District Human Development Report - 2017

Chennai District

State Planning Commission
Tamil Nadu

CHENNAI

DISTRICT HUMAN DEVELOPMENT REPORT 2017

Corporation of Chennai, Chennai, and
State Planning Commission, Tamil Nadu
in association with Loyola Institute of
Business Administration.

Contents

ANIL MESHRAM, I.A.S.,
Member Secretary

State Planning Commission,
Ezhilagam, 5th Floor,
Chepauk, Chennai – 600 005.
Tel : (044) 28545460, Fax: 28545485
e-mail : msspc@tn.nic.in

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 achieving accelerated, innovative and inclusive growth.

The State Planning 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 Growth Fund to address backwardness. As a sequel, 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.

ANIL MESHRAM
MEMBER SECRETARY
STATE PLANNING COMMISSION

VIKRAM KAPUR, I.A.S.
Principal Secretary / Commissioner
Corporation of Chennai

Ripon Building,
16, E.V.R. Periyar Salai,
Chennai - 600 003.
Off. No. : +91-44-2561 9200/2538 1330
Fax No. : +91-44-2538 3962
commissioner@chennaicorporation.gov.in

PREFACE

The Human Development Report of Chennai is a maiden attempt by Chennai Corporation and State Planning Commission to comprehensively study and document the human development in Chennai during recent times. In the Human Development Report, with its aim to place 'people' at the centre of the development process in terms of economic growth, policy and advocacy, it is attempted to have a macro-view of the various components that make up the human development indicators in accordance with the UNESCO recommendations.

It may be noted that the data on socio economic perspectives was largely from census 2011 at a disaggregated level for what has been published till March 2015. Further, Corporation of Chennai has widened its jurisdiction in October 2011. There has been an addition of five zones taking the total from 10 to 15. In the process, there has been a reorganization of 10 zones. The study has used data of the erstwhile 10 zones which were prevailing during census 2011 and does not consider data of the reorganized limits. However, this should not invalidate the inferences which are drawn from the study primarily because the socio-economic characteristics are not altogether different even after reorganization.

The report takes us through the important dimensions that make up a district's overall development that includes employment, income, poverty, education, health, gender, social security and infrastructure. A district that has progressed well on these fronts is supposed to be a sustainable district.

A cursory glance at the report throws some important insights into the Chennai's overall development. To start with, per capita income, which is one of the important indicators of a state or a district's wealth, for the year 2011-12 is Rs.66,240 which is greater than the per capita income of TN, which stands at Rs.63,996. Chennai has historically grown to attract investment and employment opportunities. It has one of the largest number of factories in the country and has acquired the name as a hub for production of automobiles. Its work participation rates is among the highest in the country as well.

From a health perspective, the adult sex ratio is widely claimed to be an important indicator of gender preferences among the community, gender mortality and so on. The adult sex ratio has improved from 957 in 2001 to 986 in 2011 in the district. This is marginally less than the Tamil Nadu average of 996. Infant Mortality Rate of Chennai has reduced from 9.1 in 2007 to 8.2 in 2011 and further down to 7 in 2013-14 which is a welcome change.

Chennai has performed well in the educational front as well. The overall district literacy rate is at 90.18 in 2011, an increase from 85.33 in 2001. Notably, Chennai's Gross Enrolment Rate in primary is 100.73 in 2011-12 which is just marginally higher than the ideal GER of 100. The transition rate from primary to upper primary has also improved to 99.85% in 2013-14. Another notable point is that the drop-out rate in primary is reduced to 1.02% in 2013-14. This could be attributed to the various initiatives taken by the SSA and the Chennai Corporation which incidentally runs schools across the city providing quality education to close to one lakh students from the lower strata of the society.

On the other important dimension of infrastructure, the district has shown marked improvements. The study shows that there has been a consistent effort by the Corporation and other stakeholders towards increased mobility in the district. One good example for this is the Kathippara junction, which is one of the largest cloverleaf grade separators in Asia. The Rail network is also being improved with the Chennai Metro already under operation. This is expected to ease the congestion in the roads and improve connectivity between different locations.

The report thus gives a detailed insight into various dimensions of human development in Chennai. I am sure this is HDR, which is an outcome of thorough research and analysis, will provide considerable data to various stakeholders such as policy makers, local bodies, academics, NGOs and for everyone who is interested in learning about human development in the city of Chennai.

Principal Secretary/Commissioner

PRINCIPAL SECRETARY
AND COMMISSIONER
CORPORATION OF CHENNAI

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The preparation of the Chennai 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.

This Human Development Report has been prepared with the support and encouragement of numerous people. We wish to express thanks to all those who contributed in many ways to the preparation of the report.

First of all we would like to express our sincere thanks to Tmt. Santha Sheela Nair, IAS (Retd), Former Vice Chairman, State Planning Commission, Government of Tamil Nadu for constantly reviewing the progress of this exercise and for supplementing with valuable suggestions. We are extremely indebted to Thiru M. Balaji, IAS, the then Member Secretary, State Planning Commission, who initiated this exercise and also our thanks is due to Thiru Anil Meshram, IAS, Member Secretary, State Planning Commission for providing all necessary administrative support and resources to accomplish the task.

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The preparation of the DHDR was possible owing to the untiring efforts of the study team which gathered good deal of qualitative and quantitative information. We are thankful to research assistants Mr.Dharani Vendhan, Mr.Gopikrishnan and Mr.Jeevarathnam for their full cooperation and commitment.

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Lastly we acknowledge with a deep sense of appreciation, unremitting cooperation and help of all the officers and staff of the State Planning Commission and Corporation of Chennai, without whom the present endeavour would not have achieved fruition.

Authors:
Dr.N.Chandrasekaran
Dr.A.Indira
Dr.M.Ramasubramaniam
Dr.P.Chandiran

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1

CHENNAI – A PROFILE

Introduction

Tamil Nadu in South India is one of the most rapidly industrialising and urbanising State of India. As per Census 2011, 48.4% of the State's population lived in urban areas, an increase of over 27% from 2001. The Capital city of Tamil Nadu is Chennai. The old name 'Madras' was officially changed to Chennai in 1996. The State language is Tamil. Other languages such as Telugu, English, Malayalam, Urdu and Hindi are widely spoken in Chennai. As per the 2001 census, Hindus formed 81.3 per cent of the total population, Muslims made up 9.4 per cent and Christians 7.6 per cent.

Chennai is one of the 32 districts in Tamil Nadu which is fully urban (100%) in character. Chennai is well connected by all means of transportation. It is one of the cities in India that is connected by the Golden Quadrilateral system of National Highways. Chennai hosts the headquarters of the Southern Railway. The International Airport in Chennai is the third busiest airport and the second busiest cargo terminus in India. The city is also served by three major ports - Chennai Port, one of the largest artificial ports in India; Ennore Port designed as Asia's energy port is the 12th major and first corporatised port in India and the third Kattupalli Shipyard cum Captive Port Complex which is a private-sector backed development.

The Chennai metropolis (with latitude between $12^0$50'4" and $13^0$17'24" and longitude between $79^0$58'53" and $80^0$20'12") lies on the Coromandal coast. The coast line stretches to 25.6 kilometres, which includes the natural Marina Beach of length 5.6 kilometres. In the recent past Chennai's urban expansion has been southwards. It is bound on the east by the Bay of Bengal, and northwards, it touches the boundary of Andhra Pradesh. The Old Mahabalipuram Road (OMR) has been the seat of urban expansion, expanding the frontiers of the city towards the World Heritage site and tourist attraction of Mahabalipuram. Parallel to this is the East-Coast Road that has also witnessed some development over recent years. South Chennai has since been growing as an IT corridor; in this process of expansion, the city has engulfed several fishing and

agricultural villages and hamlets – of which Chennai has traditionally been an agglomeration. The city is facing challenges of urbanisation as it grows beyond its carrying capacity.

Topography

Chennai is a low-lying flat coastal plain with an average elevation around 6.7 metres (22 ft.), and its highest point is 60 metres (200 ft.). Two major rivers meander through Chennai, the Cooum river through the centre and the Adyar river to the south. A protected estuary (Poonga) on the Adyar forms a natural habitat for several species of birds and animals. A third river, the Kortalaiyar, flows through the northern fringes of the city before draining into the Bay of Bengal, at Ennore. The Buckingham Canal, 4 km (2.5 miles) inland, runs parallel to the coast, linking the two rivers. The Otteri Nullah, an east–west stream, runs through north Chennai and meets the Buckingham Canal at Basin Bridge.

Chennai has a tropical climate with mean annual temperature of 24.3 to 32.9 °C. The hottest part of the year is late May to early June with maximum temperatures around 35–40 °C. The coolest part of the year is January with minimum temperatures around 15–22 °C. The humidity is usually in the range of 65 to 84%. Prevailing winds in Chennai are usually south westerly between April and October and northeasterly during the rest of the year.

The northeast monsoon brings the rains during the months of October, November and December. The average annual rainfall is 1200 mm. Historically Chennai has relied on annual monsoon rains to replenish water reservoirs, as no major rivers flow through the area. Cyclones in the Bay of Bengal sometimes hit the city. Chennai's soil is mostly clay, shale and sandstone. Sandy areas are found along the river banks and coasts. The ground water table in Chennai is at 4-5m below ground in most of the areas which has considerably improved and maintained through the mandatory rain water harvesting system.

The indigenous trees found include among others neem, mango, tamarind, rain-tree, vagai, banyan, coconut, palm and pipal. Stretches of casuarina plantations can be seen on the sea-coast beyond the mouth of the Adyar in the South and Tondiarpet in the North.

Chennai is classified as being in Seismic Zone III, indicating a moderate risk of damage from earthquakes. However it is exposed to relatively high risk from cyclones (1^{st} -4^{th}decile) and floods (5^{th} -7^{th}decile) followed by drought (8^{th}-10^{th}decile).

History

Many areas of modern Chennai like Mylapore, Triplicane, Saidapet and Thiruvanmiyur go back a long way before 1600s. But the history of Chennai City under the British starts with Mr. Francis Day, the founder of Madras. Mr. Day secured a Grant of the village of Madrasapattinam in August 1639 from the Nayak brothers, local chieftains under the Rajah of Chandragiri, a descendant of the Rayas of Vijayanagar. The Grant was for a period of two years empowering the English to build a fort and castle in that place. Settlers were attracted and encouraged to build houses with a promise of exemptions from import taxes for a period of thirty years. The settlement grew steadily. Soon efforts were made to regulate and administer the town. During the time of Governor Streynsham Master (1678-81) an attempt had been made for conservancy of the streets. Watchmen were appointed for going round the streets in the nights. Tavern-keepers, places of entertainment and others had to be licensed. During the Governorship of Mr. Yale (1687-92) a Mayor and Corporation were instituted in the City by a Charter of the Company under permission from King James. The Corporation of Chennai was established on the 29th September 1688. This made it one of the oldest municipal administrations in India. By the Parliamentary Act of 1792, the Corporation of Chennai was given the power to levy municipal taxes in the City and it was resolved to order an assessment of five per cent to be collected from the inhabitants on the estimated annual rents of the houses. It was now that the town cleaning duties were entrusted to the officers known as Surveyors and Collectors, under whom conservancy work was to be done by contract. The first organized census of Madras city and its environs was undertaken in 1871 as a part of the India Census. Madras had a total population of 397,552 in 1871 making it India's third most populous city after Calcutta and Bombay. It was also the fifth largest city in the British Empire. The Ripon Building, commissioned in 1913, houses the Chennai Corporation.

Box 1.1 - Historical Events at a Glance

1639 Madras founded by English bought from AyyapaNaicker.
1640 Foundation laid for Fort St. George.
1688 Madras City Municipal Corporation inaugurated.
1711 First Printing Press erected in Madras.
1784 The First Newspaper –Madras Courier.
1785 First Post Office.
1826 Board of Public Instructions founded.
1831 First Commercial Bank –Madras Bank.
1831 First Census in the City Population 39,785.
1834 First Survey School – Later developed as Engineering College.
1835 First Medical College – Later became Madras Christian College.
1841 Ice House was built –Ice brought from America through ships was stored here; Later named as Vivekananda House.
1842 First Light House.
1851 Museum formed
1853 Zoo formed.
1856 First Railway –Royapuram to Arcot.
1857 Madras University founded.
1873 First Birth Registered. Madras Mail Newspaper founded.
1876-78 Buckingham Canal dug.
1878 The Hindu Newspaper founded.
1882 First Telephone.1885 Marina Beach Road formed.
1886 Connemera Public Library founded.
1899 First Tamil Newspaper-Swadesamitran.
1905 Port Trust formed.
1906 Indian Bank founded. King Institute, Guindy founded.
1914 Water mains and drainage formed. Street lights introduced.
1925 First Bus Transport.
1934 First Mayor - Raja Sir. MuthiahChettiyar
1938 All India Radio formed.
1942 Second World War - Evacuation of Madras.
1947 Indian National Flag Hoisted over Fort. St. George.
1972 Madras Metropolitan Development Authority.
1973 Madras Corporation Superceded.
1977 Madras Metropolitan Water supply and Sewage Board.
1988 Madras Corporation's Tri-centenary. Decentralisation of Administration.10 Circles formed.

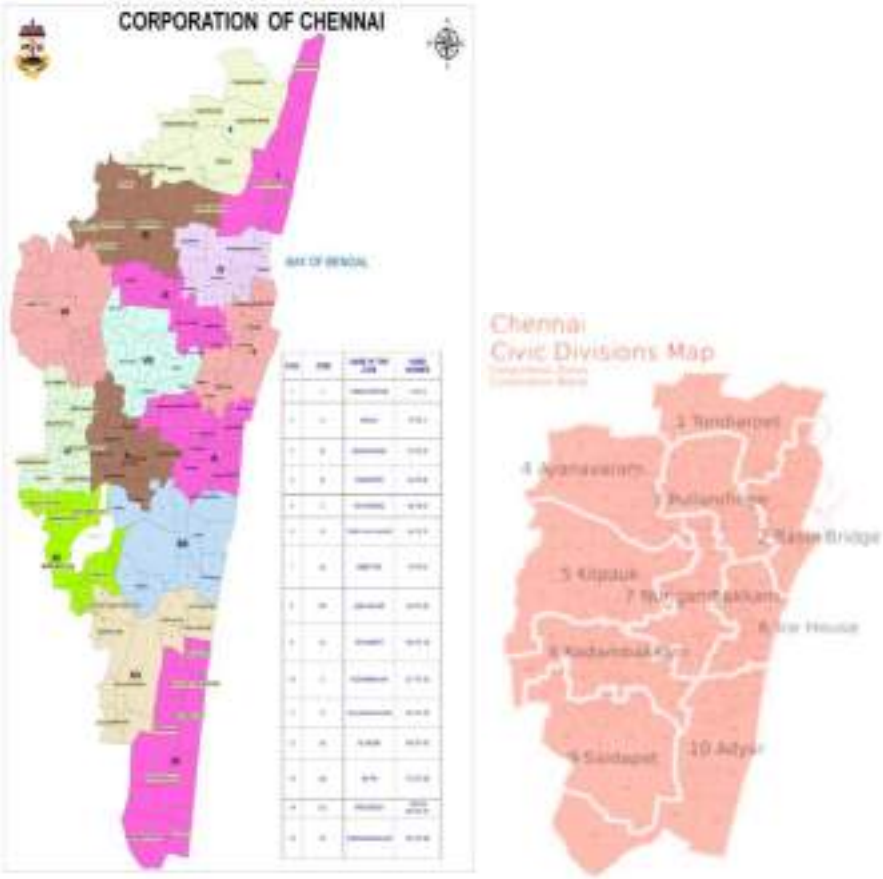
Source: http://www.chennai.tn.nic.in/chnhistevents.htm retrieved on 21.2.2014

Art, Architecture and Culture

The city is a confluence of the various architectural styles visible across the various Dravidian style temples of yore. The Indo-saracenic styles is evident with the buildings which came during the period of English – the Madras High Court, University of Madras, Southern Railway Headquarters, National Art Gallery and Ripon Building to name a few. The city also has the new temples of architecture such as the Tidel Park, a one million square feet Information Technology Park and many other green buildings. Chennai acts as the gateway to numerous tourist destinations in the state and other southern states. It is home to the Theosophical Society, the Kalakshetra and colleges of Arts and Crafts.

The city is known for its appreciation of art and most notably the music season 'Margazhi' during the month of December every year. It has been the stronghold of cinema in the South of India. It also stands out today for medical tourism. The city hosted 1,22,16,881 number of domestic tourists, and 6,68,439 number of foreign tourists in 2011.

District Map



Source: http://www.chennaicorporation.gov.in

Chennai ranks first among all the districts in the state in population density per square kilometre which has increased from 24,963 in 2001 to 26,903 in 2011. The population density of Chennai is next only to Delhi and higher than in Mumbai and Kolkata. In 2011 Chennai was the fourth largest urban agglomeration(UA) in India with a continuous urban spread over the three districts of Thiruvallur, Chennai and Kancheepuram. Among the urban agglomerations of Tamil Nadu, Chennai ranked first followed by Coimbatore, Madurai and Tiruchirappalli. It leads with respect to population and population density figures.

