 96, 070 and occupied first place in the State. However, in reality, the proportionate increasing of the per capita income of the district and the State are more or less the same over the period.

Social Sector

Health

The four basic objectives of a health care system are equity, access, quality, and efficiency. In order to evaluate the health care system in Thoothukudi district based on several health care facilities are provided by both public-private hospitals. Under modern medicine, there are 9 allopathy hospitals, 34 dispensaries, 57 Primary Health Centres (PHCs) and 276 Sub-Health Centres. 2096 beds are available into those hospitals. There are 453 doctors and 691 nurses working across the district hospitals besides, there are some private hospitals play a major role to provide health care facilities in the district. Total fertility rate (TFR) is defined as the average number of children, a woman would bear during her lifetime. Total fertility rate and crude birth rate (CBR) will indicate the fertility. In Thoothukudi, the total fertility rate was 16 in 2013-14 and 15.7 in Tamil Nadu. The district average CBR is little higher than the State average. (See Appendix-II Table 1.5)

Fig - 1.1 Crude Birth Rate

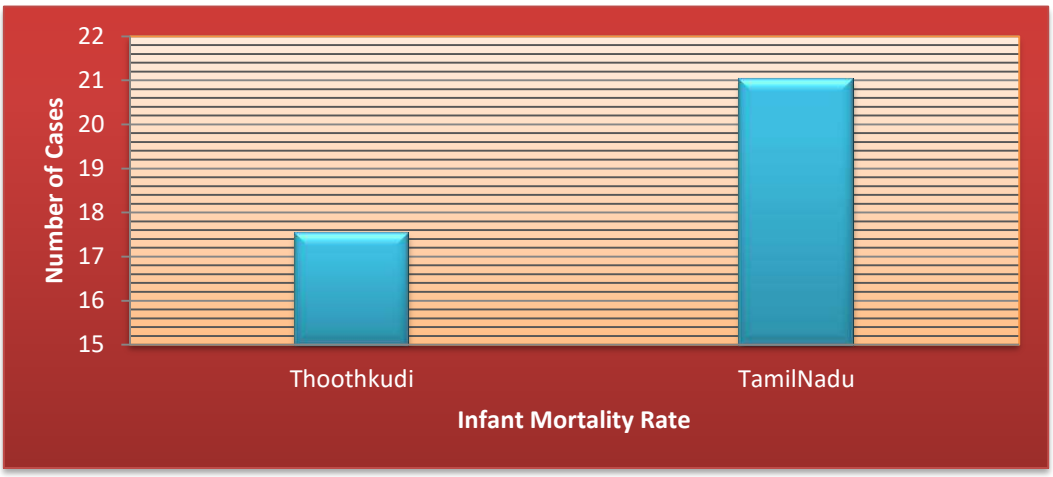


Source: Health Department, Thoothukudi, 2014.

High birth rate is one of the causes for burgeoning population. There are many social and economic factors causing this high birth rate. The main social factors may be early marriage and marriage is a social compulsion. Illiteracy is also adding fuel to the fire. Poverty is the major economic factor leading to this issue. Now, rapid decline in fertility brought low birth rate in Tamil Nadu. The decline in fertility was greater among the less educated and SCs, as compared to the highly educated and other affluent category people. However, in Thoothukudi district, the CBR is high in Kovilpatti (30.6), Corporation (16.1), followed by Ottapidaram (15.9) and lowest CBR was found in Udangudi (10.95) and followed by Alwarthirunagiri (10.6) and Sathankulam (10.78). Nevertheless, the overall district average CBR rate is equal to the State average.

Similarly, in Thoothukudi district, the Infant Mortality Rate (IMR) has improved tremendously and also is one of the most progressive districts in Tamil Nadu. The district average IMR (12.5) during 2013-14 is significantly lower than the state average (22) due to several initiatives taken both by the district administration and health officials. The district is also becoming one of the urbanised districts with an urban population of 50.15 percent according to the 2011 census. The district average literacy rate (86.16) and Sex ratio (1024) are also considerably high in Thoothukudi district when compared to the state of Tamil Nadu. Over the years, the district has adopted progressive child and women policies advocated by the Government of Tamil Nadu by introducing path breaking social policy interventions. Perhaps the best known example is the noon meal scheme introduced in schools in the early 1960s. The scheme was a pioneering effort to protect children from hunger and increase enrolment and thereby stemming dropout in primary schools. Despite, Thoothukudi district is high standing on many development parameters, many challenges remain incomplete. Caste and gender related poverty issues are prominent and these have a direct impact on the vulnerability of children. Within the district, at the block level, social disparities pose a greater problem for children in some blocks and in socially excluded communities such as SC/ST, tribes and other highly disadvantaged sections. Hence, critical areas of intervention in the district are essential in order to promote the areas of maternal, child health, HIV/AIDS, child nutrition, quality education, drinking water and sanitation and child protection.

Fig: 1.2 Infant Mortality Rate (IMR)



Source: Health Department, Thoothukudi, 2014.

Literacy and Education

Literacy is also a foundation for individual and societal development and plays an important role in poverty reduction. In this regard, literacy promotion is not only at the heart of Education for All movement but also supports the achievement of all other related human wants in a sustainable manner. The total literates in the district during 2011 census is 13, 56,564 (86.16) out of which 7, 06,087 (91.42) are male and 6, 50,477 (81.77) are female. The overall decadal growth rate of the female literacy rate (6.23) in the district is higher than the male literacy rate (2.84). The overall literacy rate of the district is quite impressive than the State literacy rate. Taking into consideration, the initiatives taken by the Government of Tamil Nadu, the literacy rate in Thoothukudi district is comparatively moving forward and occupies the 3rd position in the districts of Tamil Nadu.

There are 2099 schools functioning in Thoothukudi district. It comprises of 1194 Primary schools, 608 Middle schools, 119 High schools and178 Higher Secondary schools. Besides, there are 74 colleges in the district, out of which, 19 arts and science, 9 engineering, 6 polytechnic and 40 other colleges providing higher education to the people. However, there is no single government Arts and Science College in the district. In order to increase the higher education access to rural mass in the district, two constituent colleges and one Mano College (University College) have been established by the Government of Tamil Nadu through the Manonmaniam Sundaranar University, Tirunelveli.

Conclusiony

The profile of the district itself is to portray the overall socio-economic status of the district which is covered to analyse the in depth picture of the human development status of the district. The report has 9 chapters. They are (i) District- A Profile of Thoothukudi (ii) Status of Human Development in Thoothukudi District (iii) Employment, Income and Poverty (iv) Demography, Health and Nutrition (v) Literacy and Education (vi) Gender (vii) Social Security (viii) Infrastructure (ix) Summary and Way Forward.

CHAPTER 2

STATUS OF HUMAN DEVELOPMENT

Chapter

2

Status of Human Development

As mentioned at the beginning of the report, the Human Development Report serves as a hallmark against which the extent of human development that has taken place in a district can be assessed. This report can be used to rank a district among other districts and compare it with the State as a whole in terms of certain parameters such as literacy rate, life expectancy, education, etc. This report will come in very handy to the district and State administration for planning economic activities and hastening the development process in the district.

This report has been compiled based on the methodology of the UNDP on the reasoning that the real wealth of a nation (a region) is its people and therefore one must link people and development. The Human Development Index (HDI) is a composite index containing indicators relating to three factors: life expectancy at birth (representing a long and healthy life), educational attainment (representing knowledge) and real per capita income in purchasing power parity dollars (representing a decent standard of living).Of late, the importance of such a compilation has been increasingly realized by UNDP, as a necessary yardstick of development at regional levels. Based on which, the UNDP has developed a composite HDI by taking into consideration, these three basic dimensions of standard of living, health and education parameters to measure the index values. The purpose of the report is so far-reaching that many other dimensions such as gender development/gender deprivation can also be assessed. The report can be used to identify the factors that constrain the economic growth of the district. In this chapter, detailed discussions were made of HDI, Gender Inequality Index (GII), Child Development Index (CDI) and Multi-Dimensional Poverty Index (MDPI) based on the performance of 13 blocks of the district under various proxy indicators proposed by the State Planning Commission.

HDI is a composite index, comprising longevity measured by Life Expectancy at Birth (LEB), educational attainment computed as a combination of adult literacy and enrolment ratios at the primary and tertiary levels and standard of living as measured by per capita real GDP adjusted for Purchasing Power Parity in dollars (PPP$). All these parameters are considered of equal importance for human development and hence, they are given equal weight-age to construct composite index, fixed minimum and maximum values have been assigned for each of these indicators to construct an index. The HDI has been calculated as an average of the three indices that include the life expectancy index, the gross enrolment index and the GDP.

Human Development Report

Tamil Nadu's HDI (2001) was 0.657 when compared to 0.571 of India as a whole. Tamil Nadu's good performance (medium human development rank) and its placement well above the all- India average can be better understood if the HDI is disaggregated. The State's per capita income is above the national average and it occupies fifth place in the ranking of 15 major States and 65.20, respectively. The literacy rate has been increasing over the years and reached the level of 73.47 in India. Tamil Nadu has the second lowest fertility rate next only to Kerala. Life expectancy at birth for males and females was 68.6 and 71.8 per cent in 2013-14, next only to Kerala and Maharashtra. The combined LEB of the Thoothukudi district was 73.8, and male is 71.5 and 76.6 for females which are above the State and All India average during 2013-14. The National HDR prepared by the Planning Commission, Government of India, places Tamil Nadu in the third position with an HDI value of 0.531 among 15 major States. Similarly, in the case of Thoothukudi's HDI (2011) was 0.647 when compared to 0.657 for Tamil Nadu (2001) and Thoothukudi district is one of the well performed districts in the State of Tamil Nadu (medium human development rank), the specific reason for that is Thoothukudi was one of the high performing district in terms of standard of living, health and education.

Dimension	Indicators
Standard of Living	Access to cooking fuel Access to toilet facilities Access to drinking water Access to electricity Access to pucca house
Health	Infant mortality rate Maternal mortality ratio Under 5 mortality rate
Education	Literacy rate Gross enrollment in primary Gross enrolment in secondary

Human Development Index- Inter block variations

An HDI has been constructed for 13 blocks in Thoothukudi district, including the Corporation which is considered to be one block in the district using the UNDP methodology. HDI is a composite index measuring average achievement in 3 basic dimensions and 11 indicators of human development. The dimensions are standard of living, health and education. These three dimensions are crucial contributing factors for the human development of the block and district. Details of the indicators are furnished above. The human development index is a positive index which falls between 0 to 1. Higher the index value (closer to 1) shows higher human development and the value closer to the 0, shows lower human development. In fact, Corporation (0.922), Alwarthirunagiri (0.783) and Udangudi (0.770) blocks occupies first three ranks and Vilathikulam (0.505), Pudur (0.476) and Kovilpatti (0.468) fall on the last three ranks.

It shows that within the district, that is the inter block disparity is high in terms of human development due to lopsided development. The high per capita income of Thoothukudi district has considerably influenced its HDI value. Thoothukudi's literacy rate and life expectancy are also fairly high. However, this district average life expectancy has increased from 66.45 (2011) to 73.8 (2013-14) due to some socio-economic factors. Out of thirteen blocks, the Corporation has performed well in human development which has scored (0.992) which means that all the parameters like health, education and standard of living are performed well due to urbanisation. Sathankulam (0.749), Karunkulam (672), Srivaikundam (0.662) and Tiruchendur (0.639) have obtained better position as far as human development is concerned.

Table - 2.1 Human Development Index, 2014

Top 3 blocks			Bottom 3 blocks		
Corporation	**-**	**(0.922)**	**Vilathikulam**	**-**	**(0.505)**
Alwarthirunagiri	**-**	**(0.783)**	**Pudur**	**-**	**(0.476)**
Udangudi	**-**	**(0.770)**	**Kovilpatti**	**-**	**(0.468)**

Sources: Computed

An attempt has also been made to present an overview of the status of human development in the blocks with respect to each of the indicators separately. Thoothukudi Corporation is the top block, which has scored fairly well in standard of living, health and education including the parameters for estimating the standard of living such as access to cooking fuel (62.76), access to toilet facilities (99.70), access to drinking water (habitations) 100.00 coverage, access to electricity (99.00) and access to pucca house (87.0) and low Infant Mortality Rate (IMR)(6.00) and high literacy rate (91.68), Gross Enrolment Rate (GER) in primary education (99.65), GER in secondary education (98.75) which are enabled to place top score to achieve high human development. However, Maternal Mortality Ratio (MMR) in the Corporation block is fairly high (57.7) and still a long way to bring suitable strategy to control substantially MMR at the Corporation level. Likewise, Alwarthirunagiri is the second best block and scored good index values for all the parameters for estimating the standard of living such as access to toilet facilities (92.64), access to drinking water (92.5), access to electricity (92.85) and access to pucca house (90.00), health indicator like IMR (9.30), educational indicators like literacy rate (85.57), GER in primary education (100.0), GER in secondary education (98.10) which are influenced to score high human development but MMR (83.6) and Under 5 Mortality Rate (U5MR) (23) need to be reduced.

Udangudi is the third best performing block with fairly high access to cooking fuel (36.22), toilet (74.97), drinking water (93.55), electricity (93.21), pucca house (69.05) IMR (16.50) and MMR (0.00), Literacy (89.49), GER primary (99.75) and GER Secondary (98.50) which have influenced to score good HDI values of (0.770). Adequate steps need to be taken to increase the LPG connections so that the health of the population will be protected in the areas of Pudur, Vilathikulam, Karunkulam and Ottapidaram. However, Tiruchendur block is having higher MMR among the blocks in the district and adequate healthcare provisions are to be provided to control MMR especially in Primary Health Centres.

Vilathikulam, Pudur and Kovilpatti are basically backward blocks due to various socio-economic reasons. For example, these three low performing blocks are having low access to cooking fuel, toilet, drinking water, electricity and pucca house and low literacy rate led to these blocks under backwardness. Hence, in order to improve the HDI scores in these three blocks stringent actions are essential to improve the provision of LPG connections, provision of toilet facilities which control open defecation to enhance quality of human life. Besides, drinking water is another major setback especially in Vilathikulam (93.79), Pudur (88.51) and Kovilpatti (72.89) percent of the habitations are having no access to drinking water connections. This is not a very conducive situation and immediate steps need to be taken to solve this problem.

Literacy rate is also very low in Vilathikulam (72.53), Pudur (68.43) and Kovilpatti (77.62) and special attention need to be given to improve the literacy rate. However, the rates of IMR (8.89), MMR (70) and U5MR (11) in all the blocks are low and is a positive and good sign when compared to the district's performance. The GER in secondary level is quite low at Pudur block (97.93) compared to rest of the blocks. It shows that there is scope to achieve hundred percent literacy through informal education. The primary and secondary enrolment rates are up to the mark. However, the question arises to concentrate more on quality of education.

Thoothukudi block also attained at the top level in standard of living, health and education, but Udangudi has attained high development, both in education and standard of living, but not in health since higher order birth rate is one of the influencing factors for IMR and MMR which keeps the block under backwardness as far as health is concerned. There are several reasons why Udangudi block has a high birth rate. Children are considered as an asset and can add income to the family from an early age. A large family acts as social security for old age and children care for older family members. In fact, most people in Udangudi block are engaged in coconut and palmyrah products based business activities near urban centres and they may not stay back in their hometown to look after the assets and liabilities. In order to overcome the gap, they prefer to have more number of children that might have caused more IMR and (fortunately MMR was nil during 2013-14) and thereby the overall health index in Udangudi block seems to be very low when compared to other blocks even after the attainment of economic progress.

Pudur block is the lowest in literacy rate of 68.43 percent out of 13 blocks in the district, especially the female literacy rate is much lower than the other blocks and GER in Secondary education was also low. A closer examination of the level of achievement in the three indicators of human development reveals some insights into their interrelationship. The importance of income for achieving higher standards of living is well known. Income gives people the ability to buy goods and services. As income increases, it widens the range of consumption options. Accessibility and affordability of education and health services for the people is crucial for the low performing blocks to improve their level of human development.

Gender Inequality Index—Inter-Block Variations

There are three important dimensions used to measure gender inequality of inter blocks viz., Health, Empowerment and labour market. These three dimensions have fourteen indicators to compute the GII. The gender inequality index is the negative index. Here, the value is closer to the 0 and it shows lower gender inequality and value closer to 1, shows higher gender inequality. The result of this computation exhibits the GII of Thoothukudi district shows the lower range of inequality in seven blocks. Status of GII indicators are given in Appendix-I: Table 1.3, 1.4 and 1.5).

Gender Inequality Index has been worked out and the details are given below:

Dimension	Indicators
Health	MMR Share of institutional delivery Share of Anetenatal coverage
Empowerment	Female Literacy rate Male Literacy rate Share of female children 0-6 years Share og male children 0-6 years Share of female elected representatives in RLBs and ULBs Share of male elected representatives in RLBs and ULBs
Labour Market	Female work participation rate Male work participation rate Female work participation rate in non-Agri.Scector Male work participation rate in non-Agri Sector Female Agri. Wage rate Male Agri. Wage rate

Table – 2.2 Gender Inequality Index, 2014

Top 3 blocks			Bottom 3 blocks		
Karunkulam	**-**	**(0.083)**	**Corporation**	**-**	**(1.000)**
Kayathar	**-**	**(0.089)**	**Kovilpatti**	**-**	**(1.000)**
Alwarthirunagiri	**-**	**(0.090)**	**Ottapidaram**	**-**	**(1.000)**

Sources: Computed

The GII is a summary measure which has been found to be useful in comparing stages of gender development. It is also useful to compare GIIs and HDIs to assess the extent of gender equality. The empowerment of women is one of the central issues in the process of development of countries all over the world. Tamil Nadu has a glorious tradition of recognizing the importance of empowering women. Women's empowerment is a process in which women gain greater share of control over resources - material, human and intellectual like knowledge, information, ideas, and financial resources like money - and access to money and control over decision-making in the home, community, society and nation, and to gain power'. According to the Country Report on Government of India, "Empowerment means moving from a position of enforced powerlessness to one of power". Due to various efforts taken by the

Government of Tamil Nadu, gender inequality has been reduced tremendously over the years. However, in Thoothukudi district gender inequality has been reduced in various blocks with regard to health, empowerment and labour market. The table 2.2 reveals that there are three top and bottom blocks of gender inequality index.

The top three gender development blocks are Karunkulam (0.083), Kayathar (0.089) and Alwarthirunagiri (0.090) and bottom three blocks are Corporation (1.000), Kovilpatti (1.000) and Ottapidaram (1.000). Again, there are four more blocks that occupy the bottom positions as far as GII is concerned and they are Thoothukudi (1.000), Udangudi (1.000), Sathankulam (1.000), and Pudur (1.000) due to complex inadequacy of provisions. Karunkulam block has scored first rank among the sectors of health, empowerment and labour market. This block has performed well (see Appendix-I: Table 1.3, 1.4 and 1.5). The performance of female literacy (89.4) rate differs significantly and is greater than male literacy (81.8). The differences are around 8 percent and it has shown significant improvement. In case of 0-6 year's population, the differences between girls (49.1) and boys (50.9) have come closer together. A better performance is recorded in female (53.70) and male (46.30) elected representatives. Since the index shows a relative performance of the blocks, the block performance is better than other blocks in terms of gender development. On the other hand, the same block has performed very poor in human development index score is (0.672). The gender difference is heavily persistent in work participation. For example, comparing the gender work participation rates, the female work participation (38.04) is very low compared to male (65.49) work participation rate in Karunkulam block. The female work participation rate in non-agricultural sector (37.42) is also very low when compared to male (48.95) work participation rate since the scope available for male non-agricultural work is high in the district. In order to reduce gender inequality in the block, we must create a scope for female non-agricultural work so that the huge gender inequality can be reduced in terms of labour market opportunities for females. The female agricultural wage rate is also significantly less than male labour and this has to be increased significantly based on the minimum wage act. However, gender inequality is found to be very high in almost in seven blocks except in Tiruchendur (0.157), Srivaikundam (0.126), Vilathikulam (0.102), Alwarthirunagiri (0.090), Kayathar (0.089) and Karunkulam (0.083).

With regard to high rate of MMR in Tiruchendur (228.3), Srivaikundam (143.1), Sathankulam (123.9), Pudur (104), Karunkulam (90.4), Alwarthirunagiri (83.6) and Kayathar (69) blocks were controlled by providing better healthcare infrastructure. The noteworthy feature of the district is that almost 99.98 percent of the households have performed their deliveries through institutions. The antenatal coverage is to be given additional attention. As of Labour, Karunkulam, Alwarthirunagiri, Tiruchendur, Udangudi and Srivaikundam have got lower gender inequality whereas Pudur, Kayathar, Vilathikulam and Ottaipidaram have got higher gender inequality towards labour. The female work participation rate in the non-agricultural sector has been high in urbanised areas like Corporation (97.72), Udangudi (87.57), Tiruchendur (72.18) and Thoothukudi (71.93) and whereas female work participation rate is highly prevailed in agricultural areas of Pudur (64.22), Kayathar (51.48), Ottapidaram (45.09) and Vilathikulam (42.65).

Child Development Index—Inter-Block Variations

The child development index (CDI) is an index merging performance measures, particularly to children's education, health and nutrition. Index value falls between 0 to 1. The higher the index value, i.e. closer to 1, it would be the best in human development. The lower the index value, i.e. closer to the zero, the worse the children would be faring. The child development index for Thoothukudi district computed based on eight indicators prescribed by Madras Institute of Development Studies (MIDS) through State Planning Commission (SPC). Indicators and values used for CDI computation (see Appendix-I: Table 1.6 and 1.7). Child Development Index has been worked out and the details are given below:

Dimension	Indicators
Health	U5MR Child Sex ratio Percentage of malnourished Children
Education	Gross enrollment rate in primary Gross enrollment rate in secondary Children never enrolled in schools Transition rate from primary to upper primary Transition rate from upper primary to secondary

Table – 2.3 Child Development Index, 2014

Top 3 blocks			Bottom 3 blocks		
Sathankulam	**-**	**(0.765)**	**Karunkulam**	**-**	**(0.566)**
Tiruchendur	**-**	**(0.699)**	**Kovilpatti**	**-**	**(0.499)**
Udangudi	**-**	**(0.659)**	**Vilathikulam**	**-**	**(0.462)**

Sources: Computed

Table 2.3 shows the performance of child development among the thirteen blocks, and it has been ranked as top three and bottom three. The top three child development blocks are Sathankulam (0.765), Tiruchendur (0.699) and Udangudi (0.659) and bottom three blocks are Karunkulam (0.566), Kovilpatti (0.499) and Vilathikulam (0.462). In the context of CDI, the Sathankulam block has reached the rank of 1st reflects as one of the top performance block (see Appendix-I: Table 1.6 and table 1.7). Of the chosen indicators of CDI, Sathankulam block has performed positively well in reduction of U5MR (8), malnourished children (3.16), enrolment in primary (100.00), enrolment in secondary (98.00), transition rate from primary to upper primary (95.42) and transition rate from upper primary to secondary (93.09) and children never enrolled in school is very meagre (0.27) which contributes to keep CDI at top position. The ongoing programmes are also adding to bring higher score towards child development in that block.

Tiruchendur block has reached 2nd top child development block among the district. The index value of the block is 0.699 which denotes considerable reduction of U5MR and reduction of malnourished children. In the case of educational attainment, the block has achieved in primary education (100.0), secondary (99.35) and children never enrolled in school is very meagre (0.13). The CDI has got its own significance about the performance of that block. The transition rate of primary to upper primary (98.77)

and upper primary to secondary level (99.83) have significantly increased when compared to rest of the block. However, the dropouts at the level of school education must be viewed seriously and necessary steps needs to be taken to all the blocks. Again, the Udangudi block has also performed well in CID. It reveals that rate of reduction of U5MR is comparatively lower than the district average. The percentage of malnourished children is also substantially very low (3.25). The enrolment rates of primary (99.75) and secondary (98.50) education has significantly increased and the percentage of children never enrolled in schools is also quite impressive. The transition rate of primary to upper (98.75) and upper primary to secondary (99.66) is quite inspiring. Whereas in Karunkulam, Kovilpatti and Vilathikulam blocks needs to be improved as far as CDI is concerned. In Karunkulam, the CDI has scored the value of 0.566 which is a marginally low performing block due to several factors. The first factor is that the percentage of enrolment in secondary education (98.15) is very low. The transition rate of primary to upper primary and upper primary to secondary education are need to be given much importance. Kovilpatti block has reached 12th position as far as CDI is concerned. It scored CDI value of 0.499 which indicates it is a poor performing block. U5MR is marginally high in Kovipatti and enrolment of secondary education (98.50) is also very less which influences the low CDI. The percentage of children never enrolled in schools is more in Kovilpatti which needs to be given much importance to reduce the ratio. Likewise, the transition rate of primary to upper primary and upper primary to secondary education is not quite impressive.

Similarly, Vilathikulam is very bad performing block since the block is very poor enrolment rate in secondary education. It is quite evident that 1.10 percent of children had never enrolled in schools due to so many socio-economic reasons since the block is having high SC/ST population predominantly depending on agriculture as their livelihood and again malnourished children were found to be high in Vilathikulam (23.57) which makes the block poor. Another major important parameter to be noted is that child mortality needs to be controlled by treating malnourished children. On time vaccination, sanitation and safe drinking water must be ensured to all the residents. Juvenile sex ratio of the district across the blocks is lower than the overall sex ratio of the district. The highest child sex ratio is 992 in Tiruchendur and followed by Pudur block with 983. Therefore, it clearly shows that there must be some kind of policy interventions to be taken against sex selective abortion and thereby female children can be protected.

Education index is one of the proxy indicators for assessing the CDI. The educational development is measured based on using three indicators namely enrolment, transition rate of primary, secondary level education and children never enrolled in schools. In Thoothukudi district, both government and private schools are contributing to reach 3rd place in the literacy rate in the State of Tamil Nadu. Hence, a very high performance could be seen in all the blocks. These are reflecting only relative performance of the blocks. However, all the blocks have performed well in terms of the three indicators chosen for the analysis. The chosen indicators only reflect the enrolment and transition rate, which is mandatory for achieving the targets of the education department. It requires further analysis for examining the quality of education provided by the public and private schools of the district. Above all, there are some socially deprived people who feel that education is insignificant for them (e.g. Nari Kuravar) in Kovilpatti block and

they may not send their children to schools or sometimes even if they sent their children, they never complete their course at the end of the year, which has influenced to keep CDI as under progress. Therefore, special attention needs to be taken to educate those children and make them understand the significance of education for child development.

Multi-Dimensional Poverty Index—Inter-Block Variations

The Multi-Dimensional Poverty Index (MDPI) is a new measure designed to identify the exact shortages that the public look at the similar time. It can be used to build an ample image of people living in poverty, and permits comparisons across blocks. The final result of MDPI in Thoothukudi district exhibits the higher range of disparity among the blocks. While comparing to other indices like HDI, GII and CDI, the range is elevated for MDPI, 0.448. The range starts from Corporation (0.053) to Pudur (0.607). As per the MIDS and SPC guidelines, three dimensions are used to assess the disparity in poverty, v*iz*., Health, education and living standard with ten indicators. Indicators used for MPI computations are furnished here:

Dimension	Indicators
Health	MMR Higher Order Birth Rate Malnourished Children
Education	Drop out in Primary Drop out in Secondary
Standard of Living	Access to Cooking Fuel Access to Toilet facilities Access to Drinking water Access to Pucca house Access to Electricity

Table – 2.4 Multi-Dimensional Poverty Index, 2014

Top 3 blocks			Bottom 3 blocks		
Corporation	-	**(0.053)**	**Kovilpatti**	-	**(0.532)**
Alwarthirunagiri	-	**(0.335)**	**Vilathikulam**	-	**(0.599)**
Tiruchendur	-	**(0.387)**	**Pudur**	-	**(0.607)**

Sources: Computed

Table 2.4 shows the MDPI values comprising of standard of living, health and education. The scores are classified as top and bottom three blocks of the district. The top three blocks are the Corporation (0.053), Alwarthirunagiri (0.335) and Tiruchendur (0.387) and the bottom blocks are Kovilpatti (0.532), Vilathikulam (0.599) and Pudur (0.607). Corporation has performed well in MDPI and occupied first position as far as MDPI is concerned (see Appendix-I: Tables 1.8 and 1.9). Of the three sectoral indicators of health, education, and living standards, the performance of health is not upto the mark. However, this has to be viewed seriously and try to reduce IMR, higher order birth rate and malnourished children. When you look at the performance of the district, the IMR rate is higher in Kovilpatti block

(30.54) than the district average. The higher order birth rate has also significantly increased in Udangudi, Alwarthirunagiri, Thoothukudi, Srivaikundam and Sathankulam. The percentage of malnourished children has increased significantly doubled in Vilathikulam (23.57) and (22.12) percent in Karunkulam respectively when compared to the district average. The second rank was reached by Alwarthirunagiri and has occupied the index value of 0.335. The IMR (9.30) and malnourished children (8.11) in Alwarthirunagiri are indicators that make it the 2nd best performing MDPI block in the district. However, the high order birth rate has significantly increased as like other backward blocks which need to be addressed. Whereas among the bottom blocks in Thoothukudi district, the IMR in Kovilpatti is greater and has caused an increase in MDPI. Likewise, the Pudur block also had more IMR and the percentage of malnourished children have got great influence to show MDPI at higher degree. Similarly, in Vilathikulam, the percentages of malnourished children have got its own significance to keep the MDPI at a higher level.

Health is one of the major indicators to determine MDPI. Health index comprises of three indicators such as infant mortality rate, higher order birth rate and malnourished children. Overall, the district average performance of IMR is recorded as (0.770), high order brith rate (0.339) and malnourished children (0.651). The gap between the minimum and maximum is very high, and specific interventions are needed to reach the targets. As far has higher order birth rate is concerned, the minimum index value is reported in Corporation, Pudur, Kovilpatti, Ottapidaram and Kayathar and the maximum value is reported in Udangudi, Alwarthirunagiri, Thoothukudi, Sathankulam and Srivaikundam. Since the indicators are negative in nature, minimum value represents poor performance and higher value shows better performance. It could be concluded that the gap is very high among the blocks in terms of the three health indicators. It reveals that the households that have better access to the urban areas or growth centres of the region, have an upper edge in availing better health services. Besides, the health is determined by number of factors such as safe drinking water, access to toilet facilities, pucca house, electricity, cooking fuel, good food and surrounding environment.

There are three blocks which do not have adequate drinking water access in Thoothukudi district. They are Thoothukudi (55.07), Kayathar (66.67) and Kovilpatti (72.89) percent of the habitations are having poor access to drinking water. It should be viewed seriously in those blocks in order to ensure good health of the people. LPG connections also needs to be substantially increased in the days to come in those blocks which are not covered more than fifty percent in order to protect women and children from chronic discomfort from respiratory and asthma complications. In fact, there are more than 10 blocks in the district with coverage of less than 50 percent LPG connections. Besides, the government should provide individual toilet facilities to all households in order to avoid open defecation so that surrounding environment can also be protected. As far as the provision of electricity and pucca house in Thoothkudi district, the district average access to electricity is (93.56) and pucca house (73.85) which are highly significant achievements made by the Government of Tamil Nadu.

Integrated Analysis: Human Development Index

All the blocks are ranked along with the performance of the district. This has been presented in Table 2.5. Of the thirteen blocks, seven blocks scored above the level of the district's performance. Among the six blocks, the government can prioritize sectors and earmark the funds to achieve higher human development uniformly in all areas of the district.

Table - 2.5 Consolidation of HDI, GII, CDI and MDPI indices, 2014

S. No	Block	HDI Value	Rank	GII Value	Rank	CDI Value	Rank	MDPI Value	Rank
1	Thoothukudi	0.623	8	1.000	7	0.570	10	0.521	9
2	Krunkulam	0.672	5	0.083	1	0.566	11	0.509	8
3	Srivaikundam	0.662	6	0.126	5	0.611	6	0.492	7
4	Alwarthirunagri	0.783	2	0.090	3	0.601	7	0.335	2
5	Tiruchendur	0.639	7	0.157	6	0.699	2	0.387	3
6	Udangudi	0.770	3	1.000	7	0.659	3	0.401	4
7	Sathankulam	0.749	4	1.000	7	0.765	1	0.422	5
8	Kovilpatti	0.468	13	1.000	7	0.499	12	0.532	11
9	Kayathar	0.595	9	0.089	2	0.597	8	0.440	6
10	Ottapidaram	0.552	10	1.000	7	0.585	9	0.529	10
11	Vilathikulam	0.505	11	0.102	4	0.462	13	0.599	12
12	Pudur	0.476	12	1.000	7	0.645	5	0.607	13
13	Corporation	0.922	1	1.000	7	0.657	4	0.053	1

Source: Computed

Block wise HDI has been worked out and classified in the form of top three blocks and bottom three blocks. These classifications would help the policy makers to make an assessment. Some of the blocks have performed commendably well when compared to other blocks and it is highly skewed. It is interesting to note that Corporation (0.992) stands at the top followed by Alwarthirunagiri (0.783), Udangudi (0.770), Sathankulam (0.749), Karunkulam (0.672) and Srivaikuandam (0.662), Tiruchendur (0.639) and Thoothukudi (0.623). On the other hand, Kayathar (0.595), Ottapidaram (0.552), and Vilathikulam (0.505) have attained medium human development whereas Pudur (0.476) and Kovilpatti (0.468) have attained lower human development which needs to be improved by way of extending various schemes. It could be concluded that there is a wide disparity of human development among the blocks of the district due to various levels of access to cooking fuel, toilets, drinking water, electricity, pucca houses, reduction of IMR, MMR, U5MR, literacy rate, GER in primary and GER in secondary level education played major role. Hence, the provision of these facilities should be equally distributed among the blocks and this could reduce inequality in human development.

Integrated Analysis: Gender Inequality Index

The Gender Inequality Index (GII) reflects women's disadvantage in three dimensions of reproductive health, empowerment and the labour market. The index value shows the loss in human development due to inequality between female and male achievements in these dimensions. It ranges from 0 to 1, where 0 indicates that women and men are fairly equal and to 1, indicates that women are fair poorly in all the measured dimensions. Table 2.5 gives an outline of gender inequality index. This index comprises of health, empowerment and labour market. The compound index value of the district is (0.588). Among

the thirteen blocks of the district, the minimum value of the GII index vaues are recorded in Karunkulam (0.083), Kayathar (0.089) and Alwarthirunagiri (0.090) but the maximum score recorded by the district is (0.588) is large. It shows that in more than six blocks GII score is less than the district average GII score and it clearly explains that the GII is lower in those blocks when compared to severe gender inequality that persists in seven blocks like Corporation (1.000), Pudur (1.000) and Sathankulam (1.000), Thoothukudi (1.000), Udangudi (1.000), Kovilpatti (1.000) and Ottapidaram (1.000) due to it being labour intensive in nature. In general, the level of inequality is very low in all the blocks except few. However, the differences among the blocks are significant. With the HDI and GII score values, it could be noted that there is no symbiotic relationship. For instance, the Corporation ranks first in HDI but the same block has scored last rank of GII. Similarly, Sathankulam has scored second rank in HDI but the same block has scored a low rank in GII. It could be said that there is a rich scope in bringing down the level of inequality in the bottom three blocks of the district. In HDI, Pudur block stands in 12th position with a score of 0.476 whereas in GII, it stands in top position in the district with a score of (1.000). Therefore, any individual factor could lead to a block to have higher performance or lower performance and changes in it will also have its own significance to change index values.

Integrated Analysis: Child Development Index

Assessing and measuring the levels of child development is one of the indicators of human development. Table 2.5 shows that health and education sectoral indices are taken into account to arrive at the Child Development Index. The minimum values were recorded in Vilathikulam (0.462), Kovilpatti (0.499), Karunkulam (0.566), Thoothukudi (0.570), Ottapidaram (0.585), Kayathar (0.597) and Alwarthirunagiri (0.601) and the maximum values were recorded in Srivaikundam (0.611), Pudur (0.645), Corporation (0.657), Udangudi (0.659), Tiruchendur (0.699) and Sathankulam (0.765). The overall performance of the district with respect to the health indicator could be seen from Appendix-I: Table 1.7. The Vilathikulam block has ranked last in the district of Thoothukudi both in terms of HDI and CDI. Table 2.5 also reveals that the health sector is badly affected in the district irrespective of the blocks, and there is much to be done to reach the expected level of achievement in health and child development.

Integrated Analysis: Multi-Dimensional Poverty Index

This index comprises of health, education and standard of living. The health index comprises of IMR, higher order birth and malnourished children and the educational index includes primary and secondary school dropout rates. The standard of living index is comprised of access to cooking fuel, toilet, drinking water, electricity and pucca house. It uses micro data from household surveys and all the indicators needed to construct the measure must come from the same survey.

Each person in a given household is classified as poor or non-poor depending on the number of deprivations his or her household experiences. These data are then aggregated into the national measure of poverty. The overall MDPI has been worked out with simple average of all indices subtracting with one. It is expected that the derived index will reflect the true picture of the population. According to this index, only three blocks are performing better than other blocks. They are Corporation (0.053), Alwarthirunagiri (0.335) and Tiruchendur (0.387).

In general, the performance of Corporation block is relatively high. The local stakeholders need to look at different and specific problems and address them individually to achieve better performance. Therefore, the existing level of poverty differs significantly among the thirteen blocks of the district.

Conclusion

This chapter accommodates theoretical and conceptual framework and the methodology for evolving various indices like HDI, GII, CDI and MDPI. Each index reflects its own significant performances of the particular blocks. This analysis would help the policy makers to evolve policies and achieve overall development of the economy of the district and sometimes it may help to plan block level development. Further, it gives guidelines for the stumbling blocks in the execution of various district level developmental programmes conceived for alleviating poverty and reduction of inequality in the district as well as at the block level. The index result also helps the policy makers to intervene in the necessary goals to achieve sustainable balanced development in the district.

The performance of the HDI varies significantly across thirteen blocks of the district. Adequate attention may be given to those blocks which are poor in HDI, GII, CDI and MDPI. The government also would earmark adequate funds for achieving goals of vision 2023.

CHAPTER 3

EMPLOYMENT, INCOME AND POVERTY

Chapter
3
Employment, Income and Poverty

Poverty has received special policy focus among the international development goals accepted by the UN member countries on the eve of the new millennium. In fact, it is the first and foremost goal specified in the Millennium Development Goals.

The goal is to reduce poverty by half between the base year 1990, and the reference year, 2015. What is most important here is the explicit recognition that poverty has multiple dimensions, with implications for opportunities, security and empowerment. Any discussion on poverty during the new millennium must, therefore, focus on the different dimensions of deprivation and their policy implications before attempting to evaluate policy efforts to deal with them. However, the proportion of the population engaged in productive work, the quality of employment and the remuneration received by the working population are important determinants of human development. A lack of adequate opportunity for gainful employment results in lowering of income levels which in turn pushes people into poverty.

Thus, there is a close relationship between employment, income and poverty. Moreover, economic development is invariably associated with structural changes in GDP (income) and employment. A characteristic feature of a developing economy is a declining trend in the share of the primary sector in GDP. In the process of diversification of the economy, one would expect a shift in the share of workers from the primary sector to the secondary and tertiary sectors. An analysis of the trends in the sectoral shares in income and employment in Thoothukudi district shows that though there has been a decline in the share of the primary sector in income, it has not been accompanied by a significant shift in the share of employment. Consequently, a very sizeable section of the labour force i.e. 18.27 percent of the agricultural labourers still continues to depend on the primary sector.

The average income of persons depending on the agricultural sector is considerably less than those working in the secondary and tertiary sectors. The prevalence of poverty in rural areas is widespread mainly due to the low productivity of workers in the agricultural sector and the seasonal nature of employment. This chapter will highlight issues relating to employment, income and poverty in Thoothukudi district along with policy efforts to deal with these issues.

Employment

Table- 3.1 Total Workers and Non-Workers during 2001 and 2011

S. No.	Block-wise	Total worker		Main workers		Marginal workers		Non-workers		Total population	
		2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
1	Thoothukudi	143241	175902	132969	160261	10272	15641	262122	302426	405363	478328
2	Karunkulam	38196	39289	31341	33899	6855	5390	41247	46495	79443	85784
3	Srivaikundam	44455	49271	40671	45032	3784	4239	67985	67907	112440	117178
4	Alwarthirunagiri	45345	47031	39038	41952	6307	5079	71532	72834	116877	119865
5	Tiruchendur	39782	46551	35727	42829	4055	3722	79080	87950	118862	134501
6	Udangudi	28480	26022	23247	23516	5233	2506	43633	47908	72113	73930
7	Sattankulam	32187	31451	28043	26169	4144	5282	48209	49888	80396	81339
8	Kovilpatti	101103	120462	90914	107360	10189	13102	103538	136979	204641	257441
9	Kayathar	57599	59622	50962	52124	6637	7498	46114	50999	103713	110621
10	Ottapidaram	57212	61109	43745	48620	13467	12489	57547	62051	114759	123160
11	Vilathikulam	48870	50345	39464	41822	9406	8523	43534	44927	92404	95272
12	Pudur	42341	41040	32475	33863	9866	7177	28921	31717	71262	72757
	District	678811	748095	588596	657447	90215	90648	893462	1002081	1572273	1750176

Source: Census documents, 2001 and 2011

Note: Population of Corporation, Municipalities, CTs and TPs are added in the respective blocks.

Unemployment and poverty are inextricably linked in that one can't be decoupled from the other. Unemployment is the major cause of poverty. Unemployment leads to loss of income, self-reliance, skill and self-confidence, psychological and physical health, worker motivation and increase in ailment, morbidity and mortality. Poverty is characterized by deprivation of basic capability as well as lowness and inadequacy of income. From the above prospective, the district places the objectives of gainful employment generation and poverty reduction at the centre of the developmental strategy and planning. The incidence of unemployment is being addressed through adoption of coherent sector-specific policies and programmes. By the same token, the incidence of poverty is being addressed by a three pronged approach - accelerating economic growth, according thrust and stimulus to expansion of social infrastructure such as education, health etc., and enhancing the efficiency of implementation of poverty alleviation programmes.

Table 3.1 reveals block-wise size of workforce and work participation rate of Thoothukudi district during the period of 2001 and 2011. All the urban areas have been clubbed into concerned rural blocks of the district. It is observed that the population has increased from 15.72 lakhs to 17.50 lakhs in the district, but there is no substantial increase in the workers participation. The total workers of the district increased from 6, 78,811 to 7, 48,095 between the year 2001 and 2011. The decadal growth rate of total workers is 10.21 in the district. The same performance could not be seen in all the blocks. This may be attributed to endowment of natural and manmade resources. For instance, the total workers are very high in Thoothukudi, Karunkulam, Srivaikundam, Alwarthirunagiri, Tiruchendur, Kovilpatti, Kayathar, Ottapidaram and Vilathikulam compared to other blocks like Udangudi, Sattankulam and Pudur. In some of the blocks, the total workers are relatively low. The size and number of Village Panchayats differ significantly among the blocks of the district. Hence, there is a significant variation in terms of population and total workers. The main workers of the district has steadily increased from 5, 88,596 (2001) to 6, 57,447

(2011). The computed growth rate of the district is 11.70. A similar trend could be seen in all blocks of the district except Sattankulam block. The government aims to reduce marginal workers as well as non-workers by way of generating additional employment both in farm and non-farm sectors. However, the growth rate of marginal workers is very meagre to the level of 0.48 in the district. These marginal workers are not very close proportion to total population. In the case of non-workers, the growth rate of the district is 12.16. However, there is a rich scope in eliminating non workers in all the blocks of the district.

Workers Participation Rate

The labour force participation rate is a measure of the proportion of a country's working-age population that engages actively in the labour market, either by working or looking for work; it provides an indication of the relative size of the supply of labour available to engage in the production of goods and services. The breakdown of the labour force by sex and age group gives a profile of the distribution of the economically active population within a district. Gender and area wise workers of Thoothukudi district for the period of 2001 and 2011 is shown in Table 3.2. During 2001, the proportion of rural and urban workers of Thoothukudi district was 47.62 and 37.11 percent respectively. For rural areas, WPR is 47.85 and 37.65 for urban area during the year 2011. The percentage of the total workforce of the district has marginally decreased from 43.17 during 2001 to 42.74 during the year 2011. However, there is a marginal increase in the male workforce from 56.31 (2001) to 58.23 (2011). This may be attributed to the industrial and other service sectors development. On comparing the female WPR in urban and rural areas, the WPR in urban area is very low (i.e) 19.25 in the year 2001 which has further declined to 18.46. But in rural areas, the WPR is 36.73 in 2011 higher than the urban areas. This may be attributed to the failure of monsoon and poor irrigation potentials for agriculture. Nevertheless, the depressing fact is that the overall workforce in the district has significantly declined during 2001 and 2011 census periods.

Table 3.2 Worker Participation Rate during 2001 and 2011 in Thoothukudi District

Rural/Urban	Worker	2001	2011
Rural	Male	56.92	59.30
	Female	38.89	36.73
	Persons	47.62	47.85
Urban	Male	55.49	57.18
	Female	19.25	18.46
	Persons	37.11	37.65
Total	Male	56.31	58.23
	Female	30.67	27.61
	Persons	43.17	42.74

Source: Census of India 2001 and 2011

Box: 3.1. Poverty among Agricultural Labourers

Agricultural labourers are one of the most significant segments of rural population in India as well as in Tamil Nadu. In numerical terms, they constitute about one fourth of the total work force. Their number has been rising faster than the rate of growth of rural population. Their contribution to rural economy is highly significant. According to 2011 census, the total number of agricultural labourers in Pudur, Kayathar and Kovilpatti of Thoothukudi district were 10.78%, 15.94%, and 11.69% respectively. In absolute number it was 17399, 25732 and 18875 respectively. The living condition and the standard of living of agricultural labourers mainly depend on the income earned by them. It also depends upon the number of employment days available in a year. Moreover, it is influenced by their level of consumption and their debts. Therefore, in order to judge the standard of living of agricultural labourers, it is absolutely essential to find out their total income, consumption and recurring debts. In this background, the research has been undertaken to analyse the poverty level among the agricultural labourers in Thoothukudi district. 450 sample households were chosen for the study from three different blocks like Tiruchendur, Udangudi and Alwarthirunagiri. The study discloses that the average monthly per capita income of the male headed households was Rs.4, 047 and female headed households was Rs.3, 243 in 2012. The average per capita income of the male headed households was higher than the female headed households. It also brought to the notice that 70.85 percent of the households were under poverty line. The per capita income of SC agricultural labourers is comparatively lower than the rest of the group since these labourers mainly depend on other's land and they do not posses any land or assets for their survival. In these blocks, more than 22.20 per cent of the population completely depend on the wages they get in rural household industry. Another 30.64 per cent of the population comprises of marginal workers who do not generate sufficient income from their land. Even small farmers with up to five acres supplement their agriculture with outside jobs or wage employment. The evidence relating to rural labour households and agricultural labour households shows an explicit overall decline in employment both for male and female labour. There is also a decline in the average number of earning members per household. Clearly, the rural labour households and agricultural labour households in these blocks are characterised by low earning, decline in income, low consumption and high debt, and remedies will have to be found to generate more employment and income. In spite of all, several efforts have been made both by the Centre and State Governments in order to promote their livelihoods. Eventually, Tamil Nadu has made remarkable progress in certain sectors but no perceptible improvement in the living conditions of agricultural labourers. Hence, chronic poverty is inevitable among the agricultural labourers, especially among the Scheduled Caste and Scheduled Tribes. However, in Pudur, Kayathar and Kovilpatti blocks the agricultural labourers are under acute poverty due to discrimination of wages, using mechanized practices, cultivation of single crop due to poor irrigation potentials and other highly vulnerable social factors.