It had a total of 86,96,010 persons, of which 43,89,200 were male and 43,06,810 were female. Chennai district (Municipal Corporation) alone had a total population of 46,81,087 persons which constituted 6.49% of the total state population. The total numbers of males were 23,57,633 and females were 23,23,454. The district showed a growth of 7.77% in its population between 2001 and 2011. The city saw the highest percentage of decadal variation in the decades 1941-51 (59.8%) and 1961-71(45.2%). With respect to sex ratio, Coimbatore (996), Madurai (954) and Tiruchirappalli (1015) fare much better than Chennai. Both Coimbatore (964) and Tiruchirappalli (968) fare better with respect to child sex ratio (0-6 years). Madurai (91.06%) and Tiruchirappalli (91.02%) have a higher literacy rate than Chennai Urban Agglomeration.

TABLE 1.1 – DISTRICT BASIC DEMOGRAPHIC INDICATORS

Sl.No.	Indicators	2001	2011
1	Population	43,43,645	46,81,087
2	Decennial Growth (%)	13.07	7.77
3	Density of population per sq.km.	24,963	26,903
4	Urban population (%)	100	100
5	Sex ratio	957	989
6	Percentage of 0- 6year old	9.97	9.81

Source: Census 2001, 2011

In 1971, the city was the core of the Chennai Metropolitan Area (CMA) showing a radial and ring pattern of development. Over a period, the economics of transportation led to formation of development corridors, the most important of which were on the west and southwest where physical conditions were more favourable for development. The industrial areas lay within the city mainly in the northern (Ennore and Manali) and western parts (Ambattur and Avadi) where they were closely mixed with residential developments. The newer industrial establishments were located outside the city limits and many important industries were in the outskirts. As a part of the First Master Plan for CMA, spatial plans were developed to decongest the core. Accordingly, the mofussil bus terminal was relocated along with the wholesale fruit and flower markets to

Koyambedu; iron and steel market at Sathangadu and a truck terminal at Madhavaram was made operational.

Prior to its expansion in 2011, the Chennai city occupied an area of 174 km^2 (67 sq miles) with ten zones. These remain one of the oldest parts of the city. Each of the zones has a presence of their own. Zone 1, Tondiarpet is located in the northern outskirts and close to the nearby sea that is Bay of Bengal. The place shares its boundaries with other important regions of Chennai including the city centre, George Town. Trade and commerce flourishes in the many manufacturing and distributing enterprises abundantly found at Tondiarpet. The region has a good number of export houses which primarily deals with silk apparels and jewellery. A good number of outlets merchandising plastic ware and metal ware are prevalent in the suburbs. The region also houses the fishing harbour. The Fish Marketing Office is also situated here. A major development project was completed in 2004 by the Corporation of Chennai which included installation of public toilets, Corporation schools, gymnasia and health centres.

Zone 2, Basin Bridge at the confluence of the Otteri Nullah and Buckingham Canal in Chennai is one of the moderately populated zones but with a higher proportion of economically poor population. The Buckingham Canal is a major source because of high pollution. Considering that the Otteri Nullah and Buckingham Canal are badly maintained this area is also known for the high susceptibility to malaria.

Zone 3, Pulianthope is an area which comprises of Hindus and Marwaris (30%) and by Muslims (70%). It was thought to be a backward area but has grown economically. The major industries are plastic scrapes, waste recycling industries. Zone 4, Ayanavaram is one of the many localities of Chennai and is located in West Chennai about 8 kilometres from the city centre. The Konnur High Road, one of the important connecting roads in Chennai runs through Ayanavaram. Ayanavaram is one of the peripheral commercial areas of Chennai housing carriage and locomotive workshops where the coaches and locomotives of the Southern Railway are repaired. A Technical Training Centre is also located here.

Zone 5, Kilpauk is a semi residential area, formerly a cantonment area under the British before independence. It features a number of commercial establishments dealing with the manufacturing of packaging materials, wood carvings, chemical suppliers, cement exporters and suppliers. It is also known for deluxe and budget lodges and catering facilities. The area around is also marked by a number of medical care units. The Kilpauk Medical College, located within the suburbs, is a reputed institute. Many I.T. training schools are located at Kilpauk. Zone 6, Ice

House area derives its name from the 'Ice House' built to keep ice imported from United States under proper insulation during the English Period. The building still stands better known as Vivekananda House, where Vivekananda stayed for a while after his return from United States. This area is one of the oldest areas near the Beach. The area also covers a few fishing hamlets.

Zone 7, Nungambakkam neighbourhood is abound with multi-national commercial establishments, important government offices, foreign consulates, sprawling educational institutions, shopping malls, sporting facilities, tourist spots, star hotels, restaurants, and cultural centers. Nungambakkam is also a prime residential area in Chennai. The Valluvar Memorial is one of the principal tourist attractions in the city. The central suburb of Nungambakkam is provided with some well-established schools and colleges. Zone 8, Kodambakkam is a residential neighbourhood famed as the centre of the Tamil film industry. The neighbourhood is served by Kodambakkam railway station of the Chennai Suburban Railway Network.

Prior to its incorporation in Madras city, Zone 9, Saidapet functioned as the administrative headquarters of Chengleput district. The Saidapet Court, the only other court of judicature in Chennai city apart from the Madras High Court and the Saidapet bus depot are located here. Saidapet is basically a residential area with markets, schools, small health care units and other small establishments. Zone 10, Mylapore is one of the oldest residential part of the city known for its tree-lined avenues, the seventh-century Kapaleeswarar Temple, Santhome Basilica, Kacheri season and Ramakrishna Math. It is known as a cultural hub and neighbourhood for the southern part of the city of Chennai.

In 2011 Chennai Corporation absorbed seven municipalities, three town panchayats and 13 panchayat unions in Tiruvallur district and two municipalities, five town panchayats and 12 panchayat unions in Kanchipuram district. As a consequence its area more than doubled into a combined area of 426 km^2 (164 sq mi). The town panchayats were ChinnaSekkadu, Puzhal, Porur, Nandambakkam, Meenambakkam, Perungudi, Pallikaranai and Sholinganallur. The panchayat unions brought into the fold included Edayanchavady, Sadayankuppam, Kattapakkam, Theeyampakkam, Mathur, VadaPerumbakkam, Surapet, Kathirvedu, Puthagaram, Nolambur, Karambakkam, Nerkundram, Ramapuram, Mugaliwakkam, Manapakkam, Kottivakkam, Palavakkam, Neelankarai, Injambakkam, Karapakkam, OkkiamThoraipakkam, Madipakkam, Jaladampet, Semmanchery and Uthandi. A total of nine municipalities merged into the city – Alandur, Ambattur, Kathivakkam, Madhavaram, Maduravoyal, Manali, Tiruvottiyur, Ullagaram – Puzhuthivakkam and Valasaravakkam.

The newly annexed areas were divided into 93 wards, and the remaining 107 wards were created out of the original 155 within the old city limits. The expanded city was re-organised into 15 zones consisting of 200 wards. For Public and Administrative convenience, the expanded City with 15 zones has now been divided into three regions, each region consisting of five zones. The Northern Region consists of Zones 1 to 5 with 63 wards. The Central Region consists of Zones 6 to 10 with 79 wards. The Southern Region consists of Zones 11 to 15 with 58 wards.

The Madras Municipal Corporation Act, 1919 (as amended) provides the basic statutory authority for the administration at present. The Municipal Act has been amended from time to time resulting in major changes in the constitution and powers of the Corporation. In the year 1973, the Government of Tamil Nadu dissolved the Council of the Corporation of Chennai and appointed a Special Officer to carry out the functions of the Council and the Standing Committees. For 23 years, the Corporation of Chennai functioned under Special Officers and in the year 1996, subsequent to the 74th Constitutional Amendment introduced in 1994, elections were held. For the first time the Mayor was directly elected by the people through elections and so was the Council. However, the Deputy Mayor was elected by the council members. The term for the Mayor, Deputy Mayor and the Council was changed from a period of three years in 1973 to five years since 1996.

The Corporation is governed by a Mayor, a Deputy Mayor and a Council of 200 elected members called the councillors. There are also six standing committees consisting of councillors for functions such as Taxation and Finance, Appointments, Town Planning, Health, Works and Accounts and Audit. The Mayor is elected through direct election by the people. The executive wing is headed by the Commissioner. There are Deputy Commissioners and various Heads of Departments and 15 Zonal Officers at present.

Economy

Tamil Nadu is among the most industrialised states, ranking next to Maharashtra in terms of the contribution made by manufacturing sector to the State Domestic Product. It has the largest number of factories in the country and the largest number of workers employed in the manufacturing sector. Its work participation rates are among the highest in the country and are high for both male and female workers in both rural and urban areas. Over the years 1960s to 2001, the state has seen a striking phenomenon in the slow growth of its primary sector which grew at a rate of just above 1% per annum. The secondary and tertiary sectors have grown at rates which are nearly 3.5 times and above the rate registered by the primary sector. The growth however has been seen in select urban centres like Chennai, Coimbatore and Tiruchirappalli.

TABLE 1.2: SECTORAL DISTRIBUTION OF GROSS DISTRICT DOMESTIC PRODUCT-2011-12(Rs.Lakhs)

	Primary	Secondary	Tertiary	Total
Chennai	32,418	4,18,185	27,04,457	31,55,060
Tamil Nadu	38,72,767	1,30,39,248	2,64,11,788	4,33,23,803

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

The sectoral distribution in Chennai shows negligible primary sector (less than 1%). The industry forming the secondary sector is discussed below. It is seen that over a period of time, there has been growing concentration of tertiary sector (10%).

Industry

Traditionally Tamil Nadu is one of the well-developed States in terms of industrial development. In the post-liberalisation period, Tamil Nadu has emerged as one of the frontrunners by attracting a large number of investment proposals. Small Scale Industries have played an important role in the district economy by providing large-scale employment opportunities at relatively low capital investment. Chennai, the capital of the State, is one of the fast developing districts of Tamil Nadu in terms of industrial development.

The manufacturing sector of Chennai comprises large industries such as petrochemicals and chemical industry, electrical and automobile and related ancillary industries. It has come to be known as the automobile capital of India with the presence of international car manufacturers. Ambattur and Manali are some of the larger industrial estates in Chennai Metropolitan Area which house multi-product industries. The city also houses the Integral Coach Factory at Perambur and Heavy Vehicles Factory at Avadi. Small industrial estates at Guindy, Thirumazhisai and Thirumudivakkam house medium and small scale industries. Chennai has a large base of leather industry (largely footwear) and accounts for 50% of the total exports of the country. A cluster of chemical industries is located in Manali. An export processing zone spreading over an area of 261 acres is located at Tambaram for apparel and other exports.

The metropolitan region comprises of large automobile engineering, glass and ceramic industries which are located at Maraimalai Nagar, Irungattukottai, Sriperumbudur, Thiruvallur and Gummidipoondi. The industries having an impact on the economic development of Chennai Metropolitan Area include the car manufacturers such as Ford, Hyundai and General Motors. There is also Saint Gobain Glass factory at Sriperumbudur, Mahindra Industrial Park has developed over an area of 1300 acres.

Chennai is also a preferred destination for Information Technology (IT) /Information Technology Enabled Services (ITES) and houses all the top IT Indian multinational companies. The Tidel Park, with a combined area of 2.5 million sq.ft. is an established self-contained IT park housing all the major players in the IT sector. There is another IT park being developed at Siruseri and a Knowledge Industrial Township at Sholinganallur, making Tamil Nadu the second largest software exporter in the country after Karnataka.

TABLE 1.3- INDUSTRIAL SCENARIO OF CHENNAI 2010-11

Particular	Value
Registered Micro manufacturing units	11,185
Registered micro service units	16,967
Registered small manufacturing units	2,288
Registered small service units	5,730
Registered medium manufacturing units	139
Registered medium service units	796
Total employment by MSME	2,29,467
Total investment on plant and machinery by MSME (‘billion)	16.4

Source: Brief Industrial Profile of Chennai District 2012-13, MSME-DI Chennai

There are about 35 medium and large scale industries in the district manufacturing a variety of products catering to the domestic as well as international markets. Depending on these medium and large scale industries, development of small scale industries has taken place in the district. Compared to other districts in the State, Chennai remains in the forefront in terms of industrial development. As on March 31, 1991 there were only 16,326 permanently registered small scale units in Chennai district which grew to 40,300 as on March 31, 2001. These units are engaged in the manufacture of a wide range of products catering to the needs of domestic as well as international markets.

In recent years, Chennai district has helped Tamil Nadu see a healthy growth in the number of micro, small and medium enterprises (MSME) that have outstripped the overall industrial growth (Table 1.3). The total employment generated by MSME in 2010-11 was 2,29,467. The total investment on plant and machinery by the enterprises was to the tune of Rs.16.4 billion.

TABLE 1.4 -MAJOR CLUSTERS IN CHENNAI

Name of cluster	Location	Products manufactured	Micro & small units (nos)	Medium & large (nos.)	Production (Rs.cr.)
Plastic	Guindy, Ekkaduthangal and area around Chennai	Moulds and dies, auto components, electronic packaging and transport, household items, etc	2,480	20	1,400
Pharma	Chennai	Indian system of medicinal products (Siddha, Ayurvedic)	100	2	50
Ready-made garments	Chennai	Ready-made garments	669	20	400
Auto components/ engineering	Guindy, Ekkaduthangal and area around Chennai	Engine and engine parts, electrical equipments, etc	500	107	4,200
IT & ITES	Chennai	Software and IT enabled services	500	N.A	1,325
Printing	Chennai	All types of printing	1000	20	1,500

Source: Brief Industrial Profile of Chennai District 2012-13, MSME-DI Chennai

Chennai city is actually spread over a large urban area through the spread of its population. The major industrial estates in Chennai include Guindy set up in 1958 with a total area of 404.08 acres; Arumbakkam (1979) with an area of 3.92 acres; Villivakkam (1979) with 2.04 acres and Kodungaiyur (1979) with 7.88 acres. Chennai has a diverse economic base with both the manufacturing and service sectors contributing to its economic growth(Table 1.4).The major manufacturing industries include automobiles (including auto components), hardware, textiles, printing, andplastics, while the major service sectors include IT& ITeS sectors, repair and servicing of motor vehicles, healthcare, medicaltourism, and film industry (Kollywood, the second largest movie industry in India).

Income

TABLE 1.5 - PER CAPITA INCOME (Rs.)

Year	District	State
2011-12	66,240	63,996

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

It is observed that the relatively slow rate of growth of population in the state of Tamil Nadu in the post-independence period has facilitated the higher per capita income growth in the Statewhen compared to the country as a whole for the period after the early sixties. From the mid-eighties onwards, the per capita income in the state witnessed a sharp increase, growing at a rate significantly higher than the all-India rate. Steady increase in Gross State Domestic Product (GSDP) as well as a sharp fall in the birth rate has contributed to this phenomenon. With a per capita income of Rs.38,435 in 2005-06, the State was ranked seventh among all states in India.

The per capita income in Chennai at constant prices grew from Rs.46,029(2005-06) to Rs.66,240(2011-12). It is seen that the growth for Chennai has been higher than that of the State. However the per capita income of Chennai is lower than its neighbours, namely Kancheepuram with per capita income of Rs.92,713 (2011-12) and Thiruvallur with Rs.83,594 (2011-12). The three other nearby districts include Vellore with Rs.63,185 (2011-12), Thiruvannamalai (Rs.41,569) and Villupuram (Rs.35,295).

Gross District Domestic Product

In 2011-12, Chennai had a share of 7.28% in the State's GDDP. Interestingly Chennai also had 7% of the population of the state. The per capita income of Chennai (Rs.66,240/-) was higher than that of the State in 2011-12.

TABLE 1.6–GROSS DISTRICT DOMESTIC PRODUCT(at Constant (2004-05) Prices) (Rs. in lakhs)

Year	2007-08	2008-09	2009-10	2010-11	2011-12
GDDP	2502290	2621764	2739075	3022290	3155060

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

The tertiary sector (85.72%) contributed more to GDDP of the district than both secondary (13.25%) and the primary sector (1.03%). The share of tertiary sector to the State's GDDP from Chennai was 10.24%, secondary sector was 3.21% and the primary sector was the least at 0.84%.

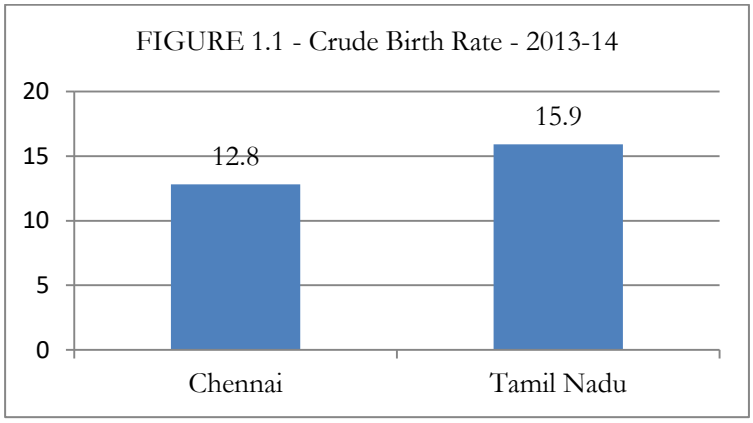
Hunger and Poverty

The 66th round of National Sample Survey Organisation (NSSO) data shows that the total population living below the poverty line is 1.21 crore in Tamil Nadu, which is 17.1 per cent of the total population. The percentage of the population living below the poverty line in rural and urban areas is 21.2 and 12.8 per cent respectively. But this has further declined and as of 2011-12, as per the Poverty estimates of Planning Commission, the percentage of population living below the poverty line showed a decline to 15.83% in rural areas and 6.54% in urban areas.

One of the indicators to understand hunger measured in terms of the proportion of malnourished children (aged 0-5 years) was 48.4% in Tamil Nadu in 1990, as compared to 56.9% for all India. This decreased to 39% in 2000-01. As of 2013-14, the U5MR figures for Chennai stood at 0.60.

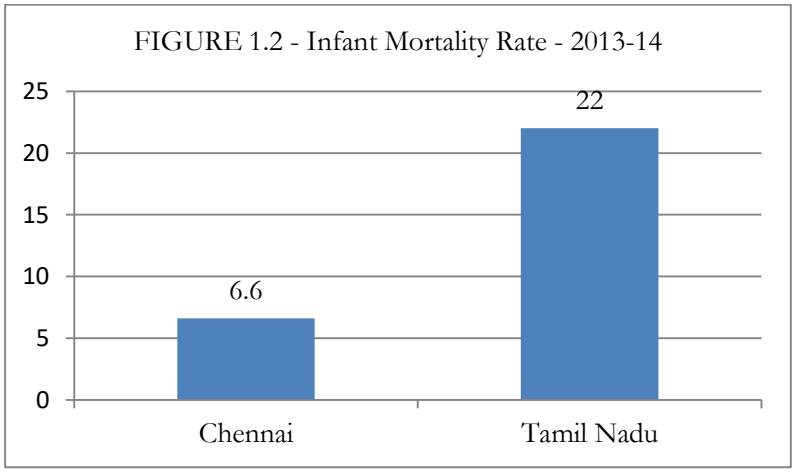
Social Sector

Health



Source: Corporation of Chennai

The percent of live births where mothers received medical attention at delivery showed a healthy trend for Tamil Nadu with 88.6% in 2009. For Chennai, it was 100%. This when the other States showing a (>90%) were the states of Andhra Pradesh, Goa, Karnataka, Kerala, Punjab and Sikkim.Life expectancy at birth in the periods 2006-10 for Tamil Nadu was 67.10 for males and 70.90 for females. The IMR figure for Chennai in 2013-14 was 6.60.



Source: District Family Welfare Department, Corporation of Chennai

The targets relating to health and women in Tamil Nadu for the XII five year plan was to reduce IMR to 13 and MMR to 44. It is seen that Tamil Nadu together with Kerala and Maharashtra realised the All India MDG target in 2007-09 for MMR figures. At the all India level, there was a 35% decline in MMR from 327(1999-2001) to 212 (2007-09), the target for 2015 being 138.35. Tamil Nadu figures showed a steady decline from 111(2004-06) to 97 (2007-09), the target set for 2015 was 74.60. The area of Chennai Municipal Corporation showed an MMR of 32.90 for 2013-14.

Literacy and Education

Statistics show that literacy rate in 2011 stands at 90.18% when compared to 85.33% during 2001. The male literacy rate was 93.7% and the female literacy rate was 86.64% in Chennai district. The total literates in Chennai stood at 3,776,276 out of which 1,968,079 were males and 1,808,197 were females. Gross Enrolment Ratio at the primary level in Chennai was 100.73, a figure which was well on track for the achievement in 2015. This also needs to be seen in the light that the specific Twelfth Plan targets relating to education in Tamil Nadu were to reduce the dropout rates at the elementary school level to zero, and increase literacy rate to 90%.

Human Development Indicators

Tamil Nadu is one of the most socially developed States in India. In 2001, Tamil Nadu's HDI was 0.657 as compared to 0.571 for India as a whole. As per the Human Development Report of Tamil Nadu, 2003 the State was in the third position with an HDI value of 0.531 among 15 major states. The State fared well above the all-Inda average on each of the indicators such as life expectancy at birth (LEB), literacy and income. It did however lag behind some states such as Kerala for the dimensions of literacy and LEB and Maharastra for LEB and income.

In 2003, Chennai district was the first among all the 32 districts in the state. Chennai's HDI value (0.757) was because of a high per capita income, literacy rate and life expectancy in comparison to other districts. Chennai also figured as the top most districts for GDI (0.766). The other districts which were in the top five but below Chennai were Kanniyakumari, Thoothukkudi, Coimbatore and Nilgiris. The GDI for TN was 0.654 as against the all-India value of 0.56 (HDR 2002). It was seen that Tamil Nadu's achievement in gender equality was better than the country as a whole.

In 2011, as per the Overview for the XII FYP 2012-17, the HDI calculations for the State showed that Chennai remained as one of the top five districts in the states. Chennai had a HDI of 0.817, the highest among all districts. Its per capita income (PCI) at Rs.57,387 (2008-09) was however well below the other districts. Kanniyakumari came second with a HDI score of 0.812 with PCI of Rs.68,459. Coimbatore with HDI of 0.802 had a PCI of Rs.65,478. Virudhunagar was fourth with HDI score of 0.795 and PCI of Rs.63,978. Thiruvallur stood fifth with HDI 0.776 and PCI of Rs.61,621. Thoothukkudi fared better in terms of HDI with 0.789 but a lower PCI of Rs.59,880. It is interesting to note that all the districts had higher PCI than Chennai. Overall, Tamil Nadu had PCI of Rs.48,216. The HDI score for the state was 0.765, which was lower than that of Chennai.

Conclusion

The city of Chennai had featured in the 2009 World Development Report as an example for the economic advantages of agglomerations in developing countries. Since then the city has grown further and it is now even termed as a megapolis. The ever growing city faces problems of insufficient infrastructure. There are changing dynamics brought about by new migrants and newer industries. Hence it becomes important to understand the social, ecological and environmental impacts of the changes to help better planning, use and development of resources. The city's civic authorities have strived to plan and act towards understanding urbanisation over the years. In this process, this is the first Human Development Report for the District of Chennai.

For this report, data on socio economic perspectives were largely taken from Census 2011. Our study has used data of 10 zones which existed during Census 2011. We have sought to use data at the disaggregate level from what has been published till March 2015. It may be noted that Corporation of Chennai widened its jurisdiction in October 2011 taking the total from 10 to 15 zones. In this process, there has been a reorganization of the earlier 10 zones. Data for the new zones has not been considered here.

Over the next few chapters we will see how the productive resources have been used towards overall human development in Chennai District.

CHAPTER 2
EMPLOYMENT, INCOME AND POVERTY

CHAPTER

2

EMPLOYMENT, INCOME AND POVERTY

Introduction

The Twelfth Five Year Plan (XII FYP) Overview of Tamil Nadu has a vision that aims towards making the State one of India's most prosperous and progressive states by 2023 together with the status of being poverty-free. It also lays the foundation for the Vision 2023 Strategic Plan for infrastructure development in Tamil Nadu. The plan aims to achieve an overall growth rate of 11% per annum. Towards this the strategic objectives for the industrial sector have been put as follows: (a) make Tamil Nadu a global investment destination for automobile and auto parts, textiles, leather, engineering goods; (b) make the State a global destination of choice for Information Technology (IT) and Information Technology Enabled Services (ITES); (c) special emphasis on sunrise sectors like bio-technology, nano-technology, pharmaceuticals, solar and clean energy; (d) attract investments in the ship building industry; (e) generate 15 lakhs direct and indirect additional employment opportunities in Micro, Small and Medium Enterprises (MSME) during the XII plan period; (f) enhance the competitiveness and scalable capacity of the MSME and (g) promote industrial development in rural areas.

Chennai District as the Capital city of Tamil Nadu is in the forefront when it comes to attracting investments in electronics, glass and telecommunication. There are large numbers of high-tech engineering and research institutions making available skilled personnel in various disciplines such as aeronautical/avionics engineering, auto industry, textiles, pharmaceuticals and information technology.

The effect of this growth in terms of employment, income and poverty issues is studied in this chapter. Under employment, the size of the workforce, workers participation rate and the sectoral composition of workers is discussed. It also discusses the growth of the per capita income and prevalence of poverty in the district.

Employment

Chennai, in 2011 was the fourth largest urban agglomeration(UA) in India with a continuous urban spread over the three districts of Thiruvallur, Chennai and Kancheepuram. In terms of population and population density figures, Chennai is ranked first followed by Coimbatore, Madurai and Tiruchirappalli, the other major urban agglomerations in Tamil Nadu. This was not always so. Between 1991 and 2001, Chennai grew at 0.94 per cent which was much less than for urban India as a whole. But since then many investments have attracted many people into the city for employment prospects. This is visible in the form of large scale construction activities of building and considerable conversion of residential premises into non-residential mostly office, shopping, hotels for commercial purposes.

Size of the Workforce

The employment status of males and females in Chennai in 2009-10, as per the broad activity groups of agriculture, mining and quarrying, manufacturing, electricity and water, construction, trade, hotel and restaurant and transport can be ascertained from the NSS Report (66th Round). The report showed that 49.5% were regularly employed (those who received salary or wages on a regular basis while working for others). There was a decline from 54.5% in 2004-05 to 49.5% in 2009-10. The cities of Delhi (81.4%) and Greater Mumbai (72.7%) had a greater percentage of regularly employed than Chennai. Among the female workforce, 63.4% were regularly employed, higher than males in 2009-10. This was also higher than the Urban India figure which stood at 39.7%.

Coming to the self-employed (those who were engaged independently), nearly 25.7% were self-employed in Chennai. And nearly 24.8% were employed as casual labour (those who received wages according to the terms of daily or periodic contract). Across India (as per NSSO 66th round) nearly 41% were self-employed in 2009-10. It was seen that the number of self-employed in Chennai was lesser than in Delhi M.C (urban) (46.5%), Bengaluru (41.1%), Hyderabad (31.2%) and Mumbai (29.5%). The percentage of self-employed in Chennai showed fluctuations. It was 29.3% in 1999-2000, grew to 35.1% in 2004-05 and again fell to 25.7% in 2009-10.

There was however a rise in casual labour from 10.4% in 2004-05 to 24.8% in 2009-10. This could possibly be attributed to the in-flow of migrants in search of work. In comparison, the casual labour in 2009-10 in other cities showed lower figures than Chennai - Greater Mumbai

(2.9%), Delhi M.C (2.3%) and All-India (17%). The casual labour figures fell in Bengaluru from 18.6% in 2004-05 to 11.8% in 2009-10.

Among females, the number of self-employed and casual labour is lesser than that of males. The number of self-employed has steadily declined over the years from 27.3% (1999-2000) to 22.6% (2004-05) to 18.8% (2009-10). The casual labour has grown in the same period from 11.2%(1999-2000) to 17.9% (2009-10). The number of casual labour seems to be comparable to the urban-India figure which stood at 19.6% in 2009-10. A brief note on the migration pattern is given in Box 2.1.

Box 2.1 Migration

No of in-migrants

UA	Popn 2001	In-migrants			Total in-migrants	% of in-migrants to total population
		From within the state	From other states	From other countries		
India (Urban)	286119689	24974372	11157574	348060	36480006	12.7
Greater Mumbai	16434386	892706	1571181	25665	2489552	15.1
Delhi	12877470	77663	1988314	46386	2112363	16.4
Chennai	6560242	334972	94964	5684	435620	6.6

Source: Census 2001

It is seen that there are migrants into the city for employment. Majority of the in-migrants from within the state come from the adjoining districts of Salem, Trichy, Cuddalore, Kanyakumari and Madurai. Those coming from outside the state are mainly from Andhra Pradesh and Kerala.

A sizeable number of these people have moved into the outskirts of the city, many of the lesser income groups are seen more in the areas of Tondiarpet and Pulianthope.

The Census 2001 reported that 27.4% in Tamil Nadu are internal migrants moving from one urban area to another for work, while about 23.3% migrated from rural to urban areas. In contrast, the out-migrants from Tamil Nadu as per Census 2001 was 6,74,304.

In 2001, the out-migrants from Chennai was around 10.34 lakhs. This change was noted through the conversion of residential property to commercial space like shopping malls and other activities. As of 2007-08 (NSS Report No.533), 10.8% of all persons were out-migrants from Tamil Nadu. Most out-migration happened within the state to other districts (48.4%), within the same district (23.7%) and outside the state(16.2%). One of the major reasons for out-migration was for employment related reasons(49.3%).

Composition of workers in major sectors

Next one could discuss the employment opportunities available with respect to the total time one worker was working in an year. These could be classified as main workers (those who had worked for six months or more); marginal workers (those who had worked less than 6 months) and so on. It is seen that there has been a change in Chennai in the composition of the workers during the period 2001 to 2011.

TABLE 2.1 – TOTAL WORKERS AND NON-WORKERS - 2001

SI.No	Zone	Total Worker	Main Worker	Marginal Worker	Non Worker	Total Population
		2001	2001	2001	2001	2001
1	Tondiarpet	136510	128006	8504	273826	410336
2	Basin Bridge	120908	111891	9017	254779	375687
3	Pulianthope	145237	128097	17140	314326	459563
4	Ayanavaram	162609	150213	12396	334168	496777
5	Kilpauk	190277	177339	12938	351855	542132
6	Ice House	116656	108967	7689	225149	341805
7	Nungambakkam	124135	116505	7630	223763	347898
8	Kodambakkam	166656	159140	7516	299728	466384
9	Saidapet	149407	137059	12348	265928	415335
10	Mylapore	175969	163540	12429	311759	487728
	Total	1488364	1380757	107607	2855281	4343645

Source: Census 2001

TABLE 2.2 – TOTAL WORKERS AND NON-WORKERS - 2011

SI.No	Zone	Total Worker	Main Worker	Marginal Worker	Non Worker	Total Population
		2011	2011	2011	2011	2011
1	Tondiarpet	176924	156501	20423	291264	468188
2	Basin Bridge	146504	129997	16507	249944	396448
3	Pulianthope	193046	168527	24519	326154	519200
4	Ayanavaram	213231	191712	21519	347252	560483
5	Kilpauk	236802	212331	24471	361512	598314
6	Ice House	122972	108270	14702	189534	312506
7	Nungambakkam	118582	102389	16193	170759	289314
8	Kodambakkam	201588	177294	24294	287393	488981
9	Saidapet	184040	174077	9963	286656	470696
10	Mylapore	223608	198456	25152	318967	542575
	Total	1651661	1619554	197743	2829435	4646705

Source: Census 2011

From Table 2.1 and Table 2.2, it was seen that the overall population in the ten zones increased in absolute numbers from 43,43,645 to 46,46,705, an increase of nearly 7 per cent in ten years. The total workers increased by 1,63,297 in absolute numbers in all the ten zones put together. This increase was nearly 10% from 2001 to 2011. But it was seen that the number of marginal workers have increased more than the main workers. Whereas the main workers have grown at 17% between 2001 and 2011, the increase in marginal workers is nearly 83%. The number of non-workers has declined.

TABLE 2.3 - COMPOSITION OF WORKERS: 2001 - 2011

Occupational Structure	2001	2011
Total Population	4343645	4646705
Total Main Cultivators	15149	10210
Total Main Agricultural Labourers	5849	10251
Total Main Workers in Household Industries	25836	29143
Total Main Other Workers	1333923	1569950
Total Marginal Cultivators	2026	4244
Total Marginal Agricultural Labourers	1233	3423
Total Marginal Workers in Household Industries	5156	8202
Total Marginal Other Workers	99192	181874

Source: Census 2001, 2011

The largest increase among the workers was seen in the 'main other workers' (Table 2.3). Those who have been engaged in some economic activity during the last one year, who are not cultivators or agricultural labourers or in the household industry, are 'other workers'. The type of workers that come under this category include all government servants, municipal employees, teachers, factory workers, plantation workers, those engaged in trade, commerce, business, transport, banking, mining, construction, political or social work, priests, entertainment artists, etc. in effect, all workers other than cultivators or agricultural labourers or household industry workers fall under the category of 'other workers'. In Chennai they form nearly 95% of the total workers. The proportion of 'main other workers' grew by 17.69% between 2001 and 2011.

With respect to the other occupations, there was a sharp decline (-32%) among the total main cultivators (those engaged in the cultivation of land owned or held by government or held by private persons or institutions for payment in money, kind or share). In absolute numbers it had fallen from 15,149 in 2001 to 10,210 in 2011. In contrast, the total main agricultural labourers had gone up from 5,849 in 2001 to 10,251 in 2011 (75% increase). Considering that those persons who work on another person's land for wages in money or kind or share is regarded as an agricultural labourer, this phenomenon may be attributed to the change in the occupations in

the district. With increasing urbanisation, most persons seem to have moved out of cultivation to other sectors.

In case of the main workers in household industries (an industry conducted by one or more members of a household only within the precincts of the house where the household lives) there was an increase of 12% from 2001 to 2011. A large number of workers in the household industry consist of members of the household.

The increased proportion of 83% in marginal workers can be seen in the steep rise of nearly 100% and more among marginal cultivators and marginal agricultural labourers. The household industries have seen an increase in marginal workers from 2001 to 2011 by 59%.

Employment in organised and unorganised sector

It is seen that the share of total organized sector employment to total workers in Tamil Nadu was meagre at just 7 percent. The total organized sector employment in the State increased marginally from 23.28 lakh in 2010 to 23.37 lakh in 2011-12 and further to 23.62 lakh in 2012-13. In 2013-14 (upto June 2013) it increased to 23.71 lakh. Between 2011-12 and 2012-13, under organized sector employment, a net addition of 25,093 was made in the State. Of this, the contribution of private sector was nearly two-thirds. An analysis of the structure of the organized sector employment indicates the dominance of public sector with about 61 percent of the share of the total employment.