Source: Sacratees J. (2012), Manonmaniam Sundaranar University, Tirunelveli-12.

Sectoral Composition of Workers

Block wise sectoral composition of workers of the district is presented in Table 3.3. The total workers are classified in four categories, such as cultivators, agricultural labourers, household industry workers and other workers. The growth rate of cultivator's substantially reduced from 10.64 (2001) to 6.79 (2011) to the total workers during 2001 and 2011 due to failure of monsoon and even if they cultivate may not get fair price for their agricultural produce. Under this circumstance, cultivators have switched over to non-agricultural activities across the district and now major portion of land has become barren land. Therefore, it is essential to give top priority for water resources and thereby promote cultivator's livelihood. The growth rate of cultivators in all the blocks in the district seems to be decline between 2001 and 2011 census. The actual number of cultivators and agricultural labourers has been severely reduced across the district whereas the actual number of other workers has increased substantially. The proportionate percentage of agricultural labourers has decreased from 26.55 (2001) to 24.55 (2011). In order to sustain the overall growth rate of the economy, it is time to safeguard agriculture since agriculture is the only sector can augment sustainable income, employment and alleviate poverty among the rural poor.

Table- 3.3 Composition of Workers in Major sectors

S. No.	Block	Total workers		Cultivators		Agricultural Labourers		Household Industry		Other workers	
		2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
1	Thoothukudi	134321	160261	3170	1959	7724	5350	3360	2946	120067	150006
2	Karunkulam	35737	33899	6169	4589	16496	14314	2842	1770	10230	13226
3	Srivaikundam	42680	45032	5609	4213	13949	14099	2547	1581	20575	25139
4	Alwarthirunagiri	42761	41952	3902	3086	14196	12404	3375	1543	21288	24919
5	Tiruchendur	37077	42829	1500	1234	6762	6170	1438	1124	27377	34301
6	Udangudi	24079	23516	1736	1125	4218	2445	3572	1080	14553	18866
7	Sattankulam	29136	26169	2621	2200	6352	5450	4966	2353	15197	16166
8	Kovilpatti	93818	107360	6462	5282	14020	18875	7697	2430	65639	80773
9	Kayathar	55151	52124	9515	5958	21196	25732	1399	1173	23041	19261
10	Ottapidaram	53354	48620	9760	4649	24987	22164	2008	861	16599	20946
11	Vilathikulam	45998	41822	7950	5267	20667	17016	1177	648	16204	18891
12	Pudur	38398	33863	8913	5071	17335	17399	1102	363	11048	11030
District		632510	657447	67307	44633	167902	161418	35483	17872	361818	433524

Source: Census of India 2001 and 2011

Note: Population of Corporation, Municipalities, CTs and TPs are added in the respective blocks

The percentage of composition of workers in Thoothukudi district has reduced in 2001 from (10.64) cultivators, (26.55) agricultural labourers and (5.61) household industry to (6.79) cultivators, (24.55) agricultural labourers and (2.72) household industry respectively in 2011 whereas the percentage of other workers has increased from 57.20 (2001) to 65.94 (2011). The actual number of workers has increased from 3, 61,818 to 4, 33,524 during 2001 and 2011.

Box: 3.2 Women Textile Labourers in Thoothukudi District

The core aim of the study is to find the factors associated with the cardio-respiratory, musculoskeletal and back pain in textile workers. At present, the majority of illiterate women are employed in the textile industries. In spite of the improvement in textile technology the work environment has not changed much. Even today women are working with low wages in minimum physical comforts. Many research reports highlight that women working in textile industries suffer from musculoskeletal aches, respiratory allergies, bronchitis, visual impairments, tuberculosis and many more. The study sample of 200 sample women respondents from 15 different textile mills were selected for the study based on stratified random sampling aged between 18-60 years with minimum of 5 years of work experience in ginning, spinning and weaving activities during December 2013 to February 2014. The personal information was collected using a self structured questionnaire. Anthropometric measurements such as weight, height and waist circumference of the respondents were recorded at the time of the visit. The nutritional status of the respondents was assessed by WHTR (Waist to Height Ratio) which was calculated by using waist circumference and height (cm). WHTR = Waist circumference (cm) Height (cm).

Among the age group of 18-35, 26.72 per cent, 14.66 per cent and 5.17 per cent fell in at risk of obesity, obesity-I and obese-II categories respectively. While in the age-group of 36-60 years, 27.38 per cent, followed by 9.52 per cent and 16.67 per fell to obese-I, at risk of obesity and obesity-II categories respectively. Significant differences existed between young and middle aged adults with respect to BMI (2.183). There was a significant positive relation between age and BMI (0.163). According to WH ratio majority of 18-35 age group (90.9 percent) and middle aged adults (89.1 percent) documented normal nutritional status. Whereas only 9.1 per cent and 10.9 per cent of young and middle aged adults showed abdominal adiposity respectively. There was significant difference between the age group with respect to WH ratio (1.978). There was a significant positive relation found between age and WH ratio (0.158). The nutritional status of the respondents was also assessed by another method WHTR. It was noted that around 60.6 per cent, followed by 27.3 per cent, 10.1 per cent and two per cent of young adulthood fell in OK, take care-II, take care-I and action categories respectively. It was highlighted that among middle aged adults 50.9 per cent show take care-II category, followed by 40 per cent, 5.5 per cent and 3.6 per cent documented OK, action and take care-I categories respectively. There was a highly significant difference found between age groups with respect to WHTR (4.060). There exists a highly significant positive relationship between age and WHTR (0.313).

Again it was highlighted from the analysis that 53.2 percent of the women fell in less than 20 years category of nutritional status while 7.8 percent in between 25 to 30 years indicated underweight and 39 percent of them in at risk zone which included 35-40 years (35.7 percent) and action (3.2 percent) category. Therefore, in order to protect women's health, there is a need for specific nutritional and health programs initiated by the government health care system to create awareness among women in textile industries and they do not have any medical facility available within the premises. Provision of medical and housing facilities within the preview of the industry and facilitating proper physical arrangement such as lighting, availability of water and fresh air at work place can minimize the health problems of women.

The major prevalence of health hazards in textile industries are pulmonary abnormalities, respiratory symptoms, back pain and musculoskeletal aches were found to be high in the selected ginning, weaving and spinning divisions. Although, the ginning process is seasonal, both acute and chronic pulmonary abnormalities were visualized, which indicates both short-term and long-term effect due to cotton dust.

Source: Sacratees J., and Sankar M. (2012), Manonmaniam Sundaranar University, Tirunelveli-12

Box 3.3—Child Labour Decline in Thoothukudi District

Employment of children under a specified age in business is prohibited by law, as it deprives them of educational opportunities at the right time and stunts their productive capacity to a greater degree. The Indian Constitution stresses, under Article 24, that no child below the age of 14 years shall be employed to work in any factory or mine or engaged in any other hazardous employment. It also specifies, under Article 39, that the tender age children should not abused and not be forced to enter vocations unsuited to their age or strength, and are to be protected against exploitation and against moral and material abandonment. The incidence of child labour is the highest in the unorganized, informal and unregulated sectors. Higher incidence of child labour is also observed in home-based employment (beedi-rolling), apprentices in traditional crafts and in certain factory employment (match work). While elimination of child labour is the ultimate goal, the most urgent need is to prevent exploitation in terms of wages, duration of work and working conditions.

The National Child Labour Programme (NCLP) was initiated in the district of Thoothukudi in the year 1995. A society was formed to implement the National Child Labour Programme and was duly registered on 13-09-95. The project society's main activity is to set up schools across the district for working children. These schools are called special schools as they cater to the special needs of working children. The project society's main task is to withdraw children from work, enrol them in special schools and educate them for at least three years. After the children complete their education in these schools they are expected to join the mainstream of education or take up any vocation.

Under the National Child Labour Programme, forty schools with strength of fifty children each, was sanctioned to the district of Thoothukudi. By the first of June, 1996, 11 schools were started by the project society. Before the society could start all the sanctioned schools, the Government of India, by an order-dated 23.12.1996, imposed a ban in opening of fresh schools. This ban was subsequently lifted and the project society was allowed to open new schools. The following table gives an idea of the number of schools that are functioning under the NCLP programme in the district at present:

Number of Schools function under National Child Labour Programme

S. No.	Block Name	SpecialSchool Name	Number of students studying in NCLP Special Schools			SSA survey
			Boys	Girls	Total	
1	Toothukudi	1. Loorthammalpuram	33	12	45	33
		2. Inigo Nagar	26	6	32	18
		3. M.G.R. Nager (OverBridge)	21	22	43	10
		4. Thalamuthu Nagar	24	26	50	30
		5. M.G.R. Nagar (Siluvaipatti)	20	25	45	30
2.	Vilathikulam	6. Vilathikulam	11	26	37	---
3.	Kovilpatti	7. Bose Nager	26	23	49	20
		8. Thulasingam Nagar	23	27	50	16
		9. Ettapuram	18	19	37	10
4.	Kayathar	10. Ayyanaroothu	12	24	36	---
		11. Usilankulam	15	14	29	---
Total			229	224	453	167

Source: Project Director, Child Labour, Thoothukudi District

Box 3.4 Salt Production in Thoothukudi Region: Results of Filed Survey

The objective of the case study is to summarise the facts of the study carried out by the researcher in the Department of Economics, Manonmaniam Sundaranar University. It shows that the Thoothukudi region is dominated by small salt producers who operate outside the control regime of the salt department. They are known as Thanpadu Uppu Urpathialargal and this Tamil nomenclature translates into English as Self Labouring Salt Producers. Tamil Nadu Manual Workers' Union has sought the implementation of a separate welfare board for salt workers in Thoothukud district which is the biggest salt producer in the State, the second largest producer of salt in India. Working to unite unorganised workers in a bid to uplift and ensure comprehensive protection and livelihood rights. However, totally 34 welfare boards were operational in Tamil Nadu but nothing has happened even after several efforts have been made. The registered workforce was being provided with monetary benefits for marriage, education, natural death, accidental death and other necessary benefits through the existing welfare boards. Hence, salt workers who live in penury should be brought under the care of the Labour Department on par with 17 welfare boards under its guidance for people of various working classes. Citing long neglected issues of the working class, the union has sought both the intervention of the Central and the State governments to remedy the appalling conditions and ensure protection of salt workers basic amenities of employment guarantee, health and housing as an economic imperative. With more than 20,000 acres of salt pans across Thoothukudi district, the production was being done to meet the requirements of domestic market as well as international buyers. More than 55,000 workers from Kayalpatnam to Vembar hamlets located along the coastline in the district were being involved in salt production. Unfortunately, no effort was made to implement the much awaited welfare board for workers involved in salt production through which India continued to get heavy foreign exchange earnings. Edible salt production in Thoothukudi district is contributing more to meet domestic consumption demand in India. Citing the agony of salt workers for survival sans drinking water and housing in thatched huts which frequently gets damaged during unpredictable weather conditions like cyclones and thunder storms. These workers have been toiling both in salt pans and in their dwelling places. They tend to work only a period of six months and get no employment during the rainy seasons. Besides, their health gets affected in terms of eyesight and skin problems. Hence, the MGNREGS should be extended to the salt workers along with ESI medical assistance should be provided through welfare board when it would be implemented. In order to promote their well being of salt workers, monsoon allowance should be extended to them just like fishermen.

Source: Sacratees. J (2014) Manonmaniam Sundaranar University, Tirunelveli-12

Registration and Placement

Table 3.4 Registration and placement provided by the empoloyment Office

S. No.	Year	Registration	Placement	% of Placement
1	2007	27,000	600	2.22
2	2008	25,500	612	2.40
3	2009	28,000	612	2.19
4	2010	27,073	746	2.76
5	2011	26,000	1,454	5.59
6	2012	28,032	932	3.32
7	2013	27,762	890	3.21
8	2014	29,104	1,052	3.61
Total		2,18,471	6,898	3.16

Source: District Employment Office, Thoothukudi, 2014.

The table 3.4 presents placement and registration figures obtained from the District Employment Officer, Thoothukudi for the period of 2007 to 2014. The figures show that only 600 people got placement in 2007 i.e. 2.22 percent against the total number of registered unemployed youths (27,000) during the year and it has slightly increased over the years. The percentage of placement has increased from 1.22 percent in 2007 to 3.61 percent in 2014. For Thoothukudi district as a whole, a negligible number of 29,104 people got a placement through employment registration up to 2014. The opportunities in government services

are very meagre and the unemployed youths are opting to work in private industries since the district has enormous industries.

Box 3.5 MGNREGS –Employment and Income

Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is a centrally sponsored scheme and is a national programme to provide 100 days of employment to begin with, through asset-creating public works every year at minimum wages to able bodied person if every rural poor household. The MGNREGS came into force in 2006 in India's 200 most backward districts. In 2007, it was extended to another 130 districts and with effect from April 1, 2008; the Act is to cover all districts. Union Budget 2009-10, provided for 39,100 crores for MGNREGS. Union Budget (2010-11), this allocation has been enhanced to 40,100 crores. This scheme now extends to all districts of the country. MGNREGS in Tamil Nadu, the scheme was launched on 02-02-2006 and was initially implemented in six districts. From 01-04-2007, four more districts were covered by the scheme. From 01-04-2008, the scheme was extended to twenty more districts. The works taken up in the programme include: (i) formation of new ponds (ii) renovation of existing ponds, kuttais, kulam, oranies and temple tanks etc.(iii) desilting of channels (iv) desilting and strengthening of bonds of irrigation tanks,(v) formation of new roads and (vi)other water conservation/soil conservation measures/flood protection measures.

Addressing the challenge of unemployment in the rural areas of the district is central to the development of rural sector for ameliorating the economic condition of the people. According to the recent data, total 367387 (69.74%) of the households got employed under MGNREGS in Thoothukudi district out of 526780 households. However, the percentage of households that got employment differs among the blocks and this could be seen from the following table.

Households provided employment under MGNREGS in Thoothukudi District

S. No	Blocks	Total No. of HH	HH provided jobs under MGNREGS	% of HH provided with jobs
1	Thoothukudi	47642	5887	12.36
2	Karunkulam	31453	13936	44.31
3	Srivaikundam	24745	15834	63.99
4	Alwarthirunagiri	31854	18043	56.64
5	Tiruchendur	11200	6186	55.23
6	Udangudi	21306	12859	60.35
7	Sattankulam	21038	12361	58.76
8	Kovilpatti	56490	28370	50.22
9	Kayathar	32282	24496	75.88
10	Ottapidaram	54367	51161	94.10
11	Vilathikulam	29640	25161	84.89
12	Pudur	26178	14508	55.42
13	Corporation	138585	138585	100.00
District Total		526780	367387	69.74

Source: District Rural Development Agency

The above table reveals that more than four blocks have got more than 75 percent employment through MGNRGES and rest got between 50 to 63.99 percent. However, Thoothukudi and Karunkulam blocks got less than 50 percent employment like 12.36 and 44.31 percent respectively. The average work undertaken in the district was 69.74 percent. An analysis of the employment generated by MGNREGS in all the blocks has been discussed based on the data given by the District Rural Development Agency. Besides, the data reveals that in all the blocks the number of persons who demanded employment was far less than those who registered for employment. The proportion of families who completed 100 days of employment was very negligible and the majority of the respondents who have raised their voices towards increasing the days of work would increase in their income earnings. The general economic condition in the Thoothukudi district is highly embedded with agricultural activities, low rainfall, net irrigated area and industrial backwardness, which indicated that MGNREGS is to create a positive impact on employment and income and thereby promote overall livelihood of the rural population.

Income

Sectoral Distribution of Gross District Domestic Product

The sectoral distribution of gross district domestic product in Thoothukudi district during 2009-2012 has been highlighted in table 3.5. During 2009-10, the district's GDDP was ₹ 10, 61,784 lakhs at constant prices of 2004-05. It has increased continuously and reached to ₹ 12, 28,777 lakhs during 2011-12. With Annual Growth Rate of 7.5 percent during the last three years for Thoothukudi district and for the same period for the State of Tamil Nadu i.e. Gross State Domestic Product (GSDP) growth rate is 21.48 substantially high. Of this, the major contribution is tertiary sector (i.e) (64.91) followed by secondary (24.67) and primary (10.42) sectors. The sectoral contribution of GDDP from secondary and tertiary sectors played a major role during the last three years. It reveals that contribution of primary sector over the years from to 2009-10 to 2011-12 to GDDP was declining.

Table 3.5 Sectoral Distribution of Gross District Domestic Product

Sector	GDDP- At Constant Price (2004-05) (in Lakhs)					
	Thoothukudi			Tamil Nadu		
	2009-10	2010-11	2011-12	2009-10	2010-11	2011-12
Primary	1,06,010 (9.98)	1,01,258 (8.81)	1,28,034 (10.42)	32,79,727 (9.20)	35,16,987 (8.72)	38,72,767 (8.94)
Secondary	2,85,246 (26.86)	3,00,405 (26.15)	3,03,199 (24.67)	1,08,57,492 (30.44)	1,25,42,302 (31.09)	1,30,39,248 (30.10)
Tertiary	6,70,528 (63.15)	7,47,302 (65.04)	7,97,544 (64.91)	2,15,25,966 (60.36)	2,42,8,2284 (60.19)	2,64,11,788 (60.96)
Total	10,61,784 (100.0)	11,48,965 (100.0)	12,28,777 (100.0)	3,56,63,185 (100.0)	4,03,41,573 (100.0)	4,33,23,803 (100.0)

Source: Department of Economics and Statistics, Govt. of Tamil Nadu, 2014.

Per capita Income

Per capita income (2004-05) at constant prices for Tamil Nadu rose to ₹ 63, 996 in 2011-12 from ₹ 33, 998 in 2004-05 registering an average growth rate of 9.46% for this period. Irrespective of high social, economic indices, there are sharp differences between rural and urban areas as well as among various geographical regions with respect to percent of poor population. Thoothukudi had the second highest literacy rate and low birth rates, but not on par with Kanyakumari district as exceptionally high poverty ratio persists. The district's per capita income rose from ₹ 44, 884 in 2004-05 to ₹ 74,933 in 2011-12.

Table 3.6 Per capita Income

At Constant Price (2004-05) In ₹.		
Year	Thoothukudi	Tamil Nadu
2004-05	44884	33998
2005-06	50658	38435
2006-07	57749	43941
2007-08	57720	46293
2008-09	59921	48473
2009-10	65105	53359
2010-11	70249	59967
2011-12	74933	63996

Source: Department of Economics and Statistics, Govt. of Tamil Nadu, 2014.

Box No: 3.6 Marine Fish Production in Thoothukudi

There are 21 coastal fishing villages in Thoothukudi district of Tamil Nadu, of which one is a major fish landing centre and 20 minor fish landing centres. Thoothukudi is blessed with a wide variety of flora and fauna inhabiting the fragile ecosystems of coral reef and mangroves. Corals and mangroves play a vital role in maintaining the productivity of coastal areas acting as breeding ground, nursery and as habitat for many economically important species. Thoothukudi is well known for pearl diving, sunk and fishing. Marine fishermen along Gulf of Mannar coast are mainly constituted by a community called 'Paravars'. This community inherits ancient fame and is variously named as the 'Paravars', or Bharathars'. Fishery resources are of vital importance not only to maritime countries where it is a source of livelihood for many people but also as world food resources. There are about 399 mechanized fishing boats in Thoothukudi fishing harbour. The fishermen of each mechanized boat spend about Rs. 20,000 daily for diesel, food and wages for their venture throughout the day. Production statistics shows that in the inshore waters, the traditional fishermen fish are highly productive. With increased mechanization and expansion of fishing grounds, trawl nets have become the principal gear for exploitation of cephalopods in this gulf. In the Gulf of Mannar, neritic squids and cuttlefishes mainly constitute the cephalopod fishery. The total marine fish production in the district was 48,996 tonnes in 2009-2010, occupying the third place in the state. The total marine fish production in Thoothukudi district increased from 39,575 tonnes in 1992-1993 to 49,000 tonnes in the year 2009-2010. The sudden increase of total marine fish production noticed in the year 1998-1999 was due to the favourable fish catching. Majority (86.05%) of the fishermen in the coastal study area belong to Roman Catholic Christian Paravar (Fernando) Community. Some of the fishermen are Hindus (11.81%) and a few are Muslim (2.14%) fishermen in Thoothukudi coastal area. Majority of the fishermen in the selected villages belong to Paravar (Fernando) community. The sample village people (84.59%) belong to Most Backward Community, 14.36 per cent belongs to backward community and 1.05 per cent comes under Schedule Caste. The fisher folks are living in isolated habitations lying very close to the seashore. The streets are narrow with uneven ground. This study reveals that majority of the fishermen are living in own houses with unhygienic conditions without having proper electric lamps, lavatory and drinking water facility. Pucca roads and communication facilities are deficient in almost all coastal villages. A total of 5,574 families dwell in these areas. The Government of Tamil Nadu has provided free houses to 2,187 families. Among them majority are fishing labourers and 1,684 fishermen families live in rented houses. The socio-economic conditions of marine fishermen are not uniform throughout the district. The ethnic differences in the marine fishermen population with distinct variation in the crafts and gears used for fishing govern to a great extent the economic conditions of the fishermen. The ownership of mechanized boat refers to the possession of any household who owns a mechanized boat and uses it for fishing and whose major portion of income consists of owner's share, earned out of fishing with such boats. The types of crafts, gears and specific occupation of the fishers are the most important factor which influences the level of income of the fishermen. Among the mechanized fishing boats, 98.77 percent of the mechanized boats were owned by individuals and the remaining 1.23 per cent under partnership. Craft is the most important factor for catching large quantity of fishes. The role of mechanized fishing has considerably influenced the socioeconomic conditions of fishermen in the district. Thus, the socio-economic development of marine fisher folk is intimately connected with the development of marine fishing. In order to promote fisher folk livelihood, a separate fish preservation Centre needs to be established in the coastal area in Thoothukudi district, which will reduce the distress of the fishing community.

Source: Sacratees J. (2014), Manonmaniam Sundaranar University, Tirunelveli-12.

Poverty and Inequality

Table 3.7 Below Poverty line during 2013-14

S. No.	Block	Total No. of Households	Total No. of BPL Households	% of BPL families
1	Thoothukudi	30060	12514	41.63
2	Karunkulam	24271	2602	10.72
3	Srivaikundam	18102	4679	25.85
4	Alwarthirunagiri	20421	3740	18.31
5	Tiruchendur	8803	698	7.93
6	Udangudi	17204	1226	7.13
7	Sattankulam	19034	2202	11.57
8	Kovilpatti	34648	4661	13.45
9	Kayathar	24734	4266	17.25
10	Ottapidaram	29037	2408	8.29
11	Vilathikulam	22720	6213	27.35
12	Pudur	18867	3890	20.62
District		267901	49099	18.33

Source: Project Director, DRDA, Thoothukudi, 2014
Note: Corporation, Municipalities, CTs, TPs are added in the respective blocks.

The table 3.7 shows the extent of people living Below the Poverty Line (BPL) in 12 blocks of Thoothukudi district. The district average below poverty line families' are 18.33 during 2013-14 and some blocks were having the poverty level above the district average in the blocks of Thoothukudi (41.63), Vilathikulam (27.35), Srivaikundam (25.85) and Pudur (20.62) but whereas Tiruchendur (7.93), Udangudi (7.13), Ottapidaram (8.29), Karunkulam (10.72), Sathankulam (11.57), Alwarthirunagiri (18.31), Kovilpatti (13.45) and Kayathar (17.25) blocks had BPL families lower than the district average. This table draws our attention to the fact that 12 blocks need intensive strategies to eradicate poverty by way of implementing wage and self employment programmes. Even among these blocks, nine blocks need a special attention to be given to eliminate poverty since these blocks had more poor households than the district average.

Public Distribution System

The Public Distribution System (PDS) is a nutrition-based intervention. Tamil Nadu's PDS aims at price stability and attempts to make available few selected consumption items are easy access to mass consumption, particularly the vulnerable sections of the society at reasonable prices. There are 4,65,845 households in Thoothukudi district were being provided ration cards. The PDS in Tamil Nadu is unique since it is based on the choice of the people and covers all families either economically backward or forward without any discrimination between urban and rural population. Through PDS outlets extends throughout the district for essential commodities like, rice, wheat, sugar, edible oil, Maida, pulses and kerosene are being distributed to the consumers at below market price. It is a tool to enrich human development from starvation. The PDS is an essential element of the government's safety net for the poor and marginalized

society and thereby alleviates hunger from the society. The present State Government of Tamil Nadu is also providing 20 kg rice at free of cost in order to alleviate hunger from the society across the State of Tamil Nadu to each poor families. Thus, about 4, 65,845 households are entitled to make use of ration cards to buy essential commodities at subsidized prices. However, in spite of the sustained and massive investments in direct nutrition schemes launched by the government, the prevalence of hunger and anemia still persists across the district. The district supply office maintain the data at the taluk level, hence the analysis has been made in the same manner.

Table 3.8 Family Card Holders

S. No.	Taluks	Households provided with family Cards
1	Thoothukudi	123054
2	Srivaikundam	52417
3	Tiruchendur	78290
4	Sattankulam	26955
5	Kovilpatti	90807
6	Ottapidaram	35088
7	Vilathikulam	37835
8	Ettayapuram	21399
District		465845

Source: Department of Statistics, Thoothukudi, 2014.

Conclusion

It is to be concluded that the percentage of composition of workers in Thoothukudi district has reduced drastically from 2001 to 2011 census of all labour force like cultivators, agricultural labourers and household industry. Irrigational potential has not been fully harnessed to create employment opportunities in rural areas and are not available throughout the year. Agriculture, predominant activity is seasonal and people living on agriculture have to bend for themselves during the offseason in other non-farm activities. As a result, they migrate to nearby towns and cities in search of jobs. In fact, MGNREGS provides a steady source of income and livelihood security for the poor, vulnerable and marginalised to some extent. The district employment exchange is providing employment in a very marginal and the opportunities are very limited to government departments. However, the district per capita income is high compared to the State income but it never revealed the overall district development since the development took place only in urbanised and semi-urbanised areas. The below poverty line households are high in the district. However, the State has made significance strides in terms of poverty reduction and it has also achieved a lot in terms of the interventions in social sector. Besides, the State needs to concentrate more on agricultural sector like increasing irrigation potentials, access to avail agricultural inputs, fair prices for agricultural commodities and thereby ensure poverty reduction.

CHAPTER 4

DEMOGRAPHY, HEALTH AND NUTRITION

Chapter

4

Demography, Health and Nutrition

In the HDI, life expectancy is the indicator which is meant to capture the overall health status of the population. However, health is much more than just life expectancy; it includes questions of fertility, morbidity, mortality and nutrition. The other important point is that health status is rarely the outcome of government policies and programmes alone. In fact, it is often the outcome in spite of government programmes. This chapter documents the demographic, health and nutrition status of Thoothukudi district. It analyses the trends and changes in health and nutrition indicators in the district, the effectiveness of government policies and program scan play to influence health outcomes.

Demographic Trends and Health Indicators

Demography is the study of human population dynamics. It encompasses the study of the size, structure and distribution of population, and how population change over time due to births, deaths, migration and ageing. Demographic analysis can relate to whole societies or to smaller groups defined by criteria such as education, religion or ethnicity.

Population and Demographic Transition

An analysis of the decennial growth of population in the district from 2001 to 2011 shows that total decadal population grew at 10.16 percent during this period. Thoothukudi's population in 2001 was 1.57 million as per the 2001 Census. The growth of population in Thoothukudi district has increased 1.75 million during 2011 much sharper than that before 2001. From the perspective of disease control and nutrition, this can be construed as a positive development. Birth rates declined significantly in the 1970s and even more so in the 1980s. Since then, both birth and death rates have been declining in such a way as to result in a slow but gradual decline in the natural rate of growth. That this decline occurred even before sustained and widespread increases in economic growth took place and, in spite of sharp inequalities in standards of living, is noteworthy. Both morbidity and mortality are important indicators of health status. Data on morbidity patterns are scarce and are not easily reducible to simple and striking indicators. The discussion of the basic indicators of the health status of Thoothukudi comprises of the following variables: birth and death rates, IMR, fertility rate, proportion of institutional deliveries and sterilizations. The population density of the district is

Table: 4.1 - Demographic Profiles during 2001 and 2011

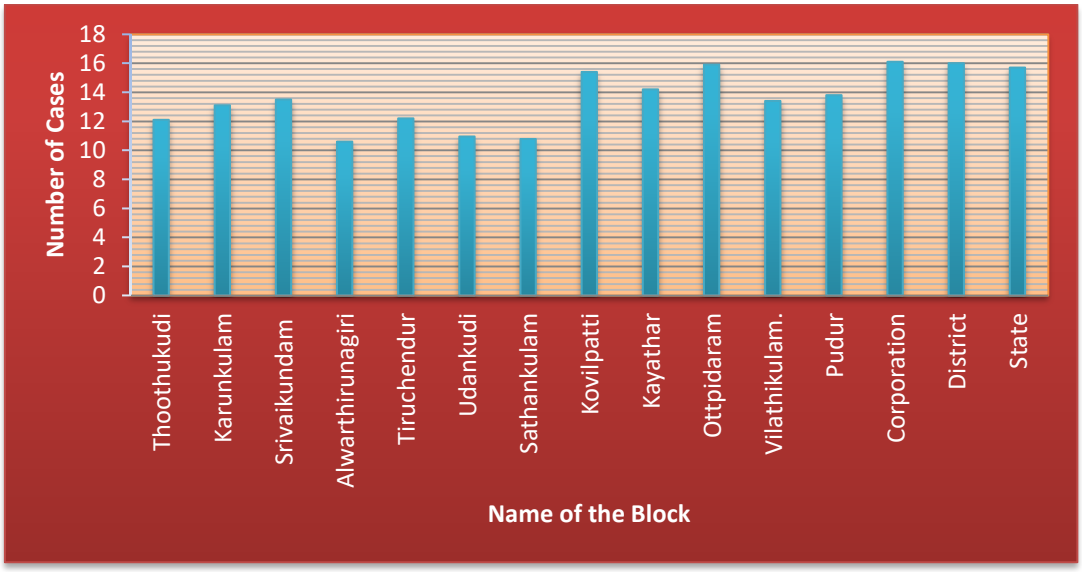
S. No.	Block	Population		Density		SC Population %		ST Population %	
		2001	2011	2001	2011	2001	2011	2001	2011
1	Thoothukudi	405363	478328	1108	1307	13.0	15.0	0.2	0.2
2	Karunkulam	79443	85784	228	246	27.0	27.0	1.3	1.2
3	Srivaikundam	112440	117178	461	480	18.0	20.0	0.9	0.9
4	Alwarthirunagiri	116877	119865	549	563	18.0	19.0	0.9	0.8
5	Tiruchendur	118862	134501	874	989	15.0	16.0	0.9	0.8
6	Udankudi	72113	73930	366	375	9.0	10.0	1.5	1.5
7	Sathankulam	80396	81339	291	295	7.0	9.0	1.4	1.3
8	Kovilpatti	204641	257441	488	480	17.0	20.0	0.5	0.4
9	Kayathar	103713	110621	182	194	25.0	26.0	1.0	0.9
10	Ottpidaram	114759	123160	156	167	41.0	42.0	0.9	0.8
11	Vilathikulam.	92404	95272	148	153	23.0	25.0	1.1	1.1
12	Pudur	71262	72757	145	148	19.0	21.0	1.4	1.4
District		1572273	1750176	340	369	18.0	20.0	0.1	0.1

Source: Census of India, 2001 and 2011.
Note: Corporation, Municipalities, CTs and TPs are added in the respective blocks.

Crude Birth Rate

The Crude Birth Rate (CBR) and Crude Death Rate (CDR) are statistical values that can be utilized to measure the growth or decline of a population. The Crude Birth Rate and Crude Death Rate are both measured by the rate of births or deaths among a population of 1000. The CBR and CDR are determined by taking the total number of births or deaths in a population and dividing both values by a number to obtain the rate per 1000. In that case, CBR has declined marginally than that of the State. Between 2010 and 2011, Toothukudi district's CBR declined from 15.7 to 14.5, (a decline of nearly 1.2%) whereas in Tamil Nadu as a whole the CBR has not declined from 15.9 in 2010 and remains the same in the year 2011. However, CBR rate has increased to 16 in Thoothukudi district but the State average started to decline from 15.9 to 15.7 during the periods of 2011 to 2014. There was a vast difference that could be seen at block level, but as a whole it has come down significantly over the years due to the goal set by the National Health Policy and State plan target. Kovilpatti block has got highest CBR record among the blocks of 35.5 in 2009 and has reduced to 30.6 in 2014. It was much higher than the State and Nation too, but higher value has been recorded due to Kovilpatti block merged with Kovilpatti Municipality.

Fig- 4.1 Trends in Crude Birth Rate in 2014

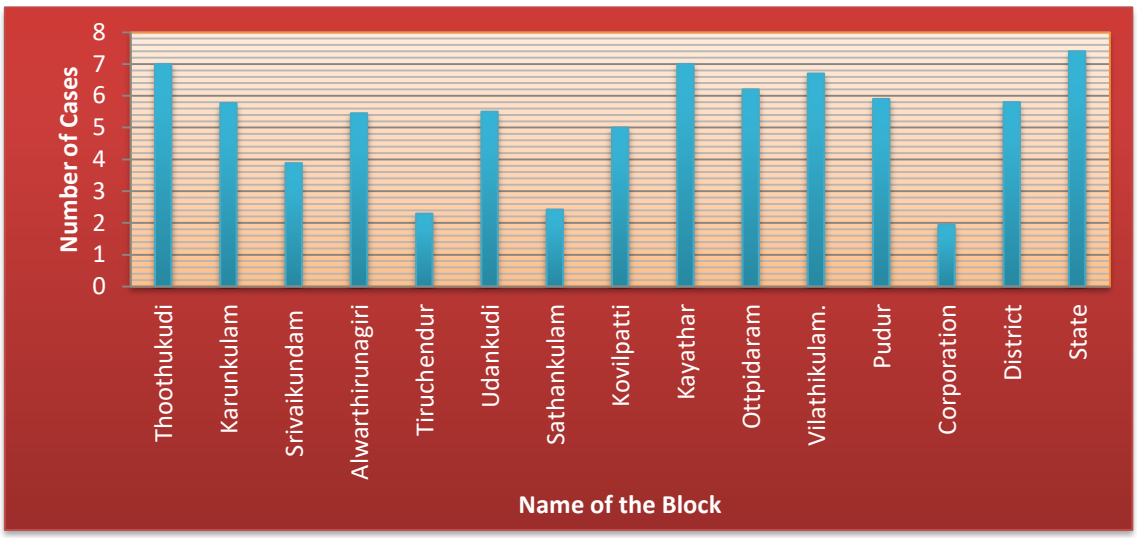


Source: Health Department, Thoothukudi, 2014

Crude Death Rate

Crude Death Rate has marginally declined since 2009 to 2011 and again it has increased to 5.8 in Thoothukudi district whereas at block levels there was not much difference in the crude death rate. Alwarthirunagiri, Karunkulam, Kovilpatti, Kayathar, Ottapidaram and Vilathikulam blocks are having more CDR but still the CDR has got little higher than previous years in few blocks. It shows the achievement of the government in controlling population growth in all the blocks. Rural–urban differences will have some influence over CDR and rural birth and death rates exceeding the urban rates, but the gap between rural and urban rates have been little. Thus, even in the presence of significant rural–urban differences in settlement as well as other socioeconomic indicators, a trend towards homogenization are observed particularly for birth rates. However, it is largely due to the fact that there is a strong rural–urban continuum in the settlement structure.

Fig-4.2 Trends in Crude Death Rate in 2014



Source: Health Department, Thoothukudi, 2014

Sex Ratio

Table- 4.2 Sex Ratio during 2001 and 2011

S. No	Block Name	General		Increase or Decrease	SC Sex Ratio		Increase or Decrease
		2001	2011		2001	2011	
1	Thoothukudi	993	999	6	1062	1097	35
2	Karunkulam	1054	1028	-26	1050	978	-72
3	Srivaikundam	1052	1016	-36	960	935	-25
4	Alwarthirunagiri	1099	1026	-73	1123	1213	90
5	Tiruchendur	1100	1053	-47	950	970	20
6	Udangudi	1164	1060	-104	964	857	-107
7	Sattankulam	1224	1079	-145	915	913	-2
8	Kovilpatti	1036	1049	13	716	723	7
9	Kayathar	1065	1020	-45	742	722	-20
10	Ottapidaram	1014	999	-15	761	757	-4
11	Vilathikulam	1038	1002	-36	782	769	-13
12	Pudur	1026	1023	-3	776	773	-3
District		1050	1024	-27	900	892	-94

Source: Census 2001 and 2011

Note: Corporation, Municipalities, CTs and TPs are added in the respective blocks.

The sex ratio is an important demographic indicator used to measure the extent of gender inequality in a society. The gender difference in child mortality rate is considered to be the reason for low and declining proportion of females to males in the population. This can be attributed to more girl child death due to lack of proper nutrition, care and attention given to them. The other reason for the decline in sex ratio could be female infanticide and foeticide. Again, the sex ratio is a widely used indicator of gender discrimination as it captures various facets of discrimination against women like lack of bargaining power, lack of education and health investment, lack of asset ownership, etc. Many studies have provided evidence that it is excessive female mortality before birth, in infancy, and in childhood, which mainly account for the imbalance in sex ratios. Given this, it's been perhaps more apt a problem of missing girls than missing women, as popularized by Sen. Broad interrelated factors that create a situation where sons are preferred and daughters suffer discrimination and neglect are: Patrilineal patterns of inheritance, an exogamous lineage system of women, the existence of dowry system, sons providing old age support to parents and not daughters, sons alone can perform funeral rituals of the parents, increasing proportion of small families and raising the cost of upbringing particularly that of education. Post independence the sex ratio (Number of females per 1000 males) in India had recorded decline till 1991. Thus, the most serious contemporary concern is the elevated female death rates due to gender discrimination, which offsets the natural lower morality of females. Economic development does not necessarily solve this issue and in some cases, sex ratio had declined with economic improvement. However, the sex ratio in India has since shown some improvement. It has gone up from 927 females per 1000 males in the 1991 census to 933 females per 1000 males in 2001 census and to 940 females per 1000 males in the 2011 Census of India. Thoothukudi district sex ratio was higher than that of the State both during 2001 and 2011. This indicates that the difference between male and female was lower in the district than in the state. But the block wise sex ratio had not

improved, on the contrary the overall sex ratio of the district had declined from 1050 to 1023 during 2001 and 2011 census decreases at minus 27 (numbers) over the decade indicating that there is slight discrimination that had occurred sporadically across the district. There was little discrimination that can be observed in terms of sex discrimination amongst SC and ST population as well, but the degree was high among SC than ST population except Thoothukudi and Ottapidaram blocks. There was a positive difference amongst the ST population with regard to sex ratio except Thoothukudi, Karunkulam, Sattankulam and Kayathar blocks.

Child Sex Ratio

Table- 4.3 Child Sex Ratio in 2011

S. No	Block Name	Population in the age group of 0-6 (2011)		Sex-ratio
		Male	Female	
1	Thoothukudi	27156	26237	970
2	Karunkulam	4847	4678	965
3	Srivaikundam	6530	6217	952
4	Alwarthirunagiri	6400	5944	929
5	Tiruchendur	7518	7460	992
6	Udangudi	3710	3517	948
7	Sattankulam	4226	4035	955
8	Kovilpatti	12190	11889	975
9	Kayathar	5773	5525	957
10	Ottapidaram	6600	6294	954
11	Vilathikulam	4997	4767	954
12	Pudur	3658	3595	983
	Corporation	NA	NA	NA
	District	93605	90158	963

Source: Census, 2011

While the overall general sex ratio had decreased in Thoothukdui between 2001 and 2011 from 1050 to 1024, the juvenile sex ratio had decreased from 963 to 953 between the year 2011 and 2001. Alwarthirunagiri has the lowest juvenile sex ratio of 929 (Census, 2011). There are eight blocks Thoothukudi, Karunkulam, Srivaikundam, Alwarthirunagiri, Tiruchendur, Vilathikulam, Pudur and Corporation blocks are having very low child sex ratio of 951. Even with rise in awareness, advancement of technology and increase in educated individuals; the child sex ratio in the district is dwindling. Several government laws and schemes have focused on curbing female infanticide but still discrimination against girl child exists. Traditionally, girls and women have been looked upon as a burden in a patriarchal society. Even if they were born, providing nutritious food, sending them to good schools and investing in them on par with the male child is still not a reality in many of the villages, towns and cities in the State. Girls are rather looked at as somebody you need to start saving money for, buying gold and able to give a dowry to get her married. Especially in Thoothukudi district, dowry practice is prevalent.

In fact, across the State or nation too, we still practice deep-rooted traditional preference for the male child rather than female baby. In the recent times, it has taken an ugly turn with innumerable crimes against women, increasing cases of rape and selective abortions which causes low child sex ratio. Another important fact to be noticed is that, even educated and affluent people prefer to have a male child rather than female child. They felt that protecting and ensuring good life to the daughter is a daunting task and so they do not prefer for female child.

Life Expectancy at Birth (LEB)

Expectation of life at birth is the most comprehensive index of health, in the sense that good health status translates into higher life expectancy. The LEB for Thoothukudi district 2013-14 was 68.6 years for males and 71.8 for females. LEB is the average number of years a new born baby can expect to live if current mortality trends continue. It is highly influenced by the infant mortality rate. The differences between both sexes may be significant. In Thoothukudi, the female life expectancy was higher than the male; as indeed females have better survival rates than males. However, the LEB of both male and female are lower than the State average. At the State level, LEB for male was at 71.8 and female was 75.2 during 2013-14. The combined LEB of the State LEB is 73.4 which was marginally higher than the district. The people of Thoothukudi district had lower life expectancy when compared to the Tamil Nadu and currently it stands at 71.8 for females against 68.6 for males during 2013-14 which is 3.4 year for females and 3.2 years for male below the State figures and combined LEB at 3.2 years below the State figure. However, there is significant improvement in LEB both in the district and State level in Tamil Nadu. The increase in LEB has brought about a significant change in the profile of the population. The proportion of the population in the age group 60 years and above increased from 151724 (9.65 per cent) in 2001. The percentage of female population in the age group 60 years and above are 79015 (9.81 per cent) which has little higher than the male population (9.48 per cent) in 2001. There has also been a noticeable change in the age structure due to the decline in CBR and CDR. This change in the size of the ageing population is reflected in the emergence of various healthcare issues associated with the elderly, such as diabetes, heart disease, diseases related to the nervous system and mental health. With this greying of the population is likely to increase over the next decade, geriatric care must become part of the focus of public health care systems.

Table – 4.4 Life Expectancy at Birth

S. No.	District	2013-14		
		Male	Female	Combined
1	Thoothukudi	68.6	71.8	70.2
2	Tamil Nadu	71.8	75.2	73.4

Source: State Planning Commission, Govt. of Tamil Nadu, 2014

Infant Mortality Rate

Improvements in health indicators such as MMR, institutional deliveries, etc. have a positive impact on improving the IMR which is the indicator actually used in the HDI index. The IMR is a sensitive indicator, not just of the state of health, nutrition and caring, accessible to infants below one year of age, but also of the general well-being of society. More importantly, the Ministry of Health and Family Welfare is implementing several programmes and schemes to address the issues of high infant and child mortality. Some of the major child health interventions include Universal Immunization Programme, where immunization is carried out against six vaccine preventable diseases, control of death due to acute respiratory infections and diarrhea diseases and provision of essential newborn care to address the issues of neonates. These schemes would help all states, including Tamil Nadu to improve child immunization, thereby reducing IMR by a substantial level.

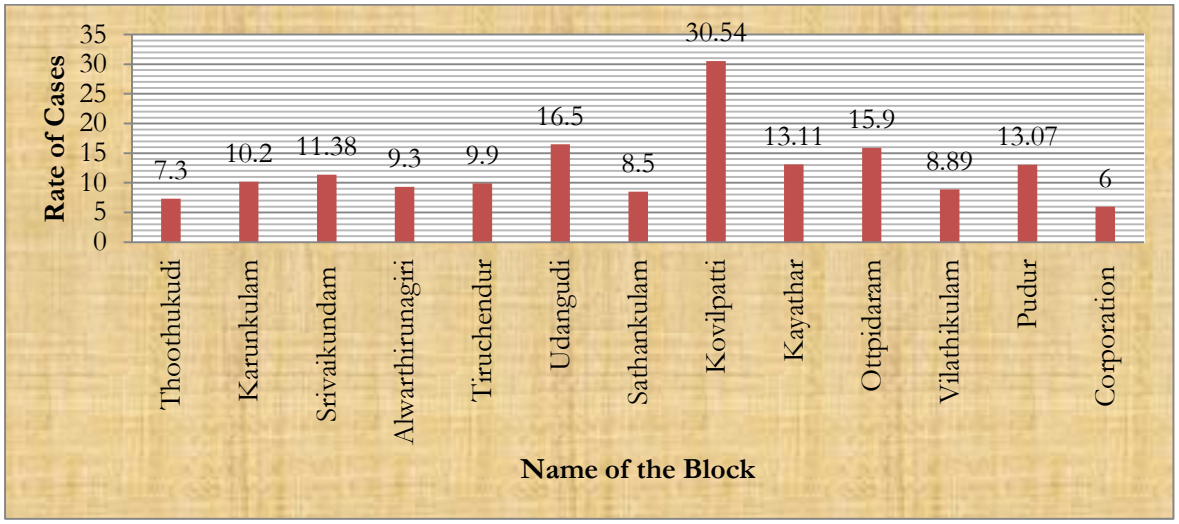
Low birth weight and under nutrition are the major risk factors of infant and child mortality. According to National Family Health Survey, the proportion of children (0-3 years) who are underweight in Tamil Nadu was 33.3 percent in 2005-06. The Government's target was to reduce the child (0-3) malnutrition to 16.6 percent in 2012. The projection indicates that State was likely to reduce child malnutrition to 30 by 2012. Further, available evidence indicates that as of March 2008 under General ICDS, 24 lakh children were weight about 61 percent of them were of normal weight. Likewise, in Thoothukudi district as a whole, the average percentage of low birth weight babies are less than 2.5 kgs had been estimated in 2011 was 8.06 percent. This had been possible by the various steps taken by the State government to eradicate severe malnutrition across the state. As part of the action plan, severe malnourished children (6-24 months) are given additional nutritious food of 50 kgs once in a week on take-home-ratio basis. 2 grams of drumstick leaf powder/curry leaf powder in the nutritious meal at a cost of 20 paise per child per day for 5 days in a week has been included in addition to the vegetables already been provided in the nutritious meal. From 2007-08 onwards, the Government had provided one boiled egg per week to all the Integrated Child Development Service (ICDS) centres for the children aged 1-2 years and 3 eggs to children aged 2-15 under the nutrition noon meal programme.

The physical effort taken by the Government of Tamil Nadu, infant mortality in Tamil Nadu has rapidly declined much more than India's IMR. Tamil Nadu's IMR rate has declined to 22 deaths per 1,000 live births in 2011 (44 for India) and in Thoothukudi 12.5 (2013-14) which was highly significant decline over the years. However, Kovilpatti block has the highest IMR (30.54) when compared to State average since in this block it is very essential to provide adequate ante-natal and post-natal care and interventions to reduce the high incidence of IMR (See Appendix-II Table 4.7).

On an average 37,000 babies were born in a year in the district and breast-fed babies would gain more immunity against diseases. Once the newborn babies were breastfed for a period of six months and with supplement food for the subsequent six months, they would not be vulnerable to any ailments. The instant milk powder was banned in all government and private hospitals so as to strictly ensure breastfeeding for the first six months after delivery by the district administration among breastfed mothers. Financial assistance of Rs.4, 000 was also provided under Dr. Muthulakshmi Reddy Maternity Scheme. Breastfeeding

aided in developing a strong bond between mothers and babies. Hence, women should realise the importance of breastfeeding and thereby can reduce infant deaths. The recent initiatives of the State Government, nursing rooms were established across the State run bus stands exclusively for breastfeeding mothers. Thoothukudi district administration has setup separate rooms for breastfeeding mothers at two bus stands, two municipalities and 12 town Panchayats in order to ensure breastfeeding to the newborn babies. Drinking water and fans were provided in the rooms. The two key factors responsible for significant reduction in IMR are antenatal care and high quality care of new born. The former, by addressing the issues of maternal nutrition and identification of high risk pregnancies, will help to reduce infant death due to pre-maturity and low birth weight. The latter will help to reduce infant death due to birth asphyxia and acute respiratory infection. The district also fares well as far as immunization is concerned and average immunization coverage below 5 years was 96.60 percent, which is the best record of immunization among the districts in Tamil Nadu might have reduced IMR significantly.

Fig- 4.3 Infant Mortality Rate



Source: Health Department, Thoothukudi, 2014

Maternal Mortality Ratio

Ensuring safe motherhood is one of the biggest challenges. The goal was to reduce MMR to 45 per lakh live births by 2012. The pace of decline of MMR has been slow and the district is not likely to meet this target. The most common causes of maternal deaths are haemorrhage, anemia, puerperal sepsis, obstructed labour, and abortion, hypertensive diseases of pregnancy, anemia, bad obstetric history and lack of antenatal care. In Thoothukudi district as a whole, 7.69 percent of the pregnant women had been identified with anemia. The highest anemia was recorded in the blocks of Kovilpatti (12.66), Thoothukudi (11.18) and Srivaikundam (11.07) and lowest in the Corporation (3.67), Udangudi (4.88) and Sattankulam (4.99) percentage respectively. Another major indicator of maternal care is the number of deliveries conducted by skilled personnel. In 2012-13, skilled attendants conducted 99.82 percent of deliveries in Thoothukudi district. This figure is closer to the target of 100 percent of the births in the State under the care of skilled birth attendants which had been fixed by the government before 2010.

The marginal fraction of home deliveries (0.18) percent has been recorded in Srivaikundam block during 2012-13 and in rest of the 12 blocks in Thoothukudi district, deliveries happened under the care of skilled attendants. Tamil Nadu has achieved a remarkable achievement as far as institutional deliveries are concerned, 14 out of 32 districts like Chennai, Ariyalur, Cuddalore, Kanchipuram, Kanyakumari, Madurai, Nagapattinam, Pudukottai, Ramanathapuram, Sivagangai, Thiruvarur, Tiruneveli, Thirupur and Villupuram recorded 100 percent institutional deliveries and remaining districts are marginally deficient to 100 percent. Recent initiatives were taken by the Government of Tamil Nadu in order to promote institutional deliveries across the State, a Baby Care Kit has been provided to all mothers who had deliveries in any government hospitals in the State. The kit contains the essentials of post-partum items like baby towels, napkins, a dress, bedding, mosquito net, oil, nailcutter, soap, baby shampoo, baby rattler (toy), doll, hand sanitiser (250 ml), and Sowbhagya Leghyam to maintain mother's health (The Hindu, 13th August, 2014). The Government of India has introduced the Janani Suraksha Yojana (a modification of the National Maternity Benefit Scheme), which provides comprehensive medical care during pregnancy, childbirth and postnatal care and thereby attempt to improve the level of institutional deliveries and reduce MMR. It is interesting to note that 96.5 percent of pregnant women received at least 3 antenatal care check-up in Tamil Nadu in 2005-06. The corresponding figure for the country was only 50.7 whereas in Thoothukudi district was achieved 99 percent in 2011. However, in the case of anemia even after 3 decades of National Anemia Control Programme, the situation of anemia among pregnant women, lactating mothers, adolescent girls and children is not improving. In fact, it is getting worse when we analyse NFHS-2 and NFHS-3 data. IFA prophylaxis is not bringing the desired result due to various reasons. Despite the fact, a high level committee meeting was held on 18.04.2011 in the Prime Minister's Office under the guidance of the Principal Secretary, Ministry of Health, Government of India to reduce malnutrition in the country and they have taken a decision to make Double Fortified Salt (DFS) use as mandatory. Finally, the governments should promote the consumption of DFS through communication campaigns and mandatory to use in government sponsored programmes like ICDS, Mid Day Meals etc., and by supplying DFS through PDS. However, Tamil Nadu is the only State providing DFS to ICDS, Mid Day Meal and PDS.

Table-4.5 Maternal Mortality Ratio

S. No.	Block	MMR (per Lakh live birth)
1	Thoothukudi	0
2	Karunkulam	90.4
3	Srivaikundam	143.1
4	Alwarthirunagiri	83.6
5	Tiruchendur	288.3
6	Udangudi	0
7	Sathankulam	123.9
8	Kovilpatti	69
9	Kayathar	69
10	Ottapidaram	0
11	Vilathikulam.	70
12	Pudur	104
13	Corporation	57.7
District		105.8

Source: Health Department, Thoothukudi, 2014.

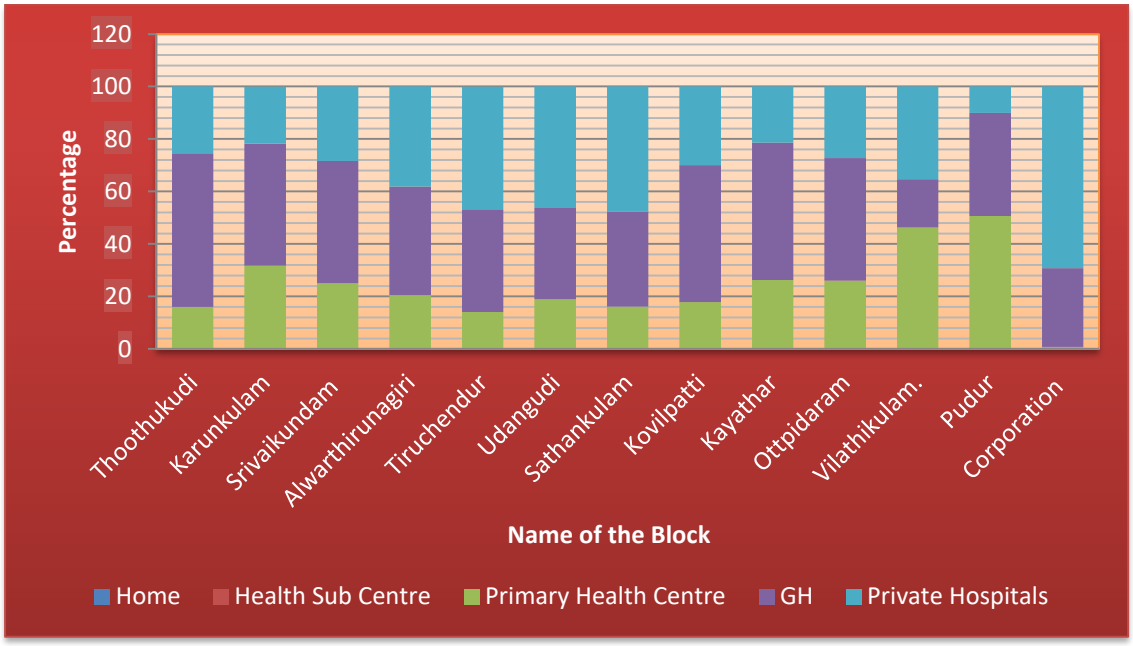
The average MMR in Thoothukudi district is 105.8, which is substantially lower than all-India (407). The highest MMR were recorded in Tiruchendur (288.3), Srivaikundam (143.1) and Sathankulam (123.9) blocks than the district average and few blocks like Thoothukudi, Udangudi and Ottapidaram were having complete zero. The leading causes of maternal deaths are high order birth rate, sepsis, post-partum haemorrhage, anemia and abortion. Deaths caused by haemorrhage and obstructed labour can be prevented if good obstetric care is available at all times, but since such facilities are available only in big hospitals located in the district headquarters and many rural pregnant women cannot access emergency services in time. Eclampsia is another leading cause of maternal mortality, which can be prevented through regular antenatal care. Abortions should be performed only in hospitals where proper facilities are available, but ignorance or fear of detection propels many women go to the doors of unqualified persons for abortion. As in the case of infant mortality, and indeed the two are intimately interrelated, the causes of maternal mortality are a mix of factors such as women's lack of control over their reproduction, poverty, under-nutrition, illiteracy and lack of accessibility to both ante and post-natal care health services.

Place of Delivery

The most important focus of the reproductive and child health (RCH) programme is safe delivery i.e. delivery, should take place in hygienic conditions and under the supervision of trained health professionals. Safe deliveries are less likely to be accessible to the rural poor; especially the Scheduled Castes and Scheduled Tribes who are highly vulnerable. There has been considerable improvement in the proportion of safe deliveries in all the blocks of Thoothukudi district in recent years. Nevertheless, sometimes women resort to home deliveries for economic reasons primarily, although the distance from the health facility, customary practices, and lack of knowledge about the facilities available are all other reasons. The State has made significant progress in increasing the proportion of institutional deliveries. Though a substantial number of primary health centres (PHCs) and health sub-centres (HSCs) are equipped to conduct normal deliveries, only about 8 to 10 per cent of all deliveries in Tamil Nadu took place in the 10,000 plus HSCs and PHCs in the State. The proportion of 'safe' deliveries to the total shows much less variation across the districts. However, the budget allocation for health care expenditure, including the infrastructure as a percentage of the GDP is lower than the global average.

Therefore, it is essential to increase the number of hospitals, dispensaries, primary health centres, health sub-centres, mobile medical units, bed strength, number of doctors and nurses (including, CHN, SHN and VHN). There are certain basic health infrastructure yet to be provided in all the blocks which are deficient like CT scan, trauma care centre, Leprosy ward, Emergency ward and ICU, ambulance services Labour ward, Eye ward, Blood bank, Family welfare ward, Children ward, ESI ward, ECG Facility and Clinical laboratory with semi- auto analyzer. There is some shortfall in doctor's availability especially for Operation and Gynaecologist, Paediatrics, ENT, Ortho and Eye are needed to be filled up to uninterrupted health care services to the people of Thoothukudi district.

Fig 4.4 Percentage of Institutional Delivery in 2014



With the help of the World Bank, the Government of Tamil Nadu during March 2005, new buildings were constructed in 9 government hospitals in different places and some existing buildings were renovated. In addition, the supply of medical equipments which are advanced and sophisticated such as Ventilator, Defibrillator, Echo Cardiogram, Ultra sonogram etc. to the government hospitals so that the hospital infrastructure is being upgraded to the Internationals standards. The district is also undertaken bio-medical waste management with the help of Asceptic Systems Bio Medical Waste Management Company for disposing surgical items like needles, syringes, theatre items, etc in a safe way. The district has been undertaken CEmONC Centre scheme under the aid of the World Bank, which means Comprehensive Emergency Obstetric and Newborn care. The pregnant women and neonates from poorer families have highly benefited because of appointment of specialist doctors, such as DGO's, Paediatricians and Anaesthetists for carrying pregnant mothers and Neonates in those CEmONC centres. This scheme has also paved a way to manage Health Management Information System which can be converted to send monthly hospital performance reports from manual mode to online reporting mode to the government to review performance of the hospitals. For transporting emergency cases even from a remote corner in the district, the scheme has launched 108 services. These services are a free service to the public and at present 10 ambulances were running in Thoothukudi district which needs to be increased. All these efforts would not be fulfilled and the goals of the government provided institutional mechanisms and surveillance should be created to keep the health care system in an effective manner.

Box: 4.1 Higher Order Birth Rate due to Social Cause

The higher order birth rate differentials could be seen in Thoothukudi district due to various socio-economic and demographic characteristics. The findings indicate a wide diversity among the blocks of Thoothukudi district in the total fertility rate, which ranges from about 3 children to 5 children per women. By socio-economic characteristics, the total fertility rate tends to be higher among rural women than urban women, higher among women with less education, higher among Muslim women than Hindu women, and higher among Scheduled-Caste (SC) women and Scheduled-Tribe (ST) women than non-SC/ST women. Not surprisingly, fertility has tended to decline more slowly in the blocks of Kovilpatti (8.70), and Pudur (7.70) and Corporation (0.00) whereas the high fertility has occurred in Udangudi (16.20), Alwarthirunagiri (16.30), Thoothukudi (14.50), Sathankulam (14.00), Srivaikundam (14.00) and Vilathikulam (13.20) that currently have high fertility. These can be attributed to several factors of our society and can't be interpreted with one reason. Parity progression ratios tend to be higher among rural women than among urban women, but this difference virtually disappears when education is controlled. On the other hand, differentials by education persist when residence is controlled, indicating that urban women have lower fertility largely because they are more educated. Differentials in parity progression ratios by husband's education largely disappear when residence and wife's education are controlled, indicating that wife's education is a considerably more important determinant of fertility than husband's education. A differential in parity progression by religion tends to be large and mostly unaffected by controls for residence and education, indicating that religion is an important determinant of fertility independent of urbanization and education levels. On the other hand, parity progression ratio differentials by caste/tribe, which tend to be small to begin with, are reduced further by controls for residence and education. The National Family Health Survey (NFHS) has justified that parity progression is a good proxy for past exposure but there are some specific interpretation for high order birth rate at rural level.

For example: A lady from Epothumvendran in Kovilpatti block had been severely affected by Tuberculosis (TB) after becoming a mother of two children but her husband compelled her to go for third baby while she was sick. Though the government medical officer has given medical advice not to go for third child due to her health but she would immediately refused his advice stating that if she went against third baby, her husband and his family members not allow her to live with family since her two earlier babies were females and they needed a boy child. Hence, she requested the doctor, not to put any barricade/hurdle and to even discuss with her husband about my health status that I had disclose with the doctor about my health condition if he came to know that she shared this, he would kill her and therefore, kindly allow her to go for third baby even if she died, it did not matter. The prevalence of high order birth could be seen among the poor, illiterate, downtrodden sections, alcoholic parents, some caste dominant sections who want to have more children to exhibits their muscle power in rural villages. Some parents felt that many more children would be a social security and some of them treated their children as their assets. Similarly, in Udangudi block, it could be seen that most of them migrated to urban centres for their business and other employment opportunities and someone needs to look after their ancestor's property as they preferred to have more number of children they said. Therefore, female education is one of the determinant factors for fertility rate than the husband's education. Hence, it can be concluded that high order birth rate is not coupled with one reason. However, in recent past, not only in Thoothukudi district but across the State of Tamil Nadu, fertility rate has reduced tremendously.

Source: Medical Officer, Kovilpatti and field observation done by the Researcher.

Still Birth Rate

The low birth weight, asphyxia, prematurity and congenital heart diseases are the major cause for still birth rate. Except congenital heart disease, all other causes occurred more frequently during the early neonatal period. So it can be concluded that antenatal care and high quality care of newborns are very essential to reduce SBR. Though the ANC check up had 99 percent in the district, more qualitative

improvement is needed to address the above issues and further strengthening comprehensive emergency obstetric and neonatal care through better access to 24 hour facility-based care. In Thoothukudi district, the average SBR was 10 in 2013 and it has reduced to 8 in 2014. This positive trend can be seen in all the blocks of the district except Alwarthirunagiri and Ottapidaram. Nevertheless, the percentage of the SBR rate at Vilathikulam (10.5), Ottapidaram (11.6), Kovilpatti (12.1), Alwarthirunagiri (14.2) and Karunkualm (10.8) were more than the district average in 2014 whereas the blocks of Corporation (2), Kayathar (7.4), Sathankulam (6.1), Udangudi (5.5), Tiruchendur (2.8), Srivaikundam (7.1) and Thoothukudi (4.6) SBR has tremendously reduced when compared to the district average. In spite of the positive improvement towards SBR, it is a long way to achieve significant improvement in SBR is concerned and therefore special attention may be given to the pregnant women through paramedical staff in all sub-health centres and primary health centres.

Table- 4.6 Still Birth Rate during 2013 and 2014

S. No.	Block Name	Still Birth Rate (in percentage)	
		2013	2014
1	Thoothukudi	8.1	4.6
2	Karunkulam	15.3	10.8
3	Srivaikundam	8.2	7.1
4	Alwarthirunagiri	10.7	14.2
5	Tiruchendur	5.5	2.8
6	Udangudi	12.7	5.5
7	Sathankulam	6.4	6.1
8	Kovilpatti	13.1	12.1
9	Kayathar	17	7.4
10	Ottapidaram	9.4	11.6
11	Vilathikulam.	11	10.5
12	Pudur	14	9.4
13	Corporation	0.5	2
District		10	8

Source: Health Department, Thoothukudi, 2014

Immunization

Immunisation of the children in Tamil Nadu plays a vital role in order to lead a life without any disease. The World Health Organisation (WHO) recommends three doses of polio vaccine, three doses of DPT (Diphtheria, Pertussis, Tetanus) – one dose of BCG (Bacillus, Calmettee, Guerin) and one dose of measles vaccine within the first month of a child. In Tamil Nadu, Immunization programme is six vaccines for preventable diseases and it was launched as early as 1978. Annually around 12.5 lakhs pregnant women and 11.5 lakhs infants have benefited under Immunization Programme (See Health and Family Welfare Department Policy Note on Health and Family Welfare 2010-2011, P.No.51). Because of effective implementation of Immunization services, there is a drastic reduction in Polio cases in Tamil Nadu. As part of the polio eradication initiative, during the year 2008-09, two rounds of Pulse Polio Immunization Campaign were conducted on 21st December 2008 and on 1st February 2009. About 72 lakh of children have benefited. The Hepatitis B Vaccination programme was launched on 06.01.2008 and the programme was implemented in all the districts. Annually, 11.5 lakhs infants will be provided from Hep-B Virus causing Jaundice, liver cancer, by giving 3 doses of Hep-B Vaccination. In Thoothukudi, children up to five

years of age were administered polio drops at various centres across the district. The district average percentage of children covered under immunization was 96.73 percent in 2011 and it has increased to 97 percent in 2013-14. The highest immunization under 5 years were recorded in the blocks of Alwarthirunagiri (101.9), and Karunkulam (101) percent and three blocks have recorded 99 percent and above immunization in Ottapidaram, Kovilpatti and Corporation and the lowest percent immunization were recorded in the blocks of Thoothukudi (85.3), Tiruchendur (93.5) and Sathankuluam (93.2). On the whole, Tamil Nadu has the best record of immunization among the major States in India. Nearly 1.1 million infants born every year are covered. 1.2 million Pregnant women are also immunized against tetanus every year. The quality of the immunization programme has improved considerably over the past 15 years with cold chain maintenance and the potency of vaccines being ensured, leading to a substantial reduction in vaccine preventable deaths (See Tamil Nadu Human Development Report, 2003, P. No.48).

Table- 4.7 Immunization (below 5 years) during 2013-14

S. No.	Block	Total no. of Children below 5 years	Target (upto 18 months)	Total no. of Children Immunized (upto 18 months)	Percentage of Children Immunized
1	Thoothukudi	20842	2800	2390	85.3
2	Karunkulam	6850	1230	1250	101
3	Srivaikundam	9358	1640	1535	93.6
4	Alwarthirunagiri	9038	1340	1366	101.9
5	Tiruchendur	10558	1660	1553	93.5
6	Udangudi	5012	830	814	98
7	Sathankulam	6160	950	886	93.2
8	Kovilpatti	18220	3643	3595	99
9	Kayathar	7635	1526	1467	96
10	Ottpidaram	9190	1838	1833	99.7
11	Vilathikulam	6475	1295	1266	98
12	Pudur	4990	998	953	96
13	Corporation	21610	3820	3811	99.7
	District	135938	23570	22719	97

Source: Health Department, Thoothukudi, 2014

Female Infanticide

A significant proportion of female infant deaths in the neonatal period are due to female infanticide. The female infanticide has not been reported in recent times. However, when the Thoothukudi district provisional child sex ratio is considered, it is only 963 (2011) population in the age group of 0-6 years whereas the entire population sex ratio is 1024 (2011). In other words, the share of female children (0-6) in the district was 90158 (49.06%) as against male children was 93605 (50.94%) in 2011 and now the female children has come down from 83882 (48.79) as against male children 88027 (51.21) in 2013-14. It shows that there is a strong social preference for male child among people. This is found to be invariably common phenomenon in all sections of the society. The top child sex ratio has been observed in Sathankulam (961), Udangudi (960), Ottapidaram (959) and Kayathar (957) respectively, whereas in eight blocks the uniformity of (951) the lowest child sex ratio were recorded in Thoothukudi, Karunkulam, Srivaikundam, Alwarthirunagiri, Tiruchendur, Vilathikulam, Pudur and Corporation.

Nutritional Status

In many developing countries, including India, nutrient absorption and utilization by the body is less efficient carried out because of the presence of frequent infectious episodes like diarrhoea and upper and lower respiratory infections. Infection causes nutritional status to deteriorate; at the same time under nutrition decreases resistance to infection—a synergistic relationship. Thus, the term nutritional status is used to describe an outcome of several biomedical processes, interacting over time. Even when mortality is controlled, the nutritional status may not improve. Education and communication regarding the importance of nutrition can go a long way in bringing about long-term changes in attitudes and recognition by parents on the importance of nutrition for their children.

Nutrition level and Trend

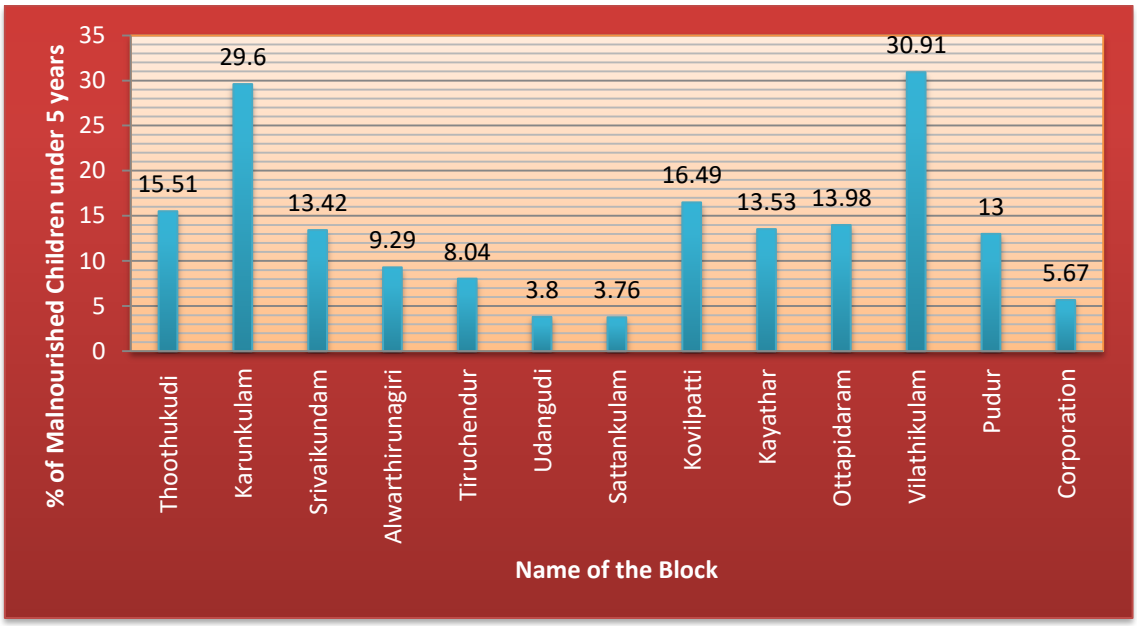
The other anthropometric measurements, like weight and height, are always an outcome of both heredity and the environment in which children grow. Thus, the more deprived the population (in terms of access to nutrients, infection load, hygiene and even care and attention) the lower are the weight and height outcomes likely to be. A look at comparative international data shows that countries high on the human development scale show a lower percentage of underweight children less than 5 years of age as compared with medium and low human development districts/States. There is also a direct correlation between levels of economic development and percentage of underweight children. Birth weights are significant in as much as they set the pattern for future growth of a child. High incidence of improper organ developments, diabetes and cardiac problems are caused mainly in low birth weight babies. It also significantly influences an increase in school drop outs and poor performance in many of the economic activities they may desire to perform.

Under nutrition is a persisting phenomenon in Tamil Nadu and in India as a whole even at the global too. Even the most favourable data shows that on the basis of weight-for-age around half the children under five years continue to be underweight, showing the widespread prevalence of current malnutrition. This in itself is a cause for serious concern from the point of view of human development. The prevalence of underweight babies is high among the socially deprived communities say for example, SC and ST tend to be the worst-off among all communities, both for the 0–36 months age group as well as for the 36–60 months group. It is clear that the socioeconomic status of the household has a direct effect on nutritional status. The education of both the father and the mother seem to have an effect on the child's nutritional status as well. The effects are a little more pronounced for the 0–36 month's age group when compared to the 36–60 years age group. The district-wise break-up of programme data in Tamil Nadu once again confirms the importance of the mother's educational status. Kanyakumari, with the highest female literacy in Tamil Nadu is also ranked the highest in respect of normal and grade I malnourished children and lowest percentage of children in grades III and IV.

As far as Thoothukudi district is concerned, the block wise break-up (See Appendix-II Table 4.4) of 13.37 percent of the district average children were under malnourished in 2013-14 as against 37.83 percent in 2001. It is to be observed that, the percentage of nutritional status of children was very high

than the district average in Vilathikulam (30.91), Karunkulam (29.60), Kovilpatti (16.49), and Thoothukudi (15.51) percent respectively, and below the district average in Sathankulam (3.76), Udangudi (3.80), Corporation (5.67), Tiruchendur (8.04) and Alwarthirunagiri (9.29) percent respectively. Tiruchendur and Udangudi blocks are highly influenced by various socioeconomic factors like income and education since these two blocks have attained higher female literacy rate. However, the disparity between 2001 and 2011 census, there was a drastic reduction recorded in Gr.II, Gr. III and Gr. IV malnourished children, but Gr. I malnourished children still persist at higher level in all the blocks. The noteworthy feature of the district is Gr. III and IV malnourished children, which is treated as severely malnourished rate has been reduced significantly with the help of Integrated Child Development Services (ICDS). However, Thoothukudi district has a long way to go to reduce malnourished children across the blocks with holistic initiatives and thereby reduce U5MR.

Fig: 4.5 Nutritional Status of Children (below 5 years as on 2013-14)



Source: ICDS, Thoothukudi, 2014

Provision of IFA Tablets

The provision of Iron and Folic Acid (IFA) tablets plays a pivotal role to reduce anemia among pregnant women and children. The practice of taking IFA tablets among women and adolescent girls seems to be a positive sign, whereas children do not take much IFA tablets. In order to motivate to consume IFA tablets, several advertisement programmes have been initiated by the district administration. Anaemia, a manifestation of under nutrition and poor dietary intake of iron is a serious public health problem, not only among pregnant women, infants and young children but also among adolescents. Over 11.14 percent of both adolescent boys and girls in Thoothukudi district are anemic. The severe anemic were recorded in Karunkulam (18.0) and Vilathikulam (25.04) percent. Thus, it is critical to address this problem which has health implications for approximately 11.14 percent of Thoothukudi population and is

directly linked to new born child and maternal morbidity and mortality. The Ministry of Health and Family Welfare based on empirical evidence, demonstrates that regular consumption of iron and folic acid is effective in reducing prevalence and incidence of anemia and it has launched the Weekly Iron and Folic Acid Supplementation (WIFS) Programme which envisages covering adolescent boys and girls too. Table 4.8 shows the statistics of IFA tablet distribution in Thoothukudi district in 2014. At the district level, 99 percent of the women and children have received IFA tablets and 100 percent of the adolescent girls were taken IFA tablets in the district and is a remarkable achievement which has significantly reduced anemia.

Table–4.8 Provisions of IFA Tablets during 2014

S. No.	Block	% of women	% of Children	% of Adolscent girls took IFA tablets
1	Thoothukudi	99	99	100
2	Karunkulam	99	99	100
3	Srivaikundam	99	98	100
4	Alwarthirunagiri	98	98	100
5	Tiruchendur	98	99	100
6	Udangudi	99	98	100
7	Sathankulam	99	99	100
8	Kovilpatti	99	98	100
9	Kayathar	99	98	100
10	Ottpidaram	99	98	100
11	Vilathikulam.	99	99	100
12	Pudur	98	99	100
13	Corporation	99	99	100
District		99	99	100

Source: Health Department, 2014

Box-4.2 Nutrition Programs of Government

Integrated Child Development Services (ICDS) is one of the separate administrative wings and comes under the Ministry of Social Welfare. ICDS is designed to promote holistic development of children under six years, through the strengthened capacity of caregivers and communities and has improved access to basic services, at the community level. It also promotes a healthy Pre-natal and Post-natal environment for the young child and is likely to reduce the incidence of low birth weight. It also concentrates the welfare of the pregnant women, nursing mothers and adolescent girls in the age of 14 – 19 years for child development and women's empowerment.

Main Objectives:

Improve the nutritional and healthy status of children below the age of 6 years.
Lay the foundation for the proper psychological, physical and social development of the child
Reduce the incidence of mortality, morbidity, malnutrition and school dropouts.
Achieve effective co-ordination of policy and implementation among various departments to promote child development.
Enhance the capability of the mother to look after the normal health and nutritional needs of the child, through proper health and nutrition education

Programme for Adolescent Girls:

Kishori Shakthi Yojana (KSY) scheme is being implemented for the benefit of Adolescent girls 11-18 years by improving their literacy level and occupational skills and shape them into better citizens. Under the scheme awareness campaigns on Nutrition, Health, Legal Rights, Home Management and Child Care were conducted for two days camps targeting adolescent girls:

Health and awareness programme for 2 days/Vocational training for two trades in 38 days/Health and awareness should be implemented to all. Preference will be given to 11-15 years girls/Beneficiaries will be identified by CDPOs/DPOs.

Supplementary Nutrition Food:

Supplementary Nutrition Food is given in the Anganwadi centres and being provided and a Mid-day meal Scheme popularly called as Puratchi Thalivar MGR Meal Programme in Tamil Nadu was launched in Primary Schools for classes I-V during 1st July 1982 and to pre-school children of 2-5 years in rural areas. Subsequently the scheme was extended to Nutritious Meal Centres in urban areas from 15.09.1982 and further extended to school students in the age group of 10-15 from September 1984. The students in 1 to V standard receive nutritious meal throughout the year (except holidays) and those in the VI to X standard receive the meal in all the school working days (220 days). The children enrolled under the scheme were provided with hot cooked food like white rice, vegetable sambar with one boiled egg (one banana for those who do not eat egg) within the school campus itself on all weekdays. The following schools were covered:

S. No.	Stage	2010-11		2011-12		2012-13	
		Approved	Coverage	Approved	Coverage	Approved	Coverage
1	Primary	1008	1008	1008	1007	1007	1011
2	Upper Primary	465	465	465	462	462	492
	Total	1473	1473	1473	1469	1469	1503

Fund allocation of State and Central Governments

Year	Funds Released (in lakhs)		Expenditure (in lakhs)
	Central Share	State Share	
2010-11	250.40	1150.80	1401.2
2011-12	260.90	2389.92	2650.82
2012-13	262.50	197.56	460.06

Source: Fifth Review Mission, Tamil Nadu 2013-14

Non –nutritional Factors and their Impact on Nutrition: Water Supply

Numerous studies have shown the importance of factors like improved water supply, reduction in infections, near universal immunization and improving nutritional status. Today, the increasing level of water pollution in Thoothukudi district affects human health and well being in several ways. Medical expenses associated with treatment costs of pollution-induced diseases, wage loss, defensive expenditures to prevent the occurrence of pollution-induced illnesses, disutility arising from the illness due to lost opportunities for leisure and, changes in life expectancy due to illness of the alarming rate of water pollution are all economically quantifiable aspects of human health. Water and disease are closely related.

Drinking water crisis is looming large in Kovilpatti, Pudur, Karunkulam, Udangudi, Sathankulam, Ottapidaram, and Vilathikulam blocks and safe water sources is a paramount importance as far as Thoothukudi district is concerned. Water is being supplied by Tamil Nadu Water Supply and Drainage (TWAD) Board once in 15 to 21 days for residents in Kovilpatti Municipality limits comprising 36 wards and 136 zones. The same trend was observed in Pudur block while field survey. There are several dimensions which connects overall human development process and its linkages with all living ecosystems. Rapid urbanisation is taking place in Thoothukudi which creates pressures for provision of adequate infrastructural services, such as water supply, sanitation and waste disposal.

Currently, the consumption of piped water supplies ranges from 313 litres per capita per day for the affluent to a mere 16 litres per capita per day for the slum dweller (Barah, et al. 1998). While a large proportion of the population is still dependent on public hydrants for their water needs, the inadequacy or non-availability of sufficient quantities of piped water supply forces individuals to resort to alternatives that can be possible by way of buying water from private water bottled companies (See box 4.2). These water bottle companies are extracting ground water at large scale and eventually pave the way to seawater intrusion or ground water pollution. This has been noticed in several parts of the district since the sea is nearby. The poorest households are hit hardest by shortfalls in piped supply and the risks of contamination faced by them are compounded since they can least afford the best means of storage or of purification.

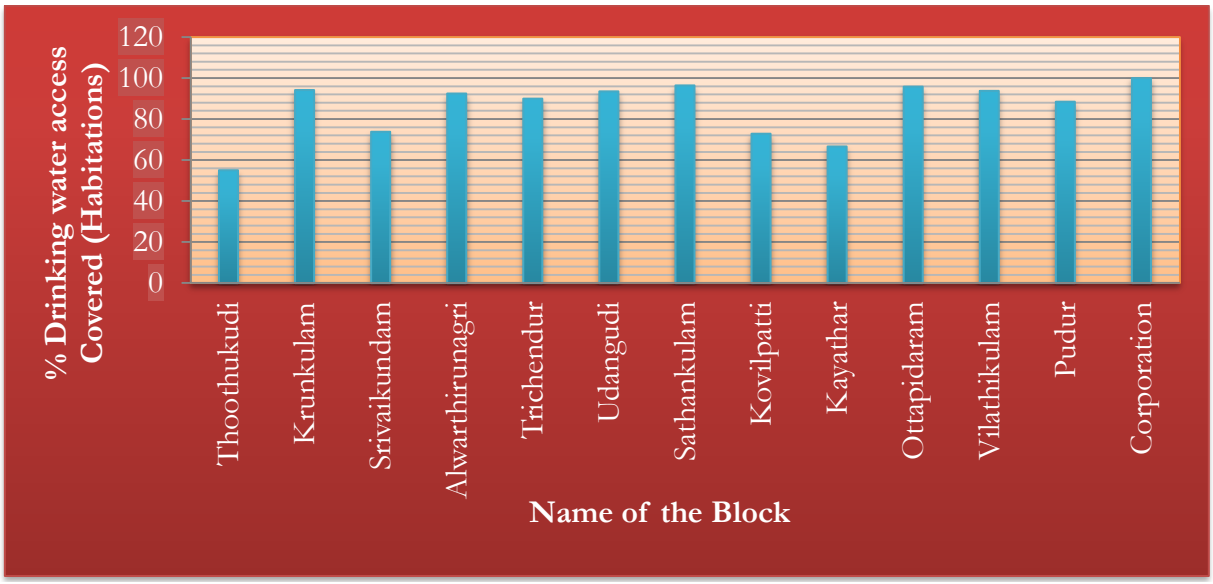
This acute water scarcity in several blocks in Thoothukudi district has some implications for women and children. The responsibility of fetching water, sometimes over long distances, for a household need is invariably assigned to women or girls, who drop out of school to attend to these chores. Hence, the ready availability of safe drinking water lays the foundation for improvement in literacy and health indicators in communities. The economic loss is highly depending on the access to water sources. Today in Tamil Nadu accounts for 50 percent of the total bottled water business in India. There are more than 400 registered units in the State of which more than 220 are located in and around Chennai.

The affluent people would bear the cost incurred for drinking water which is procured from private business people, whereas poor people who is highly depend on either water is being supplied by the Municipality or nearby available water resources and even sometimes the available water in their nearby habitations is not so good for drink but they are forced to drink. These kinds of problems were observed

in several parts of the district. Though the river Tamirabarani is passing through Thoothukudi district, the tail end households are highly vulnerable as far as drinking water is concerned.

There are still some habitations where drought conditions lead to water being transported in tankers Lorries. The link between water, sanitation and health status is a complicated one. Nevertheless, these non-nutritional factors do have a significant impact on the ability of individuals and households to attain a good nutritional status. In Thoothukudi district, diarrhoeal diseases are a major cause of mortality among the adults. It is observed that incidence of diarrhoea cases has been reported in several blocks, which have a lower percentage of households with water access within the premises. This situation in Thoothukudi district is quite grim (See Box 4.4). Many blocks in the same situation could be observed and people are severely struggling for drinking water. Nearly, 3, 45,232 households have been covered with drinking water supply out of 6, 37,675 households. The level of achievement, with respect to the habitations covered by water supply, varies across blocks, with the percentage of fully covered habitations varying from the highest coverage in Corporation (100.0), Sathankulam (96.45) Ottapidaram (95.85), Karunkulam (94.2) Vilathikulam (93.79) and Udangudi (93.55) and lowest coverage in Thoothukudi (55.07), Kayathar (66.67), Kovilpatti (72.89) Pudur (88.51), Tiruchendur (90.0) and Srivaikundam (73.83). During summer the problem of scarce water is accentuated, involving long and frequent treks to the nearest accessible water source. Primarily the women of the house undertake the task of fetching water. Thus, in the absence of development of basic services, women would not have been benefited. The development of local water supplies, sanitation, roads and rural energy programmes can do much to reduce women's burden and improve the health conditions of women and children. Households that have no water source within their premises need to be covered on a priority basis.

Fig- 4.6 Access to Drinking Water (habitations)



Source: Corporations, BDOs, Town Panchayats and Municipal Commissioner, Thoothukudi, 2012

Box. 4.3 Morbidity Statistics of Thoothukudi and Kovilpatti Health Units

Water Borne Diseases	2007	2008	2009	2010	2011	2012	2013	2014
Hepatitis A	13995 (23.70)	8301 (23.35)	8155 (23.90)	7714 (23.84)	7526 (24.44)	7495 (24.29)	7315 (24.44)	7320 (37.90)
Typhoid	677 (1.15)	364 (1.02)	331 (0.97)	298 (0.92)	255 (0.83)	241 (0.78)	107 (0.36)	334 (1.73)
Malaria	473 (0.80)	537 (1.51)	341 (1.00)	291 (0.90)	166 (0.54)	118 (0.38)	147 (0.49)	97 (0.50)
Dysentery	2304 (3.90)	1382 (3.89)	1334 (3.91)	1295 (4.00)	1210 (3.93)	1187 (3.85)	1140 (3.81)	1080 (5.59)
Cholera	0	0	0	0	0	0	0	0
Jaundice	24 (0.04)	22 (0.06)	23 (0.07)	21 (0.06)	18 (0.06)	17 (0.06)	19 (0.06)	75 (0.39)
Dengue fever	0	0 (0.0)	0 (0.00)	22 (0.07)	14 (0.05)	573 (1.86)	1031 (3.44)	198 (1.03)
Viral Fever	22222 (37.63)	13330 (37.49)	12985 (38.06)	12745 (39.40)	11958 (38.83)	11780 (38.17)	10960 (36.62)	1094 (5.66)
Worm infection	19365 (32.79)	11621 (32.68)	10949 (32.09)	9965 (30.80)	9648 (31.33)	9450 (30.62)	9212 (30.78)	9118 (47.20)
Total	59060 (100.0)	35557 (100.0)	34118 (100.0)	32351 (100.0)	30795 (100.0)	30861 (100.0)	29931 (100.0)	19316 (100.0)

Source: Deputy Director of Health Service, Thoothukudi & Kovilpatti, 2014

Note: Figures in parentheses are percentage to total

Box: 4.4 Tamirabarani River water Pollution and Health Cost

The river Tamirabarani is one of the perennial rivers in South India, which is the life line of the two districts of Tirunelveli and Toothukudi both for drinking as well as agriculture and some extent, industrial activities too. Today, the wretched situation of river Tamirabarani is alarming due to the festival of 'Aadi amaavaasai' held at Sorimuthu Ayyanar Temple in the Kalakkad-Mundanthurai Tiger Reserve (KMTR) in the Western Ghats has revealed that uncontrolled open defecation and irrepressible dumping of sacrificed animal waste have greatly polluted the Tamirabarani River waters with the faecal coliform bacteria content. As thousands of devotees stay deep inside the jungle around the temple in the KMTR for over a week as part of the annual 'Aadi amaavaasai' celebrations, the immense pressure exerted by the people on nature badly affects the environment, particularly the 120-km-long Tamirabarani river, which nourishes a range of crops, especially paddy, on over 1 lakh acres, and quenches the thirst of several millions of people in three districts – Tirunelveli, Thoothukudi and some extent to Virudhunagar district. In fact, the drainage water of Tirunelveli and Thoothukudi Municipal Corporations has been directly discharging into the river Tamirabarani which causes huge contamination and thereby water gets polluted. Most of the chemical industries in and around the district highly discharge their effluent into the river at large extent. The discharge of untreated and under-treated effluent contributes to severe ecological degradation in general and river water contamination in particular. All these complications are posing a great challenge. There is no proper water resource management measure available. Even if it is available, the existing legal measures are helpless to control river water pollution. On the one hand, there is growing demand among water users and on the other, there has been a secular lowering of the water table due to sand mining in the river bed of Tamirabarani resulting in decline of quality of water and ground water table. The present study is based on both primary and secondary sources of data. Primary data were collected through the questionnaire administration. Time-series data on the number of waterborne diseases that might be due to water pollution were collected from Thoothukudi district. The morbidity data were collected from the Deputy Director of Health Service, Thoothukudi and Kovilpatti Health Units (See Box: 4.3). Stratified random samplings were used for different stretches of Tamirabarani River with minimum 500 meters of distance from the water quality monitoring point. 150 household samples were collected from different locations of Murappanadu, Vallanadu, Authoor and Punnaikayal. The water samples were collected from seven different points along the Tamirabarani, starting from Karaiyar dam to Papanasam, before and after the festival. The river water near the Sorimuthu Ayyanar Temple contains total and faecal coliforms at unacceptable levels and the situation is worsening year after year. The indiscriminate human activities such as open defecation, solid waste dumping, discharge of drainage water, dumping of sacrificed animal waste and mass bathing are responsible for the elevated levels of the pathogenic bacteria which are causing greater risk to human health, leading to water-borne diseases. There were more than 32351 water borne diseases recorded in the year 2010 in Thoothukudi and Kovilpatti Health Units like Heaptitis-A, Typhoid, Malaria, Dysentery, Jaundice, Dengue fever, Viral fever and Worm infections and the total number of morbidity statistics was much lower in 2014 (19316). The highest record of water borne disease cause huge health cost among the public. The average annual per capita health expenditure for said diseases has been estimated for the sample household population of Thoothukudi district of Rs. 9693.48, annual per capita wage loss Rs.22, 504.66, total per capita health costs Rs.807.78 and total health cost Rs.4, 03,087 for the sample population. All these confounding factors cause greater morbidity, health outcomes which have been registered under Thoothukudi and Kovilpatti Health units. The increasing river water pollution is the biggest threat to public health.

Sampling stations	Distance from sampling point	Total coliforms (MPN/100ml)							
		2/8/13	5/8/13	6/8/13	7/8/13	10/8/13	16/8/13	19/8/13	22/8/13
Karaiyar Dam (Control)		20	20	20	20	20	20	20	20
Before temple (Upstream)	3.5 Km	240	1100	>2400	>2400	>2400	1100	150	21
Near Temple	0.5 Km	>2400	>2400	>2400	>2400	>2400	>2400	210	23
After Temple (Downstream)	0.3 Km	>2400	>2400	>2400	>2400	>2400	>2400	210	23
Agasthiyar falls	9 Km	>2400	>2400	>2400	>2400	>2400	>2400	210	25
Papanasam Thalaiyanai	0.8 Km	>2400	>2400	>2400	>2400	>2400	>2400	240	23
Papanasam (Opposite the temple)	0.63 Km	>2400	>2400	>2400	>2400	>2400	>2400	240	21

Source: Murugesan, A.G. (2015), Manonmaniam Sundaranar University, Alwarkurichi

Note: MPN- Most Probable Number

Therefore, conservation of the perennial river is inevitable. This can be possible only by way of creating additional infrastructure like construction of toilet facilities for the pilgrims at various stretches of temples which are located in the riverbeds, a separate arrangement to be established for sacrificed animal waste and establishing alternative channels to drain sewage water of the Corporation residents.

Source: Sacratees J. (2014) Manonmaniam Sundaranar University, Tirunelveli

Sanitation

Open defecation is a common practice still in rural areas in many parts of Tamil Nadu. Provision of toilet facilities will improve the sanitary condition and reduce disease outbreaks. The availability of toilet facilities in Thoothukudi district is presented in the following table 4.9. The district average percentage of households has recorded 56.67 percent of toilet facilities. At block level, the highest percentages of toilet facilities were recorded in Corporation (80.00), Alwarthirunagiri (75.37), Udangudi (74.97), Tiruchendur (73.69), Sathankulam (66.87), Thoothukudi (59.00), Kovilpatti (63.03) and Kayathar (56.87) than the district average. The lowest percentages of toilet facilities were recorded in Ottapidaram (12.00), Vilathikulam (20.46) and Pudur (35.00) respectively below the level of district average. These blocks have to be prioritized and funds be earmarked in provision of toilet facilities. However, there are several blocks are having substantial provision of toilet facilities which indicates that these blocks are highly urbanised.

Table-4.9 Provision of Toilet facilities during 2014

S. No.	Block	No. of Households	No. of HHs with toilet facilities	% of toilet facilities
1	Thoothukudi	47642	18887	59.00
2	Karunkulam	31453	20900	69.00
3	Srivaikundam	40249	20293	50.42
4	Alwarthirunagri	46111	34755	75.37
5	Tiruchendur	46601	34341	73.69
6	Udangudi	27866	20891	74.97
7	Sattankulam	25950	17353	66.87
8	Kovilpatti	99921	75946	63.03
9	Kayathar	42684	24274	56.87
10	Ottapidaram	54367	6729	12.00
11	Vilathikulam	34887	7138	20.46
12	Pudur	29375	10280	35.00
13	Corporation	138585	111114	80.00
	District	665691	402901	56.67

Source: MDWS site for blocks and EO (TP) and Municipal Commissioner, Thoothukudi, 2014

It is to be noted that when compared to the progress in water supply in Thoothukudi, the progress in sanitation has improved a lot. While there has been a sustained attempt to improve the provisioning of safe drinking water by the government, no such parallel effort or investment was evident for improving sanitation. Therefore, in recent years, the emphasis is on the provision of individual household's toilets with water facilities and this could reduce open defecation. Defecation in the open is common among villagers, not only because there is no alternative, but also because it is a preference. Even among the upper caste households that have a latrine constructed within, only the women use it while the men continue to go to the open fields. Public toilet facilities in rural areas had almost become defunct in several areas due to psychological factors and therefore, it is essential to promote individual households toilet for better sanitation facilities. This will uphold the dignity and privacy of rural people, especially among women and also improve the quality of life in rural environs. In order to prevent defecation in open areas and in drains, concerted effort is required to disseminate knowledge and create awareness among people on sanitation and its impact on their health and environment. This can be accomplished by educating a target group, in this case woman, which would in turn influence the families.