TABLE 2.4 - ORGANISED SECTOR EMPLOYMENT IN CHENNAI

	Share in total organized sector employment (%)			Change over previous year (nos.)		
	2010-11	2011-12	2012-13	2010-11	2011-12	2012-13
Chennai	20.2	20.2	19.9	805	1855	-2159

Source: Department of Employment and Training

Of the total organized sector employment of 23.62 lakh as of 2012-13 in Tamil Nadu, Chennai accounted for 19.9%. The numbers had actually fallen from 2011-12 (Table 2.4). Coimbatore (8.6%), Vellore(5.8%) and Tiruchirappalli (5.0%) followed closely.

A direct estimation of employment in the informal/ unorganized sector shows that it constitutes nearly 82% of total workers in 2004-05. The informal sector primarily includes proprietary and partnership enterprises, which together shows a share of more than 50% of employed persons in the country. Chennai also has its share of these workers, very often in-migrants from outside the city. They experience a skill deficit for specific jobs, but there is a lot of learning on the job. They

operate at low margins because of cut-throat competition, setting upper limits to the extent of growth and up gradation. The following is a brief case study of street vendors is the city.

Case Study 2.1: The Tale of Two Zones

Introduction

One of the many places that make Chennai what it is, is Thiagaraya Nagar (T.Nagar) commonly referred to as T.Nagar. This small neighbourhood at the centre of the city is one of the largest shopping destinations in the state with an annual revenue estimates of more than Rs.100,000 million. T.Nagar is home to huge multi-brand retail stores, independent retailers and most importantly the roadside vendors that sell all sorts of household goods, garments and apparels. People flock to these roadside stalls because of cheaper prices as also to test their bargaining skills. These stalls are primarily located in two stretches -Pondy Bazar and Usman Road from where they have been catering to the middle-class consumers for decades. But over time, pavements had become too narrow for the crowd to pass during peak hours forcing pedestrians to move to the roads causing traffic problems. The Corporation authorities intervened to regulate the traffic. At about the same time the High Court also ordered that the hawkers needed to be provided with a separate vending zone.

Analysis

The Chennai Corporation built a three-storey complex that is capable of housing nearly 650 stalls. So the hawkers who were dwelling on roadside for decades (from 1954) had to shift their stalls to the newly built complex. The items which are primarily sold include accessories, followed by garments/footwear and the rest are toys and other miscellaneous items. Each vendor was allotted through a random lot, a floor area of about 20 sq feet (4*5) without any wall or partition. Only those vendors who had registered with the union got allocations in the new building. The hawkers had to set up their own kiosk. Many of the vendors could not afford to build the partition and sold their portion to outsiders who never had a stall on the road-side initially. The going price for such stalls was as much as Rupees 2 lakhs.

To enforce its decision, the Corporation evicted the entire group of hawkers in Pondy Bazaar into the complex by November 2013. The Corporation had initially allotted stalls to the Usman Road hawkers also in the same building, but could not provide the stalls to all. So the Usman road hawkers moved Court and got a stay order citing that they would not move into the complex unless everyone of them was provided with stalls. It was soon realised that this would not be possible because of the limited space in the new complex. So as of today, only the Pondy bazaar hawkers have moved in and the Usman Road vendors continue to do business on the roadside and this has created a huge imbalance.

With regards to those who have moved into the new complex - they are badly hit because of lower sales. Some of the commonly cited reasons by the vendors were that:

- The target group of these hawkers were casual shoppers who just loved the experience of shopping on street. So the idea of stalls in the vending complex is not attractive.

- No segmentation of shops within the complex because of random allotment: so buyers have no clue as to what things to buy from where.

- The USP of the street vendors is the cheap price and bargaining option - when moved to a proper stall they have had to raise the prices making it unattractive to consumers.

- The amenities in the complex are not many. There is no lift so people are reluctant to climb to the upper floors. This was evident from the fact that the shops in the top floor were deserted and a few of the vendors never opened their doors.

- The Usman Road vendors are still plying trade on road; so shoppers who used to visit Pondy Bazaar find it convenient to move to Usman Road rather than visit the complex.

- A few vendors have already sold their shops and left business and some others are trying to get back to roadside hawking - this time near Usman Road.

On the contrary the brick and mortar shop-owners who saw roadside vendors as a hindrance to their business have benefited from the eviction. Also they feel that their shops are more visible now and sales has increased substantially. And there are visible signs that the traffic has got better and pedestrians have enough space to walk. But still many feel that Pondy Bazaar has lost its charm because of the crowd-free roads.

The future of the street vendors in Usman Road is uncertain and it seems they will resist moving into the complex after seeing what has happened to their Pondy Bazaar counterparts. It is important that the local government must aggressively promote hawkers moving into designated shopping areas and if required create more assets for a planned shopping zone in T Nagar and in similar urban agglomerations in future.

Workers Participation Rate

Worker participation rate (WPR) is defined as the percentage of total workers (main and marginal) to the total population. WPR (total) for TN has been better than all-India figures.

TABLE 2.5 – PERCENTAGE OF WORKER PARTICIPATION RATE (WPR)

	2001			2011		
Total Workers	**Total**	**Rural**	**Urban**	**Total**	**Rural**	**Urban**
India	39.1	41.7	32.3	39.8	41.8	35.3
Tamil Nadu	44.7	50.3	37.5	45.6	50.7	40.2
Chennai	34.3		34.3	39.1		39.1
Total workers – males	**Total**	**Rural**	**Urban**	**Total**	**Rural**	**Urban**
India	51.7	52.1	50.6	53.3	53	53.8
Tamil Nadu	57.6	59.1	55.8	59.3	60	58.5
Chennai	54.1		54.1	58.6		58.6
Total workers – females	Total	Rural	Urban	Total	Rural	Urban
India	25.6	30.8	11.9	25.5	30	15.4
Tamil Nadu	31.5	41.4	18.9	31.8	41.2	21.8
Chennai	13.5		13.5	19.4		19.4

Source: Census 2011

For Chennai the WPR has improved between the years 2001 and 2011 (Table 2.5). The WPR for females is less than that of males. Infact as per Census 2011, districts of Erode, Namakkal, Perambalur and Tiruppur had higher WPR than that of Chennai.

Based on the workers participation rate in 2001, it was estimated (CDP Chennai, 2006) that by 2011, 87.5% of the male and 30% of the female eligible working population would be willing to work and by 2021 nearly 92.5% of males and 36% of females would be willing to work necessitating creation of employment opportunities. But Census 2011 results show there has only been a marginal increase from 54.1% (2001) to 58.6% (2011) among males. Similarly for females it has increased from 13.5% (2001) to 19.4% (2011). It can only be inferred that the city has not seen a rapid rise in employment opportunities for the working population.

Box 2.2 Child Labour Decline in District

Zone	% of out of school Children	% of Children never enrolled
1. Tondiarpet	0.522	0.026
2. Basin Bridge	0.535	0.0276
3. Pulianthope	0.414	0.021
4. Ayanavaram	0.476	0.0227
5. Kilpauk	0.511	0.0241
6. Ice House	0.533	0.0217
7. Nungambakkam	0.491	0.0272
8. Kodambakkam	0.498	0.0258
9. Saidapet	0.493	0.022
10. Mylapore	0.478	0.0195

Source: SSAChildren aged 6-14 years never enrolled and out of school.

Chennai district has seen a healthy trend with respect to enrolment in primary schools.
The table shows the figures for the number of children never enrolled in schools and those out of school. It is seen that there is near 100% enrolment in schools at the primary level. However it is seen that children tend to be taken out of school in the upper primary and secondary stages. These children who drop out (out of school) are those who take to work. These children could be considered to be child labour. From the table it is seen that there is prevalence of child labour, though in very small numbers in all the ten zones. There are various schemes that have been taken up to ensure zero dropouts, which are further discussed in the Chapter on Education.

Sectoral Composition of Workers

As per the NSSO 66th round, between 1999-2000 and 2009-2010, total workforce in Tamil Nadu increased from 289.74 lakhs to 318.53 lakhs. When we discuss employment prospects in Chennai it is seen that the district has a negligible share of primary sector viz., agriculture and allied activities. In 1991, workers in primary activities constituted 6.52 percent in CMA and 1.05 percent in Chennai City. By 2001, it was 2.9 percent and 1.5 percent respectively in CMA and Chennai city indicating that the primary activities were on the decline in the peripheral areas due

to the emergence of manufacturing and the new economy industries. In 2011-12, the share of primary sector in GDDP was 1.03%. The share of primary sector in total employment declined from 50.3% in 1999-00 to 44.6% in 2009-10.

TABLE 2.6 – SECTOR WISE GDDP @ CONSTANT PRICES (2004-05) FOR 2011-12 (Rs.Lakhs)

	District	State
1. Agriculture and allied activities	14,637	31,97,598
2. Forestry and logging	3,592	1,94,844
3. Fishing	14,185	2,74,807
4. Mining and quarrying	4	2,05,518
5. Manufacturing	2,45,103	86,71,985
6. Manufacturing registered	2,05,619	62,07,918
7. Manufacturing unregistered	39,484	24,64,067
8. Electricity, gas and water supply	9,213	1,73,888
9. Construction	1,63,870	41,93,375
10. Trade, hotels and restaurants	6,17,327	72,16,241
11. Railways	31,958	2,62,466
12. Transport by other means	3,39,895	25,11,269
13. Storage	528	16,177
14. Communication	2,13,234	17,83,437
15. Banking and finance	4,48,823	37,11,305
16. Real estate, ownership of dwelling and business services	6,23,267	54,78,673
17. Public administration	1,42,345	14,97,973
18. Other services	2,87,080	39,34,246
19. GDDP	31,55,060	4,33,23,803
20. Population	47,63,044	6,76,98,000
21. PCI (Rs.)	66,240	63,996
22. Primary (1+2+3+4)	32,418	38,72,767
23. Secondary (5+8+9)	4,18,185	1,30,39,248
24. Tertiary (10 to 18)	27,04,457	2,64,11,788
25. Agriculture, forestry and fishing	32,413	36,67,249
26. Industry (4+23)	4,18,190	1,32,44,766

Source: State Planning Commission, Tamil Nadu

There is a cause of concern with regards to the secondary sector which formed 13.25% of the GDDP in 2011-12. Within the secondary sector, manufacturing had a share of 7.77% in the GDDP of the district in 2011-12. Unregistered manufacturing was only 1.25% of the GDDP. The share of employment in the secondary sector increased from 23.7% to 27.9%.

The share of employment in the tertiary sector rose from 26.1% to 27.6%. Currently, the gross district domestic product shows that both the State and Chennai district is heavily skewed towards tertiary sector. It forms 86% of the total domestic product in the district, and has been increasing from 2004-05. 19.75% of the tertiary sector is in real estate, ownership of dwelling and other services, a reflection of the growing economy of the district. The other major sub-heads include trade, hotels and restaurants (19.57%); banking and finance (14.23%) and transport (10.77%).

In the State's GDDP, Chennai's contribution was highest from the tertiary sector (10.24%) followed by the secondary sector (3.21%) and the least from its primary sector (0.84%). The manufacturing sector (registered) of Chennai formed only 3.31% in the State's GDDP. Under the tertiary sector, transport by other means (13.53%), Railways (12.18%), Banking and finance (12.09%), Communication (11.96%), Real estate, ownership of dwelling and business services (11.38%) were the sub-sectors which contributed more than 10% to the State's GDDP from Chennai.

Male and female participation

Among the major cities in India (NSS Report No.553), Chennai still has a small percentage (3%) of persons who are still involved in primary sector as an occupation. Interestingly there are no females involved in the sector. Among males, 27.3% are working in the secondary sector, which is lesser than that in Bengaluru (33.1%), Delhi (31.5%) and Mumbai (32.4%), but higher than Hyderabad (25.7%). In Chennai, 69.4% of males were in the tertiary sector. This is higher than that in urban India (59.3%). It is slightly higher than those in Mumbai (66.8%), Delhi (68.4%) and Bengaluru (66.0%), while lesser than Hyderabad (74.2%). Similarly 68.1% of females were involved in the tertiary sector. This was much lower in comparison to females employed in tertiary sector in Hyderabad(78.1%), Mumbai (77.2%), and Delhi.M.C (84.1%), but higher than in Bengaluru (45.2%).

When one looks closely within the broad industry divisions, it is seen that nearly 21.1% of total persons are employed in Chennai's manufacturing sector, whereas Bengaluru has 29.3% involved in this sector. In Chennai, 26.6% of all persons are employed in the trade, hotel and restaurant sector, next only to that of Delhi M.C (32.2%). It shows the growth of the city in the hospitality sector and as a popular destination in terms of medical tourism, financial business and others. In the transport sector nearly 11.9% and other services make up 30.5% of all the persons who are employed.

In case of male employment in the manufacturing sector, Chennai with a share of 20.4% lags behind Delhi M.C (27.6%) and Greater Mumbai (26.7%). The other industries where there is a large concentration of employment for males in Chennai include Trade, hotel and restaurant (27.5%) and other services (28.8%). Chennai figures for trade, hotel and restaurant are also lesser in comparison to Delhi (34.8%), Bengaluru (29.1%) and Hyderabad (29.4%).

In case of females, in comparison to Delhi M.C (15.9%) and Greater Mumbai (21.1%), more numbers are employed in the manufacturing sector in Chennai(25.8%). However, Bengaluru

shows a higher share of females employed in manufacturing (45%) than in Chennai. In contrast to other cities, the share of females employed in the trade, hotel and restaurant sector in Chennai form a higher percentage (20.9%) than seen in Delhi M.C (6.9%) and Greater Mumbai (9.6%). Considering that trade, hotel and restaurant are predominantly in the private sector, it can be said that the private sector is playing a vital role in generating employment opportunities.

Registration and placement provided by Employment Office

As on 31st March 2013, the total number of employment exchanges functioning in the State was 37. The number of vacancies notified in the State has seen ups and downs with the change in the economy. It is pertinent to note that the ratio of placement to registration had steadily come down from 2.64 percent in 2010- 11 to 1.77 percent in 2012-13, indicating that the pace of registration was higher than that of placements.In Chennai, there are many who still look up to the exchanges in seeking employment in the city.

TABLE 2.7 - REGISTRATION AND PLACEMENT

Year	Registration	Placement	% of Placement
2007	30343	2357	7.77
2008	34515	222	0.64
2009	51013	285	0.56
2010	56246	536	0.95
2011	69136	936	1.35
2012	70126	1238	1.77
2013	72737	1026	1.41

Source: District Employment Office Santhome Chennai

In 1999-2000, according to the live register of the District Employment Exchange, Chennai there were 6,10,400 persons who had registered as unemployed. But in the years 2007 and 2008, persons registering had fallen considerably. Post-2008, the overall economic slump seems to have again generated an increase in the numbers registered again (Table 2.7). However the percentage of placements does not seem to have kept pace with the employment needs.

Income

The GDDP of Chennai UA was Rs.1905771 lakhs in 2004-05. It is however seen that for the years 2004-05 to 2011-12, the GDDP for Chennai has shown a CAGR of 6.5%. The State of Tamil Nadu in the same period grew at a higher rate of 8.9%. If one were to look at the year on year increase, it is seen that Chennai's GDDP grew at 9.72% in 2005-06, increased to 13.17% in 2006-07. But after 2006-07 there was a decline to 5.72% in 2007-08, and further down to only 4.41% and 4.83% in the years 2008-09 and 2009-10 respectively. It again rose to 10.33% in 2010-11. It has again shown a decline in 2011-12 to 4.39%. Tamil Nadu's GDDP growth rate has been faster than that of Chennai district at 13.11% in 2010-11 and 7.39% in 2011-12.

Per Capita Income

TABLE 2.8 PER CAPITA INCOME (in Rs.) - AT CONSTANT PRICES

Year	Chennai	State
2004-05	42,328	33,998
2011-12	66,240	63,996

Source: Department of Economics and Statistics, Chennai.

It is seen that Chennai's PCI has grown faster than that of the State. In 2011, it stood at Rs.66,240.

Poverty and Inequality

Box 2.3 Slums in Chennai

Of the metros, Mumbai has the highest proportion of slum-dwelling households (41.30% of its population). Kolkata is next at nearly 29.60% and Chennai at 28.50% not far behind. Delhi has 14.60% of its households living in slums and Bengaluru with less than 8.50%.

There are about 1240 slums in Chennai wherein 14 lakhs people are residing. 36% of the slums are located on government lands and about 32% on private lands. Slum population formed 18.9% of the total population in Chennai. It appears that the slum population is higher than the BPL population in Chennai, meaning that the slum dwellers are not poor, but have issues in housing and basic amenities. There were 83% literate men and 70% literate women.

About 8,19,873 persons constituting 25.6% of the population were reported to have inadequate access to shelter and basic services. These people were categorized as slum dwellers as per the City Development Plan. The number of persons occupying each dwelling unit in the slum areas was about 7 persons per house as against an average of 5 persons in non-slum areas.