Box: 4.5 Integrated Men Sanitary Complexes (IMSC)

The Integrated Sanitary Complexes for Women have created a revolution in the sanitation front across the State. Similar to the facilities created for the rural women folk and based on the demand raised by rural men for such facilities, the Hon'ble Chief Minister has ordered the provision of Integrated Men Sanitary Complexes (IMSC), initially, at the rate of two Complexes per Block during 2012-13. In Tamil Nadu, 770 Integrated Men Sanitary Complexes have been taken up for construction in 385 Blocks at a cost of Rs.35 crore during 2012-13.

The District Collectors have identified the sites for construction of IMSCs taking into account the various parameters and local requirements like prevalence of open defecation, predominance of houses without toilets, availability of water supply, etc. The total area of the Complex is 570 Sq.ft. Each complex has 8 toilets in which one toilet is provided with western closet for the benefit of the aged/differently abled and one is a baby friendly toilet. Separate area for bathing, water tub and stone-paved washing facilities are also provided. Exclusive water supply is ensured in each Complex for sustainability and usage. User Groups are formed and are involved from the construction stage itself. Similar to the maintenance of Integrated Sanitary Complexes for Women, these User Groups will take up the day to day maintenance and periodical maintenance will be done by the Village Panchayats concerned. Corporate bodies and NGOs will also be encouraged to take part in the maintenance of these complexes along with the User Groups.

Source: DRDA, Thoothukudi District

Box: 4.6 Utilisation of public health services and health programme of state and central govt.

Dr. Muthulakshmi Reddy Maternity Benefit Scheme

In the Government order No: 296, Health and Family Welfare dated 03.12.2012 for the enhancement of financial assistance for the poor pregnant women from Rs.6,000 to Rs.12,000 to pregnant mothers of Tamil Nadu Rs.4000 each in 3 installments under Dr. Muthulakshmi Reddy Maternity Benefit Scheme.

Palli Sirar Knnoli Kappom Thittam
Spectacles were provided to all those children with refractive error. 2010-11.10844 nos. (6^{th}, 9^{th}, 10^{th}, 11^{th} and 12^{th}).

Menstrual Hygiene Programme

Objective of the programme is to increase awareness among adolescent girls on menstrual hygiene, build self esteem and to empower girls for greater socialization and the Department of Public Health and Preventive Medicine, Education Department and ICDS Department are involved in the programme. One teacher will be responsible to distribute napkins to school students. The village health nurse along with Anganwadi worker will distribute napkins on every Saturday to the girls who are not covered in the Government schools.

Palli Sirar Dental Health Programme

Palli Sirar Dental Health Programme is conducted for school students studying from 3^{rd} std to 8^{th} standard. Camp has been conducted by the Dental Surgeon after the identification dental diseases by the trained teachers in the school. Dental cavities in the permanent and temporary teeth have been treated. If needed, cases will be referred to Primary Health Centre and Government Hospital.

Chief Minister's Health Insurance Scheme
In this scheme the poor people who are in need of special surgery and special medical treatment has been identified and referred to embedded hospital including government hospitals for special surgery and further treatment

Source: DRDA, Thoothukudi

Special Programmes

AIDS Control

Acquired Immune Deficiency Syndrome (AIDS) is caused by the HIV virus, which weakens the body's immune system and leads to death through secondary infections. The prevalence of HIV and AIDS has been rising from 220 cases in 2013 to 245 cases in 2014 is a cause for greater concern and this might be due to the fact that Thoothukudi district is now becoming a fast industrial hub and people from different parts are landing for business and other economic activities. As the disease has economic and social impact apart from the health impact and as it largely affects the vulnerable sections who find it difficult in getting access to health care facilities, the victims who have been suffered due to AIDS would be treated ill-treated by the society as well as by their brotherhood. The proportion of cases was more or less similar in 2007 whereas in 2011 the male HIV patients are higher than the female. On contrary in 2013, the HIV female cases were higher than male and again it become lesser in the year 2014 when compared to 2013. However, the rate of HIV positive cases were recorded little higher than the previous year but in the case of male HIV patients are more than doubled within short span of period. The study was found that the vulnerability for HIV cases was also high in the age group of 30 to 39 and 40 to 49. Hence, proactive measures need to be taken to reduce HIV infections among female sex workers, men having sex with men, intravenous drug users, transgender, bus drivers and other HIV positive pregnant women in the district. However, in Tamil Nadu the rate to HIV cases has declined from 0.63 percent in 1994 to 0.35 percent in 2008-09. HIV is a communicable and killer disease and early detection of HIV can save human life. Tamil Nadu was the first State in the country to form a State-level AIDS Control Society to implement the programme in a fast track mode in partnership with non-government organizations (NGOs), community-based organizations (CBOs), the private sector as well as national and international agencies.

Table -4.10 Prevalence HIV Positive during 2014

S. No.	Block	Prevalence HIV Positive	
		2013	2014
1	Thoothukudi	17	39
2	Karunkulam	9	5
3	Srivaikundam	15	17
4	Alwarthirunagiri	9	5
5	Tiruchendur	13	14
6	Udankudi	6	12
7	Sathankulam	12	8
8	Kovilpatti	33	45
9	Kayathar	14	11
10	Ottapidaram	6	19
11	Vilathikulam.	15	11
12	Pudur	5	12
13	Corporation	66	47
District		220	245

Source: Health Department, Thoothukudi, 2014

Prevalence of Tuberculosis and Leprosy

Table-4.11 Prevalence Positive TB /Leprosy during 2013 and 2014

S. No.	Block Name	Prevalence of TB positive		Prevalence of Leprosy	
		2013	2014	2013	2014
1	Thoothukudi	124	104	5	5
2	Karunkulam	76	67	1	1
3	Srivaikundam	100	67	3	2
4	Alwarthirunagiri	92	72	9	6
5	Tiruchendur	94	83	3	3
6	Udankudi	34	34	5	2
7	Sathankulam	34	28	3	3
8	Kovilpatti	140	171	6	5
9	Kayathar	152	145	3	3
10	Ottapidaram	106	92	3	3
11	Vilathikulam	76	71	3	3
12	Pudur	86	57	0	0
13	Corporation	174	217	16	11
District		1288	1208	60	47

Source: Deputy Director of Medical Service (TB) and (Leprosy), Thothukudi, 2013 & 2014.

The State of Tamil Nadu has made remarkable progress in the control of leprosy. The number of districts with a high prevalence of leprosy has been continuously going down. With the development process, Thoothukudi district has made a remarkable achievement and overall prevalence of leprosy has also been reduced to a large extent from 60 cases in 2013 to 47 cases in 2014. However, the goal of elimination of leprosy is still distant. The prevalence of leprosy is very high in Corporation (11), Alwarthirunagiri (6), Thoothukudi and Kovilpatti each (5), and lowest prevalence of leprosy were recorded in Karunkulam (1), Srivaikundam and Udangudi each (2) and Tiruchendur, Sathankulam, Kayathar, Ottapidradram and Vilathikulam each (3). It is to be noted that in Pudur block, the prevalence of leprosy has been nil in two subsequent years of 2013 and 2014. However, there are some blocks in Thoothukudi districts which do not have separate leprosy wards in government hospitals. In order to reduce it, the overall infrastructure needs to be equipped adequately by the Government, especially for the Leprosy. The problem of tuberculosis (TB) deserves far greater attention since the prevalence of TB cases is increasing and may be attributed to enormous industries located in and around the district. It is found that Toothukudi block had more number of TB cases (21.18) percent followed by Kovilpatti (16.18). Therefore, adequate resources like drugs and X-rays for TB patients need to be provided with the help of the National Tuberculosis Control Programme.

Conclusions

On the flip side, however, the challenges are daunting, despite the fact that the Government of Tamil Nadu and Union government have made great strides in healthcare since independence. While average life expectancy has nearly doubled to around 70.2 years and female LEB has improved significantly than male since independence, IMR and MMR have fallen significantly, the overall accessibility and quality of healthcare for a vast majority of Thoothukudi district has got a medium record. However, it is difficult

to identify all the reasons for health backwardness and some health indicators which are far behind like higher order birth rate, anemia, MMR etc.

Two key factors responsible for this are the low share of government in total healthcare expenditure, and the lack of skilled human resources. The government healthcare expenditure as a percentage of gross domestic products (GDP) (1.4 percent), too, is far lower than the global median (5 percent). Not only is the government healthcare spending/GDP ratio close to 6 percent or above for most developed western countries, even BRICS (Brazil, Russia, India, China, South Africa) nations such as Brazil and South Africa are far superior to India on this score. It is evident that even if public spending increases further in the next few years, a lot more resources will be needed to be raised through other avenues, including private sector, to bridge this gap.

However, Thoothukudi district is moving towards population stability and has managed to reduce maternal and infant mortality substantially over the years. The healthcare facility is also extended in recent days. IMR is a sensitive indicator not just for the status of health, nutrition and caring, affecting infants under 1 year of age but also for the general well being of the society. The physical effort taken by the Government of Tamil Nadu, infant mortality in Tamil Nadu has rapidly declined much more than India's IMR. Tamil Nadu's IMR rate has declined to 22 deaths per 1,000 live births in 2011 (44 for India) and in Thoothukudi 12.5 (2013-14) which was highly significant decline over the years. The strategic elements for reduction of MMR, family planning, antenatal and post-natal care, and essential and emergency obstetric care in Thoothukudi district have also attained some significant progress over the years.

CHAPTER 5

LITERACY AND EDUCATION

Chapter

5

Literacy and Education

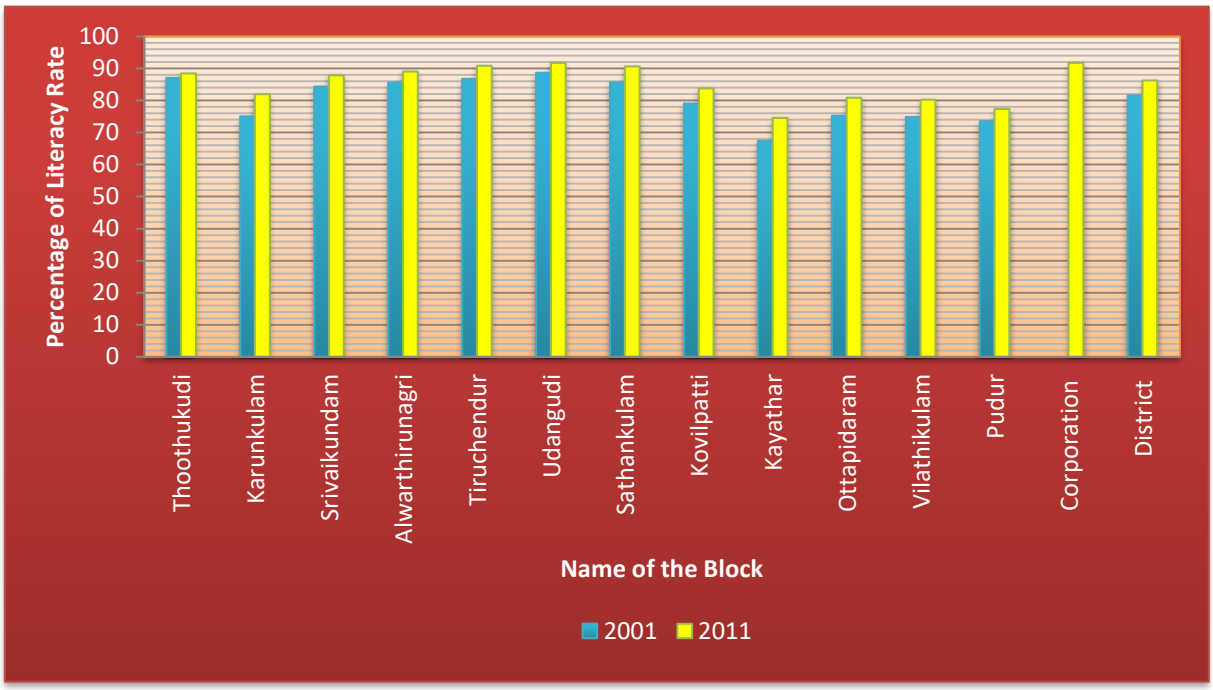
Literacy is also a foundation for individual and societal development and plays an important role in poverty reduction. In this regard, literacy promotion is not only at the heart of Education for All movement (EFA) and United Nations Literacy Decade (UNLD), but also supports the achievement of other related international initiatives including United Nations Education for Sustainable Development (UNESD) and Millennium Development Goals (MDGs). In the present world, however, there are still more than 860 million illiterate adults, 64 % of whom are women. Some 104 million children are still deprived of their right to receive education. Many children drop out of schools or do not receive adequate education, thus remain illiterate. Illiteracy is a serious obstacle for the well-being of individuals as well as for development.

Education

Literacy Performance of District

Expanding access to education, especially at lower levels, is a common objective of governments in developing countries, and it has met with considerable success over the last two decades (see, for example, UNESCO, 1993; World Bank 1995). In fact, during the past two decades, Tamil Nadu Government has adopted numerous measures designed to increase enrolments: setting up a primary school in every village with more than 1,000 inhabitants (the threshold is now being lowered to 500 inhabitants); providing free midday meals 365 days a year to every child in primary and middle school; and giving free uniforms and books to every child in the midday meal program. Some measures specifically encourage girls' schooling: special "marriage grants" to those who complete 8th grade; cash awards to headmasters who enrol and retain high proportion of girls from scheduled castes and scheduled tribes; hiring of large proportion of women teachers; and since 1991, stipulating that only women can be hired as new teachers in primary schools. Considerable publicity has been given to the importance of education and literacy, backed by awards to communities that achieve high enrolments and school completion rates (See Government of Tamil Nadu, India 1994 for details on the various initiatives).

Fig: 5.1 Literacy Rate between 2001 and 2011



Source: Census of India 2001 and 2011
Note: Municipalities CTs, TPs are added in the respective blocks

The link between poverty, female literacy and the gender gap has been a subject of intense debate for quite some time now. A comparison of high and low performing States shows a definite link between poverty and female illiteracy. The logic can be extended to girls' enrollment as well. Only 9.5 per cent of girls from the poorest 40 per cent of households complete middle school, while 85 per cent of boys and 80 per cent of girls in the top 20 per cent of households do so (World Bank, 1998). The correlation between GER at high school or higher secondary level, female literacy is significantly reduced due to poverty. The indication is, therefore, that poverty has a significant impact on the education of girls. The reverse is also true, that higher education levels can have a positive impact on reducing poverty. As household income is limited, boys tend to get preference over girls for schooling. A World Bank study (1996) reported that as income falls, parents' willingness to educate their daughters' decreases faster than their willingness to educate sons.

This kind of problems has been observed even in Thoothukudi district, while performing field surveys. Out of the 13 blocks, more than 6 blocks girls suffer from educational deprivation. The deprived blocks are Pudur, Kayathar, Karunkulam, Kovilpatti, Ottapidaram and Vilathikulam at Secondary and Higher Secondary level of education. Educating girls do not get the highest priority among the family's survival concerns in a State of poverty. Even when education is free, there are other costs such as transport, learning materials and participation in extra-curricular activities at school. This is compounded with the opportunity cost of sending girls to school when they could be helping with household work or with income earning activities. This also partly explains the high school dropout rate among the older girls since their opportunity cost becomes higher. The supply side factors, such as lack of conveniently located

schools, non-availability of female teachers and the absence of single-sex schools, play a greater role in preventing girls from enrolling in high schools. Many parents, particularly in rural areas, fear the social risk of sending adolescent girls to schools which are distant, coeducational and lack female teachers. A common apprehension among parents is that it is an unnecessary risk that may later damage their daughter's marriage prospects, and perhaps even force them to give a larger dowry so as to compensate for the loss of reputation. There has been apprehension that education makes a girl independent and less submissive to her natal family and subsequently after marriage, to the husband's family. Parents also feel that investment in girls' education brings them no return when the girls have to be married off early, since once married, the reciprocal support of her natal household is not possible because of social restrictions on her mobility and choice. In spite of all these impediments, it is pertinent to note that literate mothers are increasingly influencing their daughters to go to school, as is evident from the high enrollment of girls seen in blocks such as Thoothukudi, Srivaikundam, Alwarthirunagri, Tiruchendur, Udangudi, Sathankulam and Corporation limit. Narrowing the gender gap in education at the high school and higher secondary levels calls for a multipronged strategy that includes: (a) educating parents about the economic and social benefits of girls' education, (b) lowering the opportunity cost of girls' education, (c) free education, (d) providing scholarships to girls to encourage them to continue in secondary school, (e) provision of school uniforms, (f) providing day care facilities to look after the young ones, (g) involving the community in planning and development of education, (h) making the curriculum more gender sensitive and (i) recruiting more female teachers. Ultimately, teachers should be trained to create an enabling environment whereby parents feel comfortable sending their girl children to school.

However, the literacy rate in Thoothukudi district has got a higher position than the Tamil Nadu State as per the last two census years 2001 and 2011. The results of the 2011 Census show that Thoothukudi district has attained the third position behind Kanyakumari and Chennai, among the districts of Tamil Nadu, both in terms of overall and female literacy. While the overall literacy rate has gone up from 81.5 percent in 2001 to 86.16 percent in 2011, the male literacy rate has increased from 88.3 to 91.14 percent. What is encouraging fact is that female literacy rate has gone up by more than 6.23 percent points from 75.1 percent in 2001 to 81.33 percent 2011. The gender gap of male literacy to female literacy has come down from 13.2 in 2001 to 9.81 in 2011, revealing the narrowing of gender inequality in the District. The time series data on literacy rate is presented in the above table and it reveals that the aggregate literacy rate for the district stood at 86.16 percent as against the State value of 80.33 percent. Thoothukudi district occupied the third place among 32 districts in the State. For females, the literacy rate was as low as 81.8 percent. Apart from the disparity in the gender literacy rate, vast variations are being noticed across the blocks. High literacy attainments were found in some blocks like Corporation (91.68), Udangudi (91.69), Tiruchendur (90.77) and Sathankulam (90.54) and lowest literacy rate were recorded in Pudur (77.72), Kayathar (74.49), Vilathikulam (80.75) and Ottapidaram (80.15) than the district average. The low literacy rate in some blocks are mainly attributed to socially backward people, a concerted approach is needed to improve the literacy rates in these five blocks viz, Pudur, Kayathar, Vilathikulaam, Karunkulam and

Ottapidaram. As the female literacy rate has significantly increased when compared to the previous census, but not on par with the male literacy which reveals a little gender inequality in the district. Therefore, adequate strategy must be taken to increase the female literacy rate substantially in the deprived blocks.

Elementary Education

In line with the constitutional mandate, the State government is committed to the task of providing universal primary (elementary) education for all children up to the age of 14 years. The success of the State in achieving this end can be studied by analyzing three broad parameters:

- Enrollment of all children between six and fourteen years in primary and middle school;
- Retention of children in primary and middle schools, both with respect to the drop out and repetition rate; and
- Quality education.

Table 5.1: Gender wise enrolment in Primary education during 2012-14

S. No.	Block	Enrollemnt in Primary					
		Boys		Girls		Total	
		2012-13	2013-14	2012-13	2013-14	2012-13	2013-14
1	Thoothukudi	100.0	100.00	99.6	100.00	99.8	100.00
2	Karunkulam	99.7	100.00	99.7	100.00	99.7	100.00
3	Srivaikundam	100.0	99.90	100	100.00	100.0	99.95
4	Alwarthirunagri	99.6	100.00	99.3	100.00	99.8	100.00
5	Tiruchendur	100.0	100.00	100	100.00	100.0	100.00
6	Udangudi	100.0	100.00	99.4	99.50	99.7	99.75
7	Sathankulam	100.0	100.00	100	100.00	100.0	100.00
8	Kovilpatti	100.0	100.00	99.9	99.90	100.0	99.95
9	Kayathar	100.0	100.00	100	100.00	100.0	100.00
10	Ottapidaram	100.0	100.00	99.9	99.90	100.0	99.95
11	Vilathikulam	100.0	100.00	100	100.00	100.0	100.00
12	Pudur	100.0	99.90	100	100.00	100.0	99.95
13	Corporation	100.0	100.00	99.3	100.00	99.7	99.65
District		100.0	99.98	99.8	99.89	99.9	99.93

Source: Education Department, Thoothukudi District 2014

The above table 5.1 reveals the primary enrolment rate during the period between 2012-13 and 2013-14 in Thoothukudi district. At the primary level, the overall enrolment for the year 2012-13 was 99.9 per cent. Boys' enrolment was 100.00 per cent and girls' enrolment was 99.98 percent. It is evident from table that the boy's enrolment ratio among all the blocks in Thoothukudi district is almost 100 percent except in Karunkulam and Alwarthirunagiri block has got 99.7 and 99.6 percent respectively in 2012-13 whereas in 2013-14 the enrolment ratio was similar to the previous year but Srivaikundam and Pudur blocks had the same 99.90 percent. But it is quite interesting to note that girl's enrolment in 2013-14 had good record when compared to the previous year 2012-13 since several blocks were recorded 100 percent

enrolment except Udangudi (99.50), Kovilpatti (99.90) and Ottapidaram (99.90) respectively. The overall enrolment ratio of both boys and girls were recorded in 2012-13 and 2013-14 viz 99.9 and 99.93 respectively. The credibility goes to the concerned department for having taken all the efforts to achieve highest record of primary school enrolment rate at primary level.

Box-5.1 Technology initiatives in Education sector

Present society is passing through the information age. This information explosion has made it imperative to Indian Universities, colleges and schools to develop the new methods for transforming the Information into knowledge. The ICT technologies have changed the mode of information generation, organization, storage, retrieval and dissemination. With this latest information resources the learners can analyze, evaluate, and synthesize the knowledge they gain. The applications of technology have been stressed in both the National Policy Education – 1986, and in revised NPE-1992. Integration of technology with pedagogy improves both quality and quantity in education. The ICT include the Educational Video and Television, Videoconferencing, E-mail, Computer Aided Teaching and E-Books and E-Journals. This new technology oriented teaching will attract both the instructors and the students. The students' understanding of core concepts will be improved. Even difficult subjects like mathematics can be taught easily with calculators, computers, and spread sheets and with internet sources. Computer, like a teacher presents the lessons to the learners in a systematic and understandable mode and will penetrate deep into the mind. The student will master the subject with audio visual effects. And the learning will be complete and thorough and may lead to the frontier research in the respective fields and thereby the technology initiatives and adoption helps to widen the horizon of knowledge.

Completion Rate and Dropout Rate in Primary Education

The picture on the proportion of students completing primary education during 2012-13 to 2013-14 in Thoothukudi district is depicted in Table 5.2. The district average completion rates with respect to primary school were recorded as 96.2 and 97.07 during 2012-13 and 2013-14 years respectively. The district average completion rates of boys at primary education were recorded as 96.6 and 97.32 percent and that of girls 95.8 and 96.82 percent respectively during 2012-13 to 2013-14. It is quite pitiable that girl's completion rate was marginally lower than the boys and something needs to be done to increase the girl's completion rate at primary education level and thereby avert girl's dropouts. The dropout ratio was recorded in Thoothukudi district and could be seen from the table 5.2. The overall district average dropout rates was recorded at primary education as 0.95 and 0.94 percent respectively during the year 2012-13 and 2013-14. It could be noted that block wise boys and girls dropout rates in primary education varies and in more than nine blocks, the girls dropout rates were recorded more than one percent during the year 2012-13 namely Karunkulam (1.00), Srivaikundam (1.36), Alwarthirunagiri (1.10), Tiruchendur (1.03), Sathankulam (1.35), Kovilpatti (1.19), Ottapidaram (1.50), Vilathikulam (1.01) and Pudur (1.26) whereas boys dropout rates were recorded more than one percent in five blocks namely Karunkulam (1.14), Srivaikundam (1.14), Alwarthirunagiri (1.08), Sathankulam (1.24) and Pudur (1.23). However, dropout rate in primary education for both boys and girls were substantially reduced in the subsequent years from 2012-13 to 2013-14.

Table: - 5.2 Completion and Dropoutrate in Primary Education during 2012-14

S. No.	Blocks	Completion rate in Primary						Drop out rate in Primary					
		Boys		Girls		Total		Boys		Girls		Total	
		2012-13	2013-14	2012-13	2013-14	2012-13	2013-14	2012-13	2013-14	2012-13	2013-14	2012-13	2013-14
1	Thoothukudi	96.9	98	96.2	97	96.5	97.8	0.86	0.98	0.99	0.98	0.93	0.98
2	Karunkulam	95.6	96	96.6	98	96.1	97	1.14	1.14	1.00	1.14	1.07	1.14
3	Srivaikundam	97.3	98	96.5	97	96.9	97.5	1.14	1.09	1.36	1.09	1.25	1.09
4	Alwarthirunagri	95.7	96	95.3	96	95.5	96	1.08	1.25	1.10	1.25	1.09	1.25
5	Tiruchendur	96.5	97	95.9	97	96.2	97	0.82	1.15	1.03	1.15	0.93	1.15
6	Udangudi	98.5	99	97.6	99	98.0	99	0.17	0.92	0.22	0.92	0.20	0.92
7	Sathankulam	96.4	97	95.0	96	95.7	96.5	1.24	0.6	1.35	0.6	1.30	0.6
8	Kovilpatti	96.3	97	94.9	96	95.6	96.5	0.92	0.86	1.19	0.86	1.06	0.86
9	Kayathar	96.5	97	94.0	95	95.2	96	0.94	0.82	0.00	0.82	0.47	0.82
10	Ottapidaram	96.6	97	96.2	97	96.4	97	0.95	0.17	1.50	0.17	1.23	0.17
11	Vilathikulam	96.0	97	95.9	97	96.0	97	0.97	0.95	1.01	0.95	0.99	0.95
12	Pudur	94.6	96.1	95.3	96	94.9	96.05	1.23	0.98	1.26	0.98	1.25	0.98
13	Corporation	99.6	100	96.5	97	98.0	98.5	0.5	1.25	0.53	1.25	0.52	1.25
	District	96.6	97.32	95.8	96.82	96.2	97.07	0.93	0.94	0.97	0.94	0.95	0.94

Source: Education Department, Thoothukudi District, 2014.

Upper Primary/Middle School Education

Table-5.3 Gender wise enrolment in Upper Primary Education during 2012-14

S.No.	Blocks	Upper Primary					
		Boys		Girls		Total	
		2012-13	2013-14	2012-13	2013-14	2012-13	2013-14
1	Thoothukudi	99.0	99.00	100.0	99.95	99.5	99.48
2	Karunkulam	98.0	98.30	98.0	98.00	98.0	98.15
3	Srivaikundam	99.0	99.00	98.6	98.60	98.8	98.80
4	Alwarthirunagri	98.0	98.00	98.2	98.20	98.1	98.10
5	Tiruchendur	99.9	99.90	98.2	98.80	99.1	99.35
6	Udangudi	99.0	99.00	98.0	98.00	98.5	98.50
7	Sathankulam	97.5	98.00	98.0	98.00	97.8	98.00
8	Kovilpatti	98.5	98.50	98.5	98.50	98.5	98.50
9	Kayathar	99.0	99.00	99.2	99.90	99.1	99.45
10	Ottapidaram	98.0	98.00	99.8	99.76	98.9	98.88
11	Vilathikulam	100.0	100.00	98.9	98.85	99.4	99.43
12	Pudur	97.5	98.00	97.7	97.66	97.6	97.83
13	Corporation	100.0	100.00	98.5	98.50	99.3	99.25
District		98.7	98.82	98.6	98.67	98.6	98.75

Source: Education Department, Thoothukudi District, 2014.

The above table 5.3 reveals that gender wise enrolment in upper primary education during 2012-13 to 2013-14. The upper primary enrolment rates were recorded as 98.6 and 98.75 percent respectively during the years 2012-13 and 2013-14 and the rate has marginally increased. The difference between boys and girls enrolment in upper primary education has not shown significant changes during the years 2012-13 and 2013-14 but marginal improvement in enrolment among boys and girls could be seen in certain places during the years.

Completion Rate and Dropout Rate in Upper Primary /Middle School

The table 5.4 exhibits the completion and dropout rate in upper primary education during the years 2012-13 to 2013-14 in Thoothukudi district. The district average completion rates with respect to upper primary education were recorded as 93.9 and 95.00 percent respectively during the years 2012-13 to 2013-14. It was quite interesting to note that girl's completion rate in upper primary education was much higher than the boys not only in the district average but also in all the blocks. Similarly, in the dropout rate in upper primary education for both boys and girls, there was not huge difference and the percentages were recorded as 1.55 and 1.7 percent during the years 2012-13 to 2013-14.

Box 5.2—Sarva Shiksha Abhiyan (SSA)

Sarva Shiksha Abhiyan is a unique mission of the Elementary Education sector in view of its comprehensive coverage and integrated approach. The mission has become all the more significant with the Right to Education Act, 2009 coming into force. Tamil Nadu has been taking relentless efforts to achieve the objectives of the Sarva Shiksha Abhiyan Mission over the past 9 years. In the process, the Thoothukudi district has reached several milestones both quantitatively and qualitatively. The district has been successfully increasing awareness about the importance of elementary education among the community, particularly in rural areas. The district has also been able to achieve good results both at primary and upper primary levels. The Net enrolment Rate of children in the elementary education sector has improved consistently. The dropout rates both at primary and upper levels have declined considerably over the years. The overall achievement levels of children have improved in all subjects. Significant progress has been made in successful implementing the SSA Activities. The support and efforts of the district administration, teachers and students have helped us take off with resounding success. We hope to shine bright through our joint efforts. Since, we believe in team work in all our achievements great or small. Tremendous efforts have been made in the last four decades for Universalization of Elementary Education (UEE) and to fulfil the mandate of the Indian Constitution. The "National Policy on Education" 1986 and 1992 also gave top priority to the achievement of Universal Elementary Education. Many projects and programmes at the micro and macro levels have been undertaken in the past in this direction. Experiences have shown that as a result of all the past interventions, there has been considerable progress in ensuring access to primary education: there is an increase in enrolment and retention, improvement in school attendance and generation of strong demand for education especially for girls and so on. However, pupil achievement levels have been gradually low and there is a wide interstate and inter-district difference in pupil's attendance and achievement levels.

Sarva Shiksha Abhiyan is a centrally sponsored scheme and this scheme is to be implemented in all the districts of the State. Sarva Shiksha Abhiyan is an effort to universalize elementary education by community-ownership of the school system. It is in response to the demand for quality basic education all over the country. The SSA programme is also an attempt to provide an opportunity for improving human capabilities of all children, through provision of community-owned quality education in a Mission mode. The scheme is being implemented through the society, namely "Tamil Nadu State Mission of Education for all" at the State level.

In Thoothukudi, the District Annual Work Plan and Budget is prepared in a decentralized and participatory manner. The core planning teams at village/school, Block and District and State levels have been revived. As envisaged in the SSA framework, the 'bottom-up' approach of planning has been adopted to analyse the problems and issues and to address them appropriately. The Principal sources of data for the preparation of plans are population census 2001, Household Survey (2005), DISE 2010, Cohort Study, Elementary Education Register (EER) and Monthly Review Reports.

Source: Annual work plan & budget, Thoothukudi district, 2012-13

Box 5.3—Incentives for Enrolment

Inclusive space for the education of all children under SSA provides to every child with special needs should be placed in regular schools, with needed support services. A wide range of options for educational services has been given, including, for example, open school, non-formal and alternative schooling, distance education, special schools and home based education. This range of options and strategies should be reviewed in the context of the RTE Act, which entitles all children to elementary education in regular schools that meet the norms and standards specified in the Schedule in the Act. In 2011-12, 26 medical camps were conducted for the benefit of CWSN in Thoothukudi district. 346 other than ALIMCO devices were given and 9 surgeries were performed, 13 Day care centres are functioning with 255 children, 26 modified toilets were set up and 8 children were given the Brail books.

Table - 5.4 Completion and Dropout rate in Upper primary Education

S. No.	Blocks	Completion Rate in Upper Primary						Dropout rate in Upper Primary					
		Boys		Girls		Total		Boys		Girls		Total	
		2012-13	2013-14	2012-13	2013-14	2012-13	2013-14	2012-13	2013-14	2012-13	2013-14	2012-13	2013-14
1	Thoothukudi	93.4	95.17	97.5	97.5	95.4	96.34	0.70	0.8	1.54	1.5	1.12	1.5
2	Karunkulam	91.5	93.5	94.8	94.8	93.2	94.15	2.00	2.01	1.67	1.68	1.84	1.68
3	Srivaikundam	93.8	94.55	97.9	97.9	95.9	96.23	1.00	1.1	1.0	1.2	1.00	1.2
4	Alwarthirunagri	90.4	92.04	95.8	95.82	93.1	93.93	0.62	0.63	1.0	1.02	0.81	1.02
5	Tiruchendur	92.1	94.23	95.5	96	93.8	95.12	1.45	1.47	2.25	2.26	1.85	2.26
6	Udangudi	91.5	92.65	95.2	95.24	93.4	93.95	2.50	2.7	1.7	1.8	2.10	1.8
7	Sathankulam	91.0	96.54	97.3	97.3	94.1	96.92	2.17	2.18	1.43	1.44	1.80	1.44
8	Kovilpatti	91.4	93.56	94.8	94.75	93.1	94.16	2.42	2.43	2.27	2.28	2.35	2.28
9	Kayathar	92.2	93.07	94.1	94.95	93.1	94.01	0.80	0.9	2.65	2.68	1.73	2.68
10	Ottapidaram	91.2	93.54	95.1	95.95	93.1	94.75	2.44	2.45	2.1	2.2	2.27	2.2
11	Vilathikulam	91.9	93.54	94.3	94.26	93.1	93.90	2.35	2.37	1.01	1.02	1.68	1.02
12	Pudur	90.5	94.65	94.7	95.1	92.6	94.88	2.60	2.61	2.14	2.15	2.37	2.15
13	Corporation	94.6	95.64	97.8	97.8	96.2	96.72	0.42	0.43	1.03	1.05	0.73	1.05
	District	92.0	94.05	95.8	95.95	93.9	95.00	1.6	1.7	1.5	1.7	1.55	1.7

Source: Education Department, Thoothukudi District, 2014.

The dropout rate increases as students move up from class VI to class VIII,: the district average percentage of drop out ratio in upper primary education of boys in 2012-13 to 2013-14 figures shows that a slight increasing trend from 1.55 percent to 1.70 percent whereas girls drop out ratio has increased significantly from 1.50 to 1.70 percent in 2012-13 to 2013-14. Therefore, girl's drop out ratio has not shown any changes than boys in the upper primary level in 2013-14 but the rate has come down to 1.50 than the boys 1.60 percent. The Right to Education (RTE) Act 2009 envisages that every child is ensured of free and compulsory education up to 8th standard class and then they will be provided special training either by the teacher of the school or by intervention to these out-of school children. To address this issue, Non-Residential Bridge Course (NRBC) and Residential Camps are conducted to cover these children in the area where there are higher number of Out of School Children's (OOSCs). The never enrolled children, the migrant children, street children and urban deprived children are enrolled in residential camps.

Academy of Interactive Entertainment (AIE) provides support for bridge courses and back to school camps, AIE covers never enrolled or drop out children who migrate seasonally with their families, street and other deprived urban children, working children and other vulnerable children under difficult circumstances. In upper primary schools the dropout rate was found to be marginally higher (1.70) in 2013-14 than (1.55) in 2012-13 whereas the total dropout rate of SC and ST children also has come down from 2.34 to 2.30 and 1.10 to 1.07 (ST) during 2010-11 to 2011-12. However, the total dropout rates in upper primary education were recorded highest in Pudur (2.15), Ottapirdaram (2.20), Kayathar (2.68), Kovilpatti (2.28) and Tiruchendur (2.26) and lowest were recorded in Thoothukudi (1.5), Karukulam (1.68), Srivaikundam (1.20), Alwarthirunagiri (1.02), Udangudi (1.80) Sathankulam (1.44), Vilathikulam (1.02) and Corporation (1.05). However, when compared to the previous year the dropout rate is reduced in the upper primary due to the fact that the parents are aware of education due to the implementation of good education given by SSA.

Box 5.4—EDUSAT under DEP

The EDUSAT was launched on 20th September 2004, dedicated satellite for education and training. The EDUSAT is a powerful mode of disseminating knowledge and information to the remote areas of the country. It strengthens the communication between the teaching end and the learning end through distance mode. SSA is providing in-service training and quality interventions for a large number of teachers and children and district level functionaries of SSA either by face to face or by cascade mode. Face to face approach or the cascade model would be inadequate to carry out the educational programmes to the vast number of teachers, children and the functionaries associated with Elementary Education and also there may be transaction loss and time consuming in a cascade model of training. Whereas EDUSAT facilities to train a large number of teachers and trainers without transaction loss. The programme through EDUSAT provide inputs and explanation of materials for the training and building capacity to BRTEs, Resource Persons and other functionaries related to curricular, contextual and pedagogical areas.

The Sarva Shiksha Abhiyan (SSA) aims to provide quality education to all children in the age group of 6 to 14 across the nation. SSA has several features that seek to improve the quality of elementary education. These essentially pertain to (a) ensuring basic provision enabling improvement in the quality of classroom transactions (b) large scale capacity building of states, for undertaking and evaluating interventions for quality enhancement and (c) focus on assessment of learning outcomes and their improvements, as key indicators of the quality of learning. This programme places great emphasis on building the capacity of teacher for teaching, through regular training programmes. The Scheme provides for regular annual in-service training for 20 days per teacher. The SSA framework was recently amended to give more emphasis on practical classroom related teacher training by providing for a maximum of 10 days institutional training at BRCs level, and another 10 days specifically at cluster level in order to ensure follow-up, peer learning and experience practical classroom transactions'. SSA also provides induction training for newly recruited teachers to orient them regarding their role and responsibilities, the expectations of the SSA programme and specific district priorities in quality education.

Source: Annual work plan & budget, Thoothukudi district, 2012-13

Transition Rate from Primary to Upper Primary and Upper Primary to Secondary

Table 5.5 Transition rate from Primary to Upper primary and upper primary to secondary

S. No.	Blocks	Transition Rate					
		Primary to Upper Primary			Upper Primary to Secondary		
		Boys	Girls	Total	Boys	Girls	Total
		2013-14	2013-14	2013-14	2013-14	2013-14	2013-14
1	Thoothukudi	97.48	97.97	97.725	99.45	99.57	99.51
2	Karunkulam	97.75	98.33	98.04	96.29	96.55	96.42
3	Srivaikundam	98.31	98.27	98.29	98.44	99.57	99.005
4	Alwarthirunagri	97.74	98.76	98.25	99.45	99.06	99.26
5	Tiruchendur	97.25	98.22	97.735	99.65	100.37	100.01
6	Udangudi	97.89	97.79	97.84	99.45	99.64	99.545
7	Sathankulam	97.68	97.82	97.75	93.73	92.65	93.19
8	Kovilpatti	97.43	98	97.715	99.45	98.63	99.04
9	Kayathar	97.54	97.98	97.76	93.42	97.68	95.55
10	Ottapidaram	97.73	97.34	97.535	99.45	98.56	99.005
11	Vilathikulam	97.69	97.87	97.78	98.84	99.64	99.24
12	Pudur	98	97.92	97.96	97.44	98.98	98.21
13	Corporation	97.73	97.97	97.85	98.94	99.93	99.435
	District	97.71	98.02	97.865	98	98.5	98.25

Source: Education Department, Thoothukudi District, 2014.

The transition rate means the percentage of students advancing from one level of schooling to the next, for example, primary to upper primary, upper primary to secondary school and so on. When transition rate from primary to upper primary schools is considered, all the blocks of the district recorded almost 97% during the year 2013-14 whereas girls were recorded more than 98 percent in five blocks and rest 97 percent respectively during the same year. The district average transition rate from primary to upper primary was recorded as 97.865 percent during the year 2013-14 whereas district average transition rate from upper primary to secondary rate was recorded as 98.25 percent which was quite high. The transition rate of boys in the upper primary has increased from 97.71 to 98 percent in secondary level whereas girl's transition rate has increased from 98.02 to 98.5 percent during 2013-14. The overall SC children transition rate has increased from 97.96 to 98.20 out of which SC boys increased from 98.36 to 98.47 whereas SC girls has increased from 97.55 to 97.93. Likewise, the overall ST children transition rate has increased from 92.33 to 95.26 out which 95.68 for boys and 94.84 percent for girls. However, there is a gradual increase in the transition rate for the past two years due to the effective implementation of SSA activities.

Availability of Schools

The availability of schools in Thoothukudi district could be seen from the Table 5.6 that there are 2099 schools functioning across the district in various categories such as primary, upper primary, secondary and higher secondary schools during 2014 year. There are 1,194 primary schools, 608 upper primary schools and 119 secondary schools and 178 higher secondary schools are providing education to the entire school students. There are 2292 habitations in the district which are having inequality in the distribution of schools among the district. Sometimes the numbers of habitations are high but the availability of schools are very less when compared to number of habitations. There is lopsided provision of schools that is seen

in many blocks and that has caused the inequality in resource access among the blocks which might have caused more dropout rates among the blocks.

Table- 5.6 Availability of Schools in Thoothukudi District

S. No.	Blocks	Number of Habitation	Number of Schools				
			Primary	Upper Primary	Secondary	Higher Secondary	Total
1	Thoothukudi	301	86	57	17	16	176
2	Karunkulam	116	75	28	6	7	116
3	Srivaikundam	225	88	53	5	15	161
4	Alwarthirunagri	278	99	55	4	13	171
5	Tiruchendur	143	79	50	10	19	158
6	Udangudi	161	80	35	6	10	131
7	Sathankulam	210	107	49	8	12	176
8	Kovilpatti	179	106	63	16	25	210
9	Kayathar	185	114	40	13	9	176
10	Ottapidaram	174	118	44	7	11	180
11	Vilathikulam	154	99	34	8	8	149
12	Pudur	125	74	38	7	6	125
13	Corporation	41	69	62	12	27	170
	District	2292	1194	608	119	178	2099

Source: Education Department, Thoothukudi District, 2014.

Pupil-Teacher Ratio in Primary and Upper Primary

Table - 5.7 Pupil Teacher Ratios during 2013-14

S. No	Block	Primary School	Upper Primary School
		Pupil Teacher Ratio	
1	Thoothukudi	21:29	27.29
2	Karunkulam	20:41	25.6
3	Srivaikundam	20:39	17:62
4	Alwarthirunagri	19:94	14:33
5	Tiruchendur	20:68	25:4
6	Udangudi	13:97	13:82
7	Sathankulam	14:99	15:78
8	Kovilpatti	17:86	26:15
9	Kayathar	17:32	25:45
10	Ottapidaram	18:23	22:71
11	Vilathikulam	18:94	28:35
12	Pudur	18:73	23:22
13	Corporation	26:17	17:74
District		18.69	22:72

Source: Education Department, Thoothukudi, 2014

The district average pupil–teacher ratio for primary and upper primary schools for the district as a whole was recorded as 18.69 and 22.72, which had fared well when compared to the all-India average of 40. Primary/Upper primary school pupil-teacher ratio has been worked out on the basis of number of children enrolled and number of teachers working in the school (regardless of their teaching assignment). According to this, the pupil-teacher ratio is good in all the blocks of the district. At primary level, the lowest pupil-teacher ratio was noticed in the Udangudi (13:97) and Sathankulam (13:97) and highest ratio was noticed in the Corporation (26:17) and followed by Tiruchendur (20:68). While looking at the pupil-teacher ratio at the upper primary school level, Vilathikulam (28:35) stood at top and followed by

Thoothukudi (27:29) and lowest pupil-teacher ratio was noticed at Udangudi (13:82) and followed by Alwarthirunagiri (14:33) during the year 2014. This reinforces the point that this ratio has to be studied along with spatial distribution of teachers as well as other infrastructure parameters if it is to serve as an indicator of educational performance. Pupil–teacher ratios vary significantly between the districts in Tamil Nadu. Data from the Sixth Educational Survey show that the pupil–teacher ratio varied from 56 in Dharmapuri to 26 in Nilgiris. Subsequently, teacher vacancies have been systematically filled up. Further, the high pupil–teacher ratio districts have been covered by the DPEP which has helped reduce the overall disparity. This is reflected by the figures observed in 2011. Though the overall ratio continues to be 21 for primary schools and 26.04 for upper primary schools, there has been some improvement in the educationally backward districts such as Tiruvannamalai, Cuddalore, Dharmapuri and Villupuram with ratios of 33, 40, 41 and 41 respectively. There is still a wide dispersion of values from 54 in Pudukkottai to 29 in Dindigul and attempts will have to be made to redistribute the available teachers across the districts. The pupil–teacher ratio in each district will have to be disaggregated further and studied with reference to block-level variations since the unit for appointment of primary school teachers at the block. A block-wise pupil– teacher ratio for the Thoothukudi district shows that the block-level ratio conceals more than it reveals. While more than eight blocks have more than district average pupil–teacher ratio of 21, there were five blocks with ratios less than 21. New strategies are required to devise means to rationalize teacher availability across the districts.

Box-5.5 Initiatives for improvement in quality of Education

The concept of quality is largely linked to the efficiency of the teaching – learning process. There are various agencies like NCERT, DIET, NGOs and Universities that are involved in improving the quality of education especially at elementary level. Quality requires both infrastructure and good teachers in schools, and innovative teaching. Innovative interventions are introduced in India under Sarva Shiksha Abiyan (SSA) and the major programmes include Children Language Improvement Programme (CLIP), Integrated Learning Improvement Programme (ILIP) and Computer Aided Learning (CAL). The Activity Based Learning (ABL) introduced recently in Tamil Nadu is also quality oriented. District Institute of Education (DIET) is formed at district level to ensure quality education at elementary education. Curriculum is also framed and further developed to address the quality issues. To improve the quality of teaching in Tamil Nadu in–service training programme are given to the teachers.