Chennai slums mostly depended on tankers for water. Due to lack of sufficient basic facilities the slum dwellers are prone to communicable diseases. There were few individual toilets but more community toilets. 68% had no sewerage connection. In order to distinguish between declared and undeclared slums, the TNSCB can only undertake environmental improvements schemes in officially recognized slums. This has resulted in extreme disparities in access to basic services between residents of declared and undeclared slums. In total, the residents of these slums had only access to 590 public water facilities, an average of more than 600 persons per water facilities as opposed to 75 persons as per service norms. These facilities were also spread unevenly across the slums with some places having no water facilities at all. According to the survey, in Zone 1 – Tondiarpet there were only 32 public toilet seats and 12 public urinals in total which indicated that the number of people per toilet seat and per public urinals were far above norms, i.e., 1,056 people per toilet seat as opposed to 30 per seat and 2,817 people per public urinal versus the standard of 50. The average gives a sense of the tragic lack of basic services that the residents of undeclared slums in the city are facing. The residents of undeclared slums have no access to tenure security and face the constant threat of eviction.

According to the survey conducted in 1971, the 1,202 slums declared took up 7.2 sq. km that is 6% of the area of the city of Chennai in 1971 (then 120 sq. km). In today's expanded Chennai, the declared slums would only take up about 1.7% of the city's estimated total area where 72% of the land use is estimated to be residential. If the city

were to officially recognize every single slum within its borders, it would only contribute to a miniscule part of the total city. The number of slums may have increased over the last 10 years since the survey had been conducted in 2002. It seems the slum clearance board is in the process of completing the work of a new survey. Slums in Chennai like in any other urban agglomeration are a serious issue on socio-economic structure of the urban economy. A more collaborative planning and implementation of programmes are required for improving the quality of life of slum dwellers.

Poverty is a major area of concern, be it rural or urban. Chennai has all the attendant problems of having urban poor. The issues relating to urban poverty are with regards to rate of urbanisation, population density, migration, location of job opportunities', pattern of city growth, quality of slum amenities and the way city delivers the basic services. The state of slums in Chennai is discussed in the Box.

Unemployment rates helps in understanding poverty. In Chennai, the usual status of unemployment defined as chronic unemployment (present over a long period of an year) showed among men, a rise from 3% to 3.9% between the years 2004-05 to 2009-10. The current weekly status (the average weekly picture including both chronic unemployment and seasonal unemployment caused by seasonal fluctuations) showed a partial increase from 4.1% to 4.6% during the same period. It however can be seen that the current daily status (average level of unemployment on a day during the survey of the year) increased from 6.4% in 2004-05 to 7.9% in 2009-10. Mumbai, in comparison, saw a fall in chronic unemployment from 6.8% for 1991-2000 to 3.1% in 2004-05. But saw a rise again to 4.2% in 2009-10. There was a rise from 3.3% in 2004-05 to 5% in 2009-10 in Hyderabad. Similarly, Bengaluru also saw an increase from 1.2% in 2004-05 to 3.5% in 2009-10. Delhi saw a decline from 4.9% in 2004-05 to 3.1% in 2009-10.

The proportion of chronically unemployed among females in Chennai was 18.8% in 2009-10, nearly 16.5% increase over 2004-05. This was also high in comparison to the other cities like Hyderabad (10.9%), Mumbai (6.8%), Bengaluru (3.6%) and Delhi (2%) in 2009-10. Chennai's female unemployment, both the average unemployment (Current Daily Status) and the seasonal unemployment (Usual Weekly Status) was 22.1% and 19.3% respectively in 2009-10. This is a steep rise from 2004-05 when both stood at 4.1%. These figures were also higher in comparison to other cities like Hyderabad, Mumbai, Bengaluru and Delhi for 2009-10.

A comparison of Poverty Head Count Ratio between 2004-05 and 2011-12 shows that the percentage of people living below the poverty line in Tamil Nadu at 11.3% was lower in both rural and urban areas as compared to all India. The lowest ratio was in Kerala (7.1%) while the highest was in Bihar (33.7%).

The NSS Survey of 2004-05 found that 8.74% of the population were below the state specific urban poverty line of Rs.547.42 per capita per month. In the period 1993-94 to 2004-05, Chennai city district consisting of CMC area experienced substantial reduction in poverty. As per the Government of Tamil Nadu, the percentage of population below the poverty line has come down from 31.58% in 1993-94 to 9.58% during 1999-2000 in the municipal corporation city area. But the same was not true in the other municipalities outside Chennai district. The poverty ratios were at 28% in 2004 as against 37.73% in 1998. In 2004, high levels of poverty were reported in Kathivakkam, Pallavaram, Alandur and Avadi exceeding 40% of the population. This seems to happen because the poor have tended to settle down in the city outskirts due to the location of industries.

Poverty Status of the Social Groups

As per Planning Commission statistics (2004-05), the percentage of SC, ST and OBC below poverty line in rural Tamil Nadu stood at 31.2%, 32.1% and 19.8% respectively. The corresponding percentage of SC, ST and OBC below poverty line in urban Tamil Nadu stood at 40.2%, 32.5% and 20.9% respectively. These numbers of Tamil Nadu is lower than that of Maharashtra where below poverty line rural population of SC, ST and OBC was 44.8%, 56.6% and 23.9% respectively; the corresponding urban population below poverty line for SC, ST and OBC was 43.2%, 40.4% and 35.6% respectively. In comparison, urban Delhi had 35.8% of SC below poverty line, 9.4% of ST below poverty line and 18.3% of OBC below poverty line. The all India figures for BPL rural was 36.8% SC, 47.3% ST and 26.7% OBC; and corresponding BPL urban was 39.9% SC, 33.3% ST and 31.4% OBC. Urban Tamil Nadu look better in case of below poverty line ST and OBC population in comparison to all India figures.

It has been observed that from 1999-2000 onwards the poverty rates has declined substantially in all the social groups. There are however migrants who belong to the SC and ST categories, showing an overall increase in SC and ST population from 10 per cent in 1999-2000 to 19.37 per cent in 2004-05. Hence there seems to be more poor among the SC and ST though the incidence of poverty in this category fell from 38.77% to 23.32% in 2004-05.

Conclusion

Chennai is the fourth largest urban agglomeration (UA) in India with a continuous urban spread over the three districts of Thiruvallur, Chennai and Kancheepuram. In Tamil Nadu, Chennai ranks first in terms of population and population density figures followed by Coimbatore, Madurai and Tiruchirappalli, the other major urban agglomerations. Overall as of 2011, Chennai's per capita income stands at Rs.66,240.

Chennai over the years has taken steps to be in the forefront of economic growth. Following the many opportunities available, both Indian and International companies have flocked to Chennai to produce and export to the world market. The city boasts of the largest number of factories in the country and the largest number of workers employed in the manufacturing sector. Its worker participation rates are among the highest in the country and are high for both male and female workers. It is seen that the poverty head count ratio in Chennai is less than 9%. This has been possible because the Government of Tamil Nadu has placed a lot of emphasis in the creation of special economic zones, industrial parks and industrial corridors to promote industrial development.

The employment status of males in Chennai in 2009-10, as per the broad activity groups of agriculture, mining and quarrying, manufacturing, electricity and water, construction, trade, hotel and restaurant and transport showed that 49.5% are regularly employed, nearly 25.7% are self-employed and 24.8% are employed as casual labour. There is a decline in the regularly employed in the period 2004-05 to 2009-10 from 54.5% to 49.5% respectively. This has seen a corresponding rise in casual labour 10.4% in 2004-05 to 24.8% in 2009-10. This could partly be attributed to in-flow of migrants in search of work.

The total workers increased by 1,63,297 in absolute numbers in all the ten zones put together. This increase was nearly 10% from 2001 to 2011. But it is seen that the number of marginal workers have increased more than the main workers. Whereas the main workers have grown at 17% between 2001 and 2011, the increase in marginal workers is nearly 83%. The number of non-workers has declined.

Among the major cities in India, Chennai still has a small percentage of 3% who are still involved in primary sector as an occupation. Interestingly however there are no females involved in the sector. Among males, only 27.3% are working in the secondary sector. However 69.4% of males and an equal proportion of nearly 68.1% of females are involved in the tertiary sector. The workers participation rate shows more males (nearly 87.5%) than females in the eligible working population are willing to work necessitating creation of employment opportunities.

Within the broad industry divisions - nearly 21.1% of total persons are employed in Chennai's manufacturing sector, of which males' employment in the manufacturing sector is 20.4%. There is a large concentration of employment for males in Chennai include trade, hotel and restaurant (27.5%) and other services (28.8%). In Chennai, a very high percentage of females (20.9%) are in

the trade, hotel and restaurant sector It shows the growth of the city in the hospitality sector and as a popular destination in terms of medical tourism.

The scenario of chronic unemployment among females in Chennai showed 18.8% in 2009-10, nearly 16.5% increase over 2004-05. This is high in comparison to the other cities like Hyderabad (10.9%), Mumbai (6.8%), Bengaluru (3.6%) and Delhi (2%) in 2009-10. In 2004-05, 8.74% was the percentage of population below the State specific urban poverty line of Rs.547.42 per capita per month. In the period 1993-94 to 2004-05, Chennai city district consisting of CMC area experienced substantial reduction in poverty. However slum population formed 18.9% of the total population in Chennai. There are about 1240 slums in Chennai wherein 14 lakhs people are residing.

The challenge in the district at this juncture is to ensure economic progress in industrial and services sectors in and around the city which can employ the many who are joining the labour force. The need to push for completion of secondary education plays a big role as this affects how the labour force will develop and join the mainstream employment in the organised sectors. More importantly the stress needs to be on functional / vocational literacy. The need for an inclusive growth is paramount. It is also to be recognised that the local bodies while maintaining public services also fruitfully utilise the revenues to invest in infrastructure so as to attract investment which will go towards creating more jobs.

CHAPTER 3

DEMOGRAPHY, HEALTH AND NUTRITION

CHAPTER

3

DEMOGRAPHY, HEALTH AND NUTRITION

Introduction

This chapter gives an overview of demography, health and nutritional status of Chennai. The population details are analysed in terms of gender, age and social groups. Health status of a region talks about the overall development in the society of that region. Health and Nutrition, which are considered as important component of human development enables to assess the physical and mental health of people in this region. The health status clearly indicates people awareness, education level, women empowerment and overall economic and social development. The Health sector gives lot of inputs for government to make many policy decisions and implement health improvement schemes. The present analysis will help to understand the present conditions that will guide to suggest corrective measures.

Data on socio economic perspectives were largely taken from census 2011 and at the disaggregated level that which has been published till March 2015. It may be noted that Corporation of Chennai has widened its jurisdiction in October 2011. There has been an addition of five zones taking total from 10 to 15. In this process, there has been a reorganization of the 10 zones. Our study has used data of the 10 zones as per census 2011 and wherever latest data available on reorganized zones, it is also used for analysis.

Demographic Trends and Health Indicators

Population Trends and Demographic Transition

TABLE 3.1: DEMOGRAPHIC PROFILE

Sl.No	Zone	Population		Density		SC pop %		ST pop %	
		2001	2011	2001	2011*	2001	2011	2001	2011
1	Tondiarpet	410336	442214	27356	29481	12	14	0.1	0.1
2	Basin Bridge	375687	404873	28899	31144	15	16	0.1	0.1
3	Pulianthope	459563	495265	24188	26067	29	33	0.2	0.2
4	Ayanavaram	496777	535370	22581	24335	13	16	0.3	0.6
5	Kilpauk	542132	584248	27107	29212	11	14	0.1	0.2
6	Ice House	341805	368359	28484	30697	15	17	0.1	0.3
7	Nungambakkam	347898	374925	23193	24995	15	20	0.1	0.1
8	Kodambakkam	466384	502616	29149	31414	10	12	0.1	0.1
9	Saidapet	415335	447601	23074	24867	9	15	0.1	0.2
10	Mylapore	487728	525618	20322	21901	9	12	0.1	0.2
	Chennai	4345646	4683100	24963	26903	14	17	0.1	0.2
	Tamilnadu	**62405679**	**72138958**	**480**	**555**	**19**	**20**	**1**	**1.1**

*The area of some zones were re-organized after 2001 but for calculation of population density in 2011, the same area as per 2001 data were considered.

Source: Corporation of Chennai & Census 2011

Chennai constituted 6.49% of Tamil Nadu population in 2011 and was number one in terms of population among all districts of Tamil Nadu. The decadal growth rate of Chennai Population was 13.07% from 1991 to 2001. From 2001 to 2011, the growth rate was 7.77%. The growth rate of population is declining over the decades. But Chennai is expanding horizontally and the population is approximately 69 Lakh if we include the newly expanded area. Also people migrate from other districts to neighbouring districts of Chennai like Thiruvallur and Kanchipuram. This is also one of the reasons for slower population growth as migratory population is distributed to neighbouring districts.

Tamil Nadu population growth rate is 15.6 in 2011 compared to 2001. Chennai population grew at a lesser rate than the State. Chennai ranks number one in terms of population in the State. All the zones exhibit increasing trend in population in absolute value. The density of population for Chennai has increased from 24,963 per Sq. Km to 26,903 per Sq. Km. In terms of density, Chennai is number one in south India and next to Delhi. The population in the age group of 0-6 was 9.98% of total population in 2001 and it is 9.89% in 2011. There is a slight decrease in child population share in Chennai.SC population in Tamil Nadu is about 20% of the State population and it has increased from 19% in 2001. The ST population increased from just 1% of population

in 2001 to 1.1% in 2011. The SC population of Chennai has increased from 13.8% in 2001 to 17% in 2011. The ST population of Chennai share remains same at 0.2% of its total population. Zone 3, Pulianthope has maximum proportion of SC population (33%) and Kodambakkam and Mylapore shows just 12% of SC population when compared to its zonal total population. Chennai has 100% urban population.

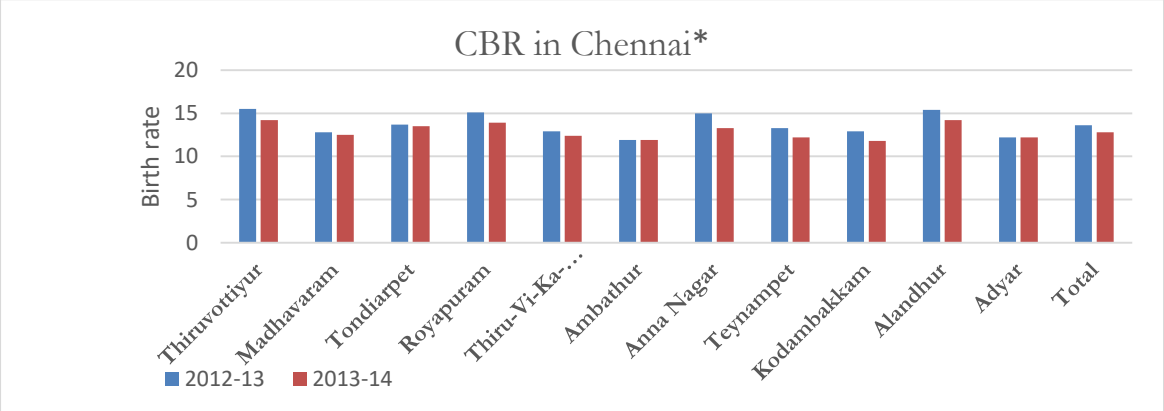
Chennai City expanded from 174sqkm. to 426sqkm since October 2011. Zones increased from 10 to 15 and population from 47 lakhs to 69 lakh. The total number of Slums increased from 1700 in 2011, to 2478 in 2013, due to expansion of Chennai City. The proportion of slum households to total households in Chennai is 28.5% as per census 2011. Mumbai slum household proportion is 41.3%, Kolkata is 29.6% and Delhi is 14.6%.

The rate of growth of population is declining. The share of 0-6 population is stagnant due to decline in growth rate. . The CBR is decreasing year by year. Adult sex ratio has improved from 957 to 989. So the population growth is mainly due to migration from other districts. The growth of women employment especially in Information Technology (IT) and Information Technology Enabled Services (ITES) industries has also fuelled the improvement in sex ratio in the last decade.

Crude Birth Rate and Crude Death Rate

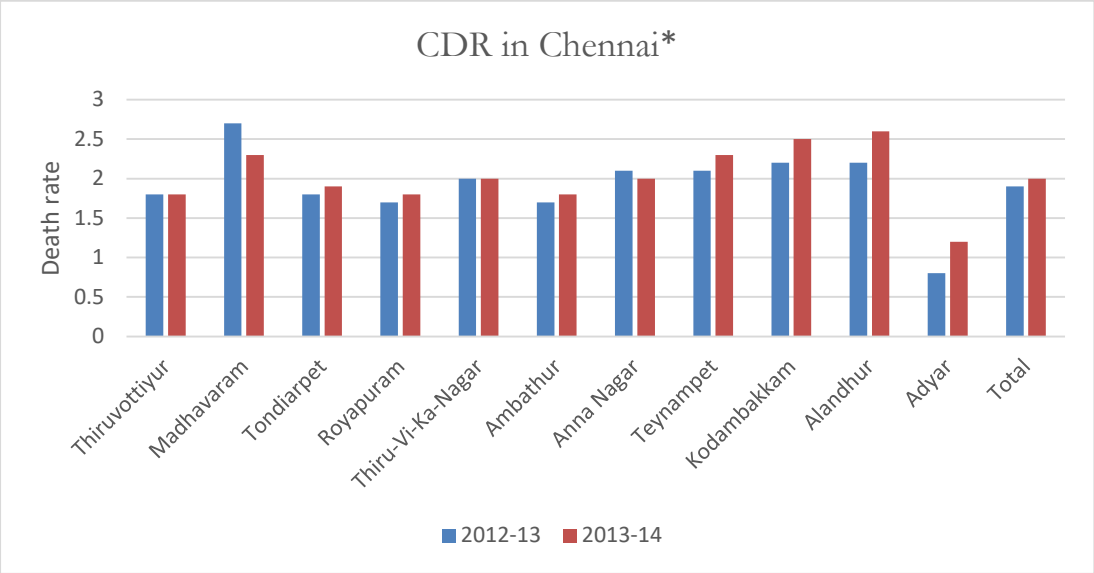
The average birth rate was declining from 13.6 in 2012-13 to 12.8 in 2013-14. The zone-wise birth rate is given in Figure 3.1. The birth rate in each year is not showing any variation across zones and range is between 11 and 15. All the zones decline in CBR in 2013-14 compared to previous year.