Source: SSA, Thoothukudi District

Secondary Education

Secondary School Enrollment

Table - 5.8 Enrolments in Secondary Education

S.No.	Block	Enrollment in Secondary School 2013-14		
		Boys	Girls	Total
1	Thoothukudi	99.00	99.95	99.48
2	Karunkulam	98.30	98.00	98.15
3	Srivaikundam	99.00	98.60	98.80
4	Alwarthirunagri	98.00	98.20	98.10
5	Tiruchendur	99.90	98.80	99.35
6	Udangudi	99.00	98.00	98.50
7	Sathankulam	98.00	98.00	98.00
8	Kovilpatti	98.50	98.50	98.50
9	Kayathar	99.00	99.90	99.45
10	Ottapidaram	98.00	99.76	98.88
11	Vilathikulam	99.00	98.85	98.93
12	Pudur	98.00	97.66	97.83
13	Corporation	99.00	98.50	98.75
District		98.82	98.67	98.75

Source: Education Department, Thoothukudi, 2014

In this section, issues of secondary education, that is from ninth standard upward, are dealt with. An intriguing feature of Tamil Nadu's educational system is that despite the incentives of provision of bicycle, bus pass, uniform, books, notebooks, geometry box and free noon meals. The students have realized the benefits of educational programme and utilized the same. Table 5.8 gives an idea about the enrollment ratio of students in secondary level schools during the year 2013-14. The total district average enrollment ratio in secondary school has been estimated at 98.75 percent where as average enrollment ratio of boys and girls have been estimated at 98.82 and 98.67 percent respectively. This is quite an impressive rate as far as Thoothukui district is concerned. However, the boy's enrollment ratio was marginally 0.15 percent higher than the girl's enrollment ratio. The highest enrolment rate was recorded in Thoothukudi (99.48), Kayathar (99.45) and Tiruchendur (99.35) blocks. The lowest rate was recorded in Sathankulam (98.0), Alwarthirunagiri (98.10) and Karunkulam (98.15) blocks. The highest girl's enrolment rate was recorded in Kayathar (99.90), Thoothukudi (99.95) and Ottapidaram (99.76) and lowest was recorded in Pudur (97.66), Sathankulam (98.0) and Karunkulam (98.0) blocks. Inadequate transport and low access to high schools are the major reasons for low enrolment rate at high schools level, especially among the girl's students. However, the district performance in terms of girls' enrolment and overall enrolment is very impressive. In terms of social group-wise enrolment, the percentage of SC girls enrolment is 13.45 per cent of the total SCs enrolled during the year 2011-12, which is quite impressive than the previous year but little less during the year 2012-13. The overall SC enrolment rate in Thoothukudi district during 2011-12 was 26.13 percent but it has increased to 26.53 percent during the year 2012-13.

Box- 5.6 Reading and writing skill among Primary and Upper primary students

Reading is a part of gaining knowledge and language even after the school years. Reading helps to make progress in all academic subjects. Reading is the key to the storehouse of information and it leads to language skill and development. Reading skill is imparted mainly for the quick comprehension of the subject. But the skill imparted at the primary and upper primary schools are not up to the global standards and only the basics are taught. Students are not sufficiently trained enough in reading so as to comprehend the subject quickly. Therefore, they should be trained to develop reading habit so as to make the students understand the cause and effect, compare and contrast and try to answer questions about main ideas, details, essential information, vocabulary and overall theme. Similarly writing skills are to be developed among the students at school levels in making sentences both Tamil and English and should be trained on how to begin and conclude an essay. They should also be given knowledge of how to condense the passage. Further, the Writing skills at school level are to be imparted to write a summary about the important points in the text book. Students independently should be able to write their opinion or choice, and then explain it. Under DIET programmes in Tamil Nadu, the necessary steps for improving of reading and writing skills are included.

Source: SSA, Thoothukudi District

Secondary School Dropout

The following table 5.9 highlights the dropout rate of school children at secondary level education in Thoothukudi district during 2012-13 to 2013-14. The overall dropout rate has come down from 2.81 to 1.7 during 2012-13 to 2-13-14 respectively. The highest dropout rate was recorded in Pudur (4.72), Ottapidaram (4.45), Kovilpatti (4.13), Udangudi (4.5), Tiruchendur (3.73) and Karunkulam (3.69) and lowest dropout rate was recorded in Corporation (1.48) and Alwarthirunagiri (1.65) percent respectively. But the alarming thing here is that the overall dropout rate has significantly reduced in all the blocks including the Corporation during the year 2013-14 than the previous year 2012-13. However, the girl's dropout rate in secondary education has reduced significantly in all the blocks due to continuous efforts and schemes launched by the Government of Tamil Nadu in the recent years in all the blocks. As far as Thoothukudi district is concerned the dropout rate was not much higher than the rest of the districts in Tamil Nadu. But some observations were made during the field survey from the student's parents stating that inadequate transport in some rural areas, non accessibility of higher secondary schools near habitations, poverty and social causes are some of the bottlenecks leading to more dropout rates.

Table - 5.9 Dropouts in Secondary Education

S.No	Block	Dropout Rate					
		Boys		Girls		Total	
		2012-13	2013-14	2012-13	2013-14	2012-13	2013-14
1	Thoothukudi	0.67	0.8	1.36	1.5	2.03	2.3
2	Karunkulam	1.88	2.01	1.43	1.68	3.31	3.69
3	Srivaikundam	0.87	1.1	0.99	1.02	1.86	2.12
4	Alwarthirunagri	0.42	0.63	0.98	1.02	1.4	1.65
5	Tiruchendur	1.23	1.47	2.05	2.26	3.28	3.73
6	Udangudi	2.3	2.7	1.6	1.8	3.9	4.5
7	Sathankulam	1.96	2.18	1.36	1.44	3.32	3.62
8	Kovilpatti	1.78	2.01	2.08	2.12	3.86	4.13
9	Kayathar	0.78	0.9	1.93	2.28	2.71	3.18
10	Ottapidaram	2.11	2.25	1.97	2.2	4.08	4.45
11	Vilathikulam	2.12	2.37	1.05	1.02	3.17	3.39
12	Pudur	2.43	2.61	2.03	2.11	4.46	4.72
13	Corporation	0.36	0.43	0.55	1.05	0.91	1.48
District		1.43	1.65	1.38	1.65	2.81	1.7

Source: Education Department, Thoothukudi, 2014

Basic School Infrastructure

As seen in the table 5.10, there were tangible improvements in the infrastructure in the district during 2014. Increased availability of class rooms, toilets, water, desks and chairs are being noticed. Across the district, there are few schools which do not have compound walls. However, the overall school infrastructure needs to be revamped in order to compete with private schools and thereby the quality also can be ensured. According to District Information System for Education (DISE) analytical Report 2004, 4.04 percent of the total primary schools in the country are running without building. But if we look at the position of buildings in primary and middle schools in the district, it seems to be very better off than the rest of the States in India. As far as the type of school buildings is concerned all the schools need to have pucca building so that it can be used in all seasons. In Tamil Nadu, 41.27 percent of the schools have pucca buildings and more than 19.86 percent of the primary schools have partially pucca buildings. In Thoothukudi district, nearly 73.43 percent of schools are functioning with only 3 class rooms and remaining 26.56 percent of the schools are functioning with more than 3 class rooms. As far as Thoothukudi district is concerned, some school buildings were funded either by Member of Legislative Assembly (MLAs) or Member of Parliament (MPs). The qualities of government schools buildings were not good enough in Thoothukudi district but also across the State. Therefore, government should give top priority to allocate funds for good school buildings. Similarly, the buildings are to be built either by the Public Works Department (PWD) or any other good builders, who could fairly carry out the task. Many schools in Thoothukudi district do not have electricity even if they have electricity connections, most probably lights and fans are defunct. More than 20 schools in Thoothukudi district do not have girl's toilets. In order to ensure girls' basic rights, toilet facility must be ensured in all the schools immediately. More than 200 schools in and round Thoothukudi district, function without compound wall. Provision of compound wall will always protect the students from social evils and avoid trespassers, which ensure girls' protection.

Table- 5.10 Block wise School Infrastructure

S. No.	Blocks	Total no. of Schools	With 3 class rooms	More than 3 class rooms	Without toilet	Without girls toilet	Without electricity	Without compound wall	Without drinking water	Without desk and chair
1	Thoothukudi	40	28	12	0	3	1	10	40	0
2	Karunkulam	64	50	14	0	0	1	36	64	6
3	Srivaikundam	46	32	14	0	0	0	10	46	9
4	Alwarthirunagri	32	19	13	0	1	1	6	32	7
5	Tiruchendur	43	32	11	0	1	1	4	43	4
6	Udangudi	35	28	7	0	0	0	7	35	3
7	Sathankulam	47	40	7	0	0	0	11	47	3
8	Kovilpatti	67	44	23	0	1	0	11	67	6
9	Kayathar	93	73	20	0	8	1	33	93	5
10	Ottapidaram	77	57	20	0	6	3	35	77	4
11	Vilathikulam	75	60	15	0	0	3	20	75	4
12	Pudur	73	50	23	0	0	0	17	73	3
13	Corporation	12	4	8	0	0	0	0	12	0
	District	704	517	187	0	20	11	200	704	54

Source: Education Department, Thoothukudi District, 2014.

Hostel Facilities

Hostel facilities always help the far reaching students who opt for education not only in higher education but also in school level education. The students who stay in the hostel can learn several good habits and thereby he/she can become a good citizen. In fact, Government of Tamil Nadu has built several hostel buildings across the state for Scheduled Caste/Scheduled Tribes and Backward Class students, which enable to increase the enrolment rate in school education. Hostels play a pivotal role in everyone's life, especially the needy children. Table 5.11 reveals that there are 216 schools with hostels during the year 2014. Unequal access of hostel facilities could be seen across the blocks in Table 5.11. Out of 1,34,038 students, there are 1,480 students studying in hostels, especially the educationally backward blocks like Pudur and Karunkulam having lesser number students studying in hostels. Whereas Thoothukudi and Srivaikundam blocks have hostels but students did not avail the facility. In order to understand the reality of the problems of the students in staying in the hostels, a detailed study is essential.

Table-5.11 Hostel facilities during 2014

S. No	Block	No. of Schools with Hostels	Total Number of Students	No. of students in Hostels
1	Thoothukudi	12	9361	-
2	Karunkulam	10	3546	60
3	Srivaikundam	17	9314	-
4	Alwarthirunagri	13	9924	219
5	Tiruchendur	21	10874	176
6	Udangudi	14	6304	102
7	Sathankulam	17	5783	215
8	Kovilpatti	25	17025	147
9	Kayathar	16	7863	123
10	Ottapidaram	17	10769	122
11	Vilathikulam	17	8080	178
12	Pudur	9	3791	55
13	Corporation	28	31404	83
	District	216	134038	1480

Source: Education Department, Thoothukudi District, 2014

Scholarship

Table 5.12 gives the details of scholarship provided to the students of various categories. In total, 588 schools provided scholarships to 14, 711 students in the district during 2014. Across the blocks, large number of students (4923) have availed scholarships from Kovilpatti and Thoothukudi (4528) blocks and lowest number students from Corporation (98), Pudur (284), Sathankulam (246) and Udangudi (303) blocks. The number of scholarships and amount of scholarships awarded to the students depend upon their parent's annual income and community which varies significantly between the blocks.

Table 5.12 Scholarship during 2014 in Thoothukudi District

S. No.	Block	No. of Schools	Total Number of Students	No. of. Students availed Scholarships
1	Thoothukudi	70	5345	4528
2	Karunkulam	34	420	389
3	Srivaikundam	69	619	496
4	Alwarthirunagri	57	716	497
5	Tiruchendur	30	638	511
6	Udangudi	25	362	303
7	Sathankulam	37	293	246
8	Kovilpatti	74	5786	4923
9	Kayathar	82	1170	998
10	Ottapidaram	54	1059	941
11	Vilathikulam	32	521	448
12	Pudur	38	303	284
13	Corporation	6	110	98
District		588	17391	14711

Source: Education Department, Thoothukudi, 2014.

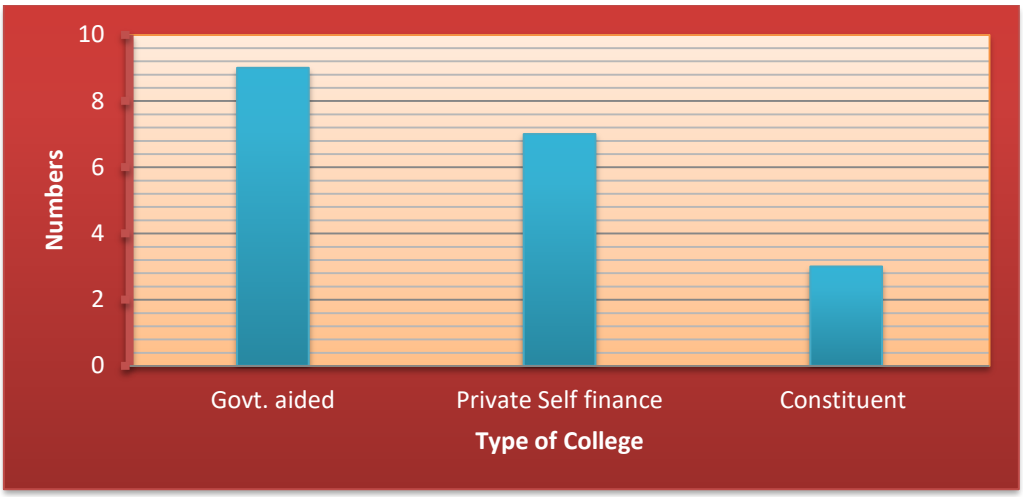
Higher Education

Government of Tamil Nadu devotes special attention for strengthening the higher education system in the State and to respond to the emerging demand of the new century. Initiatives of the Tamil Nadu Government will be to focus on consolidating the existing educational facilities and infrastructure and to provide balanced attention towards technological education as well as high quality arts and science programmes. At the same time, the needs of the weaker sections of the society including women, rural population, social and economically backward communities are taken care of. There has been increasing number of private institutions that are offering arts and science courses in the district. At present, there are 19 arts and science colleges available in the district out of which 8-colleges are government aided, 1-autonomous, 7- private self financed and 3- constituent colleges. Though the district of Thoothukudi stands 3rd as far as literacy is concerned but this could be sustained in higher education only through the provision of increasing number of Government Arts and Science colleges in the district since no Government Arts and Science College is available in the district so far. Indeed Government Arts and Science College is the only option for the poor and downtrodden children who aspire for higher education. However, keeping in view of the importance of higher education, three constituent colleges' were established by the Government of Tamil Nadu recently through Manonmaniam Sundaranar University to the rural poor students and thereby to fulfil the vision of the Government of Tamil Nadu. However, the

quality of higher education can be ensured only by providing education through regular streams with qualified teaching faculties.

Arts and Science Colleges

Fig – 5.2 Number of Arts & Science Colleges in Thoothukudi district



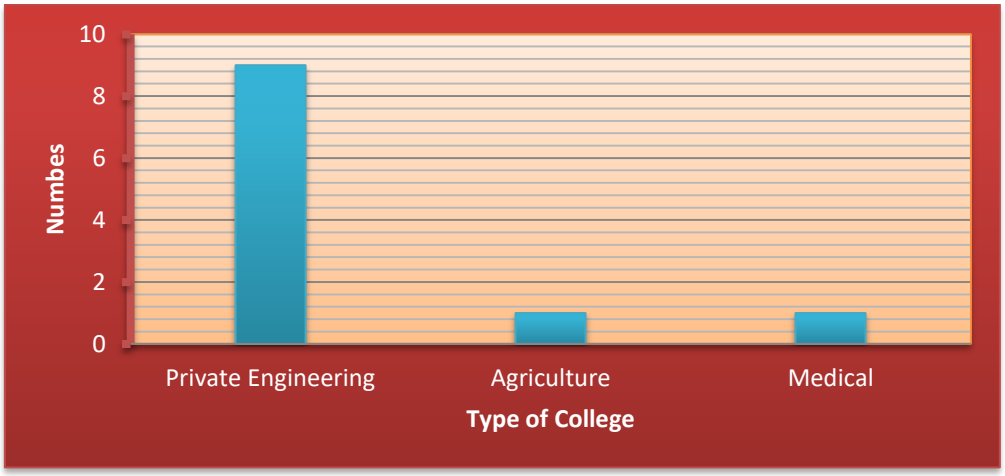
The Government of Tamil Nadu had taken several steps to increase the enrolment ratio of higher education. For example, 50 percent fee reduction to all the students who opt for arts and science subjects. In order to improve the research aptitude among the students and teachers, two cores of rupees has been sanctioned to all the State Universities in Tamil Nadu to enhance research skills by way of inviting Professors from the leading Universities abroad. Based on the initiatives, several workshops were being organised to develop curriculum modification in the present context and thereby ensure improvement of employability skills.

Technical Education

It is a matter of great satisfaction that the graduates of the technical institutions in Tamil Nadu have shown outstanding performance in the industry, both in India and abroad. Many of them have become major entrepreneurs. The State has the second largest intake capacity in the country in engineering and polytechnic education. In case of Thoothukudi district, the intake capacity of engineering colleges has reached the level of 35,230 and that of the polytechnics has reached 47,500 whereas in Thoothukudi district there were total 9381 engineering graduates who have completed their course from 9 different private engineering colleges in 2011-12 out of which 5595 (59.64%) boys and 3786 (40.36%) were girls. The noteworthy feature of the Government is to consolidate this capacity and improve the quality of the output from these institutions, rather than increasing the number of new institutions. For this purpose, the Government will initiate programmes for up-gradation of the engineering curriculum and syllabi at frequent intervals in order to capture the new developments in the technologies and to address market demand. The Government will pay special attention to train qualified teachers to meet the critical shortage of teaching faculty in most of the technical institutions. The Government will encourage closer interaction between

industries and the educational institutions for their placements during training or after graduation. However, there is no government engineering college in Thoothukudi district.

Fig – 5.3 Number of Professional Colleges in Thoothukudi district



Agricultural College and Research Institute, Killikulam

The Agricultural College and Research Institute, Killikulam was established in 1984 - 85 as the third constituent College of Tamil Nadu Agricultural University. At the beginning, the College started functioning in a rented building of MDT Hindu College, Pettai in Tirunelveli. Subsequently, after the acquisition of lands and buildings from the State Seed Farm, Killikulam, a part of the educational activities was shifted to Killikulam during 1986-'87. Consequent to the completion of building constructions, entire academic activities were shifted to Killikulam campus from 01.11.1989. Further, this institution was upgraded as Agricultural College and Research Institute in 1989. The college was also upgraded as a Post-graduate teaching institute from November 1990. From its inception, the college is contributing towards the generation of human resources in the field of agriculture. Besides offering quality education, the College also serves the farming community through dedicated research in all frontier areas of agriculture and extension activities. The zone of institutional responsibility covers the southernmost districts of Tamil Nadu viz., Tirunelveli, Thoothukudi and Kanyakumari. The institution is focussed more research on Agronomy, Plant Breeding & Genetics, Soil Science & Agricultural Chemistry, Horticulture, Agricultural Entomology, Social Sciences and Plant Pathology.

Fisheries College and Research Institute (FC&RI), Thoothukudi

The Fisheries College was started at Thoothukudi by the Tamil Nadu Agricultural University (TNAU) in October, 1977 as the second fisheries college in India. It was brought under the Tamil Nadu Veterinary and Animal Sciences University (TANUVAS) on 19th September, 1989. The college was renamed as Fisheries College and Research Institute (FC&RI) in 1990 to focus more on research and extension activities. The FC&RI has four campuses: the Main Campus located at Harbor bypass road having an area of 24 ha, the Shore Laboratory Campus located about 11 km away from the main campus at the Fishing Harbor Complex, North Beach Road having an area of 0.4 ha., and the campus that houses

staff quarters at the Teachers Colony with an area of 1 ha, which is 3 km away from main campus and Department of Coastal Aquaculture Campus with an area of 6 acres is located at Tharuvaikulam, a coastal village 17 km away from the main campus, for undertaking Mariculture/Coastal Aquaculture activities. The Fisheries College and Research Institute is adequately staffed with a sanctioned strength of 51 teaching positions and 90 non teaching positions. The objectives of the FC & RI are to develop technical and professional manpower for fisheries sector, impart educational programmes such as B.F.Sc., M.F.Sc., Ph.D., and PG Diploma and Certificate courses. The CC&RI is focussed more research on Inland aquaculture, coastal aquaculture, fish pathology and health management, fisheries environment, fisheries biology and resource management, fish processing technology, fisheries engineering, fish quality assurance and management, fisheries economics, fisheries extension and fisheries information and statistics offered by different schools. There were 73 students, who have completed their courses from the FC & RI during the academic year 2013-14; out of which, B.F.Sc-40, M.F.Sc-28 and 5-Ph.D., Scholars. The major credit of FC&RI is that it has developed induced breeding of Koi carp, Striped murrel and Asian catfish, Poly herbal immunostiulant formulation for Penaeus monodon, Cryopreservation of gametes, Sous-vide cook technology, Value added fishery products- fish macroni, fish noodles, fish pickles, fish wafers, restructured fishery products, multiplex PCR assays for the detection of Salmonella, Vibrio cholera and Escherichia coli and optimum mesh size for the commercial fishes.

The FC& RI has freshwater infrastructure at main campus include 2.14 ha area of fish farms, 2.70 ha area of reservoir, prawn hatchery, Catfish farm and hatchery, Wet laboratory, Ornamental fish rearing facility, feed preparation unit, cryopreservation unit, water quality laboratory, meteorological observatory, composting facility, fishery biology laboratory, disease diagnostic laboratory including virology, biotechnology, fish quality assurance & certification laboratory and museum. The shore laboratory campus houses the Departments of Fish Processing Technology and Fishing Technology & Fisheries Engineering. The campus includes fish processing hall, fish canning unit, value added products preparation unit, packaging machineries, separate microbiology and biochemistry laboratories, marine engines and navigation workshop, net mending facility and marine biology laboratory. There is a small fishing craft with outboard engine for conducting fishing related practical classes and experiments.

The Maritech Research Centre (MRC), Tharuvaikulam unit was established under different schemes such as DBT, ICAR and NAIP and was later on converted into plan scheme from 19.05.2008. The MRC was renamed as Maritech Research and Extension Centre (MREC) from 10.03.2011 and recently elevated to the status of Department of Coastal Aquaculture under FC&RI from 01.10.2013 onwards to carry out teaching and research which has the facilities for re-circulatory aquaculture systems, lobster fattening facility, training hall, culture of marine fin-fishes and shrimps in ponds and cages.

Conclusion

It could be concluded that the literacy rate has increased significantly during 2001 and 2011 census periods and Thoothukudi district has got 3rd highest literacy rate in Tamil Nadu. Now, percentage of GER ratio in primary and upper primary schools has increased extensively and even this could be seen more at block level. Female literacy and GER in primary and upper primary has increased substantially. Dropout rates are reduced significantly in primary and upper primary school but interventions are to be focused at high school and higher secondary level. However, the quality of education is still questionable across the blocks. Still there is a scope for enhancing the quality of education since education is all means. Special initiative should be arranged for the children who were deprived from education, especially narikurvar and socially marginalised sections in the district. Adequate provision of infrastructure and establishing higher educational institutions are certainly needed to focus on quality of education and thereby to promote economic upliftment of the people.

CHAPTER 6

GENDER

Chapter
6
Gender

Status of Women

The word 'gender' refers to the socioeconomic definition of man and woman-the way societies distinguish men and women and assign them social roles. The distinction between sex and gender was introduced to deal with the general tendency to attribute women's subordination to their anatomy. For ages it was believed that the different characteristics, roles and status accorded to women and men in society are determined by sex that are natural and therefore not changeable. Gender is seen closely related to the roles and behaviour assigned to women and men based on their sexual differences. As soon as a child is born, families and society begin the process of gendering. The birth of the son is being celebrated while the birth of a daughter filled with pain; sons are showered with love, respect, better food and proper health care. Boys are encouraged to be tough and outgoing, but girls are encouraged to be homebound and shy. All these differences are gender differences and they are created by society. Gender inequality is, therefore, a form of inequality which is distinct from other forms of socio-economic inequalities.

Gender relations are the key to understanding the inequalities between men and women. These inequalities are expressed in many ways – explicit and implicit. The explicit measures are well known and are revealed in statistics depicting differences in the sex ratio, child infanticide, literacy rates, health and nutrition indicators, wage differentials and ownership of land and property. The implicit measures are embedded in power and culture. These intra-household inequalities result in unequal distribution of power, unequal control over resources and decision-making; dependence rather than self-reliance; and unfair, unequal distribution of work, drudgery, and even food. For governments and concerned citizens seeking to redress these inequalities, gender disaggregated data and indices are tools that can be used to identify gender inequalities, determine the issues that must be addressed, take steps to redress the inequalities, provide feedback on the effectiveness of actions and re-prioritise allocation of resources. United Nations Development Programme's (UNDP) annual Human Development Reports (HDRs) have successfully shifted the development debates and attention from uni-dimensional, income or Gross Domestic Product (GDP) based indices to the inclusion of non-income and multi-dimensional variables in measurement of development. The Human Development Index (HDI) introduced by UNDP in 1990 is a simple average of three dimension indices that measure average achievements in a country with regard to 'A long and healthy life', as measured by life expectancy at birth; 'Knowledge', as measured by the adult literacy rate and the combined primary, secondary and tertiary gross enrolment ratio; and 'A decent standard of living', as measured by estimated earned income in Purchasing Power Parity (PPP) US$. In 1995, the UNDP introduced two new indices: a Gender-related Development Index (GDI) and a Gender Empowerment Measure (GEM). UNDP's HDRs have estimated HDI each year since 1990 and GDI and GEM since 1995.

The Gender Empowerment Measure focuses on opportunities and captures gender inequality in three key areas: 'Political participation and decision-making power', as measured by women's and men's percentage shares of parliamentary seats; 'Economic participation and decision-making power', as measured by two indicators – women's and men's percentage shares of positions as legislators, senior officials and managers and women's and men's percentage shares of professional and technical positions; and 'Power over economic resources', as measured by women's and men's estimated earned income (PPP US$). The GEM was intended to measure women's and men's abilities to participate actively in economic and political life and their command over economic resources.

Gender disparities in India deserve a serious study and discussion among media, academia, researchers and policy makers of country. The Economic Survey (2011-12) has emphasized that much needs to be done to reduce disparities between men and women. In gender development index, India is ranking 114 out of 155 countries. Gender inequality has adverse impact on development goals as reduces economic growth. It hampers the overall well being because blocking women from participation in social, political and economic activities can adversely affect the whole society. Many developing countries including India have displayed gender inequality in education, employment and health. It is common to find girls and women suffering from high mortality rates. There are vast differences in education level of two sexes. India has witnessed gender inequality from its early history due to its socio- economic and religious practices that resulted in a wide gap between the position of men and women in the society.

Likewise, the district of Thoothukudi is well developed industrialised with urban agglomeration and its socio-economic conditions are better than that of other districts of Tamil Nadu. It ranks fifth in the per capita income among the districts of Tamil Nadu, third in the literacy rate and second in the combined gross enrolment rate. It also fares well in the Gender Development Index in Tamil Nadu, coming next to Chennai, Kanchipuram and Kanyakumari districts respectively.

Table-6.1 Status of Women Population

S. No.	Status of women	District
1	Total Number of women (in million) - 2011 census	0.89
2	Percentage in Total population	51.00
3	Sex-ratio	1023
4	Female literacy rate (%)	81.33
5	Scheduled Caste Population (2011 census)	20.0
6	MMR (in 2014)	105.8
7	% of women worker in agriculture sector	47.00
8	% of women in non-agri. Sector	37.42

Source: Census of India, 2011 and concerned Departments.

In 2011, Thoothukudi had population of 1,750,176 of which male and female were 865,021 and 885,155 respectively. In 2001 census, Thoothukudi had a population of 1,572,273 of which males were 766,823 and remaining 805,450 were females. There was change of 11.32 percent in the population compared to population as per 2001. In the previous census of India 2001, Thoothukudi district recorded increase of 7.92 percent to its population compared to 1991. Average literacy rate of Thoothukudi in 2011

were 86.16 compared to 81.52 of 2001. If things are looked out at gender wise, male and female literacy were 91.14 and 81.33 respectively. For 2001 census, same figure stood at 88.32 and 75.13. Total literate in the district were 13, 49,697 of which male and female were 7, 03,106 and 6, 46,591 respectively. In 2001, it had 11, 31,406 in its district. With regard to sex ratio, it stood at 1023 per 1000 male compared to 2001 census figure of 1050. The average national sex ratio is 940 as per latest reports of Census 2011. In 2011 census, child sex ratio was 963 girls per 1000 boys compared to figure of 953 girls per 1000 boys of 2001 census data. The child sex ratio as per 2011 census was 963 compared to 953 of census 2001.

Box 6.1 Status of Gender Inequality Index in the district

The literacy rate for female is continuously on a rise. The various state policies and increase in awareness has resulted in the change. The value accorded to education and the facilities to match the needs and requirements for education has led to the improvement in the condition. Women in Thoothukudi have been actively participating in the workforce. The increasing stress on education has led to the development of competent women workforce. As seen from the data that more than fifty percent of women in Thoothukudi district are actively engaged in income generating activity. Nearly 47 percent of the women workforce engaged in agriculture. The sex ratio in the district 1024 is way ahead of the State 995. The improvement in the sex ratio in 2011 census to 1024 compared to 1050 in 2001 is also more insignificant than at the state level from 995 to 987. However, the sex ratio in the district is also higher than in many of the districts in Tamil Nadu. A significant percentage of them, a figure as high as 111 female as reported by an Aids Control Board, Thoothukudi district are infected with HIV/AIDS in 2007 compared with male but the proportion of female HIV patients rate has come down in 2011 compared male HIV patients. The male HIV patients have been increased almost doubled between 2007 and 2011 periods. During the year 2011, Thoothukudi district recorded 177 cases of crimes against women. Out of which, 29 cases of rape, 2 molestation, 35 kid and abduction, 4 dowry death, 40 cruelty by husband and relatives and 7 dowry prohibition (Source: Superintendent of Police, Thoothukudi). Besides, there are certain crimes sporadically happening around the district against women due to vulgarity. The perception of such offences are happening around the district is due alcoholism. Violence has significant effects on the mental and physical health of women. Studies in Tamilu show that foetal wastages (abortions) often occur due to battering (Jejeebhoy, 1998). Violence leads to income loss for women and break-up of families, both of which also affect children adversely. Not only in Thoothukudi district but also widespread phenomenon in Tamil Nadu, the female infanticide - the deliberate killing of female infants soon after birth and sex-selective abortion (silent crime). Nevertheless, several standard indicators like health and education, Thoothukudi district is comparatively better performer among the various districts in Tamil Nadu. Thus, Thoothukudi (86.2%) it ranked third only to Kanyakumari (91.7%) and Chennai (90.2%) in terms of the literacy rate according to the 2011 Census.

Access and Control over Resources

Inheritance of property control over resources continues to be patrilined in most parts of Tamil Nadu. Although women have the legal right to inheritance and share in the property of both the natal and marital homes, they are, in practice often deprived of the right. They are forced their share if they needed

the support of the natal family. When after the death of the spouse, the girl is sent to her natal family, she is deprived of her rightful position in the marital home. Gender disaggregated data on ownership of land are not available. According to a survey, conducted in Dindigul district, in 94% of the households men owned the land. Women who owned land were predominantly those heading households. "The patrilineal customary system of inheritance, patrilocal system of marriage, the lack of knowledge of women of their legal rights and dependence of women on their male siblings for support in the event of marital conflict all comes in the way of women claiming their rights."

Under such long suffering and dependency of women on husband's income to run the family, Pudhu Vaazhvu (formerly known as Vazhndhu Kattuvom) Project is an empowerment and poverty alleviation project implemented by the Rural Development and Panchyat Raj Department, Government of Tamil Nadu with World Bank assistance. In the past, household-focused poverty alleviation programmes such as Integrated Rural Development Programme (IRDP) sought to reserve 50 per cent of credit for women. However, women's access to credit did not always imply that they exercised control. In many cases, a wife was just a channel to get access to subsidized credit which her husband eventually utilized (Kabeer and Murthy, 1997). In extreme cases, women had to struggle to repay the loan on their name, which had been used or misused by their husband. Learning lessons from the past, the Tamil Nadu Government has evolved the Tamil Nadu Women's Development Project (*Mahalir Thittam*) which is a Self Help Group (SHG) based scheme with a focus on the economic empowerment of women. As regards access to markets, it is most often the husband who is involved in the marketing of products/goods in the case of agriculture, family business or service, and as a result women lack knowledge of markets which includes information and dynamics of pricing, quality, marketing channels, etc.The core objective of the project is to empower poor women by improving their livelihoods and reducing poverty. The empowerment and improving livelihoods and reducing poverty are to be developed by the way of strengthening pro-poor local institutions at the village level, building the skills and capacities of the poor and promoting their livelihood options by financing demand driven sub project investments. The target population of the schemes are the poor households, most vulnerable sections including the physically challenged and the marginalized communities.

Box 6.2 Self Help Groups in Thoothukudi District

SHG is a group of 12 to 20 women of the same socio-economic background who come forward voluntarily to work together for their own upliftment. The unique feature of the SHG is its ability to inculcate among its members should have the habits of thrift, savings and banking. Regular savings, periodic meetings, compulsory attendance and systematic training are the salient features of the SHG concept. Each group selects one animator and two representatives from among themselves. The animator is responsible for providing leadership to the group and to maintaining various registers. The representatives assist the animator and maintain the bank accounts of the group. SGH consists of 12-20 Below Poverty Line (BPL) women members in the age group of 18-60 years residing in the same area. NGOs and PLFs affiliated with Mahalir Thittam undertake the formation of SHGs. They are trained to become cohesive as a group through regular meetings and encouraged to cultivate saving habits. Capacity Building Programmes such as SHG and A & R training are imparted to the group members and within a period of six months. After a period of six months, SHGs are rated for Credit Linkage by a Committee consisting of Bankers, APOs NGOs, Block level officer and PLF Representatives. For the eligible credit rated SHGs, credit facilities are largely made available through banks, both for revolving fund and economic activity. Other sources of funding for credit linkages are SGSY, TAHDCO, NABARD and SJSRY. Under various skill training programmes, eligible SHG members are encouraged to start economic activities or undertake self employment. Efforts are made by Mahalir Thittam for marketing the products produced by SHGs wherever possible locally and for sale in exhibitions. In order to enable all poor women living below poverty line to join and benefit from the SHG movement, the group formation is undertaken with a special focus on NREGS women workers, urban slum dwellers and in village Panchayats where SHG coverage is still inadequate.

Block wise SHGs member and credit availed

S. No.	Block	2013-14		
		Number of Self Help Groups	Number of Members	Credit availed (Rs. In lakhs)
1	Thoothukudi	1044	13572	3012.63
2	Srivaikundam	524	6812	1143.42
3	Karunkulam	452	5876	861.39
4	Alwarthirunagiri	628	8164	1235.43
5	Tiruchendur	582	7566	1369.85
6	Udangudi	612	7956	780.59
7	Sathankulam	514	6682	1099.92
8	Kovilpatti	670	8710	1490.29
9	Kayathar	430	5590	730.36
10	Ottapidaram	280	3640	574.71
11	Vilathikulam	380	4940	805.66
12	Pudur	344	4472	761.11
	District	6460	83980	13865.36

Source: Project Officer, DMMU, Thoothukudi, 2013-14.

In Thoothukudi district, SHG the left out target poor, and persons with disability in self help groups with 10-20 in a group or 5-10 in the case of persons with disabilities. The members in the SHG are given training to build their capacities and encouraged to save money and then directly linked to banks, converged with the Government schemes and ensured to access funds to start livelihood activities. Sufficient support is given to the SHGs which are monitored by Community SHG trainers (CSTs) who have been developed by the project. So far, 6640 SHGs were formed across the district and highest SHGs were found in Thoothukudi (1044) and Kovilpatti (670) blocks with credit of Rs.3012.63 and Rs.1490.29 lakhs respectively.

Box 6.3—Self Help Groups in General

The Tamil Nadu Corporation for Development of Women (TNCDW) was established in1983 with the prime objective of bringing about socio-economic development and empowerment of women. The Corporation implements Mahalir Thittam, IFAD assisted Post Tsunami Sustainable Livelihoods Programme and also SGSY, a major anti-poverty programme meant for self employment of rural poor.

For implementation of Mahalir Thittam, district offices were established over the last several years. The district level PIUs are headed by a Project Officer (PO) assisted by Assistant Project Officers (APOs) in the functional areas of training, livelihood, monitoring, administration and other schemes, There is a District Project Coordination Committee (DPCC) headed by the District Collector for coordinating between the different partners working on the project and for promoting convergence of services of the different departments.

The SHG movement has grown from strength to strength over the years, bringing about substantial social change among women in the district. It would be the endeavour of the Corporation to extend the benefits of the SHG approach to the uncovered areas of the state and uncovered sections of society. The immediate goal of Mahalir Thittam is to ensure that all poor women, particularly widows, destitute and marginalised are included in SHGs in the next three years.

Mahalir Thittam has been very successful in bringing about social empowerment of women which has not fully translated into economic empowerment. The Mahalir Thittam will strive to promote more economic activities among SHG women by converging SGSY/NRLM implementation. Strengthening the Federations of Self help groups is the key to achieving sustainability in the long run.

Mahalir Thittam is a socioeconomic empowerment programme for women implemented by the Tamil Nadu Corporation for Development of Women Ltd. Mahalir Thittam is based on the Self Help Group (SHG) approach and is implemented in partnership with Non Governmental Organisation (NGOs) and Community based organiszations. The women in the Self Help Groups who are interested in taking up economic activities are trained in various trades through reputed and recognized institutions under the Enterprise Development Training. Preferably the institution should be within the district and the duration of the training shall be minimum one month.

The SHG women shall be in the age group of 35 to 60 years preferably from urban areas. Selected women SHG members shall belong to BPL families. Under Enterprise Development Training programme, SHG members who are interested in taking up economic activities, particularly in urban areas are trained through reputed institutions. In Thoothukudi district, the trades, trained largely during the last three years are Embroidering, soft toys making, Creative painting, Beautician course, Fish value added products, Masala powder making, Tailoring and Ready-made, Leather hand bag making during the last three year 477 women were trained at a total cost of Rs. 17.01 Lakhs. In our District EDT for the year 2011-12 has been fixed 150 women.

Source: DRDA, Thoothukudi

Female Literacy

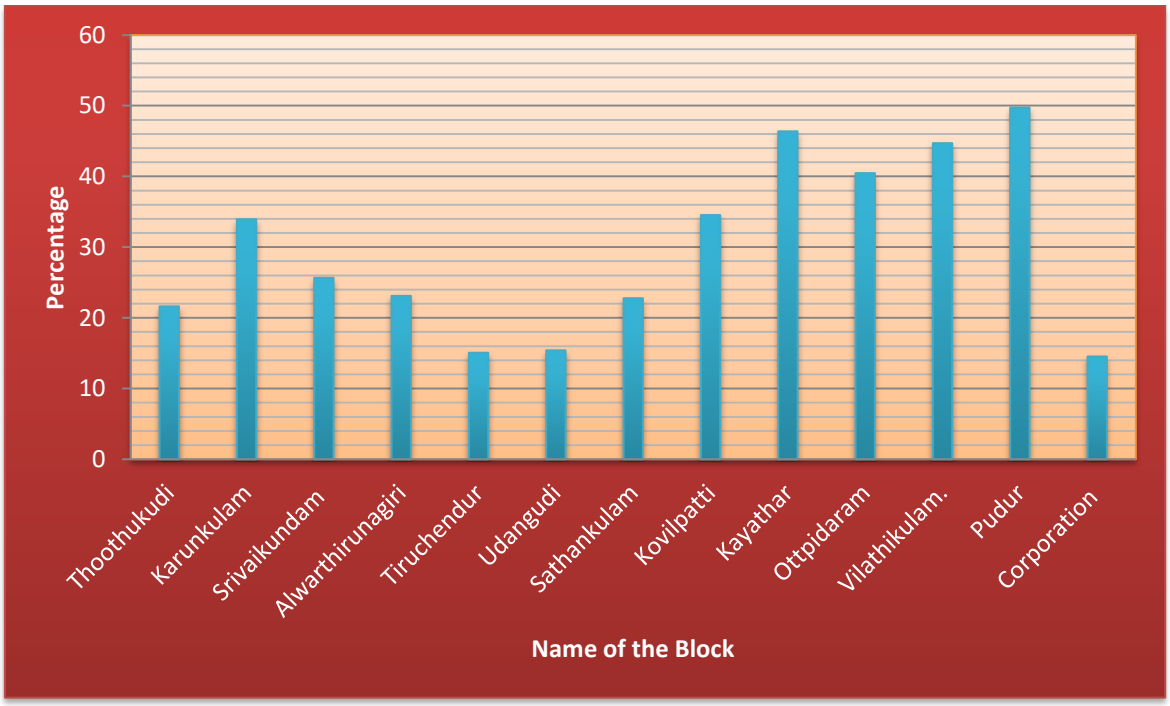
A major concern in the social sector in the Thoothukudi district as in the rest of the State is unemployment and under-employment for the increasing population in the economically active age group. Analysis of placements for person's qualified in various streams of education in Thoothukudi district shows that nearly 30 to 40 percent of them continuing as job seekers without finding suitable jobs. As of 2001, there were 3.6 million educated job seekers in the State, 70% of who were qualified at SSLC and Higher Secondary levels. There were 1.8 million women job seekers constituting 36% of all job seekers. The proportion of job seeking women has also been increasing consequent on higher educational attainment by them. The encouraging fact is that the female literacy rate has gone up by more than 6.23 percent points from 75.1 percent in 2001 to 81.33 percent in 2011. The growth of female literacy rate is very high compared to male literacy rate during the last census period. The ratio of male literacy to female literacy has come down from 13.2 in 2001 to 9.81 in 2011, revealing the narrowing of gender inequality in the district. The time-series data on literacy rate is presented in the above table and it reveals that the aggregate literacy rate for the district stood at 86.5 percent as against the State value of 80.33 percent. Thoothukudi district occupied the third place among 32 districts in the State. For females, the literacy rate was as low as 81.33 percent. The highest female literacy rate is recorded in Corporation (88.90), Sathankulam (88.16), Udangudi (89.49), Tiruchendur (88.17) and lowest rate is recorded in Kayathar (66.02), Pudur (68.43), Vilathikulam (72.53), Ottapidaram (73.95) and Karunkulam (74.55). The lowest literacy rate prevails in the backward blocks of Kayathar, Pudur, Vilathikulam, Ottapidaram and Karunkulam may be given adequate attention to resolve gender gap in the literacy rates of female population. Equity may be achieved by way of encouraging girl children through effective implementation of ongoing educational schemes to the needy.

Employment: Female Work Participation

Women workforce has been reduced over the years from 2001 census to 2011. For example, the workers rate has reduced from 36.39 percent from 2001 to 32.67 percent in 2011. The high work participation rates (WPR) for both men and women is predominantly in agriculture. However, women's participation in government is often used as an indicator of increasing decision making power and participation. In industrial countries, women constitute 13 per cent of government employees. In the context of Thoothukudi district female employment is even higher, at 50.20 per cent in state government employment than male employment. Female employment figures in local bodies went up to nearly 68.90 per cent. These substantially higher percentages in Thoothukudi district are due to higher female employment in educational institutions and welfare services in particular as compared to other districts. Nevertheless, WPR of women in rural areas has significantly reduced from 38.89 percent in 2001 to 36.73 percent in 2011 and these figures are much lesser than male WPR of 56.92 (2001) and 59.30 (2011) percent. Similarly, WPR of women in urban areas has reduced from 19.25 to 18.46 percent in 2001 and 2011.

Despite fast growing economies, the female work participation in the labour market across the age groups, education both in rural and urban areas not yet improved much. This trend can be partly explained by the fact that increasing numbers of women of working age are enrolled in secondary schools and by rising household's incomes, as women in wealthier families tend to have lower participation rates. In terms of declining employment opportunities, occupational segregation appears to play an important role in holding women back. Women tend to be grouped in certain industries and occupations, such as agriculture, sales and elementary services and handicraft manufacturing. "Failure to allow women full access to the labour market is an under utilization of human resources that holds back productivity and economic growth".

Fig 6.1 Female Work Participation Rate



Source: Census of India 2001 and 2011.

Strengthening anti-discrimination legislation in employment across all occupations will be essential for expanding employment opportunities for women. The highest female employment opportunities provides in the local bodies which accounts for more than 68.90 percent to the total local bodies labour force and followed by the State government accounts for 50.20 female participation, private companies (17.90), central quasi government (17.60), central government (14.80), and State quasi government accounts for 10.20 percent employment opportunities in Thoothukudi district. However, higher rate of unemployment was observed in the case of educated population of 15-59 age groups and of the educated 15+ population, the unemployment rate was higher in females than males. Nevertheless, feminization of the work force has been a general trend in the labour markets in the last two decades but this has been significantly reduced in Tamil Nadu. The process of changing female economic roles has been particularly rapid in developing countries like India, where the labour-force participation rates among women have

reached the highest levels among the fast growing economies. These trends are expected to continue in the near future. The higher levels of the labour-force participation among women are commonly seen as an indicator of women's progress toward equality with men. The higher female work participation rate was recorded in Pudur (49.75), Kayathar (46.39), Vilathikulam (44.72) and Ottapidaram (40.48) since these blocks are highly agrarian in nature and most women are engaged as agricultural labourers. The female work participation rate is low in Corporation (14.55), Tiruchendur (15.08), Udangudi (15.42), Alwarthirunagiri (23.12) and Sathankulam (22.79) due to the fact that female work participation rate is lower in agriculture in these blocks and are engaged more only in service sectors or in industrial activities.

Female workers in Non-Agricultural Sector

The female workers participation rate in non-agricultural sector in Thoothukudi district is highly significant due to the fact that Thoothukudi is highly industrialised city which can provide more non-agricultural jobs to the youths; especially the female workers are high. The district average female workers in non-agricultural activities are 37.42 percent which is lower than the State of Tamil Nadu. The participation of women in non-agricultural activities would given additional income to the families and thereby enhance consumption pattern in household level and also increase the overall standard of living at home. The highest percentages were recorded in Corporation (98.0), Udangudi (88.0), Tiruchendur (72.0) and Thoothukudi (71.92) percent respectively whereas in lowest percentages were recorded in Vilathikulam (22.0), Kayathar (29.0) and Pudur (31.0) which denotes poor standard of living of women. In order to improve the standard of living of women, the backward blocks need to be given adequate interventions through non-farming activities.

Table- 6.2 Female workers participation Rate in Non-agricultural sector

S. No	Block	Female Workers in Non-Agricultural Sector		
		Total Female Workers	Main, Marginal (HH+OT) in Female Workers	% of Female workers in Non-agri. Sector
1	Thoothukudi	11491	8265	71.93
2	Srivaikunadam	15163	7926	52.00
3	Alwarthirunagiri	14032	7297	52.00
4	Karunkulam	14764	5524	37.00
5	Tiruchendur	10403	7509	72.00
6	Udangudi	5864	5135	88.00
7	Sattankulam	9620	6422	67.00
8	Kayathar	25910	7459	29.00
9	Kovilpatti	45533	31040	68.00
10	Ottapidaram	24916	6887	28.00
11	Vilathikulam	18305	4046	22.00
12	Pudur	21322	6562	31.00
13	Corporation	27045	26429	98.00
District		244368	130501	53.00

Source: Census of India, 2011

Female Agricultural Wage Rate

The female agricultural wage rate ranges from Rs.120 to Rs.150 in Thoothukudi district which may not be feasible to live a decent life. The low female agricultural wage rate itself as an indicator which determines gender discrimination in the society. Gender wise wage discrimination could be seen in agricultural sector. The wage discrimination was recorded more in Thoothukudi, Kayathar, Kovilpatti, Ottapidaram, Vilathikulam and Pudur than the rest of the blocks like Srivaikundam, Alwarthirunagiri, Karunkulam, Tiruchendur, Udangudi and Sathankulam. It shows the diversification of labour force both in agriculture and allied activities. Modern technology will play a major role to reduce labour absorption in agricultural sector rather than any other market.

Table- 6.3 Female Agricultural Wage Rate in 2014

S. No	Block	Female Agricultural Wage Rate (in Rs.)
1	Thoothukudi	120
2	Srivaikunadam	150
3	Alwarthirunagiri	150
4	Karunkulam	150
5	Tiruchendur	150
6	Udangudi	150
7	Sattankulam	150
8	Kayathar	120
9	Kovilpatti	120
10	Ottapidaram	120
11	Vilathikulam	120
12	Pudur	120

Source: Department of Economics and Statistics, Thoothukudi, 2014

Women in Assembly and Local Bodies 2011

The representation of women in the Local body and State Legislative Assembly has been very impressive in Thoothukudi district. The representation of women in the legislative assembly has been very low except in 1991. According to 73rd and 74th Amendments of the constitution, representation of women in urban and rural local bodies has been more than 33 percent. As far as Thoothukudi district is concerned, the 33 percentage has been strictly followed in the local body elections and a little deficient allocation for women in the state assembly elections.

Table- 6.4 Membership in State Assembly and Local bodies in Thoothukudi District

S. No	Block	Elected Representative in ULB/RLB				
		Total No. of Elected Representative	No. of Representative		% of Elected Representative	
			Male	Female	Male	Female
1	Thoothukudi	209	129	80	61.72	38.28
2	Srivaikunadam	340	173	167	50.88	49.12
3	Alwarthirunagiri	344	227	117	65.99	34.01
4	Karunkulam	297	176	121	59.26	40.74
5	Tiruchendur	175	111	64	63.43	36.57
6	Udangudi	183	110	73	60.11	39.89
7	Sattankulam	236	138	98	58.47	41.53
8	Kayathar	413	248	165	60.05	39.95
9	Kovilpatti	401	243	158	60.60	39.40
10	Ottapidaram	521	295	226	56.62	43.38
11	Vilathikulam	428	194	234	45.33	54.67
12	Pudur	365	221	144	60.55	39.45
13	Corporation	61	40	21	65.57	34.43
District		3973	2305	1668	58.02	41.98

Source: Local bodies/PAPD section in Collectorate, Thoothukudi, 2011

The block wise highest political participation of women was found to be in Vilathikulam (54.67), Srivaikundam (49.12), Thoothukudi (38.28), Alwarthirunagiri (34.01), Karunkulam (40.74), Tiruchendur (36.57), Udangudi (39.89), Sathankulam (41.53), Kayathar (39.95), Kovilpatti (39.40), Ottapidaram (43.38), Pudur (39.45) and Corporation (34.43) percent participation in the district. No block had less than 33 percent of women in political participation could be seen from the table-6.4. However, in the case of State Assembly, the situation is very different. The trend over time with regard to female members in both the Lok Sabha and the Tamil Nadu State assembly was not much impressive. No improvement is seen over time. The gender gap is erratic for All India with female percentages ranging between a low of 2.5 per cent (1996) to a high of just 9.09 per cent (1984), with no discernible trend. There has only been one woman Minister at the Centre from Tamil Nadu, in 1984. Recent reports in India indicating that many women politicians are finding it difficult to participate in politics, let alone equalize the gender gap that exists, point to an increasing need to analyse the role that women play in Indian politics. According to Times of India (1998) report which corroborates much of what has been discussed in this handbook: namely that "domestic responsibilities, lack of financial clout, raising criminalization of politics and the threat of character assassination" are making it increasingly difficult for women to be part of the political framework. Moreover, women politicians point out that even within the political parties, women are rarely found in leadership positions. In fact, "women candidates are usually fielded in 'losing' constituencies where the party does not want to 'waste' a male candidate." Another major constraint for women in taking part in politics is caste. In several parts of the country both in rural and urban local bodies, women elected

candidates were not able to execute their powers due to caste. This problem is widespread in Tamil Nadu politics. In 1991-96, 39 women representatives were elected for the Indian Parliament from middle class, professional women, with little or no links to the women's movement. A significant number of them accessed politics through their families, some through student and civil rights movements and some as a result of state initiatives aimed at increasing representation from the lower castes.

"The majority of women in the Indian Parliament are elite women. While their public role changes some stereotypes, their class position often allows them a far greater range of options than are available to poorer women".

The greater women political representation of women in rural local bodies and urban local bodies were taken up in Thoothukudi district is a good sign for women empowerment. According to the Committee on the Status of Women in India (CSWI) which published in 1976, suggested that women's representation in political institutions, especially at the grass-roots level, needed to be increased through a policy of reservation of seats for women. In 1988, the National Perspective Plan for Women suggested that a 30 percent quota for women be introduced at all levels of elected bodies. Women's groups insisted that reservations be restricted to the Panchayat (village council) level to encourage grass root participation in politics. The consensus around this demand resulted in the adoption of the 73rd and 74th amendments to the Indian Constitution in 1993. With respect to political participation in local bodies, the situation is more favourable in terms of women's participation across the nation; especially in Thoothukudi district the women's participation in local bodies is significantly increased whereas this trend has not been taken in the State Assembly and Lok Sabha elections.

Conclusion

The gender development in the district is quite negligible in many blocks. Discrimination could be seen between rural and urban female workforce. While the absolute condition of women in Thoothukudi district is better than that in most of the districts in Tamil Nadu, the position of women with men with respect to literacy, education, workforce participation, wages, asset ownership and political participation has improved. The condition of women seems particularly poor in five backward blocks like Karunkulam, Kayathar, Ottapidaram, Vilathikulam and Pudur. The position of women, in particular the gender gap in IMR and sex ratio, is extremely poor in Ottapidaram and Alwarthirunagiri. A disturbing trend has been the fall in the child sex ratio in Thoothukudi district in the year 2011, with 7 blocks experiencing a little fall in the child sex ratio. Each of these blocks requires immediate attention through different kinds of strategies. It is also true that while many innovative experiments have been carried out in Thoothukudi district by the Government of Tamil Nadu and district administration for women's empowerment from which several citied issues are drawn and this can be adopted in desiring areas with greater attention. However, the above results fares reasonably well in Thoothukudi district (above the State) in terms of indicators such as female literacy, girl's enrolment, female life expectancy, and women's access to basic amenities.

CHAPTER 7

SOCIAL SECURITY

Chapter
7
Social Security

"The right to social security should be made a fundamental right. A comprehensive and integrated social security law should be enforced."

Tamil Nadu People's Manifesto, 1996

The ageing of the population in Tamil Nadu has serious implications in terms of how the future elderly— more particularly, the elderly poor—will live and, therefore, is a subject of serious concern with huge policy implications. The rapid urbanization has resulted in shortage of accommodation in urban areas and high rents have acted as severe constraints on the joint family system. Traditional respect as well as the attitude of empathy and care for the aged has considerably weakened. Migration of adult children to urban areas has accentuated the vulnerability of the old who are left behind; this has been especially so in families which do not have independent production assets and are dependent primarily on their labour (Sankaran, 1998). Consequent to changing societal values, the responsibility of the welfare of the elderly has developed in the community and the State, and this has, therefore, brought the provision of social security for them into sharp focus. Under this circumstance, for the vast sections of the population surviving at subsistence levels, social security and social safety nets are very crucial. And the issues pertaining to social security assume overwhelming importance, especially in the context of the new economic policy regime of market-driven growth, initiated in India in mid-1991. The concept of social security, in its broadest sense, means support to individuals to attain a reasonable standard of living and/or to ensure that they do not experience a drop in their standard of living due to any contingency. If the broad social effect of a social security program is to improve the quality of life, its economic effect is to redistribute income through a combination of promotional and protective measures. Whereas, promotional measures include growth-mediated and direct anti-poverty measures, protective measures seek to provide guarantees or entitlements to those affected by specific contingencies such as old age, death, employment injury, sickness, maternity etc. (Guhan, 1992). This chapter focuses primarily on protective social security for the elderly in Thoothukudi district in Tamil Nadu as an important human development issue.

Demographic Profile of the Aged

The continued growth of the elderly population, both in absolute terms and in relation to other segments of the society is the most significant demographic trend of the twenty first century, the proportion of people aged 60 years and older has increased in all countries of the world. In India, the number of elderly people aged 60 years or older is steadily increasing. Though the percentage of elderly to the total population is estimated around 7 percent, their numbers increased from 12.0 million in 1901 to about 76 million in 2001. Similarly, the trend of an ageing population is somewhat higher in Thoothukudi district. The overall elderly population to the total population was estimated around 11.36 percent out of

which men and women were 5.34 and 6.14 percent respectively. The rapid increase in the elderly population and the changes in the family system and lifestyle of the younger generation have led to changes in the living arrangements of elderly both in rural and urban areas. Throughout human history, the family has been the safest heaven for the aged. Its ties have been the most intimate and long lasting and on them the aged have relied for the greatest security (Simmom, 1945). However, in recent times, as a result of demographic transition, the rapid pace of industrialization and urbanization, disintegration of joint family structures into nuclear ones, and increasing participation of families in non-agricultural labour force, the older people have become more vulnerable. The lack of familial support has made the elderly to resort to old age homes run by private and or voluntary organizations for their care and support. In order to promote social security protections for elderly population, destitute, widowers, agricultural labourers, socially deprived people and differently-abled persons, we must have some kind of social values towards them. In recent years, the number of new homes started is much higher in Tamil Nadu and Andhra Pradesh (Irudayarajan, 1999). The old age homes have increased at a faster rate in urban centres still sometimes the poor aged population does not get much accommodation and therefore old age homes are still required for the elderly who are poor, sick and handicapped. Even for the non-poor, the number of old age homes is few and these are often crowded.

Table-7.1 Demographic Profile of Aged in Thoothukudi District

Age Group	Population in Age-Groups			Proportion of Population in Age-Group		
	Persons	Men	Women	Persons	Men	Women
60 - 64	68,424	32,182	36,242	3.91	1.84	2.07
65 - 69	52,731	24,143	28,588	3.01	1.38	1.63
70 - 74	36,621	18,082	20,539	2.09	1.03	1.17
75 - 79	20,377	9,726	10,651	1.16	0.56	0.61
80+	19,041	8,475	10,566	1.09	0.48	0.60
Age not stated	1,708	868	840	0.10	0.05	0.05
All	198902	93,476	10,7426	11.36	5.34	6.14
Total Population	1,75,0176	8,65,021	8,85,155	100	49.42	50.58

Source: Census of India 2011

Note: Proportions are worked out to the respective total population of the district.

Financial Security

Financial security is inevitable today for the ageing population who have no option in the form of social security. Old Age Pension (OAP) Scheme was started in 1960 and was followed it up with by a Widow/Destitute Pension Scheme in 1964. Under social security schemes, eight schemes have been operating in Thoothukudi district to protect socially disadvantaged groups. These schemes are a) Indira Gandhi National Old Age Pension, b) Indira Gandhi National Widow Pension c) Indira Gandhi National Disabled Pension d) Destitute Widow Pension e) Destitute Agriculture Labours Pension f) Deserted Wives Pension g) Disabled Pension and h) Un-married Women Pension. Other than that, under social security schemes, there are five schemes which have been provided to safeguard the Tamil Nadu Agricultural

Labours Farmers Social Security and Welfare Schemes. They are: a) Marriage of Members, b) Marriage of Member's Children, c) Old Age Pension Scheme, d) Natural Death – (financial assistance with funeral expenses) and e) Accident Death – (financial assistance with funeral expenses).

Table:-7.2 Financial Assistance to Old People

S. N o	Category of Scheme	Number of people assisted 2013-14		
		OT	SC	Total
1	Old Age Pension	20,451	4,427	24,878
2	Widow Pension Scheme	8,334	1,919	10,253
3	Disability Pension Scheme	1,222	204	1,426
4	Differently Abled Pension	1,802	382	2,184
5	Destitute/Deserted Wives Pension	1,787	372	2,159
6	Destitute Widow Pension	6,180	1,068	7,248
7	Unmarried Women Pension	311	0	311
8	Chief Minister's Uzhavar Pathukappu Thittam- OAP	0	0	0
Total		40,087	8,372	48,459

Source: Special Deputy Collector (SSS), Thoothukudi, 2014

Table 7-2 reveals the number of beneficiaries under old age, widow, disability, differently abled, destitute/deserted wives, destitute widow, unmarried and Chief Minister's Uzhavar Pathukappu Thittam schemes who got benefited. A total of 48,459 members of the aged population benefited during the year 2013-14, out of which 40,087 (82.72 percent) were from other backward class, 8372 (17.28 percent) were from the SC/ST group and 22,505 (12.57 percent) had been covered under various schemes. The major increases were in OAP (normal) - pension schemes for widows and destitute widows in Thoothukudi district. The various social security schemes covered 11.36 percent of the population of 1, 98,902 ageing population (above 60 years) during the 2011 census. The highest coverage was 51.34 percent for OAP and followed by 21.16 for Widow Pension, 2.94 for Disabled Pension, 4.51 for Differently-abled pension, 4.46 for Destitute/Deserted Wives Pension, 14.96 for Destitute Widow Pension and 0.64 Unmarried Women Pension (see Table-7.2) and no old age pension beneficiaries could be found under the scheme of Chief Minister's Uzhavar Pathukappu Thittam in Thoothukudi district. Above all, old age people use to get 4 kg rice per month free of cost and free dhotis and sarees are given to all BPL families during Deepvali and Pongal festivals. The pension benefits were sent to the beneficiaries through E-Money order from the month of August 2010 in Thoothukudi district.

Financial Assistance Provided to Destitute Widows

The number of taluk-wise destitute widows has increased from 6134 to 7495 and that of destitute deserted wives increased from 2033 to 2203 during the years 2012-13 and 2013-14 (see Table 7.3). The highest destitute widow beneficiaries were found in Kovilpatti (1805) and followed by Ottapidaram (1287) during the year 2012 -13 and the same beneficiaries increased to 2615 in Kovilpatti and Ottapidaram (1893) during the subsequent year 2013 -14 and availed Rs. 27, 45,750 and Rs. 19, 87,650 respectively. Similarly, the highest number of destitute deserted wives has increased 437 to 595 in Kovilpatti and 356 to 373 in Ottapidaram taluk during the years 2012 -13 and 2013-14 and availed Rs. 4,58 850 to 6,24,750 in Kovilpatti and Rs.3,73,800 to Rs.3,91.650 in Ottapidaram taluks during the years 2012 -13 and 2013 -14. The lowest

number of beneficiaries from the taluk of Ettayapuram that is 124 in 2012 -13 and 125 in 2013-14 got Rs.1, 30,200 in 2012-13 and Rs.1, 31,250 in 2013-14 years under destitute widows schemes and 67 in 2012-13 and 75 in 2013-14 got Rs.70, 350 and Rs.78, 750 respectively during 2012-13 to 2013-14 years under destitute deserted wives schemes in Thoothukudi district.

Box-7.1 Physical and Financial Targets and Achievements during 2013 -14 in Thoothukudi district (In Rs.)

Name of the Scheme	2013 -14				
	Category	Expenditure (in Rs.)	10th Std	Degree	Total Gold Coin Beneficiaries
Moovalur Ramamirtham Ammaiyar Ninaivu Thirumana Nithi Uthavi Thittam	General	110575000	2133	1145	3278
	Special	30200000	742	233	975
E.V.R. Maniyammaiyar Memorial Widow Daughter's Marriage Assistance Scheme	General	2875000	113	1	114
	Special	800000	30	1	31
Annai Teresa Ninaivu Orphan Girls Marriage Assistance Scheme	General	650000	20	3	23
	Special	175000	5	1	6
Dr. Dharmambal Ammaiyar Ninaivu Widow Remarriage Assistance Scheme	-	-	-	-	-
Dr. Muthulaskhmi Reddy Memorial Inter-caste Marriage Assistance Scheme	General	-	-	-	-
	Special	1875000	25	25	50
Hon'ble Chief Minister's girl child's protection scheme	-	-	-	-	-
Total	-	147150000	3068	1409	4477

Source: District Social Welfare Officer, Thoothukudi, 2013-14.

There are five marriage assistance schemes and one child protection scheme available in Tamil Nadu. One of the major schemes is for girls below the poverty line which attempts to reduce the financial burden of the girl's family, while simultaneously enforcing the legal age of marriage for girls (18 years) and promoting female literacy/schooling. The maternity assistance scheme provides cash assistance to pregnant working women belonging to poor households to compensate them for the loss of wages during the last 8 to 12 weeks before delivery and 8 weeks after delivery. This cash assistance helps them to get essential nutrients in their diet. Box-7-1 reveals that more than 3068 10th Std. passed women beneficiaries across the district benefited, out of which 2133 (69.52 percent) of the beneficiaries benefited under Moovalur Ramamirtham Ammaiyar Ninaivu Thirumana Nithi Uthavi Thittam, followed by 742 (24.19 percent) under E.V.R. Maniyammaiyar Memorial Widow Daughter's Marriage Assistance Scheme. Importantly, widow remarriage and inter-caste marriage have not been successfully implemented in the district due to some social factors. Though the widow population is more in number and they may not able to remarry due social customs imposed on them might have caused lesser beneficiaries.

Table-7.3 Financial Assistance Provided to Destitute Widows and Destitute Deserted Wives during 2012 -14

S. No	Block	No. of Destitute Widows		Total Financial Assistance Provided (Rs.)		No. of Destitute Deserted Wives		Total Financial Assistance Provided (Rs.)	
		2012 -13	2013 -14	2012 -13	2013 -14	2012 -13	2013 -14	2012 -13	2013 -14
1	Thoothukudi	718	728	753900	764400	236	226	247800	237300
2	Srivaikunadam	505	553	530250	580650	265	270	278250	283500
3	Tiruchendur	605	585	635250	614250	262	258	275100	270900
4	Sattankulam	475	394	498750	413700	179	167	187950	175350
5	Kovilpatti	1805	2615	1895250	2745750	437	595	458850	624750
6	Ottapidaram	1287	1893	1351350	1987650	356	373	373800	391650
7	Vilathikulam	615	602	645750	632100	231	239	242550	250950
8	Ettayapuram	124	125	130200	131250	67	75	70350	78750
District		6134	7495	6440700	7869750	2033	2203	2134650	2313150

Source: Department of Statistics, Thoothukudi, 2014

Crime against Women

These days the rate of crime against women has been increasing at an alarming rate. Freedom does not mean much in a state or a nation without civic responsibility. Social customs are a more influential factor against women discrimination in Tamil Nadu. For example, when a daughter reaches at the age of 10, the parents play out the politics of anxiety asking her where she is going, when she will return. The mobile phone is perpetually on, tracking her movement. But then, there is not a word about the son, about his behaviour, where he goes, who he meets. If the victim is a woman who needs to belong to a family, so is the rapist. Parents need to ask sons what they are up to. Rapes too begin at home. The man with one loving daughter is better off than a man with five sons in old age because a daughter will never abandon her parents (said by Honourable Prime Minister of India Shri Narendra Modi in his Independence Day Speech – in The Hindu dated 16.08.2014). In total, 113 rape cases were registered in 2012 and the number has gradually increased to 177 in 2013 and now it has come down to 148 in 2014. Number of rape victims increased from 26 in 2012 and it almost doubled in 2013 (52) and again it decreased to 19 in 2014. A total of 50 women were abused by their husbands and his relatives in Thoothukudi district in the year 2012 and it increased to 64 and 73 in 2013 and 2014 respectively. Crime against women prevails in Thoothukudi district and it is perpetuated across the blocks. The various categories of violence against women in Thoothukudi district could be seen in Table-7.4. Women have been beaten or physically abused since the age of 15 and now brutality against the girl child takes place even below at the age of 5. Nevertheless, Tamil Nadu has the distinction of having the highest number of women in the police force. There are women police stations in every district. In many cases of violence against women, First Information Reports (FIRs) are not truly recorded in terms of the versions of the victims. The investigating authorities also tend to identify themselves with the accused rather than the victims. Consequently, in serious cases,

offences are booked under less consequential provisions of the law. There are several causes of violence against women. Suspicion of infidelity, infertility (of the couple), alcoholism, dowry and instigation by in-laws are some of the immediate causes of violence against women, signalling the deep-rooted patriarchal values that underlie the same. The result is that wife beating is considered normal, even by women themselves. Portrayal of women in the media as sex objects and different forms of violence within films have also played a major role in perpetuating and increasing violence within and outside the family. Violence has significant effects on the mental and physical health of women. Studies in Tamil Nadu show that foetal wastages (abortions) often occur due to battering (Jejeebhoy, 1998). Violence leads to income loss for women and break-up of families, both of which also affect children adversely."

Table- 7.4 Crime against Women

S. No.	Category	Number of Cases		
		2012	2013	2014
1	Rape	26	52	19
2	Dowry Death	1	2	0
3	Molestation	1	35	44
4	Cruelty by Husband and relatives	50	64	73
5	Kidnapping Abduction of Women and Girls	35	24	12
Total		113	177	148

Source: Superintendent of Police, Thoothukudi, 2014

Conclusion

Several social security schemes and interventions are have been made by the government to secure old age people which never help substantially. Family system has changed from joint family to nuclear family and tries to exclude the old aged population. Today, the aged population is increasing due to increasing life expectancy at birth due to increasing standard of living, health and education. Destitute widows and destitute deserted wives are living in miserable conditions and to some extent the provision of financial assistance under various social security schemes would help to bring down their grief. Significant number of poor parents can wipe out their distress at the time of their daughter's marriage through marriage schemes and a large number of girls benefited from the scheme. Similarly, maternity was assistance provided to all the targeted population. However, the crimes against women are still high in the district. Crime and women empowerment are moving together. In order to protect women and the elderly population, social values must be taught among children from the home to school without which women cannot be glorified.

CHAPTER 8

INFRASTRUCTURE

Chapter
8
Infrastructure

Economic development of a country depends very much on the availability of its infrastructural facilities, particularly the development of sectors such as agriculture, industry and service sectors. An economy's infrastructure is more conveniently divided into two parts Physical infrastructure and social infrastructure. Physical infrastructure is directly concerned with the needs of such productive sectors as agriculture, industry and trade. Physical infrastructure- includes, - power, irrigation, transport and telecommunication. On the other hand, social infrastructure comprises education, health and medical care, nutrition, housing and water supply which are instrumental in contributing to substantial improvements in human development, which in turn, initiate and accelerate economic development. Human development is the process of widening people's choices and their level of well-being. The choices change over time and differ among societies according to their stage of development. The three essential choices for people are - to lead a long and healthy life, to acquire knowledge and to have access to the resources needed for a decent standard of living.

Rural development has become a matter of growing urgency for considerations of social justice, national integration, and economic up-lift and inclusive growth. For rural development, the provision of rural road network is a key component to enable the rural people to have access to schools, health centres and markets. Rural roads serve as an entry point for poverty alleviation since lack of access is accepted universally as a fundamental factor in continuation of poverty. Accessibility to villages was poor as only about 20 percent of them had all-weather road links. A rural road acts as a facilitator to promote and sustain agricultural growth, improve basic health, provide access to schools and economic opportunities and thus holds the key to accelerated poverty reduction, the achievements of the Millennium Development Goals (MDG), socio-economic transformation, national integration and breaking the isolation of village communities and holistic and inclusive rural development.

It is estimated that 15 percent of crop produce is lost between the farm gate and the consumer because of poor roads and inappropriate storage facilities alone, thereby adversely influencing income of farmers (World Bank 1997). Improved infrastructure also leads to the expansion of markets, economies of scale, and improvement in factor market operations. The development of rural infrastructure helps to enlarge markets with greater access to factors of production. Easier access to markets allows an expansion of the production of perishable and transport cost -intensive products. It can also lead to a conversion of latent demand into effective commercial demand. These effects of infrastructure accentuate the process of commercialization in agriculture and the rural sector (Jaffee and Morton, 1995). Further, any investment that helps to increase rural production, income and employment also helps to reduce poverty. Roads play an important role in the development of the economy as a whole. Bonney (1964) observed that there was a

direct relationship between the increase in acreage of export crop cultivation and the standard of road and distance from main commercial centres. There is enhanced entrepreneurial activity, sharp decline in freight and passenger charges and improved service as a result of investment on rural roads. While analyzing the socio-economic impact of a new road, Elmondorf and Merrill (1977) found that roads created inflow and outflow channels of transportation, communication and modernization as well as migration, both into and out of the community. In this sense, rural roads act not only as a bridge between urban/ developed and poor/ rural/ underdeveloped areas, but also as agents of diffusion, contact and unification. Improvement in rural roads affects agricultural development followed by the development of social services. It is observed that roads tend to have a greater initial impact on production where cash crops are grown, because food crops, grown by small farmers, have a lower price elasticity of supply than cash crops (USAID, 1972). The road networks were also taken up under several employment creation and poverty alleviation programmes of the Central and State Governments.

The positive relationship between infrastructure and economic growth is well-known, and requires little further elaboration. Ironically, however, the links between infrastructure and human development are often less recognized and are not enunciated in terms of relevance to policy. After all, the concept of human development was originally advanced, to move beyond the relatively restrictive economic analyses based on the growth of income alone, and to incorporate both human capabilities and empowerment, which relied much more on social and distributive variables. Nevertheless, it is obvious to anyone that infrastructure contributes directly to conditions of life not only by increasing labour productivity, but also through the provision of a range of amenities that are either necessary or desirable for human existence.

The crucial role played by infrastructure development in creating better conditions of life has been highlighted again and again. Transport and communications infrastructure are important in terms of providing access to basic health services and thereby improving conditions of health and life, particularly of women and girls. Basic -infrastructure such as electrification plays a similar role, apart from the changing the quality of life in general. It is now well-known that the basic road connected to a school, minimum facilities like separate toilets for boys and girls in school buildings are crucial determinants of the enrolment and attendance of girls. Of course, the effects of such investments need to be assessed in terms of how the additional infrastructure changes the lives of people in any given area, and what changes would make it more effective and useful. The gender and class dimensions of the linkage effects also need to be examined, not just in terms of the direct effects, but also in terms of the secondary employment and opportunities created by such infrastructure building, for example, shops and new services that emerge with the construction of a new road.

We briefly examine the inter relationship between infrastructure and human development, and between infrastructure and poverty reduction, which in itself is perhaps the single most critical human development objective. At the core of this chapter is the idea of the role of infrastructure in fostering inclusive growth and human development. Human development is about expanding choices and inclusive growth is about improving the incomes and lives of all members of the society, particularly, the poor. It

depends on generating economic growth, sharing its benefits with the poor, and enhancing their access to basic services. Infrastructure is highly intertwined in our lives. The knowledge that infrastructure, per se, is important is widespread. However, measuring the precise importance of a particular component of the infrastructure is difficult. But as choices need to be made about infrastructure, there is a need to identify the impact on human development, understand how they are channelled and recognize what they depend on.

Infrastructure provides people with services that they need and want. Access to water, sanitation, electricity, roads, communication, banking and transport make an immeasurable difference in people's lives. The absence of some of the most basic infrastructure services often translates into absence of human development. Broadly, infrastructure impacts human development in two ways: First, it supports the processes of growth on which much of poverty reduction depends; and second, it helps the poor access basic services which can improve their lives and income opportunities. At its best, infrastructure can help poverty reduction, service provision, and lead to a reinforcing virtuous cycle. Infrastructure also has an important impact on human development and poverty through growth. It is also an intermediate input into production. Infrastructure connects goods to markets, workers to the industry, people to services, and the poor in rural areas to urban growth centres. Infrastructure lowers costs, enlarges markets and facilitates trade. It contributes to the health and education that people need to fill jobs, or create them. Some of the channels through which its impact is felt are not very obvious. It may be felt intuitively that the ability of people to earn a living is increased when transport, information, power and water are readily available. But infrastructure has some less obvious impacts too, for instance, the impact of transport and electricity on education. The impact of health services may be similarly affected by the ability of the poor to access facilities. A road, or a telephone call, can make an enormous difference.

Perhaps, the widest definition of human development focuses on expanding people's choices, enhancing social inclusion, human capabilities and freedom. Such approaches may focus on the impact that transport and communications infrastructure have in improving people's ability to engage in collective activities, access wider sources of information and opportunity, and find time for both economic and non-economic purposes. Several studies have proved the magnitude of the impact of infrastructure on human development. Some studies show that access to water and sanitation explains a substantial portion of the difference in infant and child mortality rates experienced by the rich and the poor, that better transportation increases school attendance, and that electricity access allows more study time (see Leipziger at al., 2003). Another study (Calderon and Serven 2004) found that the quantity and quality of infrastructure – particularly of water and sanitation has a strong positive impact on income equality, as well as on economic growth. A further study showed that enhanced access to roads and sanitation has been an important determinant in reducing disparities between the poor and the rich. Studies of rural roads have shown that they raise the productivity and value of land to poor farmers. (see, e.g.,- Jacoby, 2000). Rural roads have been found to have a substantial positive impact on overall poverty reduction in a number of other studies,

but there are some interesting nuances. One study found that rural roads were the form of public expenditure that reduced poverty most effectively in India.

Therefore, rural road investments suggests that the establishment of a new road in a village raised the per capita income of households by 30 percent after controlling for other factors, such as household size and education. It also helps to increase school enrolment of children at all levels and improved the utilization of public health services. Perhaps, spatial and economic benefits of rural roads are significantly larger in poorer sections than in richer ones. In view of the above importance, the district of Thoothukudi has adequate transport facilities by road, rail and sea. The road transport is mainly operated by the Tamil Nadu State Transport Corporation Ltd. According to the Regional Transport Officer, Thoothukudi, 320 routes are operated by the State-owned transport corporation and 173 routes are operated by private transport operators. The fleet strength of the Corporation was 1043 as on 31 March 2011 of buses covering Tirunelveli and Thoothukudi districts. More than 4.17 lakh km of transportation was operated every day carrying nearly 10.01 lakh passengers every day. A total of 119 new buses were purchased for Thoothukudi district and 54 new routes were introduced. Train facility is available in all the taluks except Vilathikulam and Sattankulam. The total train route is 107 km and the total number of railway stations is 23. The total road length of National Highways is 118 km the number of registered motor vehicles for commercial purposes is 22,730 and for non-commercial purposes 82,644. This district has high-speed double line rail link to Chennai, Coimbatore, Bangalore and Mudurai. The district has an eight-lane highway to Madurai connected to NH4; east coast link to Chennai and backbone for high-speed dedicated freight corridor to Nagpur.

The transport scene within the town is somewhat chaotic with fast moving and slow moving vehicles vying for space. The Tamil Nadu State Transport Corporation, (Madurai Division-II) Ltd., operates a public transport system with "route buses". There are other private buses, mini buses and shared auto rickshaws. However, the buses operate on the main routes (e.g. from the old bus stand to the Port) and the frequency is not adequate. People living in localities and townships away from the arterial roads depend on mini buses, etc. During peak hours the buses are crowded and not comfortable. The number of two wheelers has been on the increase year after year. There are two bus stands in the town from where over 700 buses operate per day. However, the facilities in the bus stands and bus shelters are minimal. There are 18 bus shelters in the Corporation area, but these are not in good condition. There are no special buses during peak school/ college hours and students are put to considerable strain in commuting to and from their institutions. The expansion of the town from the present 13.47 square km of a city to 206.31 square km and the envisioned growth of the population from about 4,64,500 persons in 12,30,000 would necessitate a substantial increase in the public transport network. In order to improve the congestion, a semi-circular railway connecting Kilur- Melur- Meelavittan-Port would ease traffic congestion, substantially. The quality of public transport would be such that people need not depend on private transport**.** The city would be home to more than a million people providing them quality urban infrastructural facilities. The expanded city would have developed in a planned manner with proper zoning regulations that would

enhance the quality of life of its residents. There would be no slums in the city and all urban poor would be housed in proper buildings with basic services for civilized living. The city would have congestion-free, tree-lined black topped roads, with cycle tracks in all major thorough fares with modern energy efficient street lighting and underground subways that allows traffic to flow fast and safe. The quality of public transportation within the city would be such that people need not depend on private transport to commute within the city. The city would be connected by well-maintained eight-lane highways to Madurai and Tirunelveli, East Coast highway to Chennai. Another major advantage in the district is that the rail connectivity would be greatly enhanced such that there would be fast trains to all major urban centres relevant to Thoothukudi. The port cargo traffic would be increasingly handled by the railways and the railways would be able to move containers and cargo to the Port within 36 hours from the hinterland, as far away, as Nagpur. Thoothukudi Port plays a significant role and it also facilities for a hub for international sea tourism. The airport would be a major domestic airport and an international airport with flights to the Far East, Europe, etc. The major arterial roads in Thoothukudi town and its immediate surrounding areas are Palayamkottai, Ettayapuram, Ramanathapuram, Tiruchendur, West Great Cotton, the Victoria Extension Road and bye pass road from harbour connecting Madurai road. Within the Corporation area, about 36 km are earthen roads while another 19 km are water-bound macadam roads. The surface of the cement concrete roads and bitumen roads need considerable improvement. The roads also need substantial improvement by way of removal of encroachments, provision of paved margins, proper demarcated parking, and avenue trees, etc. The expansion of the town from the present 13.47 square km to a city of 206.31 square km would mean that the existing road infrastructure within the town and in the Village Panchayats would need considerable improvements. In addition, many new roads are to be laid in new industrial and commercial areas, townships, and housing colonies. Thoothukudi town experiences traffic congestion due to the presence of three level crossings within the town that bring traffic from one side to other to halt during train movements. The problem may be resolved either by shifting the railway station to Meelavittan, or by building grade separators over the tracks. There have also been suggestions that if the railway station is shifted to Meelavittan, the existing passage area can be converted into a major road thoroughfare which would ease the traffic flow within the town significantly. The main roads are two-lane roads. However, there is heavy traffic movement on the arterial roads, due to the presence of the Port. For example, it is estimated that the Thoothukudi – Madurai by pass road carries about 2,000 trucks a day. In total, about 3,000 truck movements take place every day on the major roads in and round Thoothukudi. However, there is no truck terminal near the town and parking facilities for trucks are lacking. Thus, there would be a substantial need to increase the width of the main arterial roads as well as to build substantial parking areas on the periphery of the town on NH 7A, the road leading to Madurai. The truck terminal should be able to hold at least one day's movement of trucks. All the streets have to be well lit, with underground ducts carrying the cables, with energy efficient and environment friendly lighting equipment that enables the City to be safe at night. On the whole, the district is somewhat better off as far as the road is concerned, but rural roads needs to be improved adequately.

Table- 8.1 Distribution of Roads Types and Road Length

(In km)

Block	Total Toad Length	Mud	WBM	BT	CC
Thoothukudi	226.15	31.6	28.9	274.22	1.4
Karunkulam	269.43	8.1	30.9	230.43	---
Srivaikundam	486.31	20.83	112.84	314.19	38.46
Alwarthirunagiri	229.15	15.18	10.16	143.67	60.13
Tiruchendur	170.93	17.016	29.03	90.633	34.247
Udangudi	237.45	22.6	32.2	163.35	19.7
Sathankulam	372.06	165.32	10.71	71.77	124.26
Kovilpatti	326.8	60.623	28.327	212.26	25.582
Kayathar	395.22	42.86	22.96	295.87	33.53
Ottapidaram	365.22	120.82	16.8	227.6	NIL
Vilathikulam	295.51	48.52	18.5	214.12	14.37
Pudur	269.74	44.555	7.335	204.54	13.31
Corporation	428.54	34.51	27.24	309.18	57.61
District	4072.5	632.534	375.902	2751.83	422.599

Source: Executive Engineer DRDA, Thoothukudi, 2014

Table 8.1 shows the different types of roads and their length in kilometres available at the block level in Thoothukudi district. Relatively inadequate road infrastructure has been a major issue in Thoothukudi district for quite a long time, and has also become an important political issue in recent times. The vast size and difficult terrain of the district have meant that road connectivity is relatively hard to achieve, especially in rural areas. As a consequence of poor road connectivity in Karunkulam, Sathankulam and Pudur blocks are significantly tied. Mud road connectivity is enormous in areas of Kayathar, Ottapidaram, Vilathikulam and Pudur. This will have a negative effect on school attendance and also influence to increase school dropout rate. However, there has been improvement in road connectivity over the past five years (due to the efforts under the Pradhan Mantri Gram Sadak Yojana (PMGSY) and the state's own efforts) but this has not covered minimum requirement of road availability. There has been some improvement, however, in the length of pucca roads in Thoothukudi District. As Table-8.1 shows every block in Thoothukudi district has shown an increase in the CC road length. In fact, all the increase in CC road length that we see over the years across the blocks is mostly due to increase in rural connectivity. A major difficulty relates not just to the actual road length in terms of kilometres, but the quality of roads, since even many pucca roads are found to be unable to provide all-weather access and tend to become at least partially unusable during or just after heavy rains. In addition, the poor quality road surface makes journeys more difficult and more time-consuming. Therefore, maintenance of roads, so as to ensure reasonable quality and continuous access, is as important as or possibly even more important than fresh investment in creating new roads. Table-8.1 provides an indication of village road connectivity in purely quantitative terms that is without taking into account the qualitative dimensions. It is evident that in almost all the blocks, more than half – and sometimes as many as two-thirds of the villages are not connected by pucca road. Thus, the problem of ensuring universal connectivity (i.e., road access for all villages) is a gigantic task across the blocks and one that is not likely to be easily managed in the foreseeable future without massive investments.

Electricity

The growth rate of rural and urban electrification in Thoothukudi district is very good. There were 2983 villages electrified in 2001 in Thoothukudi district. The electrified villages grew by 99.58 percent in 2001 and 100 percent in 2011. The rural electrification corporation is the most specialized institution to provide finance and other technical suggestions for spreading electrification in more remote parts of rural areas in India. Since its inception in 1969, REC has been responsible for the administration of the Central outlay for Rural Electrification under normal and minimum needs programme RMNP etc. However, a generalized lack of development has been recently compounded by an energy crisis that has been gripping not just the district but the entire state of Tamil Nadu and thus, attempts to move towards a holistic approach for future energy need for the entire State that would create more employment opportunities among the youths. In Tamil Nadu, almost 100 percent hamlets have access to electricity, but the problem persists in recent years that, there are nearly 16 to 18 hour power cuts not only in Thoothukudi but also across the State except Chennai. Predictably, this situation is still bad in rural areas, where more than 70 percent of the households do not have power supply nearly about 18-20 hours a day. Now, the condition is much better than the previous year. However, it is true that there has been a tremendous achievement in the progress of electricity coverage in Thoothukudi district. Therefore, it is essential to reduce the transmission and distribution losses by 10 percent and auxiliary consumption losses by 3 percent. In order to flatten the load curve of power system in the State by staggering and rationalizing the power supply to the various categories of consumers both during day and night, peak demand can be reduced by 5 percent. It will also require operating the Tamil Nadu State Electricity Board power system to start integrating operations with the National Grid for combined thermohydel operations of the power system.

The installed capacity of the power-generating units should be enhanced and breakdowns should be avoided. Old thermal units should be renovated, so that power generation can be increased with modern techniques. Better quality of coal should be supplied to the thermal plants. Today, hundreds of thousands of shops and other establishments in wholesale and retail trading have come up in the district. Likewise, there has been a phenomenal increase in the use of electricity for domestic purposes. Recent data show that there is growing domestic use of electricity due to accessibility to more and modern domestic appliances and gadgets such fans, air conditioners, air coolers, pump sets, mixer-grinders, wet-grinders, iron boxes, washing machines, TVs, stereo sets, cell phones, laptop and so on. It has also resulted in an enormous increase in the demand for electricity in the district. Moreover, the demand for power for agricultural purposes also has shown tremendous increase. But the present Government has taken effective steps to augment electricity generation capacity. Reports show that due to the various steps taken by the government, Tamil Nadu will be in a position to generate adequate power to meet the requirements of the State for various purposes – agricultural, industrial, commercial and domestic. Therefore, it would require additional power-generating units to be established especially proposed thermal power plants which will create an additional 3, 650 MW of electricity over the next 4 -5 years in Thoothukudi. Installation of such additional power-generating capacity would translate into substantial development in and near Thoothukudi

as these additions would have a three-fold beneficial effect as it would mean that substantial port facilities for handling coal would have to be created near the power plants, thus enhancing the port activities and there would be a significant effect on employment in and around Thoothukudi. The availability of power in abundance would attract industries near Thoothukudi.

It order to overcome the problem of energy in Tamil Nadu and particularly in Thoothukudi district, the renewable sources of energy should be harnessed with modern techniques and researches. The stock of non-renewable sources of energy is limited, so it cannot be relied upon for a long time to come. The R&D programs relating to energy should be pursued to bridge up the gap. If all these suggestions are implemented, then only the rural electrification programme can be conducive to agricultural development would and prompt energization. Thus, the overall development of the State of Tamil Nadu can be attained, particularly in Thoothukudi district. The supply of free electricity to agriculture and poor huts in Tamil Nadu is a highly remarkable achievement of the Government of Tamil Nadu even if the State is facing acute power crisis. There are 427 revenue villages, 1907 hamlets and 29 towns fully covered with electricity and more than 1, 00,086 street lights are functioning in the district.

Table- 8.2 Status of Electrification

Block Name	Revenue Village	Hamlets	Towns	No. of Street Lights
Thoothukudi	20	157	-	8226
Karunkulam	33	109	-	6550
Srivaikundam	42	175	8	8029
Alwarthirunagiri	64	245	4	6630
Tiruchendur	11	104	4	9067
Udangudi	2	145	1	6926
Sathankulam	20	262	2	7170
Kovilpatti	1	127	1	11965
Kayathar	60	155	6	4638
Ottapidaram	60	172	-	6054
Vilathikulam	62	144	1	5204
Pudur	52	112	1	4975
Corporation	-	-	1	14652
District	427	1907	29	100086

Source: Department of Statistics, Thoothukudi, 2014.

Communication System

The advent of 3G and the forthcoming 4G technology in the communication system has completely changed the scenario in India's telecommunications. The extinction of monopoly of public sector companies such as Bharat Sanchar Nigam Limited (BSNL), Maha nagar Telecom Limited (MTNL) and the entry of private players has resulted in stiff competition in the telecommunication sector. Today India stands as the second largest telecommunications market in the world. The mobile phone industry in Inida would contriute US$ 400 billion in terms of Gross Domestic Product (GDP) of the country in 2014. In April 2000 to January 2014, the telecom industry has got in Foreign Direct Investments (FDI) of about US$ 59,796 million, which is an increase of 6 percent to the total FDI inflows in terms of US$, as per report published by Department of Industrial Policy and Promotion (DIPP). India's Global System for Mobile (GSM) operators had 4.14 million rural subscribers as of January 2014, bringing the total to 285.35 milllion.

Similarly, the number of cellular subscribers is on a constant rise in Thoothukudi district and number of PCOs has also increased. More than 50, 396 land line connectivities were recorded, excluding mobile phone users. The highest land line connectivity was recorded in Corporation (18,590), followed by Tiruchendur (8228) and Kovilpatti (7546). The highest mobile towers could be seen in Corporation (54 and followed by Kovilpatti (26) and Tiruchendur (24). Thoothukudi district is one of the leading districts in the state as far as the communication network is concerned. The city is well connected with communication network of BSNL and by a host of other private service providers. Plus, Internet and attendant facilities are also available in all the Urban Local Bodies (ULBs) areas of Thoothukudi district.

Table- 8.3 Telecommunication system in Thoothukudi District

S. No.	Block	No. of Tel. Exchange	No. of PCOs	No. of Land Lines	Number of Mobile Phone Towers
1	Thoothukudi	3	38	1005	8
2	Karunkulam	6	61	1020	11
3	Srivaikundam	4	114	2531	13
4	Alwarthirunagiri	4	73	1819	8
5	Tiruchendur	7	169	8228	24
6	Udangudi	4	105	2421	12
7	Sathankulam	4	80	2210	9
8	Kovilpatti	6	224	7546	26
9	Kayathar	5	86	1421	16
10	Ottapidaram	9	111	1792	12
11	Vilathikulam	5	60	1270	10
12	Pudur	4	49	538	8
13	Corporation	8	373	18590	54
	District	69	1543	50391	211

Source: General Manager (CFA), BSNL, Thoothukudi 2014

Financial Institutions

In order to ensure the overall development of all the segments of rural society, many developing countries are increasingly focusing attention on assistance to the small and marginal farmers, agricultural labourers and other rural poor especially in the recent years. In this process of economic development, each state/district/villages is expected by credit institutions to play a major role in implementing the rural development programmes including those meant for the rural poor. This realization came after the bitter experiences and failures in implementing many rural development programmes which were based on the "trickle down" theory, which in turn relied primarily on a higher rate of growth in the Gross National Product (GNP) of a country.

This theory has been discarded by many empirical studies and there is a growing emphasis on devising integrated programmes (covering all the sectors and sections of the people) for the harmonious development of rural areas. Most of the developing countries, including India, are now implementing such various rural development programmes.

One important component of these programmes is credit, that is, provision of loans and subsidies through institutional credit agencies such as banks and cooperative societies to enable the rural poor to undertake various productive schemes.

The envisaging of credit (investment) oriented programmes in developing the state is based on the prevailing conditions in the rural areas of such a state on the one hand and the assumptions underlying the rural development theories on the other. Some of the important assumptions are the following:

1. Lack of capital for investment is one of the most important reasons for poverty in rural areas
2. The small farmers are efficient, but poor, so they need external assistance.
3. The adoption of improved technology in agriculture, irrigation, land development and dairying, requires massive investment on the part of the farmers, but since their savings are low they are to be assisted with external institutional finance.
4. The diversification of the rural economy is often suggested as one of the means for rapid economic development which requires the deployment of more capital (both directly and indirectly) in rural areas.
5. The rural poor are taking loans from non-institutional sources (say private money lenders) which are costlier due to the high rate of interest. Hence, the rural poor are to be provided institutional credit (say commercial banks) at concessional interest rates.
6. To reduce the dominance of rich in credit cooperatives in the villages there is a need for government policy intervention.
7. The growing inequalities between urban and rural areas in the developing countries have attributed to a large extent to the unequal distribution of capital investment between these two areas. Thus, a shift in government policies, including credit policies from urban orientation to rural orientation is warranted to cement the gap
8. To reduce the inequalities of wealth and income distribution among the rural households on the one hand and to improve the financial position of the rural weaker section on the other, there is a need for positive discrimination in the rural development policies including credit policies (say subsidy-oriented programmes) in favour of the poor.

Table- 8.4 Commercial and Cooperative Banks

S. No	Block	No. of Co-operative Societies			No. of Members			Commercial Banks	No. of Account Holders
		Co-operative Urban Bank	PACCS	Total	Co-operative Urban Bank	PACCS	Total		
1	Thoothukudi	2	8	10	28895	15966	44861	37	92819
2	Karunkulam	0	5	5	0	12366	12366	10	50124
3	Srivaikundam	1	10	11	13791	34217	48008	15	94643
4	Alwarthirunagiri	3	8	11	30266	13463	43729	15	100450
5	Tiruchendur	1	4	5	11185	7024	18209	15	118590
6	Udangudi	0	6	6	0	17489	17489	7	59048
7	Sathankulam	0	7	7	0	19834	19834	8	89850
8	Kovilpatti	1	24	25	17807	21486	39293	24	290211
9	Kayathar	0	16	16	0	26431	26431	9	48425
10	Ottapidaram	0	23	23	0	25573	25573	12	110142
11	Vilathikulam	0	18	18		16542	16542	12	110832
12	Pudur	0	23	23	0	20620	20620	8	102456
13	Corporation	-	-	-	-	-	-	46	266345
District		8	152	160	101944	231011	332955	218	1533935

Source: Joint Registrar Co-operative Societies, Thoothukudi, 2014

Table-8.4 reveals that there are 218 commercial banks in Thoothukudi district out of which 46 banks are available in the Corporation limits and 37 banks in Thoothukudi block and followed by 24 in Kovilpatti and 15 each in the blocks of Srivaikundam, Alwarthirunagiri and Tiruchendur. It is to be noted that the high-level establishment of Primary Agricultural Cooperative Credit Society (PACCS) in the areas of backward regions and those areas is highly dependent on agriculture as their livelihoods.