FIGURE 3.1: TRENDS IN CRUDE BIRTH RATE



Source: District Family Welfare Department, Corporation of Chennai (* The data is available only for eleven zones and chart show only eleven zones.)

FIGURE 3.2: TRENDS IN CRUDE DEATH RATE



Source: District Family Welfare Department, Corporation of Chennai,(* The data is available only for eleven zones out of fifteen zones and chart show only eleven zones.)

The death rate showed marginal increase.(Figure 3.2). The death rate was 1.9 in 2012-13 and 2.0 in 2013-14. The death rate shows that people life expectancy at birth has increased and hence population rise. In future, the death rate may stagnate at this level and due to better medical and health care, people may live longer. According to SRS 2012 data, among metro cities, Kolkata is the lowest in terms of birth rate, which is at 9.8 and Delhi was the highest with 18.1. Delhi was the lowest in terms of death rate, which is at 4.4 and Kolkata was the highest with 6.5.

Sex Ratio

The adult sex ratio has improved from 957 in 2001 to 986 in 2011. Among all cities in India, Chennai tops in sex ratio. The sex ratio has shown tremendous improvement in the case of SC population though they are living in small proportion in Chennai. Three zones of Ayanavaram, Mylapore and Nungambakkam in Chennai showed more than 1000 females for every 1000 males. The migration of people from other parts of Tamil Nadu to Chennai due to employment opportunities and other industrial and business opportunities lead to better sex ratio. The growth of women employment especially in IT and ITES industries also fuel the improvement in sex ratio in the last decade.

The sex ratio in case of SC population presents better picture. The ratio is 1004 in 2011 as compared to 982 in 2001. The state also showed a similar trend and the sex ratio of SC

population of Tamil Nadu stands at 1004 females for every 1000 males. The population of SC also increased in Chennai by absolute values.

The sex ratio of ST population in Chennai showed disturbing trend. While sex ratio of ST population in Tamil Nadu shows small improvement in 2011(981) from 2001(980), Chennai ST population's sex ratio has decreased from 998 to 932. ST population in Chennai has grown marginally in 2011 when compared to 2001. Most of these people were migrant people settled in Chennai. The strong decline in sex ratio is a matter of concern. Basin Bridge, Kilpauk, Mylapore, Saidapet and Nungambakkam showed strong decline in ST population share.

TABLE 3.2: SEX RATIO IN CHENNAI

Sl.No	Zone	General		SC	
		2001	2011	2001	2011
1	Tondiarpet	973	996	987	1010
2	Basin Bridge	939	966	979	1026
3	Pulianthope	959	992	987	1007
4	Ayanavaram	977	1007	988	1003
5	Kilpauk	954	993	969	995
6	Ice House	902	957	973	1011
7	Nungambakkam	975	1014	1018	1025
8	Kodambakkam	966	998	973	995
9	Saidapet	929	953	937	967
10	Mylapore	981	1008	1069	923
	Chennai	**957**	**986**	**982**	**1004**
	Tamilnadu	**987**	**996**	**999**	**1004**

Source: Census of India 2001 and 2011

It should be noted that while adult sex ratio has increased from 987 to 996 in the last decade, the child sex ratio has declined from 972 to 950 in Chennai. This is a serious issue for the future. More and more people migrate from other places to Chennai due its growth opportunities. But due to cost of living, many parents do not want to have more children. Also, gender bias is prevalent as is evident from child sex ratio. So it is difficult to say how this trend will affect sex ratio in future and the overall demography.

Child Sex Ratio

There is a disturbing trend in child sex ratio in Chennai. Except zone 2 (Basin Bridge), all the zones exhibit decline in child sex ratio. This has to be seen very seriously which will affect other social parameters. Previous studies in social issues relate decline in sex ratio with early marriage of girls, which result in increase in Infant mortality rate, maternal mortality rate and poor health

of new born babies. The child sex ratio is lesser than adult sex ratio in all zones as per 2011 census. After 15 years, this child ratio will have impact on the adult sex ratio. Though Chennai is a metro city and having high literacy rate it has not been able to contribute to a favourable child sex ratio. One child policy followed by many nuclear families is also one of the reasons for this trend.

In the perspective of Gender in Health Care, universality in health coverage is essential to achieve equality in access. Gender disparities, particularly persistent in anti-female biases are most glaringly reflected in the declining female-to-male ratios among children below six (with the sex ratio among children declining from 972 girls per 1000 boys in 2001 to 950 in 2011). In Tamil Nadu, the Child Sex Ratio increased from 942 in 2001 to 946 in 2011.

It is also noted that the absolute values of both male and female children had gone down in 2011 when compared to 2001. The general trend of declining rate of growth of population resulted in lesser number of children. In many families, both the parents are working and they do not want more than one child, which seems to have resulted in decline of child population in Chennai.

In many of the critical districts of Tamil Nadu with adverse sex ratios in 2001, due to concerted efforts, it has improved and other districts have fallen into a lower sex ratio indicating that policies addressing sex ratios should be universal and implemented across the State and also in Chennai.

TABLE 3.3: CHILD SEX RATIO

Sl.No	Zone	Population in the age group of 0-6					
		Male		Female		Child Sex Ratio	
		2001	2011	2001	2011	2001	2011
1	Tondiarpet	24503	26288	24227	24910	989	948
2	Basin Bridge	20215	20205	19100	19252	945	953
3	Pulianthope	26065	28035	25082	26361	962	940
4	Ayanavaram	25323	28348	24504	27015	968	953
5	Kilpauk	26796	29497	26123	28089	975	952
6	Ice House	15040	15596	14474	14711	962	943
7	Nungambakkam	16173	13611	15870	13004	981	955
8	Kodambakkam	21014	22571	20815	21478	991	952
9	Saidapet	21561	24649	21044	23591	976	957
10	Mylapore	23030	26719	22381	25394	972	950
	Chennai	219720	235519	213620	223805	972	950
	Tamilnadu	**3725616**	**3820276**	**3509544**	**3603556**	**942**	**943**

Source: Census 2001 and 2011

The State has made efforts to prevent the practice of female foeticide/infanticide contributing to the decline in child sex ratio. The Pre-Conception and Pre-Natal Diagnostic Techniques Act,

1994 has been effectively implemented in the State by nominating District and Sub-District level appropriate authorities. Under the Act, all organisations involved in implementing pre-natal diagnostic techniques (largely ultra-sound scan centers) are mandated to register themselves with the respective appropriate authority. Offences such as non-registration and disclosure of sex of the foetus are punishable as cognizable, non-bailable and non-compoundable offences resulting in up to 3 years of imprisonment. Doctors who are found indulging in malpractices are also liable to lose their medical practice registration.

Life Expectancy at Birth

The health status of a society can also be interpreted using the average age of death of people over a period. It is called Life expectancy at birth. The life expectancy in Chennai for female is 81.1 and for male is 76.5 and overall life expectancy is 78.6. These figures are better than national average. It should be seen in the context of how these people live and what status of health they maintain. If people live with lot of ill-health and problems, that is not a good sign. The longevity of life should go hand in hand with healthy life.

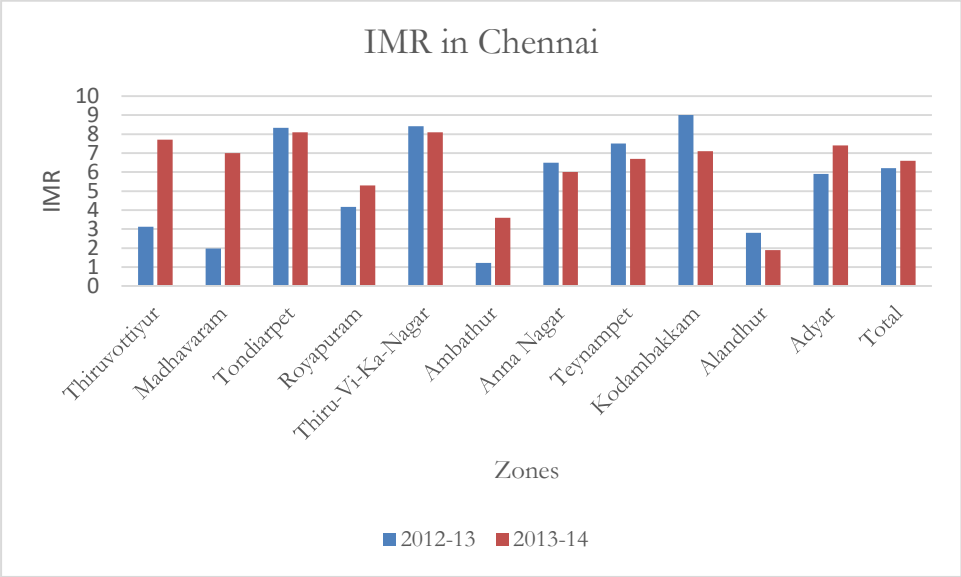
Infant Mortality Rate

The infant mortality rate (IMR), which measures the probability of a child's dying in the first year of life, was 28 per 1,000 live births in Chennai in 2006-07 (DHLS-3, 2007-08). Infant mortality rate has declined to 8.2 in 2011. It was further improved to 6.2 in 2012-13 and 6.6 in 2013-14.

Although the State of Tamil Nadu recorded a fall in IMR from 35 in the year 2007 to 22 in the year 2011 (SRS 2012), a fall of more than one third over a four year period, there still remains a number of issues. The State Government undertook a number of programmes to reduce the IMR such as setting up of Neonatal Intensive Care Units, introducing special vehicles for transport of newborns, control of birth asphyxia and deaths due to hypothermia and implementing strategies for reduction and management of neonatal sepsis.

A home based newborn care programme is being implemented in high IMR blocks by Tamil Nadu government. Drop home facilities are being provided for mothers who deliver in Government health facilities for safe transportation of mothers and babies from Government hospitals to their residence.

FIGURE 3.3: IMR IN CHENNAI *



Source: District Family Welfare Department, Corporation of Chennai,(* The data is available only for eleven zones out of fifteen zones and chart shows only eleven zones.)

The zone level data shows that Tondiarpet, Kodambakkam and Thiru-Vi-Ka-Nagarhas performed poorly when compared to other zones. But all the zones has made tremendous improvement in IMR in the last few years. The IMR was 8.2 in 2011-12 and it has decreased to 6.2 in 2012-13. This was much lower than that of Tamil Nadu at 22 and all-India which stood at 44. Due to continuous effort from Government, the IMR showed improvement in backward areas like Thiruvottiyur and Madhavaram respectively. Latest figures for the year 2013-14, further confirmed this because it has decreased to 3.1 and 1.9 in Thiruvottiyur and Madhavaram respectively.

Under 5 Mortality Rate

TABLE 3.4: UNDER 5 MORTALITY RATE IN CHENNAI

S.No.	Name of the zone	2012-13	2013-14
1	Thiruvottiyur	1.3	1.1
2	Manali	NA	NA
3	Madhavaram	1.3	0.6
4	Tondiarpet	0.8	0.6
5	Royapuram	0	0
6	Thiru-Vi-Ka-Nagar	0.8	0.7
7	Ambathur	1.2	1.1
8	Anna Nagar	0.3	0.2
9	Teynampet	0.6	0.7
10	Kodambakkam	0.6	0.7
11	Valsaravakkam	NA	NA
12	Alandhur	1.8	1.5
13	Adyar	0.7	0.7
14	Perungudi	NA	NA
15	Shozhiganallur	NA	NA
	Total	0.7	0.6

Source: District Family Welfare Department, Corporation of Chennai

U5MR denotes number of children (0-4 years) who died before reaching their fifth birthday per 1000 live births. The U5MR provide vital indication about health facilities and nutrition provided to children of age group 1-5 years. The latest figures for U5MR are 0.7 in 2012-13 and 0.6 in 2013-14. The role of ICDS has to be commended here for this achievement. Compared to Tamil Nadu and India, Chennai is far better in terms of U5MR.

With a view to protect children from preventable diseases like Diphtheria, Pertusis, Tetanus, Poliomyelitis, Tuberculosis and Measles, the Universal Immunization Programme has been in operation since 1985. It covers around 11 lakh infants and 12 lakh pregnant women every year. Tamil Nadu has been included for pentavalent vaccine in 2012, which provides protection against DPT, Hepatitis-B and Haemophilus influenza-B. A second dose of measles vaccine at the age of 18 months is also being added.

Maternal Mortality Rate

TABLE3.5: MATERNAL MORTALITY RATE

Name of the zone	2012-13	2013-14
Thiruvottiyur	0	21.6
Manali	NA	NA
Madhavaram	66.1	64.3
Tondiarpet	38.8	60
Royapuram	27.7	39.7
Thiru-Vi-Ka-Nagar	32.7	22.6
Ambathur	0	35
Anna Nagar	28.6	29.8
Teynampet	45.9	40.9
Kodambakkam	40.5	11.2
Valsaravakkam	NA	NA
Alandhur	35.5	0
Adyar	0	28.7
Perungudi	NA	NA
Shozhiganallur	NA	NA
Total	27.7	32.9

Source: District Family and Health Care Bureau, Corporation of Chennai

MMR measures number of women aged 15-49 years dying due to maternal causes per 1,00,000 live births. According to latest data, the MMR has shown an increase in all zones in 2012 and 2013. The MMR for 2012-13 was 27.7 and for 2013-14 was also 33. Madhavaram scored poorly in terms of MMR. Tondiarpet, and Royapuram are mostly slum areas and these zones also show poor performance when compared to 2011 data. According to District Family Welfare Bureau, Corporation of Chennai, for the last three years ending with 2013-14, there is 100% ante-natal coverage in all zones and 100% performance in terms of double TT injection. Therehas been some random variations in MMR across zones. Corporation health department is working on specific problems to improve the situation over the years.

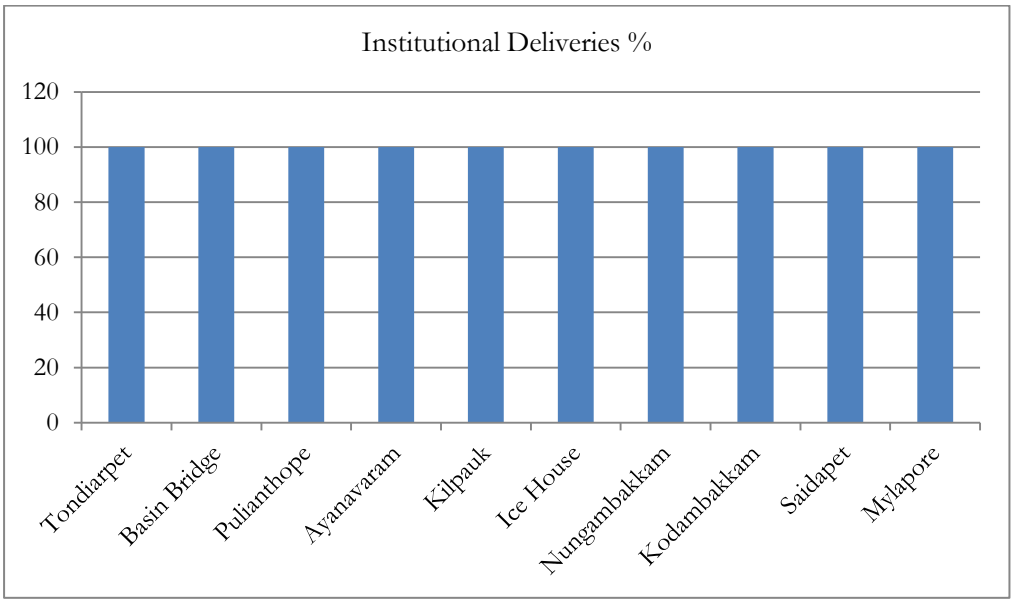
The state of Tamil Nadu has many schemes to help women. All government hospitals provide service free of cost. There is no need to provide Identity card or any other document to get maternity services. Dr.Muthulakshmi Reddy Benefit Scheme provides Rs.12,000 for poor pregnant women who come for delivery.

Place of Delivery

Almost all births happened in hospitals, health centres and other private clinics under proper care in 2013-14. This means awareness about facilities were good among maternal women in Chennai. Both government efforts and awareness resulted in better institutional deliveries.

Janani Suraksha Yojana - Improving Institutional Delivery of Below Poverty Line (BPL) Women: Janani Suraksha Yojana(JSY) is one of the flagship programmes under Reproductive and Child Health Programe–II(RCH II) aims to reduce the maternal and infant mortality by focusing on increasing institutional deliveries. The scheme is implemented in urban areas also. An amount of Rs.700 in rural and Rs.600 in urban areas is paid to below the poverty line mothers delivering in institutions for the first two live births.. This scheme has a provision of Rs.33.07 crores for the year 2012-13.

FIGURE 3.4: PERCENTAGE OF INSTITUTIONAL DELIVERIES 2013-14



Source: District Family and Health Care Bureau, Corporation of Chennai

Still Birth Rate

TABLE 3.6: STILL BIRTH RATE IN CHENNAI

Name of the zone	2012-13	2013-14
Thiruvottiyur	5.6	8.8
Manali	NA	NA
Madhavaram	0.7	0.6
Tondiarpet	2.1	1.8
Royapuram	0.6	0.8
Thiru-Vi-Ka-Nagar	0.2	0.3
Ambathur	2.8	3
Anna Nagar	1.3	1.5
Teynampet	1.6	1.9
Kodambakkam	1.5	2
Valsaravakkam	NA	NA
Alandhur	3.5	4.2
Adyar	0	1.3
Perungudi	NA	NA
Shozhiganallur	NA	NA
Total	1.7	2

Source: District Family and Health Care Bureau, Corporation of Chennai

The still birth is very low and almost nil in some zones. Thiruvottiyur, Ambathur and Alandhur show poor performance in terms of still birth. The better maternal care provided by both government hospitals and private clinics have resulted in fewerstill births. The percentage of institutional deliveries in Chennai is 100% and this is also a reason for reduction in still births.

It is noted that the zone Tondiarpet has performed poorly in terms of MMR and Still birth rate. This zone was better in 2013 in terms of MMR when compared to previous years. There was an all-round effort from Corporation of Chennai in this zone to improve MMR during 2010 and it had resulted in a better performance in 2013. But, still lots of improvement have to be made to progress further.

Based on visits to this zone and interview with health authorities, the following could be deduced.Tondiarpet in north Chennai remains a backward area in terms of development. Even though there are hospitals and clinics to cater to people in this area, low literacy has turned out to be the bane. There are many slums located in this area. Pregnant women do not follow the instructions given by doctors. They are irregular for checkups. The irregularity in taking nutritional supplements and IFA tablets, and following old beliefs and not being aware of the facilities has compounded the problems. Women become anemic (low iron in blood) which results in complications during delivery. Health workers are taking lot of effort to improve this

situation. According to experts, many deaths and still births are under-reported to government. This is one of the problems in low income areas. Government should take some developmental programs to these regions to improve the situation.

Immunization Status

TABLE 3.7: FULL IMMUNIZATION FOR THREE YEARS

	2012-13			2013-14			2014-15		
Name of the zone	% BCG	% PENTA	% MEASLES	% BCG	% PENTA	% MEASLES	% BCG	% PENTA	% MEASLES
Thiruvottiyur	91.75	88.58	88.17	90.55	89.67	89.67	90.74	91.91	91.64
Manali	NA	NA	NA	NA	NA	NA	86.49	90.92	94.67
Madhavaram	98.69	100.00	93.53	94.52	96.55	94.89	94.70	94.10	93.81
Tondiarpet	88.91	93.93	100.00	96.29	93.84	94.11	97.07	99.14	99.77
Royapuram	92.73	95.28	97.38	93.53	95.88	99.74	94.08	94.98	94.34
Thiru-Vi-Ka-Nagar	85.74	91.32	95.76	91.37	95.23	95.29	91.83	94.73	95.21
Ambathur	91.33	91.12	91.25	86.81	90.39	90.96	92.43	94.91	97.60
Anna Nagar	89.34	89.82	90.51	100.00	99.92	99.86	100.00	97.24	97.66
Teynampet	87.62	86.99	92.13	89.61	90.33	89.98	91.63	91.86	92.64
Kodambakkam	90.12	87.50	92.73	93.05	93.67	92.92	92.45	96.12	96.99
Valsaravakkam	NA	NA	NA	NA	NA	NA	84.52	97.59	100.00
Alandhur	92.66	92.23	100.00	95.14	97.74	98.74	90.30	100.00	100.00
Adyar	95.61	93.74	94.76	100.00	89.32	92.68	89.62	91.47	95.23
Perungudi	NA	NA	NA	NA	NA	NA	89.24	98.78	100.00
Shozhiganallur	NA	NA	NA	NA	NA	NA	89.07	89.42	80.94
Total	90.21	91.43	95.41	94.36	93.80	94.53	93.03	95.26	96.15

Source: District Family Welfare Bureau, Corporation of Chennai

According to recent 2013-14 from Corporation of Chennai, zone wise data on immunization of children under one year, almost all vaccines performance were good. The performance for the last three years for BCG, PENTA and MEASLES were above 90% and some of the zones were

covered fully with 100. If it is compared with DLHS-4 data for 2012, there is a tremendous improvement in immunization performance by Health department of Corporation of Chennai.

According to DLHS 2007-08 survey, the proportion of children in the age category 12 months to 23 months who are fully immunized was 73.4 in Chennai and hadincreased to 78.4% in 2012. However at the individual vaccine level the proportion is higher - for BCG vaccine, it was 100% in 2006 and 96% in 2012. For polio vaccine, it was 85.5% and increased to 90% in 2012. For DPT, it was 90.4% in 2006 and has decreased to 78.4 in 2012. In case of Measles vaccine, it was 94.7% in 2006 and it was 92.2 in 2012.

TABLE 3.8 IMMUNIZATION AT BIRTH AMONG SELECTED CITIES 2006 &2012

IMMUNIZATION AT BIRTH	Chennai		Mumbai		Kolkata		Bangalore	
	2006	2012	2006	2012	2006	2012	2006	2012
Children Received full vaccination	72.5	78.4	76.7	69.2	75.4	74.4	87.5	90.6
Received BCG vaccine	96.1	100	100	96.2	98.2	90.7	100	98.1
Received 3 doses of DPT vaccine	78.4	90.4	84.9	88.5	81.2	86.0	92.6	94.3
Received 3 doses of polio vaccine	90.0	85.6	92.2	88.5	81.2	81.4	97.6	96.2
Received measles vaccine	92.2	94.7	86.7	80.8	82.0	83.7	96.7	96.2
Children (age 9-35 months) received at least one dose of vitamin A supplement in last 6 months	52.7	94.2	84.6	86.2	74.1	52.8	84.8	84.9

Source: DLHS 2007-08 and DLHS 2012-13

Except for Polio vaccine, the performance for all other vaccines has increased in Chennai.The immunization program was strengthened to cover all children in the district during the last decade. The result was good as the immunization was almost 95% across all zones.

Female Infanticide

Chennai Corporation and Health department during discussions report that there is no female infanticides in the last three years. However, there are a few newspaper reports about female infanticides which were not confirmed by the authorities. According to experts again there maybe under-reporting of these cases.

Health Infrastructure in Chennai

Chennai has both government hospitals and private hospitals. Three big government hospitals attached to three famous medical institutions are functioning within the city. Their contribution to health is enormous. They account for 4,000 beds approximately and cater to people from other part of the state as well as people from other states. The total beds from Government

hospitals amounts to 12,522. The number of people per bed is 374. The share of PHCs and other government hospitals in health care is significant in Chennai. They also provide world-class services and compete with private hospitals.

The city of Chennai has been termed India's health capital. Multi- and super-specialty hospitals across the city bring in an estimated 150 international patients every day. Chennai attracts about 45 percent of health tourists from abroad arriving in the country and 30 to 40 percent of domestic health tourists. Factors behind the tourists' inflow in the city include low costs, little or no waiting period, and facilities offered at the specialty hospitals in the city. The city has an estimated 12,500 hospital beds, of which only half is used by the city's population with the rest being shared by patients from other states of the country and foreigners. Dental clinics also have attracted dental care tourism to Chennai. A separate study by ASSOCHAM reported that the year 2011 saw 850,000 medical tourists in India and projected that by 2015 this number would rise to 3,200,000. A case study on Government Multi-specialty hospital is given below.

Case Study 3.1 - Tamil Nadu Government Multi - Specialty Hospital

Introduction

The Government of Tamil Nadu in Chennai has strategic assets which have been created over the years – one of them being the Multi-Speciality hospital at Omandurar estate at Anna Salai. This is expected to impact positively the citizens of Chennai with respect to access for speciality healthcare service, especially the common man.

Analysis

Originally built as the Tamil Nadu Legislative Assembly and Secretariat Complex in 2010, the complex was converted to the Multispeciality Hospital with 400 beds. The six storied hospital was inaugurated on the 21st February 2014. Initially it had four departments namely cardiology, neurology, medical oncology and nephrology and five surgical departments namely, cardiothoracic, neurology, hand and reconstructive micro surgery, vascular and surgical oncology. In addition it also has a lifestyle clinic for yoga and naturopathy. Opened with 400 beds the strength is now increased to 500 beds.

The multi-specialty hospital has around 80 doctors who are appointed on contract or service basis depending on the requirement. The facilities available are: Emergency room, Pharmacy, Septic OT, Emergency OT, Recovery ward, Cardiology outpatient ward, Cardiothoracic surgery outpatient ward, Neurology outpatient ward, Neuro surgery ward, Hand and Reconstructive ward, Physio-therapy ward occupational therapy, Orthotics and Prosthetics and Patients Diet pantry.

Opportunities and Challenges

The future of the multi-specialty hospital is highly uncertain with regards to its developmental plans as it is in the hands of the planning committee. There are plans of including all facilities that are available at the other Government Hospitals. This multi-specialty hospital is aimed at giving world class medical treatment with the latest technology free of cost to those who can least afford it. Some of the government hospitals in other states charge a minimum fee whereas government hospitals in Tamil Nadu are free and aimed at the welfare of the people.

Some residents still prefer to go to the other Government hospitals rather than Omandurar Multi Specialty hospital fearing the lack of resources since it is a newly established hospital. They feel it is always safe to go to a hospital which has been in existence for some years. Omandurar Government Multi-Specialty hospital established recently needs more time and resources in order to gain confidence among the local residents. The key highlight of the hospital is the latest medical equipment which is on par with the private hospitals in order to provide a world class medical facility. The huge infrastructure can be made use of by bringing in more specialties with more dedicated doctors.

Box 3.1 Role Of Chennai Corporation In Health Care

Dispensary Particulars	Total
Chennai Corporation Dispensaries	75
Communicable Diseases Hospital	01
Malaria clinic (EDPT)	36
Malaria clinic run by NGO'S	01
F.T.D'S	16
Filaria Clinics	01
Filaria Lymphodema Management Clinic	01
T.B. Microscopic Centers	42

Corporation of Chennai play a very important role in providing health related services to its citizens. It runs hospitals, laboratory services, many health projects and awareness programs. The table provides details about dispensaries and facilities run by corporation. It also runs following projects:

Revised Tuberculosis Control Programme, HIV / AIDS Control Programme, Family Health Awareness Campaign, School Health Programme, School Health Programme, Slum Health Programme.

Corporation of Chennai provide lot of public health care services. The list follows:

Child care: New Born Ward and Pediatric Ward have been provided at South Chennai (Saidapet) and North Chennai (Pulianthope). Every effort is taken to give Quality service by pediatricians. Low birth weighed, pre-matured & sick babies are taken care through Radiant warmers. Instruments like New Born and Paediatric wards:

Gynaecology Department: Gynecology Department was provided at Saidapet and Sanjeevarayanpet from 1997. Gynec Surgeries like Hysterectomy, D&C for DUB, Ovarian cyst removal etc. are undertaken.

Infertility Clinic: Infertility services available at Saidapet and Sanjeevarayanpet. Investigations by Ultra sonogram, D & C with tube patent test and diagnostic Laproscopy etc. Radiant Warmer, Incubator, Photo therapy Units, Intensive Resuscitation Units are available.

Corporation of Chennai runs following programs to take care of public health:

Prevention Of Food Adulteration, Environmental Sanitation, Veterinary Public Health, Animal Birth Control Programme, Control Of Stray Dog And Animal Birth Control Programme, Stray Cattle Control, Control Of Stray Pigs, Disaster Management.

Nutritional Status

Nutrition level and Trend

ICDS is today the largest community based outreach programme for holistic early child development. It is a crucial link between disadvantaged communities both at the primary health care and education systems. ICDS scheme is a pioneer scheme taking care of the welfare of the Mother and Child. Through the Integrated Child Development Services Scheme, Tamil Nadu has improved overall nutrition and health status of its young children. ICDS provides data not by zone wise but based on Project areas. Since data is not available zone wise and grade wise, ICDS data is used for Nutritional status of Chennai.

The project-wise ICDS data provides information on malnourished children less than five years. In 2001, it was 11.15% and it declined to 7.76% in 2011. In 2013, the proportion of malnourished children under five years is less than 1%. This is a huge improvement in children health and the role of ICDS and support from state government should be given credit for this achievement.

In Tamil Nadu, complementary food containing amylase activity is provided for 300 days in a year under Supplementary Nutrition Programme to ICDS beneficiaries in the age group of 6 months to 3 years, Pregnant Women &Lactating Mothers.

Further, adolescent girls in 9 districts are also provided with complementary food containing amylase activity as Supplementary Nutrition under Rajiv Gandhi scheme of Empowerment of Adolescent Girls(SABLA) for 300 days in a year.Old age Pensioners are also served with Nutritious Meal every day through the ICDS centres. 200 gms of Rice, 15 gms of Dhal, 1 gm of Oil, 1.9 gms of Salt and Vegetables used for cooking Mid Day Meal per person per day.

School Health Program

Corporation of Chennai has a strong school health program. All the 350 corporation school children are screened by medical officers two days in a week. All children are treated once in 6 months for worm infestations, identified scabies, dental caries, vitamin deficiencies are treated. Dental caries, rheumatic heart diseases, refractive error and any other major illnesses are referred for expert care at the medical college hospitals. All children are provided with a checkup care.

Health related competitions are conducted for children in corporation schools. Health education and physical education are slotted every week for at least one hour.

Box 3.2 Nutrition Programmes of Government

In their book, An Uncertain Glory-India and its contradictions, (2013),Jean Dreze and Amartya Sen have commended highly about Tamil Nadu health care and its achievements. Further in this book, they mentioned that health indicators of Tamil Nadu are far better than states like Gujarat and Haryana. The authors gave credit to Government and culture of people for the achievement. Nutrition is a very important indicator of human development.

In this regard, State government and central government have developed many schemes. ICDS is today the largest community based outreach programme for holistic early child development. It is a crucial link between disadvantaged communities both the primary health care and education systems. ICDS scheme is a pioneer scheme taking care of the welfare of the Mother and Child. Through the Integrated Child Development Services Scheme, Tamil Nadu has improved overall nutrition and health status of its young children.

Every day hot cooked meal containing Rice, Dhal, Oil and Vegetables is provided to the children in the age group of 2 to 5+ years in Anganwadi centres. The noble objective of the scheme is to increase the literacy rate and eradicate the malnutrition.

- 80 gms of Rice, 10 gms of Dhal, 2 gm of Oil, 1.9 gms of Salt and Vegetables used for cooking Mid Day Meal per child per day.
- The children of 2-5 years of age are provided with Nutritious Meal throughout the year i.e.365 days.
- To enrich the diet of the children , protein rich food like 20 grams of Black Bengal Gram or Green Gram is being given on Tuesdays every week.
- Providing 20 grams of boiled potato on Fridays every week.
- Three eggs per week to 2+4+ children on Monday, Wednesday and Thursday and one egg every Wednesday to 1 to 2 year children are served along with Nutritious Meal in ICDS centres.
- Children who were not accustomed to take eggs are provided with a banana weighing 100 grams.
- The 'Akshaya Pathiram' programme (Voluntary contribution of vegetables/ eatables by community / mothers of Anganwadi children) also being implemented in all ICDS centres, through which the vegetable intake of the children is increased .Through 'Akshaya Pathiram' programme , children are encouraged to bring one vegetable to Anganwadi Centre. This will not only add to the nutrition, it will also inculcate the habit of sharing among children.

The Twelfth Plan has "Nutrition Security" as an important goal. The vision is to make Tamil Nadu a "Malnutrition Free State". The mission is to provide a whole life cycle nutrition security programme, with a focus on nutrition for the pregnant and lactating mothers, infants, children and adolescent girls. To achieve the nutrition goals, the strategies are: (i) Universalisation of ICDS, (ii) Training ICDS functionaries for improving service delivery, (iii) Modernising Anganwadi Centres, (iv) Preventing anemia and micronutrient deficiencies, and (v)Strengthening early childhood care and education. Further, a tastier and healthier menu with thirteen varieties of rice and four types of egg masalas would be introduced in a block in each district on a pilot basis and these will be extended across the State in a phased manner. The children enrolled in Anganwadi Centres will also be provided a new menu as per their nutritional requirement and digestive capacity. This measure will pave way for ensuring the nutrient content of the meals offered and also go a long way in preventing dropouts in rural areas.