Insurance

Table- 8.6 shows the numbers of policies issued in Thoothukudi district by the Life Insurance Corporation of India (LIC) through its five branches and it grew up to 46, 419 policy holders during the year 2014. LIC is the single largest reliable insurance company in India fully controlled by the Government of India; it also serves more people in the district. The LIC, while investing its fund, has to consider various factors and forces such as safety, liquidity and productivity of funds with various other regulatory bindings in terms of investment norms, asset- liability management, etc. In short, the LIC has to make its investments within the ambit of these bindings as a result; the corporation is not in opposition to pursue a prudent investment policy due to which its investment income may come under pressure. Adding fuel to the fire, the falling interest rate would also adversely affect the investment performance of the Corporation. Still at present LIC continues to be the dominant life insurer even in the post-liberalization phase of the Indian insurance industry.

Table- 8.5 Insurance and other agencies in Thoothukudi district

S. No	Name of the Companies	No. of Branches	Policies Issued
1	Life Insurance Corporation of India (LIC)	5	46,419
District		5	46,419

Source: LIC of India, Thoothukudi, 2014.

V.O.C. Port

Transport is clearly a factor of fundamental importance in all economic activities and the cost of transport is one of the most significant variables affecting the market price of any commodity. The transport/development relationship is essentially an interactive process and the results of the interaction depend upon the type of economy involved. Economic development of a region may be said to require a certain level of transport provision in order to maximize its development potential and theoretically, there is an optimum transport capacity for a given level of development. Goods or passengers may be moved by different modes, such as railways, roadways, airways and waterways. These four modes of access are available in Thoothukudi district. Port and freight stations are places where goods shift from one mode of transport to another. Transport system has a pivotal role in the development of core sectors of the economy, especially in agriculture, industry and trade. In addition to this, it is a powerful instrument to determine the social transformation, strengthen national defence, migration and urbanization. It is also the hallmark of civilization that helps to remove physical barriers and helps in the accumulation of investment. This transport has been considered as a basic prerequisite of the modern economy. Most of the advanced countries of the world attribute much of their advancement to their developed transport sector. Economic and trade progress of a country depends upon the nature and pattern of transport connectivity. A good transportation network with greater accessibility and connectivity promotes the smooth flow of commodities from production/supply areas of consumption/demand areas. Ports should act as an integral part of a chain of transport linkages designed to move cargoes from origin to destination. The hinterland of the port development depends upon the connectivity of transport.

India is endowed with an extensive coastline of about 7,517 km along nine costal states, namely Gujarat, Maharashtra, Karnataka, Goa, Kerala (west coast) and Tamil Nadu, Andhra Pradesh, Orissa and West Bengal (east coast). These states have all 12 major ports and 185 intermediate/minor (non-major ports) ports in India. The majority of the states in India are located in a land-locked region, therefore there is an urgent need to promote port connectivity for widespread socioeconomic development in India, and port connectivity in the past has been given little attention in the form of transport coordination. In Tamil Nadu the coastal length of the hinterland is 593 km (about 55 percent of the state's coastal length) and it consists of five districts namely Thoothukudi, Tirunelveli, Kanyakumari, Ramanathapuram and Pudukottai, in which Ramanathapuram is the longest coast line followed by Thoothukudi. The "wedge bank" off this coast is claimed to be the world's richest fishing ground. The availability of adequate marine infrastructure facilities is a great boon to the marine fish production in this region.

As a result, most of the ports are not connected properly with different modes of transport, which led to the high cost of transportation. In the recent years, the government has realized the importance of port connectivity and is addressing it on a high priority basis.

Among the major India ports, Thoothukudi has a long maritime history and is also one of the flourishing ports in recent times. It is well connected to various trade and production centres within Tamil Nadu and the neighbouring states via road, rail, water and air. In and around Thoothukudi city is the major salt producer in the state and contributes 30 percent of the total salt production in Tamil Nadu. The main occupation of the Thoothukudi district is agriculture and allied activities. A majority (70 percent) of the people depends upon agricultural activities for their livelihood. But the recent boom in the new industries such as Sterlite, South Indian Petrochemical Industrial Corporation (SPIC) Limited, Thoothukudi Alkali Chemicals (TAC) and Fertilizers Limited, Heavy Water Plant (HWP), port and related service and Thoothukudi Thermal Power Station (TTPS) have put the district predominantly in the industrial map of the country. Hundreds of ancillary units have also sprung up. Textile and matchbox making are other important industries located in the purview of this district. Cargo is handled in the Thoothukudi Port. India's foreign trade has shown a sustainable increase since Independence; as a result, Indian major port's traffic volume has witnessed a robust growth rate. The traffic volume of Thoothukudi port bears testimony to this fact. The share of the cargo handled at Thoothukudi port increased to a considerable level from 2.06 percent in 1974 -75 to 4.05 percent in 2005 -06 to the total cargo handled at India's major ports. The port cargo traffic was increased from 10.35 lakh tonnes in 1974 -75 to 171.4 lakh tonnes in 2005 -06, witnessing 17 times increment. Among the commodity-wise cargo movements in Thoothukudi port, coal is the major item of import in Thoothukudi port; the main importers are TTPS and cement factories. At an all-India level, 11.86 percent of coal cargo was handled in Thoothukudi port during 2003 -04 and the port stood in at third place among the major ports.

Transport sector plays an important role in creating employment opportunity. Due to transit of commodities and passengers through various transport modes, the primary, secondary and tertiary sectors can expand and generate more employment. There are 1,246 employees working in different categories in the Thoothukudi Port such as Class I (108), Class II 80), Class III (753) and Class IV (305). Apart from that there are more than 7000 employees working in the port trust either directly or indirectly. The Small Scale Industries (SSIs) created directly and indirectly, many employment opportunities. They have created 8.8 lakh employment opportunities directly during 2002-03 in the hinterland. It was about 28 percent of the state's total. Estimation of indirect employment generation is very difficult, though it is definitely larger. The districts of Madurai, Virudhunagar and Thoothukudi are generating more employment through SSI units. Even though the share of employment of the primary hinterland is little lesser, it plays a significant role in generating employment in this region. Factories have also been playing a substantial role in generating employment in the hinterland region.

The total share of employment from factories was about 27 percent in 2002 -03, which was 30 percent during 1990 -91 to the state's total number of employees which were the highest in the primary hinterland, in which the district of Virudhunagar accounted for 121.800 in the factories, followed by Kanyakumari and then by Thoothukudi, where robust growth rates were recorded between 1990 -91 and 2002 -03. Even though many large-scale units are located in the Thoothukudi district, the growth rate of employment is negative since they are adopting sophisticated modern technology in the production process. This may be the cause of larger BPL families in the district. Marine fishing has the potential for generating employment opportunities in the coastal region. The region of Thoothukudi port hinterland is more than half of the total coastal length of Tamil Nadu, accounting for one-third of the State's total employment through marine fishing. The primary hinterland benefited from much higher employment rate than the secondary hinterland, in which the districts of Kanyakumari and Thoothukudi have the highest number of fishermen engaged in this activity. Though India, as well as Tamil Nadu depends on agriculture to a marked extent, the hinterland region of Toothukudi port's dependency was smaller by 26 percent of the state's total as per 2001 census. An interesting observation is that, all the primary hinterland districts have registered a negative growth rate of agriculture workers between 1991 and 2001, particularly in the district of Kanyakumari, the rate had drastically come down. Faster industrialization and commercialization in the primary hinterland are the main causes of bringing down agricultural employment. An analysis of the employment data relating to the service sector clearly shows that the primary hinterland districts have greater employment data relating to the service sector, which clearly shows that the primary hinterland districts have a greater advantage than the secondary hinterland districts in terms of employment growth rate. The district of Kanyakumari has registered the maximum growth rate of employment followed by Virudhunagar and the minimum growth rate is in Madurai district. The study observes that the primary hinterland has significantly benefited from employment generation, except in the agriculture sector. The hinterland of the port has potential employment opportunities for which infrastructure facilities must be strengthened; specifically port connectivity in this region requires improvement. Its growth rate is 12.08 percent. It provides major employment opportunities to the people of Thoothukudi district followed by the Tamil Nadu Electricity Board.

Thermal Power Stations

Thoothukudi has several thermal power stations such as the Thoothukudi Thermal Power Station run by the Government and another joint venture NLC – TANGEDCO (Tamil Nadu Generation and Distribution Corporation) of 1000 MW Power Plant. In addition to these, there are several private power plants such as India Barath Power Limited, Coastal Energen, Sterlite Captive Power Plant, etc. available in Thoothukudi district. However, the demand for power supply is on the rise and hence establishing a number of such plants are mooted in this district. Given the geography and the climatic condition of this region, it has now attracted investors from various parts, for the setting up of solar power plants.

As the Corporation is also a vast open space, it is being proposed to set up a solar power plant in the available area of the Corporation.

Puthiamputhur a Textile Cluster

Puthiamputhur is a small town situated very close to Thoothukudi which has historical reference. Puthiamputhur is well known for manufacturing of ready-made garments. V.O. Chidambaranar's birth place is situated just 8 km away from Puthiyamputtur and it was believed that VOC had his earlier days of schooling in this village. Similarly, the legendary Tamil ruler Kattabomman also belonged to this region. His birthplace was situated just near Puthiyamputtur. The then Puthiyamputtur was exposed to outsiders as a marketing centre and then as a strong production base for readymade garments. The garments being made in this small town have got a wider acceptability and the dexterity of the textile products attracted many traders into the small town. It is located at Ottapidaram taluk in Thoothukudi district. It is 17 km from Thoothukudi, 4 Km from Ottapidaram and 15 Km from Puthukkottai. The Puthiamputhur is called as **"Kutty Japan", "Thennagathin Tiruppur" and "Ready-made City".** It is no longer a hunting ground of rural economy.

In the early 1950s, the name of the city was Pothiamathur. That means, Pothiamathur (Pothi (load) + Amathur (rest taking area). It was a village, wherein travellers and traders used to take rest with their belongings. Hence, it was called Pothiamathur. Later on, it was turned into Pothimuthoor and finally it was renamed as Puthiamputhur. A total of 5000 families are living in this area. Low-income groups of families adopted tailoring as the main source of livelihood. The small town has been churning the glory and texture for more than six decades. It is a self-sustained town wherein people are very enterprising and innovative. The owners are rural folk and very often a single person, owner-operating unit, or small units operate engaging family members. Ready-made garment making is the best survival-subsistence or livelihood enterprise in the region

Development of the present-day Puthiamputhur town can be traced back to early 1950's. During that period three brothers from the Nadar business community had started manufacturing garment enterprises in that town. The three brothers laid a foundation for the thriving of garment manufacturing industry in that region. The frill and fragile rural environment has got new winds of confidence and formation of garment cluster in Puthiamputhur. It has bridled the growth and substantially improved livelihood of the village folk. With the effort of the three brothers, the village has got a facelift and also has an acclaimed small town status. The small town has carved a niche for itself in the garments market in the Southern States. The village was once surrounded by guava plantations. The Puthiamputhur guava was well known in the early 1950s. The village was also a centre of attraction as it was one of the oldest marketing centres wherein cow, goat, chicken, pot, iron materials, fruits, clothes, sarees, luxury products, domestic products, etc., were traded. In the early 1950s barter-type business operation was predominantly carried out in the rural economy of the village. Subsequently, this centre developed as a flower market also. Having gained success, this venture became a big attraction and started to percolate in the adjoining villages.

The usual products were underwear, inner-wear, trousers, tap trousers, jippa shirts, tap pavadai (lower part of midi), umbrella pavadai, blouse, etc. These kinds of normal and regular dresses are being made by them. Innovative thinking and fancy items created dramatic changes and carried the garment industry to the next level in Puthiamputhur. They produced fancy types of dresses such as Baba-suit, full-hand shirts, half-hand shirts, slacks, ins-cut, cape, cap, etc. New type of fabrics was also introduced in the market such as starchy silks, daubed silks. In the mid of 1985, there were only 100 plus garment-manufacturing units in the town. Now, more members of garment-manufacturing units mushroomed within the vicinity of 2 km. This small town started getting compared with the enterprises operating in the Tiruppur hub and was also called ***"Then Tiruppur".***

The strong trade links established with the traders within Tamil Nadu and the raw material suppliers from Surat, Kolkatta, Mumbai and Belwara has given a fresh fillip for development of this enterprise in that region. The home-made family-oriented business has got a momentum and the craftsmanship was passed on from one generation to another. Active town people are busy in making garments in their small narrow houses. All the houses are invariably flooded with a heap of finished and unfinished dress materials.

The Puthiyamputtur-based trader-turnedmanufacturers learnt the art of bulk purchasing. The business community made strong business linkages with Surat. Teams of traders often used to undertake travel to Surat city for purchase of raw material, - that is different varieties of textile materials used for manufacturing garments. The small town is best known for rural empowerment. The progressive, self-sustaining, growth-oriented Puthiyamputtur communities have shown new wisdom of opportunities in the rural economy. The small town has given employment opportunities to more than 10,000 people. The small economy is capable of self-sustainability. It is purely a self-driven people-oriented growth. None of the institutional mechanisms supported the strong textile community. Puthiamputhur is contributing to approximately 40 percent of readymade dresses in Tamil Nadu. More than 300 companies are functioning at present. The propulsion of economic growth and harmony has started to pick up in the adjoining villages also. The reason for such fast dispersal and extrovert pull are basically due to the attraction of workforce into the enterprises for want of decent earning and survival. The resilient and resourceful rural people used to get jobs working for the Puthiamputhur-based traders and undertake value addition and return finished garments. The garment-making activities have now spread over to around 40 to 50 km and most people from various communities are participating in the community enterprise movement.

This business is predominantly controlled by the Nadar community. Sixty percent of the business is emerging from this community. They are basically settled in the west and southwest parts of the town. The Muthaliyar community is concentrated in the north and north eastern side. The Nayakkars are in the south tip of the town. SC and other communities are also actively engaged in this line of activity for eking out their survival. Most of them are undertaking jobs from the predominant communities. The very success of these enterprises is the reason for the prevailing communal harmony and brotherhoods in the fabric of the society.

Puthiamputhur is silently making a revolution. The strong demand for the low-end decorative ready-made garment segment has elevated the town into the top hem. It is the centre of attraction. The high volume of business operation and non-availability of sufficient workforce have paved the way for spreading of the activity to adjoining villages. Manufacturing of garments is later on spread over to the adjoining villages. It has created a strong manufacturing hub. Manufacture of ready-made garments is a supplementary activity next to agriculture. The failure of agriculture and low return from the land forced the village community to venture into this activity. Family earnings have sizably improved. Individuals were able to fetch Rs.200 - 300/- per day.

The garment industries spread over the adjoining villages are Rajavinkuppam, Muppilipatti, Parampoor,Ottapitaram, Cylon Coloney, Panjalam-kurichi, Vellaram, Vaduvantharai, Keemudi-kanai, Kulathur Rajavinkovil, Samynattam, Jillanat-tham, Keezha Velauthapuram, Mela-velauthapuram, S.Puthur, Pandiaypuram, Mela Thattaparai, Keezha Thattapparai, Karisal, Sayarpuram, Puducherry, Maniyachi, Puliyampatti, Kulasekaranallur, Parakuttam., Vallinayagapuram, Naduvakkurichy, Jambulingapuram, Muppilivetti, Kailasapuram, Savarimangalam, Thattaparai, Puthukottai, Ciloncolany, Sekkarakkudi, Verapandiapuram, Vellaram, Pasuvanthanai, Kovilpatti, Kulathur, Vilathikulam, Mappilaiyurani, Sillanatham, Savarimangalam, Saminatham, Sevalkulam Melavittan, Madathur, Mupulivetti Perurani, Umarikadu, Earal, Aaral, Thattaparai, Jambulingapuram etc.

Sometimes smart entrepreneurs brought North Indian-based communities engaged in such skilled operation to their town. That has paved the way for settlement of North Indian-based skilled workforce in the city. Presently, more than 100 workers are engaged in this line of activity and they are now well integrated within the marketing network. Such a settlement further induced the business to offer artistic and ornamental embedded embroidery works. Nevertheless, these entrepreneurs have limited resources such as labour, skills, and capital, which make it difficult for them to meet the standards required for local, regional, or global markets. This lack of resources prevents rural enterprises from expanding and excludes them from higher-value markets as suppliers to larger firms or as direct suppliers to markets. The transaction cost is very high and act as mutilating factor. Cluster initiatives will be a fresh kick start to kindle the growth and minimize market distortion. Support for capacity building, economies of scale, product diversification and marketing efficiencies are yet other unfinished tasks for booming the rural economy of the region. However, there are certain important priorities which are to be addressed immediately in that region to promote the rural economy viz., creation of the raw material bank, integrated processing and manufacturing centre, design and skill up-gradation training facilities, integrated servicing set up, common networking and marketing complex and product design centre.

Conclusion

The district infrastructure has been well equipped on par with state infrastructure development in terms of road, railways, ports and air-ways. Electricity, communication networks and financial institutions are very well established in the district. Since the infrastructure has certain uniqueness which has transformed the district economy very well. Thoothkudi district is having its own significance due to the fact that the district is surrounded with several industries which can promote more exports and imports. Puthiyambathur is another important landmark which can promote more employment opportunities to the people and thereby ensures sustainable income to the rural mass. However, the overall rural road connectivity in the district is quite grim which needs to be given top priority.

CHAPTER 9

SUMMARY AND WAY FORWARD

Chapter
9
Summary and Way Forward

The whole crux of the presentations of the District Human Development Report for Thoothukudi district has been made out of the workshop was organized at the district headquarters in the month of March 2014. Large group of stakeholders comprising the members of Village Panchayat Presidents, Town Panchayat Chairmen', Municipal Chairmen', all Secretaries of Village Panchayats, Officers of the District Administration and the line Departments, executives from the Municipalities, Block Development Officers and other block representatives, Officials from School Education Departments, representatives from regional NGOs and voluntary organizations, in addition to members of the DHDR, DPO, DRDA project Directors and Health Officials from different blocks were present in the meeting along with the District Collector. Several discussions were done before preparing the report with the District Planning Officer and other technical officers in the district. The object of these discussions was ultimately to synthesize the elements of a human development strategy for Thoothukudi District.

The district of Thoothukudi has made notable strides in many development spheres over recent decades, viz., are agriculture, horticulture, food processing, manufacturing and rural industry as well as communications and road infrastructure. However, its performance in the three core human development areas of education, public health and employment has had to negotiate the twin challenges posed by rapid growth of the district population, and, shrinkage of the land unit per farm family. Since urban growth has been boundless in Thoothukudi district, the employment profile primarily in rural areas is the main challenge before human development planners in Thoothukudi district, which will be essential to provide development services and infrastructural inputs to the people in a highly decentralized rural framework. Substantial resources have to be mobilized for this, which have to be allocated with considerable far sight and wisdom to build a development platform that meets the aspirations of the district population.

Because of the composite character of human development, another challenge before human development planners will be to coordinate the development activities of several administrative agencies and departments, so that the benefits from each development programme or scheme reinforce each other. For this, a process of dialogue will have to be initiated between the departments and the people so that regional development needs are met holistically. The existence of a strong decentralized framework of Panchayat institutions in the district forms the network through which this can be achieved. However, within this framework, the chain of dialogue shall have to reverse the direction to some extent, from the "top-down" process that has existed till now. The conceptualization of this process rests on devolution of more powers to institutions of local governance as also to civil society groups and organizations that share their vision and their common stake.

The preceding chapters of DHDR Thoothukudi district examine the various contours of human development. In the light of the observations, an attempt has been made to explore the possibilities to utilize available natural and human resources fully for achieving sustainable human development. Various indices of the district were worked out, and the HDI of the district was calculated as 0.647. The other related human development indices such as MDPI, CDI and GII that focus on specific issues of poverty, child development and gender development were also comprehensively dealt with. There is a rich scope for the execution of various ongoing developmental programmes in an effective way with the inclusion of all stakeholders as well as to introduce specific programmes to address the area-based disparities in the district. This chapter suggests some measures that could be adopted by the district administration to overcome some of the identified challenges in the district.

Status of Human Development

- Although Thoothukudi is well behind many other districts in Tamil Nadu in the sphere of education, the growth of primary schools and primary enrolments in recent times has been impressive.
- High pupil -teacher ratios (PTRs) in primary education indicate that there is no dearth of rural learners, and also that conservative norms such as those that once kept the girls away from school have undergone substantive transformation.
- However, high PTRs are also a symptom that the district school system has been over-extended to absorb the mass of new learners, without substantial enhancement of either the school infrastructure or teaching staff.
- Ultimately, as seen in Thoothukudi district, increased primary enrolments are followed by subsequent low dropouts in the upper primary and post-primary stage, because of state policy interventions in the educational system. Even so, sporadically a little dropout rate can be seen at the block level. There are also certain blocks in the district – for instance – places where many children are compelled to remain out of school more particularly girls because of infrastructure impediments.
- Low retention rates in the school system are attributable to the decline in the quality of education as the pupil load expands, as well as limited infrastructural facilities, staffing inadequacies, etc. The rate of expansion of upper primary and secondary school institutions has not kept pace with the expansion of primary enrolment. Hence, considerable dropouts occur at the transitional stage, since the existing upper primary and secondary school institutions lie at much greater distances from the places where the new primary learners reside.
- Urban schools are more favoured in this respect since they have lower pupil loads, better PTRs and proper infrastructural amenities. The urban sections that can afford to pay higher user charges also have the choice of sending their children to private schools where standards and facilities are even better. Since very few rural learners in Thoothukudi can afford to relocate to urban areas in pursuit

of a better education, most students in Thoothukudi district still find that the portals of formal education close upon them after they have acquired a few years of elementary education.

- Meanwhile special education programs, such as the establishment of Sarva Shiksha Abiyan, have improved enrolment and retention ratios in school education in Thoothukudi district.
- The institutional framework for education in Thoothukudi district will need to be synchronized to the needs of a large mass of new rural learners, for which the present school infrastructure is inadequate. Since substantial expansion has occurred at the base, at the level of primary school enrolment, forwards planning of secondary and tertiary level institutions becomes necessary for the educational system to have the continuing capacity to absorb new students. At present, the structure of schools in Thoothukudi district is lopsided and there are too few higher secondary schools to be able to cater to the needs of the aspirants. The infrastructure for school education therefore needs to be rationalized with more secondary and higher secondary schools being established to match the earlier expansion of school infrastructure at the base.
- The present programme approaches to education under SSA of the State Government is focused primarily towards increasing enrolment at the base. The problem however is more in terms of improving the quality of services being provided in public schools. In general terms, while it seems that DPEP and SSA have been quite successful in enlarging the coverage of primary schools, however, it is the quality of teaching and learning in the rural public schools in the state that is in need of the most attention.
- The short-term enrolment targets cannot be a viable base of public education programmes that must meet the needs of the people. Therefore, greater attention must be paid to get all the children from the poor families and special focus groups, such as girls and children from the SC and ST communities, narikurvar and deprived sections that are out of school into school and to strive much harder to attain and sustain higher levels of quality in their primary schools.
- While the former may require measures, such as higher levels of financial incentives for poor parents to send their children to school, improved quality and quantity of the midday meals being provided, and wide-ranging awareness programmes, the latter may require drastic changes in the learning methods and techniques, making classroom activities more experimental and enjoyable for the children, improved teacher training, and of course upgrading the school infrastructure.
- Greater attention must be given to school infrastructure, including more classrooms, a kitchen room, separate toilets for girls' in all the schools and a boundary wall for every school, curriculum and instructional resources, stricter control over and improved oversight of teachers' improved and rigorous teachers' training, and improved quality and quantity of midday meals.
- The basic elements of ensuring the standard of living of human life is based on the parameters such as LPG gas connections, toilet facilities, drinking water access, electricity and pucca house. The lowest access to cooking fuel was recorded in Pudur (25.78), Vialthikulam (26.05), Ottapidaram (26.47) and Karunkulam (29.05) which needs to be increased on par with other

urbanized cities and towns. The lowest access to toilet facility was recorded in Pudur (28.52), Vilathikulam (20.46), and Ottapidaram (23.00) not even covered 30 percent. Adequate attention to be given to those households to construct individual toilets under state and centrally sponsored schemes.

- The lowest percentage access to drinking water connection in Thoothukudi (55.07), Srivaikundam (73.83) Kovilpatti (72.89), Kayathar (66.67) and Pudur (88.51) must be given top priority to fulfil the basic right of an individual.
- All PHCs do not have adequate doctors and staff nurse. The existing staff positions need to be filled for ANM, pharmacists, lab technicians and health inspectors.
- High-order pregnancies and births may lead to risk of premature birth and low birth weight, cerebral palsy, still birth, mother health, anaemia; sometimes it may lead to MMR at the time of labour. Nearly, 50-90 percent of MMR are caused by haemorrhage, ruptured uterus, hypertensive disorders and anaemia. Therefore, higher-order birth has been the root cause for more IMR and MMR which can be controlled by the means of providing adequate health care infrastructure facilities at block level.

Employment, Income and Poverty

- The district per capita income ₹ 74,933 of the district is high compared with that of the state average ₹ 63,996 during 2011 -12 at constant price. The income growth rate of the district is 66.95 when compared with the state growth rate of 88.23 during 2011 -12. A majority of the people of the district are dependent on agriculture, textiles, industries and fishing for their survival.
- The main reason for the decline in the share of agriculture in Thoothukudi district is farmers are depending on a single crop system and therefore with the guidance of agriculture department officials, integrated farming system must be established in those areas to augment their income through installation of vermin-compost unit and sprinkler unit system since agriculture spurs demand for inputs such as fertilizers, pesticides and machinery, and on the supply side it provides raw material for agro-based industries such as cotton textiles, millets, cumbu and cholam. With increase in income, the increase in expenditure of rural households results in a higher demand for consumer goods including clothing, sugar and edible oils. The hot and dry climate of the district is highly suitable for dry land crops. The perennial nature of the river Tamirabarani helps cultivation of paddy year round in the Tamirabarani belt. Agriculture in the district depends on monsoon rains; hence probability of success is limited. The average rainfall of the district is below 700 mm. Therefore, successful crop production depends heavily on the success/failure of monsoon thus making agricultural production riskier in many parts of the district.
- Though the district has abundant resources but with the failure of monsoon, agricultural productivity has reduced substantially. A majority of areas are irrigated with rain-fed tanks since maximum rainfall is only during the North East (NE) monsoon. The NE monsoon is high and rainfall is received during cyclone periods. The availability of water for irrigation is not uniform

over the years. It leads to lesser area under cultivation. In order to overcome the agricultural distress, alternative farming methods are essential and one such method is integrated farming.

- The district also occupies the first place in salt production in the state. It is also a means to establish cottage-based industries since the district has Palmyra and coconut trees to promote rural economies. Another major uniqueness of the district is having major and minor ports such as Thoothukudi port and old port Kulasekara Patinam in Udangudi to facilitate major export and import of seafood and fish-based products. The district also has a large number of textile units to provide employment opportunities for rural and urban population.
- Check dams are to be constructed at Chinnamareddipatti where the surplus water flooding into the sea during the rainy season comes through Chinnamareddipatti Kusavan Oorani, Kulathan oorani, Saanaan oorani, Poolan orrani, new oorani Mettilpatti periya Kanmai and Chinnakulam Kanmai which can divert water to the needy areas. If this project comes to force, there would be a drastic reduction of water scarcity of both drinking and irrigation purposes and the ground water also gets recharged simultaneously. Perennial Kanmai depend on the flow of water which gets infiltrated through the land surface and percolates to join the aquifers. The natural rate of ground water recharge would be reckoned enormously in these areas.
- Drip irrigation, drain and sprinkler irrigation and other modes of irrigation system need to be encouraged among the farmers to overcome water scarcity during their farming activities since most of the lands are barren land.
- Minor millets such as maize, ragi, Panivaragu, Samai and Kadakani need to be encouraged to be cultivated since these crops are less water intensive and take 45 days to grow. All these millets have market-driven demand, especially the major beverages have been produced through these millets such as Horlicks, Bornvita, oats and biscuits. The Pudur block is largely rain-fed where irrigation facilities are minimal, land holdings are small and fragmented, with a predominance of wastelands. In order to realize water potentials, Integrated Watershed Management Projects need to be implemented.
- Construction of Poly Green House: Poly-house cultivation technique is a new approach which is more precise in agriculture than intensive agriculture. This approach will fetch higher incomes to farmers and their dependents. It will surely alleviate poverty by generating more labour days for agriculture labourers. Basically, poly house is embedded with ventilated climate-controlled structure. It is to be built up by a pre-galvanized channel cum tubular structure where crops can be grown under adverse climatic conditions when it is not possible to grow them in open fields such as high temperature, humidity, light intensity, soil moisture, disease control, poor rain-fall and other agronomic practices throughout the season irrespective of the natural condition. Certain crops will be possible to grow round the year and productivity will be increased when compared with other normal period of crops. These crops can be easily protected from insects, pests, diseases and weed and are easier under any organic farming structure.

- Setting up agriculture training centre: This centre will provide modern ideas to farming activities among the farmers and provide various high-yield agricultural inputs such as fertilizers, irrigation methods, and modern method of ploughing, weeding, harvesting, agricultural loans and marketing etc. which could increase productivity. This centre will also disseminate information to the farmers from time to time.
- Meat processing unit: Meat-processing unit would enable the cattle population to export meat to foreign countries at the highest price through which they can augment more income since the Thoothukudi district is meant for highest cattle population.
- Recharge shafts and check dam: Most of the precipitation occurs in the form of cyclonic storms caused due to the depressions in the Bay of Bengal. The normal annual rainfall over the district varies from 570 mm to 740 mm. The district area is covered by black cotton soil in the west with isolated red soil patches in high ground. Sandy soil is present in the coastal tract. Alluvial soil is restricted to river flood plains and coastal parts. Alkaline and saline soils are also noticed at places. Drought and low ground water level are the main problems in almost all parts of the district. The major role of recharge shaft is to inject excess water during the rainy season above the full tank. The ground water resources have been monitored jointly by Central Ground Water Board and State Ground and Surface Water Resources and Development Centre Methodology. Limited fresh water availability in sedimentary areas as floating lenses makes the coastal tract vulnerable for water quality changes. Ground water in alluvial /tertiary aquifer in the eastern part of the district is in hydraulic connection with the sea and hence it is vulnerable for saline water ingress. Due to the high level of ground water exploitation, the negative consequences are 1) decrease in agricultural production, 2) poor quality of ground water, 3) it affects people's health, 4) water scarcity affects the cattle feeding, 5) non-availability of water affects agriculture, 6) cropping intensity decreases, 7) irrigation intensity is affected, 8) less production, 9) migration of population and 10) demand for labour.
- Cold storage warehouse: The cold storage is one of the important forward linkages of agricultural activities and cold storage provides infrastructural facility for reducing distress during post harvest losses in respect of agricultural produce especially horticultural/floricultural/perishable agricultural produce such as onions and chillies. Shelf life of chillies and pulses under cold storage conditions will be around 2 -3 years, during the storage period these commodities will remain unaffected in quality, colour and moisture content. Hence, market value of the stored product will not be affected. Usually price of commodity during harvest period will be low. But after harvest of the produce, the price slowly tends to increase, and reasonable price can be expected with 2 -3 months. Hence, it is necessary for the farmers to store their produce in cold storage up to the period when the market price booms. However, some big farmers and middle men are adopting the delayed marketing practice by storing their produce in private cold storage situated in the distrirct headquarters whereas if poor farmers need to avail such facilities, they have to travel more than 50

km to ensure a fair price. But small and marginal farmers are not able to meet the transportation cost, storage rent and other labour-oriented expenditures. So they are not able to adopt delayed marketing practices which lead to less profit. Besides, milk can also be stored in a cold storage since each block nearly produces 2000 to 3000 litres of milk per day as most of the blocks in Thoothukudi district is highly engaged with cattle. Cold storage facilities will always ensure quality and extension of shelf life, prevent distress sale and glut situation during harvest and scarcity during off season, and provide marketing flexibility, thus, providing remunerative prices to farmers. Cold chain infrastructures under integrated production and post harvest management/processing system with upgraded technology are encouraged. Another significant factor of cold storage house is to help farmers keep their produce stored/preserved for a long time until they get a fair price or to export to foreign countries.

- It is important to progressively draw SHGs into economic activities, through provision of technical support and micro finance. Capacity-building activities also need to be conducted for the SHGs in order to train them for the performance of a future economic role. SHG training has to be flexible and need-based, and must include market linkage, infrastructural support and financial assistance towards risk management.
- The proposed check dam is the only option to make agriculture a more flourishing sector through which poverty can be eliminated.
- Drip irrigation, drain and sprinkler irrigation and other mode of irrigation system need to be encouraged among the farmers to overcome water scarcity during their farming activities since most of the lands were being left as barren land.

Demography, Health and Nutrition

- CBR can be reduced with the help of family planning and welfare measures. Government should motivate people to use contraceptive measures to control population and motivate them to adopt periodic immunization and other health programmes. The Kovilpatti block has got the highest CBR of 30.6 in 2014.
- Proper nutrition, care and attention can prevent child deaths. The other reason for the decline in sex ratio could be female infanticide and foeticide and this could be avoided.
- The overall general sex ratio has decreased in Thoothukdui between 2001 and 2011 from 1050 to 1024. The child sex ratio has decreased from 963 to 953 between the year 2011 and 2013 -14. Stringent actions must be taken against those who indulge in sex selective abortions and create awareness among the rural women to protect the girl child.
- Low birth weight and under nutrition are the major risk factors for infant and child mortality. Anaemia has to be continuously monitored. Similarly, a majority of school children suffer from different kinds of malnutrition which not only affects their physical health but also translates into weak memory, lack of interest in study and unsatisfactory performance. Anaemia in this adolescent age group may lead to post partum haemorrhages, which is the leading cause of maternal death.

- In order to reduce anaemia among children and adolescent girls the body mass index and haemoglobin estimation would be performed at the school level and for that proper training and capacity building must be established at all schools. Printing of exclusive nutrient cards for students. Purchase of weighing machine, stadometer and Sahil's haemoglobin meter should be made and they should be made available at all the schools in the district.
- There is substantial percentage of low weight babies found in Thoothukudi district. In order to reduce the low birth weight babies, millets and cereals may be added into the earlier menu by the ICDS which may reduce low weight babies.
- Infant deaths can be reduced by way of motivating mothers to opt for breastfeeding their child. The recent initiatives of the state government towards breastfeeding may be extended to all other parts of the district by way of advertisement. To increase the number of nursing rooms across the district important places should be provisioned where women can exclusively perform breastfeeding.
- Adequate ante-natal and post-natal care are needs to be initiated to reduce the high incidence of IMR especially in Kovilpatti block where the highest rate of IMR (30.54) was recorded.
- The most common causes of maternal deaths are haemorrhage, anaemia, puerperal sepsis, obstructed labour, and abortion, hypertensive diseases of pregnancy, anaemia, bad obstetric history and lack of antenatal care.
- The average maternal mortality rate (MMR) in Thoothukudi district is 105.8, which is substantially lower than the all-India level (407). The leading causes of maternal deaths are higher order birth rate, sepsis, post-partum haemorrhage, anaemia and abortion. Deaths caused by haemorrhage and obstructed labour can be prevented if good obstetric care is available at all times at block level but such facilities are available only in big hospitals located in the district headquarters. Many rural pregnant women cannot get easy access to emergency services in time.
- Eclampsia is another leading cause of maternal mortality, which can be prevented through regular antenatal care.
- Therefore, it is essential to increase the number of hospitals, dispensaries, primary health centres, health sub-centres, mobile medical units, bed strength, number of doctors and nurses (including, CHN, SHN and VHN). There are certain other basic health infrastructures yet to be provided at block levels. They are CT scan, Trauma Care Centre, Leprosy Ward, Emergency Ward, ICU, Ambulance Services, Blood Bank, Family Welfare Ward, Children Ward, Gynaecologist, ENT, Ortho and Eye Specialist, Paediatrics, ECG and Clinical laboratory with semi-auto analyser,
- The low birth weight, asphyxia, prematurity and congenital heart diseases are the major cause for still birth rate. Except congenital heart disease, all other causes occurred more frequently during the early neonatal period. So it can be concluded that ante-natal care and high-quality care of newborns are very essential to reduce SBR.

- The quality of the immunization programme has improved considerably over the past 15 years with cold chain maintenance and the potency of vaccines being ensured, leading to a substantial reduction in vaccine preventable deaths. This can be extended a little more to cover 100 percent.
- The drastic reduction recorded in Gr.II, Gr. III and Gr. IV malnourished children, but Gr. I malnourished children still persist at higher levels in all the blocks. With the help of ICDS, Gr. I malnourished children can be reduced across the district with holistic initiatives and thereby reduce U5MR.
- The provision of iron and folic acid (IFA) tablets play a pivotal role in reducing anaemia among pregnant women and children. The practice of taking IFA tablets among children is a difficult task and this can be achieved through several advertisement programmes.
- Water-borne disease is a major threat in Thoothukudi district, especially as diarrhoeal diseases are a major cause of mortality among adults. It is observed that the incidence of diarrhoea cases has been reported in several blocks due to poor drinking water access. This situation in Thoothukudi district is quite grim. Drinking water scarcity prevails in many blocks and it has been observed during field study. There is a total of 6, 37,675 households out of which 3, 45,232 households have been covered with drinking water supply. Adequate attention should be given to provide drinking water access to all the households and thereby health of the population can be ensured.
- The district average access to toilet facilities is 56.67 percent and the remaining people depend on open defecation. It is a common practice in rural areas. In order to promote health indicators, it is essential to provide individual household toilet facilities and thereby reduce disease outbreaks.
- Although a trend towards seasonal out-migration of labour from Thoothukudi district to places that offer higher wages or regular work is now strongly visible, particularly in certain blocks of the Pudur, Kovilpatti and Kayathar to neighbouring district such as Sivakasi and Madurai. Worker migration brings in sociological problems, gender and family insecurity as well as the threat of epidemic diseases and HIV/AIDS.

Literacy and Education

- Though the literacy rate in Thoothukudi district has got a higher position than the state as per two subsequent census years 2001 and 2011. The results of the 2011 Census show that Thoothukudi district has attained the third position behind Kanyakumari and Chennai, among the districts of Tamil Nadu, both in terms of overall and female literacy. While the overall literacy rate has gone up from 81.5 percent in 2001 to 86.16 percent in 2011, the male literacy rate has increased from 88.3 to 91.14 percent. The encouraging fact is that the female literacy rate has gone up by more than 6.23 percent points from 75.1 percent in 2001 to 81.33 percent 2011. The gender gap between male and female literacy has come down from 13.2 in 2001 to 9.81 in 2011, revealing the narrowing of gender inequality in the district.

- The district average completion rates for boys at primary education were recorded as 96.6 and 97.32 percent and that of girls 95.8 and 96.82 percent respectively during 2012 -13 to 2013 -14. It is quite pitiable that girl's completion rate was marginally lower than the boys and something needs to be done to increase the girl's completion rate at primary education level and thereby avert girl's dropouts.
- The upper primary enrolment rates were recorded as 98.6 and 98.75 percent respectively during the years 2012 -13 and 2013 -14 and the rate marginally increased. The difference between boys and girls enrolment in upper primary education has not shown significant changes during the years 2012 -13 and 2013 -14 but marginal improvement in enrolment among boys and girls could be seen here and there during the years.
- The district average completion rates with respect to upper primary education were recorded as 93.9 and 95.00 percent respectively during the years 2012 -13 to 2013 -14. It was quite interesting to note that girl's completion rate of upper primary education is much higher than the boys not only in the district average but also in all the blocks. Similarly, the dropout rate in upper primary education for both boys and girls was not hugely different and the percentages were recorded as 1.55 and 1.7 percent during the years 2012 -13 to 2013 -14.
- In upper primary schools the dropout rate was found to be marginally higher (1.70) in 2013 -14 than (1.55) in 2012 -13 whereas the total dropout rate of SC and ST children has also come down from 2.34 to 2.30 and 1.10 to 1.07 (ST) during 2010 -11 to 2011 -12. However, the total dropout rates in upper primary education were recorded highest in Pudur (2.15), Ottapirdaram (2.20), Kayathar (2.68), Kovilpatti (2.28) and Tiruchendur (2.26) and lowest were recorded in Thoothukudi (1.5), Karukulam (1.68), Srivaikundam (1.20), Alwarthirunagiri (1.02), Udangudi (1.80) Sathankulam (1.44), Vilathikulam (1.02) and Corporation (1.05). The activities of SSA must be encouraged more to reduce dropout rate in upper primary schools.
- Refreshment for Class X and XII standard students during the last six months of their exams including milk, sundal and biscuits must be provided in all schools to result in good performance in their exams.
- Noon meal extended to upgraded schools, especially in all government aided schools.
- Computer-based learning through LCD and CDs methods may be encouraged
- One Mobile Science Van must be provided at the district level which enables the students to know about the significance of science.
- In many rural schools, the students are struggling for English-speaking skills, in order to improve their skills, a special English teacher to be appointed in all government schools exclusively to enable them to improve language skills at school level.
- There are 2292 habitations in the district which are having unequal distribution of schools among the district. Sometimes the numbers of habitations are high but the availability of schools are very less when compared with the number of habitations. There is a kind of lopsided provision of

schools that could be seen in many blocks and that might have caused more dropout rates among the blocks.

- The total district average enrolment rate in secondary school has been estimated at 98.75 percent where as average enrolment rate of boys and girls have been estimated at 98.82 and 98.67 percent respectively. This is quite an impressive rate as far as Thoothukui district is concerned. However, the boy's enrolment rate was marginally 0.15 percent higher than the girl's enrolment rate. The highest enrolment rate was recorded in Thoothukudi (99.48), Kayathar (99.45) and Tiruchendur (99.35) blocks. The lowest rate was recorded in Sathankulam (98.0), Alwarthirunagiri (98.10) and Karunkulam (98.15) blocks. Inadequate transports and low access to high schools are the major reasons for low enrolment rate at high schools levels, especially among the girl's students. More dropout rates were observed during the field study in the parents and students who faced inadequate roads and transport facilities and for higher secondary schools which are some of the bottlenecks responsible for more dropout rates.
- In general, lack of class rooms, toilets, drinking water and water for toilets, desks and chairs in several rural schools have been noticed. More than 200 schools in and round Thoothukudi district, function without compound wall. Compound wall will always protect the students from social evils and avoid trespassers, which will ensure girls' protection. As a result, stray dogs and cattle freely roam in the school campus even during school timings. Often stray animals were seen even inside the noon meal centre at the school. During nights, anti-social elements trespassed into the school campus to consume liquor and engage in other illegal activities and even in some places, the school lands were encroached by adjoining land owners as there was no compound wall.
- Every primary school should be provided with at least two to three teachers excluding the teacher for drawing and sports so that the quality of education can be ensured like other private schools.
- For effective functioning of the school, each school should be provided one computer with printer along with one office assistant who could cope with other private-running schools then only the quality of education will be maintained as we expected in the vision 2023.
- Allocate more funds to construct new school buildings so that safety and security can be ensured. Similarly, school buildings are to be built either by the PWD or any other good builders, who could fairly carry out the task.
- In Thoothukudi district, most often noon meal centres are cooking their food without having kitchen and therefore, every noon meal centre should have kitchen with roof top which can prevent untoward happenings and also ensure that all food items such as rice, eggs, provisions, oil, vegetables and other ingredients used for food are supposed to be stored in a safe and hygienic place.
- Many schools in Thoothukudi district do not have electricity even if they have electricity connections, most probably lights and fans are defunct. More than 20 schools in Thoothukudi

district do not have toilets for girls. In order to ensure girls' basic rights, toilet facility must be ensured in all the schools.

- The noteworthy feature of the Government of Tamil Nadu has been that it has built several hostel buildings across the state for Scheduled Caste/Scheduled Tribes and Backward Class students, which enables to increase the enrolment rate in school education. Hostels play a pivotal role in everyone's life. In Thoothukudi district, out of 1,34,038 students, there are 1,480 students staying in hostels, especially the educationally backward blocks such as Pudur and Karunkulam which have lesser number students studying in hostels. Although Thoothukudi and Srivaikundam blocks have hostels, students do not avail the facility. In order to understand the reality of the problems of the students not staying in the hostels, a detailed study is essential.
- At present, there are 16 arts and science colleges, of which 8 are government-aided colleges, one autonomous college and no Government Arts and Science College in the district. Keeping in view the importance of higher education, two self-financing constituent colleges' were established by the Government of Tamil Nadu recently through Manonmaniam Sundaranar University to increase higher education access to the rural poor students. In order to ensure quality in higher education, full-fledged Government Arts and Science College must be established.
- The recent initiative of the Government of Tamil Nadu for increasing research aptitude among the students by the way of inviting professors from foreign countries may be extended further to all universities and colleges.
- Steps must be taken to establish government engineering college in Thoothkudi district.
- Thoothukudi district is meant for sports, in order to promote physical education, teachers are to be recruited exclusively for physical education.

Gender

- The average literacy rate of Thoothukudi in 2011 was 86.16 compared with 81.52 of 2001. If things are looked at gender-wise, male and female literacy were 91.14 and 81.33 respectively. The highest girl's enrolment rate was recorded in Kayathar (99.90), Thoothukudi (99.95) and Ottapidaram (99.76) and the lowest was recorded in Pudur (97.66), Sathankulam (98.0) and Karunkulam (98.0) blocks. The gender gap between male and female literacy rates have reduced from 13.2 in 2001 9.81 in 2011.
- With regard to sex ratio, it stood at 1023 per 1000 men compared with 2001 census figure of 1050. The average national sex ratio is 940 as per latest reports of Census 2011. The child sex ratio as per 2011 census was 963 compared with 953 of census 2001 for Thoothukudi district. Both these sex ratios are high when compared with the state and nation but the rate has come down from 2001 census to 2011 which inflicted gender inequality persisting in Thoothukudi district.

- Female work participation rate in the labour markets needs to be improved both in rural and urban areas in all the sectors. Highest percentage of non-farming activities were recorded in Corporation (98.0), Udangudi (88.0), Tiruchendur (72.0) and Thoothukudi (71.92) and lowest percentages were recorded in Vilathikulam (22.0), Kayathar (29.0) and Pudur (31.0) respectively which denotes poor standard of living for women. For that, MGNREGS work days may be extended more to the female workers which would enable them to improve their standard of living.
- The female agricultural wage rate ranges from Rs.120 to Rs.150 in Thoothukudi district which may not be feasible to survive a decent life. The low female agricultural wage rate itself is an indicator which determines gender discrimination in the society. Gender-wise wage discrimination could be seen in agricultural sector across the district. The wage discrimination was recorded more in Thoothukudi, Kayathar, Kovilpatti, Ottapidaram, Vilathikulam and Pudur than the rest of the blocks such as Srivaikundam, Alwarthirunagiri, Karunkulam, Tiruchendur, Udangudi and Sathankulam. It shows that the diversification of labour force may be engaged in other industries since the Thoothukudi district has more number of industries.
- The political participation of women in the State Assembly and Lok Sabha in Thoothukudi district was not very impressive but their participation in RLBs/ULBs is quite impressive and no blocks in the district had less than 33 percent.

Social Security

- Separate old age homes are to be constructed and they will be made available in all blocks headquarters exclusively for the deprived ageing population and incurring expenditure to be met by the government.
- A separate home is to be established for street beggars and mentally retarded people those who wander in streets and even in the National Highways. Sometimes, they lose their life due to accidents.
- It is to be noted that Dr. Dharmambal Ammaiyar Ninaivu widow remarriage assistance scheme and Dr. Muthulakshmi Reddy memorial inter-caste marriage assistance have not been successfully implemented in the district due to some social factors. Although the widow population is more in number, the fact that they may not able to remarry due to social customs imposed on them, might have caused lesser beneficiaries in those schemes in the district. Inter-caste and widows remarriages may be promoted by the way of priority in government jobs to those who readily accept to marry widows and do inter-caste marriages.
- Stringent actions must be taken towards preventing crimes against women such as rape, molestations, cruelty by husband and his relatives and kidnapping. Inculcate social values through media about the significance of women and girl children.
- Pension benefits are to be redefined to all the beneficiaries according to the present need and also to increase the number of beneficiaries based on the ageing population.

Infrastructure

- Any economic development depends very much on the availability of its infrastructural facilities, particularly the development of sectors such as agriculture, industry and service sectors. The physical infrastructure includes power, irrigation, roads, transport, banks and telecommunication whereas the social infrastructure comprising education, health, medical care, nutrition, housing and water supply which is instrumental to contribute to more human development which in turn can accelerate economic growth. As in the case of Thoothukudi district, rural roads are in very bad conditions across the district in various blocks. A comprehensive programme could be taken up by the government to ensure all parts of district are interlinked through better roads so as to enable the people to perform better economic services.
- As a consequence inadequate roads connectivity in Karunkulam, Sathankulam and Pudur blocks are still struggling for better services. Enormous mud road connectivity prevails in Kayathar, Ottapidaram, Vilathikulam and Pudur blocks which has negative effect on school attendance and also influences to increase school dropout ratios. There is a huge gap between the availability of roads based on the national average.

Environmental Initiatives

- The exiting air and water quality must be improved since Thoothukudi district has enormous industrial activities which pollute air and water.
- Proper solid and liquid waste management should be encouraged among the public.
- Instruction given to all public and private hospitals must adopt proper bio-medical waste management.
- Action must be taken to prevent vector-borne diseases outbreak by the Municipal Corporation.

Conclusion

The HDI, GII, CDI and MDPI are tools which not only reveal the level of human development in the district but also scaling the level of performance achieved at the block level and identifying intra-block disparities. The education, health, income disparities across the blocks of the district are distinctly observed by the indices. For example, Corporation, Alwarthirunagiri, Udangudi blocks fared well in the HDI index but the same blocks failed to perform well in other CII indices. This has pulled down the overall human development of the economy. It could be concluded that there is a wide disparity of human development among the blocks of the district due to various levels of access to cooking fuel, toilet facilities, drinking water, electricity, pucca houses, reduction of IMR, MMR, U5MR, literacy rate, GER in primary and GER in secondary level education played a major role. Hence, the provision of these facilities should be equally distributed among the blocks and that could reduce inequality among the human development. In fact, the inter-disparity among the block is high in the district due to lopsided development. The high per capita

income of Thoothukudi district has considerably influenced its HDI value. Thoothukudi's literacy rate and life expectancy are also fairly high.

Based on the DHDR assessment, it could be concluded that, lopsided development vary among the blocks and specific policy interventions are essential to address those issues through State Balanced Growth Fund (SBGF) perspective plans. Mere planning and allocation of funds would not be feasible to resolve those issues. An effective monitoring mechanism is essential to look after the programmes from the beginning to end with the co-ordination of people's participation at various stages of scheme implementations without any bias.

ANNEXURES

Humand Development Index

Table 1.1 Block-wise HDI Indicators

S.No.	Block	Standard of Living					Health			Education		
		Cooking fuel	Toilet facilities	Drinking water	Electricity	Pucca House	IMR	MMR	U5MR	Literacy Rate	GER Primary	GER Secondary
		Census	DRDA	DRDA	Census	DRDA	Health Department - Thoothukudi			Census	Education Department	
		2011	2013-14	2013-14 (habitations)	2011	2013-14	2013-14	2013-14	2013-14	2011	2013-14	2013-14
1	Thoothukudi	38.49	59.00	55.07	96.89	45.04	7.30	0	18	88.42	100.00	99.48
2	Karunukulam	29.05	51.00	94.2	92.95	86.32	10.20	90.4	12	74.55	100.00	98.15
3	Srivaikundam	33.42	50.42	73.83	93.08	75.51	11.38	143.1	18	83.24	99.95	98.80
4	Alwarthirunagiri	36.84	92.64	92.5	92.85	90	9.30	83.6	23	85.57	100.00	98.10
5	Tiruchendur	51.23	73.69	90	94.66	65.97	9.90	288.3	16	88.17	100.00	99.35
6	Udangudi	36.22	74.97	93.55	93.21	69.05	16.50	0	13	89.49	99.75	98.50
7	Sathankulam	31.15	66.87	96.45	92.54	81.93	8.50	123.9	8	88.16	100.00	98.00
8	Kovilpatti	52.81	62.59	72.89	95.02	62.33	30.54	0	56	77.62	99.95	98.50
9	Kayathar	32.35	56.87	66.67	94.13	85.72	13.11	69	20	66.02	100.00	99.45
10	Ottapidaram	26.47	23.00	95.85	92.19	95.74	15.90	0	29	73.95	99.95	98.88
11	Vilathikulam	26.05	20.46	93.79	89.78	64.65	8.89	70	11	72.53	100.00	98.93
12	Pudur	25.78	28.52	88.51	90.03	50.77	13.07	104	13	68.43	99.95	97.83
13	Corporation	62.76	99.70	100	99.00	87	6.00	57.7	23	91.68	99.65	98.75

Source: (1) Census of India, 2011, (ii) NBA, MDWS, New Delhi-2014, (iii) TNEB, (iv) Health and Education Department- 2013-14.

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Table 1.2 Block-wise Human Development Index

S. No.	Block	Standard of Living					Health			Education			Sectoral Index			Overall Index	Rank
		Cooking fuel	Toilet facilities	Drinking water	Electricity	Pucca House	IMR	MMR	U5MR	Literacy Rate	GER Primary	GER Secondary	Standard of Living	Health	Education		
1	Thoothukudi	0.386	0.499	0.109	0.884	0.082	0.953	1.000	0.813	0.899	1.000	1.000	0.273	0.919	0.965	0.623	8
2	Karunukulam	0.148	0.401	0.885	0.668	0.829	0.848	0.715	0.925	0.469	1.000	0.884	0.493	0.825	0.746	0.672	5
3	Srivaikundam	0.258	0.394	0.481	0.675	0.634	0.805	0.549	0.813	0.738	0.995	0.941	0.461	0.711	0.884	0.662	6
4	Alwarthirunagiri	0.345	0.913	0.851	0.662	0.896	0.880	0.736	0.720	0.811	1.000	0.880	0.692	0.776	0.893	0.783	2
5	Tiruchendur	0.709	0.680	0.802	0.762	0.461	0.859	0.091	0.851	0.891	1.000	0.989	0.671	0.405	0.959	0.639	7
6	Udangudi	0.329	0.696	0.872	0.682	0.517	0.619	1.000	0.907	0.932	0.976	0.915	0.588	0.825	0.941	0.770	3
7	Sathankulam	0.201	0.596	0.930	0.645	0.750	0.909	0.609	1.000	0.891	1.000	0.871	0.557	0.821	0.919	0.749	4
8	Kovilpatti	0.748	0.543	0.462	0.781	0.395	0.111	1.000	0.104	0.564	0.995	0.915	0.566	0.226	0.801	0.468	13
9	Kayathar	0.231	0.473	0.339	0.732	0.818	0.742	0.782	0.776	0.205	1.000	0.998	0.467	0.767	0.589	0.595	9
10	Ottapidaram	0.083	0.056	0.918	0.626	1.000	0.641	1.000	0.608	0.450	0.995	0.948	0.306	0.731	0.752	0.552	10
11	Vilathikulam	0.072	0.025	0.877	0.493	0.437	0.895	0.779	0.944	0.407	1.000	0.952	0.203	0.870	0.729	0.505	11
12	Pudur	0.065	0.124	0.772	0.507	0.185	0.744	0.672	0.907	0.279	0.995	0.856	0.226	0.768	0.620	0.476	12
13	Corporation	1.000	1.000	1.000	1.000	0.842	1.000	0.818	0.720	1.000	0.966	0.937	0.966	0.838	0.967	0.922	1

Source: Computed

Gender Inequality Index

Table 1.3 Block-wise GII Indicators

S. No.	Block	MMR	Institutional Deliveries	Ante Natal Coverage	Female Literacy	Male Literacy	Girls (0-6) Years	Boys (0-6) Years	Elected Representatives		Female WPR	Male WPR	Female WPR in Non-Agri	Male WPR in Non-Agri	Female Agri Wage Rate	Male Agri Wage rate
									Female	Male						
		2013-14	2013-14	2013-14	2011	2011	2011	2011	2011	2011	2011	2011	2011	2011	2013-14	2013-14
		Health Department			Census of India				(Localbodies/PAPD)		Census of India				Statistics Department	
		Rate	%	%	%	%	%	%	%	%	%	%	%	%	Rs.	Rs.
1	Thoothukudi	0	100.00	42.00	84.3	92.6	49.2	50.8	38.60	61.40	24.57	64.34	71.93	85.37	250.00	120.00
2	Karunukulam	90.4	100.00	39.00	89.4	81.8	49.1	50.9	53.70	46.30	38.04	65.49	37.42	48.95	250.00	150.00
3	Srivaikundam	143.1	100.00	41.00	92.5	87.8	48.8	51.2	39.17	60.83	28.69	66.11	52.27	62.20	250.00	150.00
4	Alwarthirunagiri	83.6	100.00	41.00	92.6	89.0	48.2	51.8	34.81	65.19	25.62	62.55	52.00	65.22	300.00	150.00
5	Tiruchendu	288.3	100.00	40.00	93.5	90.8	49.8	50.2	37.65	62.35	16.91	62.34	72.18	85.06	300.00	150.00
6	Udangudi	0	100.00	43.00	94.0	91.7	48.7	51.3	39.78	60.22	16.99	62.64	87.57	84.73	300.00	150.00
7	Sathankulam	123.9	100.00	41.00	93.1	90.5	48.8	51.2	42.49	57.51	25.2	62.55	66.76	70.83	300.00	150.00
8	Kovilpatti	0	100.00	40.00	90.1	83.7	49.4	50.6	39.71	60.29	37.98	66.04	68.17	80.29	200.00	120.00
9	Kayathar	69	100.00	26.00	83.2	74.5	48.9	51.1	39.69	60.31	51.48	68.81	28.79	45.55	200.00	120.00
10	Ottapidaram	0	100.00	14.00	87.6	80.7	48.8	51.2	43.63	56.37	45.09	65.79	27.64	50.88	200.00	120.00
11	Vilathikulam	70	100.00	20.00	87.8	80.2	48.8	51.2	45.18	54.82	42.65	68.14	35.85	69.13	200.00	120.00
12	Pudur	104	100.00	11.00	86.5	77.3	49.6	50.4	39.12	60.88	64.22	70.38	18.98	30.83	200.00	120.00
13	Corporation	57.7	99.70	41.00	88.9	94.5	49.1	50.9	34.43	66.57	16.29	64.84	97.72	98.88	-	-

Source: i) Health Department, (ii) Census of India, (iii) Local bodies/PAPD section- Collectorate and (iv) Department of Statistics

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Table 1.4 Block-wise GII Index

S. No.	Block	MMR	Institutional Deliveries	Ante Natal Coverage	Female Literacy	Male Literacy	Girls (0-6) Years	Boys (0-6) Years	Female Elected Representatives	Elected Representa.	Female WPR	Male WPR	Female WPR in Non-Agri	Male WPR in Non-Agri	Female Agri Wage Rate	Male Agri Wage rate
1	Thoothukudi	0.000	1.000	0.420	0.843	0.926	0.492	0.508	0.386	0.614	0.246	0.643	0.719	0.854	0.583	0.286
2	Karunukulam	0.111	1.000	0.390	0.894	0.818	0.491	0.509	0.537	0.463	0.380	0.655	0.374	0.490	0.583	1.000
3	Srivaikundam	0.070	1.000	0.410	0.925	0.878	0.488	0.512	0.392	0.608	0.287	0.661	0.523	0.622	0.583	1.000
4	Alwarthirunagiri	0.120	1.000	0.410	0.926	0.890	0.482	0.518	0.348	0.652	0.256	0.626	0.520	0.652	1.000	1.000
5	Tiruchendur	0.035	1.000	0.400	0.935	0.908	0.498	0.502	0.376	0.624	0.169	0.623	0.722	0.851	1.000	1.000
6	Udangudi	0.000	1.000	0.430	0.940	0.917	0.487	0.513	0.398	0.602	0.170	0.626	0.876	0.847	1.000	1.000
7	Sathankulam	0.000	1.000	0.410	0.931	0.905	0.488	0.512	0.425	0.575	0.252	0.626	0.668	0.708	1.000	1.000
8	Kovilpatti	0.000	1.000	0.400	0.901	0.837	0.494	0.506	0.397	0.603	0.380	0.660	0.682	0.803	0.167	0.286
9	Kayathar	0.145	1.000	0.260	0.832	0.745	0.489	0.511	0.397	0.603	0.515	0.688	0.288	0.456	0.167	0.286
10	Ottapidaram	0.000	1.000	0.140	0.876	0.807	0.488	0.512	0.436	0.564	0.451	0.658	0.276	0.509	0.167	0.286
11	Vilathikulam	0.143	1.000	0.200	0.878	0.802	0.488	0.512	0.452	0.548	0.427	0.681	0.358	0.691	0.167	0.286
12	Pudur	0.000	1.000	0.110	0.865	0.773	0.496	0.504	0.391	0.609	0.642	0.704	0.190	0.308	0.167	0.286
13	Corporation	0.000	0.997	0.410	0.889	0.945	0.491	0.509	0.344	0.666	0.163	0.648	0.977	0.989	-	-

Source: Computed

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Table 1.5 Block-wise GII Index

S. No.	Block	Female Health Indices	Male Health Indices	Female Emp Indices	Male Emp Indices	Female LF Indices	Male LF Indices	GF	GM	GFM	Health Bar	Emp Bar	LF Bar	GFM Bar	GII	Rank
1	Thoothukudi	0.000	1.000	0.543	0.754	0.379	0.429	0.000	0.686	0.000	0.500	0.649	0.404	0.508	1.000	7
2	Karunukulam	0.351	1.000	0.693	0.616	0.471	0.809	0.486	0.793	0.602	0.675	0.654	0.640	0.656	0.083	1
3	Srivaikundam	0.306	1.000	0.602	0.731	0.409	0.813	0.422	0.841	0.562	0.653	0.666	0.611	0.643	0.126	5
4	Alwarthirunagiri	0.366	1.000	0.568	0.762	0.506	0.791	0.472	0.845	0.606	0.683	0.665	0.649	0.665	0.090	3
5	Tiruchendur	0.240	1.000	0.593	0.752	0.411	0.790	0.388	0.841	0.531	0.620	0.673	0.600	0.630	0.157	6
6	Udangudi	0.000	1.000	0.612	0.743	0.412	0.791	0.000	0.838	0.000	0.500	0.677	0.602	0.589	1.000	7
7	Sathankulam	0.000	1.000	0.629	0.722	0.502	0.791	0.000	0.829	0.000	0.500	0.675	0.646	0.602	1.000	7
8	Kovilpatti	0.000	1.000	0.598	0.710	0.252	0.434	0.000	0.676	0.000	0.500	0.654	0.343	0.482	1.000	7
9	Kayathar	0.335	1.000	0.575	0.670	0.293	0.443	0.384	0.667	0.487	0.668	0.622	0.368	0.535	0.089	2
10	Ottapidaram	0.000	1.000	0.618	0.675	0.274	0.434	0.000	0.664	0.000	0.500	0.646	0.354	0.485	1.000	7
11	Vilathikulam	0.306	1.000	0.630	0.663	0.267	0.441	0.372	0.664	0.477	0.653	0.646	0.354	0.531	0.102	4
12	Pudur	0.000	1.000	0.582	0.686	0.327	0.448	0.000	0.675	0.000	0.500	0.634	0.388	0.497	1.000	7
13	Corporation	0.000	1.000	0.553	0.793	0.163	0.648	0.000	0.801	0.000	0.500	0.673	0.406	0.515	1.000	7

Source: Computed

Child Development Index

Table 1.6 Block-wise Child Development Indicators and Index in Thoothukudi District

S. No.	Block	Indicator of Child Development							
		Health			Education				
		U5MR	% of Malnourished Children	0-6 Sex ratio	Enrolment Rate		Children never Enroled in School	Transition Rate	
					Primary	Secondary		Primary to Upper Primary	Upper Primary to Secondary
		2013-14	2013-14	2011	2013-14				
1	Thoothukudi	18	970	13.33	100.00	99.48	0.70	98.67	99.62
2	Karunukulam	12	965	22.12	100.00	98.15	0.57	97.34	96.63
3	Srivaikundam	18	952	11.35	99.95	98.80	0.33	98.65	99.01
4	Alwarthirunagiri	23	929	8.11	100.00	98.10	0.24	98.75	99.26
5	Tiruchendur	16	992	6.98	100.00	99.35	0.13	98.77	99.83
6	Udangudi	13	948	3.25	99.75	98.50	0.32	98.75	99.66
7	Sathankulam	8	955	3.16	100.00	98.00	0.27	95.42	93.09
8	Kovilpatti	56	975	13.87	99.95	98.50	0.47	98.38	99.04
9	Kayathar	20	957	11.77	100.00	99.45	0.84	96.66	95.55
10	Ottapidaram	29	954	11.95	99.95	98.88	0.33	98.27	99.01
11	Vilathikulam	11	954	23.57	100.00	98.93	1.10	98.46	99.14
12	Pudur	13	983	10.06	99.95	97.83	0.43	98.09	98.21
13	Corporation	23	965	4.88	99.65	98.75	0.22	98.54	99.24

Source: i) Health Department and (ii) Education Department- 2013-14

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Table-1.7 Block-wise Child Development Indicators and Index in Thoothukudi District

S. No.	Block	Index value								CDI Index	Rank
		Health Index			Education Index						
					Enrolment Rate			Transition Rate			
		U5MR	%of Malnourished Children	0-6 Sex ratio	Primary	Secondary	Children never Enroled in School	Primary to Upper Primary	Upper Primary to Secondary		
1	Thoothukudi	0.779	0.858	0.494	1.000	1.000	0.407	0.008	0.013	0.570	10
2	Karunukulam	0.902	0.826	0.070	1.000	0.884	0.539	0.111	0.199	0.566	11
3	Srivaikundam	0.779	0.743	0.590	0.995	0.941	0.783	0.009	0.051	0.611	6
4	Alwarthirunagiri	0.676	0.594	0.746	1.000	0.880	0.875	0.002	0.036	0.601	7
5	Tiruchendur	0.820	1.000	0.800	1.000	0.989	0.987	0.000	0.000	0.699	2
6	Udangudi	0.881	0.717	0.980	0.976	0.915	0.793	0.002	0.011	0.659	3
7	Sathankulam	0.984	0.760	0.985	1.000	0.871	0.844	0.260	0.420	0.765	1
8	Kovilpatti	0.000	0.891	0.468	0.995	0.915	0.641	0.030	0.049	0.499	12
9	Kayathar	0.738	0.775	0.569	1.000	0.998	0.264	0.164	0.267	0.597	8
10	Ottapidaram	0.553	0.753	0.561	0.995	0.948	0.783	0.039	0.051	0.585	9
11	Vilathikulam	0.922	0.755	0.000	1.000	0.952	0.000	0.024	0.043	0.462	13
12	Pudur	0.881	0.939	0.652	0.995	0.856	0.682	0.053	0.101	0.645	5
13	Corporation	0.676	0.826	0.902	0.966	0.937	0.895	0.018	0.037	0.657	4

Source: Computed

Table 1.8 Block-wise Multi-Dimensional Poverty Indicators in Thoothukudi District

S. No.	Block	Health			Education		Living Standards				
		IMR	High Order Birth Rate	Malnourished Children	Drop out in Primary	Drop out in Secondary	Cooking fuel	Toilet facilities	Drinking water	Electricity	Pucca House
		2014	2013-14	2014	2013-14		2011	2013-14		2011	2013-14
1	Thoothukudi	7.30	14.50	13.33	1.00	2.30	38.49	59.00	55.07	96.89	45.04
2	Karunukulam	10.20	13.00	22.12	1.09	3.69	29.05	51.00	94.2	92.95	86.32
3	Srivaikundam	11.38	14.00	11.35	1.26	2.12	33.42	50.42	73.83	93.08	75.51
4	Alwarthirunagiri	9.30	16.30	8.11	1.10	1.65	36.84	92.64	92.5	92.85	90
5	Tiruchendur	9.90	13.90	6.98	0.93	3.73	51.23	73.69	90	94.66	65.97
6	Udangudi	16.50	16.20	3.25	0.20	4.50	36.22	74.97	93.55	93.21	69.05
7	Sathankulam	8.50	14.00	3.16	1.31	3.62	31.15	66.87	96.45	92.54	81.93
8	Kovilpatti	30.54	8.70	13.87	1.06	4.13	52.81	62.59	72.89	95.02	62.33
9	Kayathar	13.11	12.00	11.77	0.49	3.18	32.35	56.87	66.67	94.13	85.72
10	Ottapidaram	15.90	10.60	11.95	1.24	4.45	26.47	23.00	95.85	92.19	95.74
11	Vilathikulam	8.89	13.20	23.57	1.00	3.39	26.05	20.46	93.79	89.78	64.65
12	Pudur	13.07	7.70	10.06	1.27	4.72	25.78	28.52	88.51	90.03	50.77
13	Corporation	6.00	0.00	4.88	0.57	1.48	62.76	99.70	100	99.00	87

Source: i) Education Department, (ii) Census of India, 2011 (iii) NBA, MDWS-2014, (iv) TNEP, and (v) Health Department-2013-14

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Table 1.9 Block-wise Multi-Dimensional Poverty Indicators in Thoothukudi District

S. No.	Block	Health			Education		Living Standards					MDPI Value	1-Overall	Rank
							Access of							
		IMR	High Order Birth Rate	Malnourished Children	Drop out in Primary	Drop out in Secondary	Cooking fuel	Toilet facilities	Drinking water4	Electricity	Pucca House			
1	Thoothukudi	0.953	0.191	0.553	0.355	0.779	0.386	0.499	0.109	0.884	0.082	0.479	0.521	9
2	Karunukulam	0.848	0.275	0.167	0.283	0.405	0.148	0.401	0.885	0.668	0.829	0.491	0.509	8
3	Srivaikundam	0.805	0.219	0.640	0.146	0.828	0.258	0.394	0.481	0.675	0.634	0.508	0.492	7
4	Alwarthirunagiri	0.880	0.091	0.783	0.275	0.954	0.345	0.913	0.851	0.662	0.896	0.665	0.335	2
5	Tiruchendur	0.859	0.225	0.832	0.412	0.394	0.709	0.680	0.802	0.762	0.461	0.613	0.387	3
6	Udangudi	0.619	0.096	0.996	1.000	0.186	0.329	0.696	0.872	0.682	0.517	0.599	0.401	4
7	Sathankulam	0.909	0.219	1.000	0.106	0.423	0.201	0.596	0.930	0.645	0.750	0.578	0.422	5
8	Kovilpatti	0.111	0.515	0.530	0.307	0.286	0.748	0.543	0.462	0.781	0.395	0.468	0.532	11
9	Kayathar	0.742	0.331	0.622	0.766	0.542	0.231	0.473	0.339	0.732	0.818	0.560	0.440	6
10	Ottapidaram	0.641	0.409	0.614	0.162	0.200	0.083	0.056	0.918	0.626	1.000	0.471	0.529	10
11	Vilathikulam	0.895	0.264	0.104	0.355	0.485	0.072	0.025	0.877	0.493	0.437	0.401	0.599	12
12	Pudur	0.744	0.571	0.697	0.138	0.127	0.065	0.124	0.772	0.507	0.185	0.393	0.607	13
13	Corporation	1.000	1.000	0.924	0.702	1.000	1.000	1.000	1.000	1.000	0.842	0.947	0.053	1

Source: Computed

Table 1.10 Crude Birth and Death Rate			
S. No.	Block	CBR	CDR
		2014	2014
1	Thoothukudi	12.1	2.92
2	Karunkulam	13.1	5.77
3	Srivaikundam	13.5	3.88
4	Alwarthirunagiri	10.6	5.45
5	Tiruchendur	12.2	2.29
6	Udangudi	10.95	5.5
7	Sathankulam	10.78	2.42
8	Kovilpatti	30.6	11.7
9	Kayathar	14.2	7.0
10	Ottpidaram	15.9	6.2
11	Vilathikulam	13.4	6.7
12	Pudur	13.8	5.9
13	Corporation	16.1	1.94
District		16	5.8

Source: Health Department, Thoothukudi, 2014.

Table 1.11 Infant Mortality Rate (2013-14)		
S. No.	Block	2014
1	Thoothukudi	7.30
2	Karunkulam	10.20
3	Srivaikundam	11.38
4	Alwarthirunagiri	9.30
5	Tiruchendur	9.90
6	Udangudi	16.50
7	Sathankulam	8.50
8	Kovilpatti	30.54
9	Kayathar	13.11
10	Ottpidaram	15.90
11	Vilathikulam	8.89
12	Pudur	13.07
13	Corporation	6.00
District		17.5

Source: Health Department, Thoothukudi, 2014.

Table 1.12 Percentange of Institutinal Delivery in 2014								% of Institutional Deliveries
S. No.	Block	Home	Health Sub Centre	Primary Health Centre	GH	Private Hospitals	Total	
1	Thoothukudi	0	0	427	1566	681	2674	100
2	Karunkulam	0	0	386	565	265	1216	100
3	Srivaikundam	0	0	392	729	445	1566	100
4	Alwarthirunagiri	0	0	269	541	499	1309	100
5	Tiruchendur	0	2	228	637	761	1628	100
6	Udangudi	0	0	150	275	366	791	100
7	Sathankulam	0	0	151	341	447	939	100
8	Kovilpatti	0	0	515	1513	866	2894	100
9	Kayathar	0	0	400	799	326	1525	100
10	Ottpidaram	0	0	473	849	496	1818	100
11	Vilathikulam	0	0	572	227	437	1236	100
12	Pudur	0	0	503	391	100	994	100
13	Corporation	7	0	23	1121	2588	3739	99.7
District		7	2	4489	9554	8277	22329	99.9

Source: Health Department, Thoothukudi, 2014.

Table 1.13 Malnorished Children 0-5 during 2013-14							% of MUW+SUW
S. No.	Block	Normal Children (0-5 Years)	2014				
			*SUW Children		** MUW Children		
			0-5 Years	% of SUW	0-5 Years	% of MUW	
1	Thoothukudi	10377	5	0.04	1789	15.00	15.04
2	Karunkulam	4329	0	0.00	958	18.00	18.00
3	Srivaikundam	5511	4	0.06	799	13.00	13.06
4	Alwarthirunagiri	5958	2	0.03	504	8.00	8.03
5	Tiruchendur	6541	4	0.06	496	7.00	7.06
6	Udangudi	3856	0	0.00	92	2.00	2.00
7	Sathankulam	4049	3	0.07	130	3.00	3.07
8	Kovilpatti	8871	15	0.15	1320	13.00	13.15
9	Kayathar	6218	4	0.06	831	12.00	12.06
10	Ottpidaram	7777	20	0.23	905	10.00	10.23
11	Vilathikulam	3400	2	0.04	1108	25.00	25.04
12	Pudur	3530	16	0.40	479	12.00	12.40
13	Corporation	8069	9	0.11	386	5.00	5.11
District		78486	84	0.09	9797	11.05	11.14

Source: District Project Officer, ICDS, Thoothukudi, 2014.

Table 1.14 Percentage of Drinking Water facilities

S. No.	Block	% of Drinking Water (Habitations)
1	Thoothukudi	55.07
2	Karunkulam	94.2
3	Srivaikundam	73.83
4	Alwarthirunagiri	92.5
5	Tiruchendur	90
6	Udangudi	93.55
7	Sathankulam	96.45
8	Kovilpatti	72.89
9	Kayathar	66.67
10	Ottpidaram	95.85
11	Vilathikulam	93.79
12	Pudur	88.51
13	Corporation	100

Source: BDOs, Town Panchyats and Municipal Corporation, Thoothukudi, 2014.

Table 1.15 Literacy Rate during 2001 and 2011 in Thoothukudi District

S. No	Block	Literacy 2001			Literacy 2011		
		Persons	Male	Female	Persons	Male	Female
1	Thoothukudi	87.0	91.7	82.2	88.42	92.55	84.33
2	Karunkulam	75.0	85.1	65.7	81.85	89.41	74.55
3	Srivaikundam	84.3	90.1	78.8	87.81	92.48	83.24
4	Alwarthirunagiri	85.6	90.2	81.6	89.01	92.59	85.57
5	Tiruchendur	86.7	90.8	83.0	90.77	93.53	88.17
6	Udangudi	88.6	91.9	85.8	91.69	94.05	89.49
7	Sathankulam	85.6	88.9	82.9	90.54	93.15	88.16
8	Kovilpatti	79.0	87.8	70.6	83.69	90.11	77.62
9	Kayathar	67.4	79.0	56.7	74.49	83.19	66.02
10	Ottpidaram	75.2	84.2	66.5	80.75	87.57	73.95
11	Vilathikulam	74.8	84.8	65.4	80.15	87.82	72.53
12	Pudur	73.5	84.9	62.5	77.32	86.47	68.43
13	Corporation	-	-	-	91.68	94.45	88.90
District		81.5	88.3	75.1	86.16	91.14	81.33

Source: Census of India, 2001 & 2011.

Note: Corporation, BDOs, Towns Panchyats and Municipality are added in the respective rural blocks.

Table 1.16 Female Work Participation Rate

S. No	Block	Total Female Population	Total Female Worker	% of Female work Participation
1	Thoothukudi	53093	11491	21.64
2	Karunkulam	43487	14764	33.95
3	Srivaikundam	59059	15163	25.67
4	Alwarthirunagiri	60705	14032	23.12
5	Tiruchendur	68994	10403	15.08
6	Udangudi	38039	5864	15.42
7	Sathankulam	42214	9620	22.79
8	Kovilpatti	131790	45533	34.55
9	Kayathar	55853	25910	46.39
10	Ottpidaram	61550	24916	40.48
11	Vilathikulam	47682	21322	44.72
12	Pudur	36796	18305	49.75
13	Corporation	185893	27045	14.55
District		885155	244368	27.61

Source: Census of India, 2001 & 2011.

Note: Corporation, BDOs, Towns Panchyats and Municipality are added in the respective rural blocks.

Construction of Indices

Introduction

The latest UNDP Report-2010 on HDI continues to adopt the same basic three indicators of education, health and standard of living/income for the calculation of HDI. Simultaneously, an effort was also made to arrive at Gender Inequality Index. To compute HDI, 10 indicators were used covering the area of living standard, education and health.

HDI presents information on the human development in three dimensions while GII provides information gender differentials in achievements.

Indicators for HDI

The indicators that may be used for deriving HDI at the block level are as follows:

Indicators for measuring HDI

Dimensions	Indicators
Living standards	Percentage of HHs having access to Cooking fuel
	Percentage of HHs having access to Toilet
	Percentage of habitations having access to Drinking Water
	Percentage of HHs having access to Electricity
	Percentage of HHs having access to Pucca house
Health	Infant Mortality rate
	Maternal Mortality Ratio
	Under 5 Mortality Rate
Education	Literacy Rate
	Gross Enrolment Rate (Primary And Gross enrollment in secondary) Schools

There are three indicators for measuring health, three for education and five for standard of living. All these indicators reflect human development.

Method of Estimating HDI

For the estimation of the HDI, the following steps may be followed:

1. All computations would be done at two stages. The first computation would help in understanding the relative positions of different blocks within the district. The second set of computation would relate to the position of a block with reference to other blocks

   As a first step, a minimum and maximum value has to be set for each of the above 11 indicators to transform them into indices lying between zero and one. For this purpose, the observed minimum and maximum figures for each of the indicators will be taken. Since the Geometric Mean has to be calculated, in the case of a positive indicator, the minimum value would be taken as 10 per cent less than the observed minimum value in the block similarly, in the case of a negative indicator, the maximum value would be taken as 10 per cent more than the observed maximum value.

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Method of Estimating HDI

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2. The index value (in the case of a positive indicator) can be calculated using the formula –

   Index Value = (Actual Value – Min. Value) / (Max.Value – Min.Value)

   Eg: calculations will be based on highest values being assigned highest ranking
3. The index value (in the case of a negative indicator) can be calculated by using the formula –

   Index Value = (Max. Value – Actual Value) / (Max.Value – Min.Value)

For Computing sectoral indices (health, education and standard of living) geometric mean is to be used and the method of calculation is as below. Thus there will be three indices one for Standard of living, another for health and the last for education.

Sectoral Index = If I_1. I_2….. I_n are the n indices for a particular sector, then the Geometric mean for the sector = $(I_1 \times . I_2 \times \ldots . I_n)^{(1/n)}$.

4. To compute HDI, aggregate the three sectoral indices using geometric mean with the following formula.

   HDI= $(SI_l \times SI_h \times SI_e)^{(1/3)}$; where SI_l is the sectoral index for living standard, SI_h is the sectoral index for health and SI_e is the sectoral index for education.

Construction of Gender Inequality Index (GII)

Introduction

GII measures the loss in potential of human development due to inequality between female and male achievements. As it reflects an inequality situation, a value of zero represents no inequality and a value of one represents highest level of inequality in the society. The UNDP report of 2010 has brought out the GII index for all the countries.

Indicators considered for measuring GII

Dimensions	Indicators
Health	Maternal Mortality Rate (MMR)
	Share of Institutional deliveries (ID)
	Ante-natal coverage
Empowerment	Share of female and male elected representatives in Urban and Rural Local Bodies (PR_F and PR_M)
	Share of female and male literacy (LIT_F, LIT_M)
	Share of Female and Male Children (0-6) years
Labour market	Share of female and male Work Participation Rate (WPR_F, WPR_M)
	Share of female and male workers in the non agricultural sector (NAG_F, NAG_M)
	Female and male Agricultural wage rate ($WAGE_F$, $WAGE_M$)

Method

1. Aggregating across dimensions within each gender group using geometric mean.

For females

$$G_F = \sqrt[3]{\left[\left(\frac{1}{MMR}\right)\times ID \times ANE\right]^{1/3} * \left[PR_F \times CHLD_F \times LIT_F\right]^{1/3} * \left[WPR_F \times NAG_F \times WAGE_F\right]^{1/3}}$$

For Males

$$G_M = \sqrt[3]{1 * \left[PR_M \times CHLD_M \times LIT_M\right]^{1/3} * \left[WPR_M \times NAG_M \times WAGE_M\right]^{1/3}}$$

2. Aggregating across gender group using a Harmonic mean.

$$HARM(G_F, G_M) = \left[\frac{(G_F)^{-1} + (G_M)^{-1}}{2}\right]^{-1}$$

3. Calculate the geometric mean of the Arithmetic means of the each indicator

$$G_{\overline{F},\overline{M}} = \sqrt[3]{\overline{health}.\overline{empowerment}.\overline{LFPR}}$$

Where $$\overline{health} = \left[\frac{\left[\left(\frac{1}{MMR}\times ID \times ANE\right]^{1/3} + 1\right]}{2}\right]$$

$$\overline{empowerment} = \frac{\left[PR_F \times CHLD_F \times LIT_F\right]^{1/3} + \left[PR_M \times CHLD_M \times LIT_M\right]^{1/3}}{2}$$

$$\overline{LFPR} = \frac{\left[WPR_F \times NAG_F \times WAGE_F\right]^{1/3} + \left[WPR_M \times NAG_M \times WAGE_M\right]^{1/3}}{2}$$

4. Calculating the GII by comparing the equally distributed gender index to the reference standard. The GII value ranges from zero (no gender inequality across dimensions) to one (total inequality across dimensions)

$$GII = 1 - \frac{HARM(G_F, G_M)}{G_{\overline{F},\overline{M}}}$$

Construction of Child Development Index (CDI)

Introduction

Child Development Index (CDI) is an index combining performance measures specific to children - education, health and nutrition - to produce a score on a scale of 0 to 100. A zero score would be the best. The higher the score, the worse children are faring.

The Child Development Index (CDI) was developed by the campaign in UK, "Save the Children" in 2008 through the contributions of Terry McKinley, Director of the Centre for Development Policy and Research at the School of Oriental and African Studies (SOAS), University of London, with support from Katerina Kyrili.

The indicators which make up the index are chosen because they are easily available, commonly understood, and clearly indicative of child well-being. At the international level, the three indicators used for measuring child development index are.

Indicators for Child Development

In the preparation of District Human Development reports , the following indicators would be used to measure the CDI:

Dimension	Indicator
Health	U5MR
	Child Sex Ratio(0-6)
Nutrition	Percentage of Malnourished Children
	Enrollment in Primary and Secondary
Education	Children never enrolled in schools
	Transition rate from Primary to Upper Primary and Upper Primary to Secondary

Computation of Child Development Index

- The indicators have been broadly categorised under the 3 parameters that influence the HDI.
- All the above indicators are negative and positive in nature.

  The index value (in the case of a positive indicator) can be calculated using the formula –

  Index Value = (Actual Value – Min. Value) / (Max.Value – Min.Value)

  Eg: calculations will be based on highest values being assigned highest ranking

  The index value (in the case of a negative indicator) can be calculated by using the formula –

  Index Value = (Max. Value – Actual Value) / (Max.Value – Min.Value)
- The index values for each of the indicators would range between 0 and 1 - 0 indicating the lowest ranking for the blocks and 1 indicating highest ranking of the block
- The Child Development Index would be the average of the index values of the three indicators – with highest value indicating better child development.
- The composite index is the average of the consolidated index values of all sectors and this is to be used to assign the ranks for the blocks within the district.

Multidimensional Poverty Index

Indicators

Dimension	Indicator
Health	IMR
	Higher order Birth
	Malnourished Children
Education	Drop out in primary and secondary
Living Standards	Access to cooking fuel
	Access to toilet facilities
	Access to drinking water
	Access to Electricity
	Pucca house

Computation of Multidimensional Poverty Index

- The indicators have been broadly categorised under the 3 parameters that influence the HDI.
- All the above indicators are negative and positive in nature.
- The index value (in the case of a positive indicator) can be calculated using the formula –

  Index Value = (Actual Value – Min. Value) / (Max.Value – Min.Value)

  Eg: calculations will be based on highest values being assigned highest ranking
- The index value (in the case of a negative indicator) can be calculated by using the formula –

  Index Value = (Max. Value – Actual Value) / (Max.Value – Min.Value)
- The index values for each of the indicators would range between 0 and 1 - 0 indicating the lowest ranking for the blocks and 1 indicating highest ranking of the block
- The composite index is the average of the consolidated index values of all sectors and this is to be used to assign the ranks for the blocks within the district.

Abbreviations

$	Dollars
A.D	Anno Domini
ABL	Activity Based Learning
AIDS	Acquired Immune Deficiency Syndrome
AIE	Academy of Interactive Entertainment
ALIMCO	Artificial Limbs Manufacturing Corporation of India
ANC	Antenatal Care
ARWSP	Accelerated Rural Water Supply Programme
AWL	Acceptable Work Load
B.Ed.,	Bachelor of Education
B.F.Sc.,	Bachelor of Fisheries Science
BARC	Bhabha Atomic Research Centre
BCG	Bacillus, Calmettee, Guerin
BDOs	Block Development Officers
BMI	Body Mass Index
BPL	Below Poverty Line
BRICS	Brazil, Russia, India, China, South Africa
BRTEs	Block Resource Teacher Educators
BSNL	Bharat Sanchar Nigam Limited
CAL	Computer Aided Learning
CBOs	Community Based Oganizations
CBR	Crude Birth Rate
CC	Cement Concrete
CDI	Child Development Index
CDPOs	Child Development Project Officers
CDR	Crude Death Rate
CEO	Chief Educational Officer
CFA	Customer Application Forms
CHN	Community Health Nursing
CLIP	Children Language Improvement Programme
CSTs	Community SHG Trainers
CSWI	Committee on the Status of Women in India
CTD	Cumulative Trauma Disorder
CTs	Census Towns
DADWO	District Adi-Dravidar & Tribal Welfare Officer
DALP	Destitute Agricultural Laborers' Pension

DEP	Distance Education Programme
DFS	Double Fortified Salt
DHDR	District Human Development Report
DIET	District Institute of Education
DIPP	Department of Industrial Policy and Promotion
DISE	District Information System for Education
DMMU	District Mission Management Unit
DPCC	District Project Coordination Committee
DPEP	District Primary Educationn Programme
DPO	District Planning Officer
DPT	Diphtheria, Pertussis, Tetanus
DRDA	District Rural Development Authority
DWP	Destitute Widows Scheme
ECG	Electrocardiogram
EDP	Entrepreneurial Development Programme
EDT	Entrepreneur Development Training
EDUSAT	Educational Satellite
EER	Elementary Education Register
EFA	Education for All
EGC	Electro Cardiogram
ENT	Ear, Nose & Throat
EO	Executive Officer
ESI	Employee's State Insurance
FC & RI	Fisheries College and Research Institute
FDI	Foreign Direct Investment
FIRs	First Information Reports
G.U. Pope	George Uglow Pope
GDDP	Gross District Domestic Product
GDI	Gender Development Index
GDP	Gross Domestic Product
GEM	Gender Empowerment Measure
GER	Gross Enrolment Ratio
GII	Gender Inequality Index
GNP	Gross National Product
GSM	Global System for Mobile
GSDP	Gross State Domestic Product

HAV	Hepatitis A Virus
HDI	Human Development Index
HDR	Human Development Report
HH	Households
HIV	Human Immuno deficiency Virus
HoD	Head of the Department
HSCs	Health Sub-Centers
HWP	Heavy Water Plant
I.T.Is	Industrial Training Institutes
IAY	Indira AwaasYojana
ICAR	Indian Council of Agricultural Research
ICDS	Integrated Child Development Service
ICT	Information and Communication Technology
ICU	Intensive Care Unit
IFA	Iron and Folic Acid
IFAD	International Fund for Agricultural Development
IGNOAP	Indira Gandhi National Old Age Pension Scheme
ILIP	Integrated Learning Improvement Programme
IMR	Infant Mortality Rate
IMSC	Integrated Men Sanitary Complex
INR	International Normalized Ratio
IRDP	Integrated Rural Development Programme
ISO	International Organization for Standard
KGBV	Kasturba Gandhi Balika Vidyalaya
Km	Kilometre
KMTR	Kalakkad-Mundanthurai Tiger Reserve
KSY	Kishori Shakthi Yojana
LEB	Life Expectancy at Birth
LIC	Life Insurance Corporation
LPG	Liquified Petroleum Gas
M.F.Sc.,	Master of Fisheries Science
M.S. University	Manonmaniam Sundaranar University
MDGs	Millennium Development Goals
MDPI	Multi-Dimensional Poverty Index
MDT	Madurai Diraviyam Thayumanavar
MDWS	Ministry of Drinking Water and Sanitation

MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MGR	Marudhur Gopalan Ramachandran
MIDS	Madras Institute of Development Studies
MLAs	Members of Legislative Assembly
mm	millimetre
MMR	Maternal Mortality Rate
MPN	Most Probable Number
MPs	Members of Parliament
MRC	Maritech Research Centre
MREC	Maritech Research and Extension Centre
MTNL	Maha Nagar Telecom Limited
MW	Mega Watt
NA	Not Available
NABARD	National Bank for Agriculture and Rural Development
NAIP	National Agricultural Innovation Project
NBA	Nirmal Bharat Abhiyan
NCERT	National Council of Educational Research and Training
NCLP	National Child Labour Programme
NDDP	Net District Domestic Product
NE	North East
NFC	Nuclear Fuel Complex
NFHS	Family Health Survey Survey
NGOs	Non Governmental Organizations
NH	National Highways
NLC	Neyveli Lignite Corporation
NMP	Noon Meal Program
NPE	National Policy Education
NRBCs	Nucleated Red Blood Cells
NREGS	National Rural Employment Guarantee Scheme
NRLM	National Rural Livelihood Mission
NRSTCs	Non-Residential Special Training Centers
NSSO	National Sample Survey Organization
OAP	Old Age Pension
OLS	Ordinary Least Square
OOSCs	Out of School Children

PACCS	Primary Agricultural Cooperative Credit Society
PAPD	Personal Assistant to Panchayat Development
PCO	Public Call Office
PDS	Public Distribution System
PG	Post Graduate
Ph.D.,	Doctor of Philosophy
PHCs	Primary Health Centers
PLF	Panchayat Level Federation
PLI	Postal Life Insurance
PMGSY	Pradhan Mantri Gram Sadak Yojana
PO	Project Officer
PPH	Post Partum Haemorrhage
PPP	Purchasing Power Parity
PPP$	Purchasing Power Parity in dollars
PTRs	Pupil-Teacher Ratios
PWD	Public Works Department
R&D	Research & Development
RCH	Reproductive and Child Health
RD	Rural Development
REC	Rural Electrification Programme
RLBs	Rural Local Bodies
RMNP	Revised Minimum Needs Programme
RPLI	Rural Postal Life Insurance
RSTCs	Residential Special Training Centres
RTE	Right to Education
SBGF	State Balanced Growth Fund
SBR	Still Birth Rate
SC	Scheduled Caste
SDPO	Senior District Planning Officer
SEZ	Special Economic Zone
SGRY	Sampoorna Grameen Rozgar Yojana
SGSY	Swarnjayanti Gram Swarozgar Yojana
SHG	Self Help Group
SHN	State Health Notes
SIDCO	Small Industries Development Corporation
SJSRY	Swarna Jayanthi Shahari Rozgar Yojana

SOAS	School of Oriental and African Studies
SPC	State Planning Commission
SPIC	South Indian Petrochemical Industrial Corporation
SSA	Sarva Shiksha Abhiyan
SSIs	Small Scale Industries
SSLC	Secondary School Leaving Certificate
ST	Scheduled Tribe
TAC	Thoothukudi Alkali Chemicals
TAHDCO	Tamil Nadu Adi Dravidar Housing Development Corporation
TANUVAS	Tamil Nadu Veterinary and Animal Sciences University
TANGEDCO	Tamil Nadu Generation and Distribution Corporation
TB	Tuberculosis
TEUS	Twenty-Foot Equivalent Unit Ship
TFR	Total Fertility Rate
TNAU	Tamil Nadu Agricultural University
TNCDW	Tamil Nadu Corporation for Development of Women
TNEB	Tamil Nadu Electricity Board
TPs	Town Panchayats
TSC	Total Sanitation Campaign
TTPS	Thoothukudi Thermal Power Station
TV	Television
TWAD	Tamil Nadu Water Supply and Drainage
U5MR	Under 5 Mortality Rate
UEE	Universalization of Elementary Education
ULBs	Urban Local Bodies
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESD	United Nations Education for Sustainable Development
UNLD	United Nations Literacy Decade
US	United States
USAID	U.S. Agency for International Development
V. O. Childambaam	Valliappan Olaganathan Chidambaram
VAS	Visual Analogue Scale
VHN	Village Health Nurse
WBM	Water Bound Macadam

WHO	World Health Organisation
WHTR	Waist to Height Ratio
WIFS	Weekly Iron and Folic Acid Supplementation
WPR	Work Participation Rate

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