Provision of IFA tablets

TABLE 3.9: PROVISION OF IFA TABLETS AMONG WOMEN AND ADOLESCENT GIRLS

Sl.No	Block wise/District/State	Total number of women who took IFA tablets up to March 2011	Total number of adolescent girls who took IFA tablets up to March 2011
1	Tondiarpet	6614	10718
2	Basin Bridge	5097	1855
3	Pulianthope	8445	2453
4	Ayanavaram	6904	2850
5	Kilpauk	8381	3739
6	Ice House	6041	3768
7	Nungambakkam	4525	927
8	Kodambakkam	7909	8015
9	Saidapet	7840	6485
10	Mylapore	7388	4081
		69144	44891

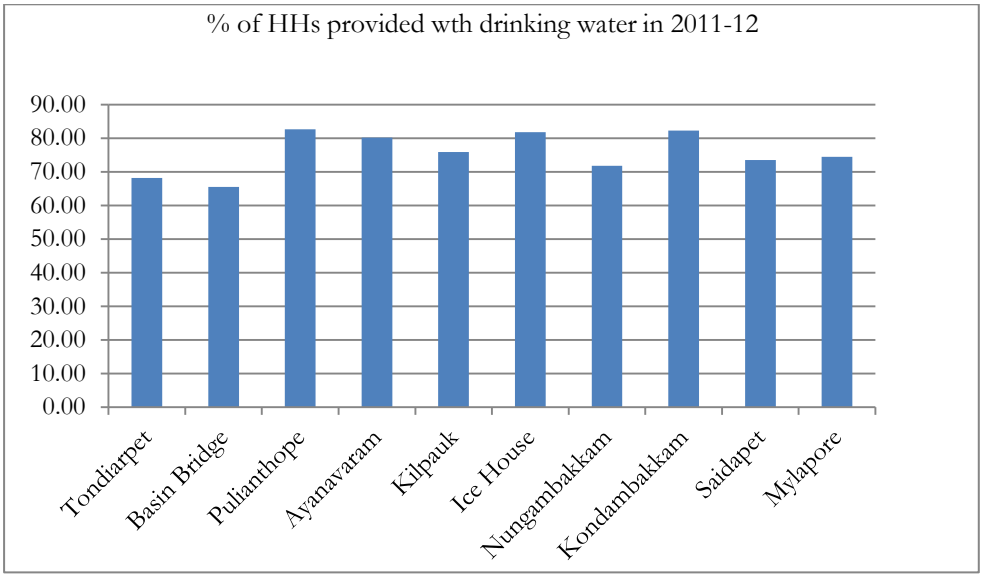
Source: District Family Welfare Bureau, Corporation of Chennai

From the table above, between April 2010 and March 2011, 69,000 women and around 44,800 adolescent girls were given IFA Tablets. The tablets were given every week for a month.

Non-nutritional factors and their Impact on Nutrition

Water Supply

FIGURE 3.5: ACCESS TO DRINKING WATER



Source: Chennai Metro Water Sewerage Board

According to Chennai Metro Water and Sewerage Board, only 76.33% households are provided with safe drinking water. The maximum coverage was in Pulianthope and Kodambakkam and

lowest was for Tondiarpet and Basin Bridge. It also supplies water through trucks in areas and almost 20% of households are covered by trucks. Metro Water Board also provides water connections in streets as common facility for people living in slums and low income areas. During summer, Metro water board also supplies water through tanker trucks to people of Chennai.

Sanitation

TABLE 3.10: PROVISION OF TOILET 2011-12

Block	Total Number of HHs	Number of HHs provided with Sewerage	% of HH with Sewerage connections
Tondiarpet	48420	32982	68
Basin Bridge	31115	20375	65
Pulianthope	45854	37891	83
Ayanavaram	78653	63055	80
Kilpauk	104436	79218	76
Ice House	33767	27603	82
Nungambakkam	42236	30311	72
Kodambakkam	97717	80346	82
Saidapet	58039	42633	73
Mylapore	107243	79829	74
Chennai	647480	494243	76

Source: Chennai Metro Water Sewerage Board

TABLE 3.11: DISTRIBUTION OF HOUSEHOLDS BY TYPE OF LATRINE FACILITY - 2011

Total number of households		11,06,567
Latrine facility Available within premises		**95.6**
Flush/pour flush latrine	Piped sewer system	92.7
	Septic tank	1.6
	Other	0.2
Pit Latrine	With slab/ventilated improved pit	0.5
	Without slab/open pit	0.2
Other latrines	Night soil disposed into open drain	0.3
	Night soil removed by human	0
	Night soil reserved by animal	0.1
Latrine not available within premises	Public latrine	3.8
	Open	0.6
	Total	**4.4**

Source: Census 2011 Data

The toilet facility available to Chennai households is summarized in Table 3.11 above. 95.6% of households have access to latrine facility within premises and only 4.4 % do not have latrine facility. Almost 93%of households have piped sewer connection system for the latrine. The details are given as above. Since flush latrines are of almost 94.5%, it is more hygienic for people. It includes all residential areas defined as households by census.

The sewerage connections are almost equal to water connections in Chennai. As per the Metro Water Board, area covered by Sewerage system in Chennai is 100% and 5,98,249 households are covered.

Due to the enhancement of capacity of the 28 sewerage pumping stations and construction of 3 new pumping stations, the pumping capacity has been increased from 440 MLD to 575 MLD. The capacity of the sewerage treatment plants has been increased from 222 MLD to 486 MLD and the sewerage overflow and untreated sewerage entering the waterways have been reduced. About 36 MLD of secondary treated sewerage is being supplied to Chennai Petroleum Corporation Limited and Madras Fertilizers Limited besides 5 MLD of raw sewerage to GMR Vasavi Power Corporation.

In the sewerage treatment process, bio-gas is produced and is being used to produce power to run the plants. This incidentally reduces the discharge of Green House Gas into the atmosphere and provides for Carbon Trading. CMWSS Board has adopted Clean Development Mechanism (CDM) which leads to savings in energy cost to a turn of Rs.43.05 lakhs per month.

Case Study 3.2: Eradication of Open Defecation

Introduction

In the Vision 2023 statement, the Tamil Nadu government has envisaged the provision of 'piped and pressurized 24x7 water supply to 100% of its residents and ensure that all of them have access to safe sanitation including open defecation free and garbage free environment.' Towards this, during the budget session 2011-12, the Government made an announcement as follows: "This Government is committed to making the state open defecation free by 2015. The solution lies in mapping areas where open defecation is still being practised, providing facilities wherever the need arises, and also putting in place a mechanism to maintain these facilities. The Government will work out an appropriate strategy in this regard and provide infrastructure in phases to cover the entire state of Tamil Nadu by 2015." In this regard, among various measures to achieve the aforementioned goal, the Commissionerate of Municipal Administration has

designed a universal toilet for the urban residents of Tamil Nadu, especially the urban poor at large.

Analysis

The available field studies showed that sanitation facilities were insufficient. It also brought to four larger issues such as unplanned spaces, selection of construction material, leaking taps, broken toilet pans, inaccessible toilets, lack of ventilation, clogged networks and insufficient water and electricity which made it difficult and unfit for use by children, the elderly and the differently-abled. More seriously it was observed that there was a total lack of public responsibility towards existing sanitation facilities. Communities were divided when it came to deciding a location for public toilets. Families with toilets at home resisted the construction of community toilets, even if the majority in their locality did not have access to toilets at home. Once built, the facilities were subjected to vandalism and theft of fittings and fixtures. While residents kept the toilets within their household clean, the responsibility to take care of public utilities as their own was completely missing. This behaviour suggested that the current facilities did not meet user needs, leading to frustration among users and abandonment or misuse of these facilities.

Following on the findings, a decision was taken to change the overall look and feel of city toilets so as to encourage usage and ownership. As a first step, a study of cultural appropriateness in Tamil Nadu was undertaken by the National Institute of Design, Ahmedabad after design validation by IIT Bombay's Industrial Design Centre. After an intensive exercise that was spread over 6-8 months, the Commissonerate developed a universal design toilet that was truly meant for the user of the toilet. Post finalisation of design, brainstorming sessions were held with a team of sanitation experts, architects, industrial designers, branding and communication specialists, and material experts.

The emphasis was to provide a facility to the user that is barrier free and gives a feeling of openness without compromising on safety and security. Adequate lighting, vandal resistant fixtures and accessories and motion sensor lighting powered by solar panel were also added as distinguishing features of the stall. 'Namma toilet' module is pre-fabricated such that it can be easily installed onsite in the shortest time. The body of the toilet stall is a single mould without joints and the interiors are seamless – no sharp edges and corners to avoid dust accumulation and and can be easily cleaned with the help of a water jet.The toilets have louvres on all four sides and a sunroof to allow for optimal ventilation, natural light and a feeling of openness without compromising user privacy. The fittings and fixtures are vandal resistant, durable and user-friendly. During the day, the toilets get sunlight which charges the battery the solar panels installed on the roof, and when it is dark, the stalls are lit with motion sensor lighting. For

treating the waste water, it has been proposed to provide a range of options to suit site specific conditions. The usage of recycled flush water is also being emphasised.

The first set was installed at the Tambaram bus station, Chennai, as a pilot in February 2013. The three free-to-use toilets stalls installed at the site get an average of 600-700 users daily. Based on local needs and space available, these toilet stalls can either be standalone units or can be assembled together to form a row of toilets or even an entire toilet compound with minimum masonry work. "Namma Toilets" will be provided on a need-based approach after consultation with the local stakeholders to create a demand based deployment of these toilets; these can serve as neighbourhood toilets, family toilets, public toilets, community toilets and integrated sanitary complexes.

During 2012-13 a sum of Rs.50.89 crores was released to the Corporations and Municipalities for the improvement of 652 existing toilets and construction of 404 new toilets with special initiatives like universal designs, e-toilets, waterless urinals to conserve water. This scheme was to be continued during the year 2013-14 at a cost of Rs.50 crore. In the same year, Government has sanctioned a sum of Rs.8.19 crore for construction of 333 units of well-designed differently abled user friendly toilets in public buildings in 108 Municipalities.

Conclusion: There must be a multi-prong strategy to improve standards by way of providing access to toilets to all people in different parts of the city. Various stakeholders must involve on a mission to improve hygiene and cleanliness in the city.

Source:http://cma.tn.gov.in/cma/en-in/Pages/Eradication-of-Open-Defecation.aspx retrieved June 5, 2014

http://sulabhenvis.nic.in/LatestNewsArchieve.aspx?format=Print&Id=385

Tamil Nadu flush with pride, The Hindu, 26 April, 2013

Special Programme

HIV/AIDS control

The district administration of Chennai has reported 1754 cases of AIDS/HIV in 2011. HIV/AIDS control program is a national program and in Chennai, district level AIDS prevention control unit is operating to monitor AIDS. Tamil Nadu AIDS control society also plays a major role in combatting HIV/AIDS. The State AIDS Project Cell was formed in January 1993 in Tamil Nadu. Tamil Nadu State Aids Control Society (TANSACS) was the first registered Society in India for HIV/AIDS control and prevention registered in 1994 as a mandate of National AIDS Control Organisation (NACO), New Delhi.In 1986 the first HIV case in India was detected in Madras Medical College, Chennai. The sentinel surveillance data has been showing a steady decline among antenatal clinic attendees since 2001. A total of 2.13 lakh persons have tested positive for HIV in the state.

District AIDS Prevention and Control Unit (DAPCU) are functioning in 29 districts in Tamil Nadu. The Deputy Director of Health Services is designated as the Nodal Officer to head the DAPCU in order to bring about integration of NACP interventions in the NRHM framework. The DACO is responsible for coordinating with TANSACS on all matters related to HIV/AIDS planning, implementing and monitoring.

TABLE 3.12: HIV POSITIVE CASES

S.No	Age-Group wise	Positive cases in 2007		Positive cases in 2011	
		Male	**Female**	**Male**	**Female**
1	0-14	46	18	24	22
2	15-19	6	9	19	10
3	20-24	34	66	56	54
4	25-29	115	89	142	125
5	30-39	298	151	417	243
6	40-49	157	78	308	118
7	50&above	54	23	151	65
	Total	710	434	1117	637

Source: District Aids Prevention Control, Chennai Collectorate

When compared to total HIV positive cases in 2007, it has increased by 54% in 2011. It includes both old cases and new identified cases. Outstation patients (10,202 numbers) were reported in city hospitals.

TANSACS foundation is built on a quality care-and-support system for persons living with HIV/AIDS. By fostering close collaboration with Non-Governmental Organisations, women's self-help groups, Community Based Organisations, positive people's networks and various

National and International Donor Agencies, TANSACS constantly works towards improvement of accessibility and accountability of the services, effective prevention strategies and providing prevention-to-care continuum support for HIV/AIDS affected people. TANSACS takes continued efforts to ensure that people living with HIV/AIDS have equal access to quality health services. TANSACS believes that it is possible to create an environment where human rights are respected and where those infected or affected by HIV/AIDS live a life without stigma and discrimination.

TANSACS took this forward and requested the State Government to form a Trust for children. The Tamil Nadu Government formed the Tamil Nadu Trust for Children Affected by AIDS (TNTCAA), to address the needs of HIV-infected children in the State and protect their Rights. The objectives of this Trust, was to provide continuous support for medical, educational, nutritional and economic assistance to children aged- between 0 and 18 years- affected by HIV/ AIDS.

Leprosy and Tuberculosis Control

The National Health Policy, Government of India set the goal of elimination of leprosy i.e. to reduce the number of cases to less than one per 10,000 population by the year 2005. As a result of the hard work and meticulously planned and executed activities, the country achieved the goal of elimination of leprosy as a public health problem. As on 31st December 2005, Prevalence Rate recorded in the country was 0.95/10,000 population.

In Chennai the number of cases is decreasing and was 259 in 2012-13. The leprosy prevalence rate was 0.6 as on March 2013 and it has declined to 0.56 in 2014-15 lower than national figure of 0.95.

TABLE 3.13: TB AND LEPROSY CASES

District	**Positive TB cases**		**Leprosy**		
	2007	2011	2012-13	2013-14	2014-15
Chennai	6621	6649	259	280	327

Source: National Leprosy Eradication Programme and Corporation of Chennai Health Department, Accessed on 07/04/2014

Revised National Tuberculosis Control Program was launched on 24.03.1999 in Tamil Nadu. There are 42 Microscopic centers, 72 DOTS centers and the program is Implemented in Government and Private institutions. There are five NGOs involved in the program. There are

10 TB units with 46 designated microscopy centres functioning in Chennai. There were 6649 cases diagnosed in the year 2011.

The Tuberculosis Chemotherapy Centre, Chennai (as the NIRT was then known) was set up in 1956 as a result of a collaboration between ICMR (Indian Council of Medical Research), BMRC (British Medical Research Council), USPHS (United States Public Health Service), and the Government of Tamil Nadu. It became the Tuberculosis Research Centre (TRC) in the 1970s, and was renamed the National Institute for Research in Tuberculosis (NIRT) recently. NIRT's vision is to undertake high quality research in Tuberculosis that is relevant to both national and global programmatic needs. NIRT, Chennai is actively involved in TB research and it provides valuable help in eradicating TB from India.

Non-Communicable Diseases (Life Style Diseases)

Lifestyle diseases are Non- Communicable and Chronic Diseases that are associated with the way a person lives. Incidence of Non Communicable Diseases (NCDs) such as Cardiovascular diseases, Diabetes Mellitus, Chronic respiratory diseases, Cancers of Cervix, Breast etc., is greater than the incidence of communicable diseases and has become the leading cause of death. The rising burden of NCDs is putting a strain on health care systems and the overall cost of diagnosis and management of NCDs are imposing a financial strain on individuals, families and society. In an effort to address the lifestyle diseases, the Tamil Nadu Health Systems Project (TNHSP) has undertaken two pilot schemes, one for prevention, screening and treatment of Cardiovascular Diseases (CVD) and another for prevention, screening and treatment of Cervical Cancer, in two districts each. As the pilots were quite successful, TNHSP now has initiated steps to scale up these activities throughout the State along with prevention and treatment of Diabetes Mellitus and early detection and treatment of Breast cancer at a cost of Rs.50.00 crore.

Silicosis prevention and control measures will be taken for the welfare of workers in silicosis prone industries like quarries, construction sector and road laying. Chronic Kidney diseases will be tackled in a multi-pronged approach like treatment of hypertension and diabetes, increasing IEC activities to bring lifestyle modifications, establishment of dialysis services in all major hospitals, encouragement for cadaveric transplantation and improvement of facilities for transplantation surgeries in the medical college hospitals. It is proposed to maintain a registry of cancer, acute myocardial infarction and stroke in the major hospitals. The screening and treatment of Non-Communicable Diseases during the Twelfth Plan period would continue at a cost of Rs.58.00 crore. Another related ailment which requires attention is diabetes and a case study on it given below.

Case Study 3.3 - Diabetes in Chennai

Introduction

Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood sugar. Hyperglycaemia, or raised blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems, especially the nerves and blood vessels.

Incidence in Chennai

Diabetes is spreading fast across the country and Chennai reflects this alarming trend, with the incidence shooting up tenfold in the past 30 years. The Chennai Urban Rural Epidemiology Study (CURES), which covered 26,001 individuals above the age of 20, shows that 20% of the subjects were diabetic. The incidence of diabetes in the city was 2% in 1970. Dubbed the biggest epidemiological study in the country, it confirmed the fear that the disorder has been affecting the young and the old, the rural and the urban. A city specific private study showed that 20% of people between 20 to 55 years have diabetes.

Findings

87 respondents mentioned that there has been history of diabetics in the family; 45 respondents were unaware of such incidence in the family and the balance 129 respondents claimed that they were the first to be identified in the family. Though not termed as hereditary in occurrence, intuitively respondents related to family history and checked on how their predecessors managed the phenomena.

Of the 87 respondents who had a family history, nearly 60 per cent of them (52 respondents) confirmed that they had an early onset compared to their predecessors. They attributed this to change in life style, work stress and low level of conscious effort to manage till directed firmly by doctors.

About 27 per cent of the respondents were proactively managing the phenomena by following regular medication, food habits, physical exercises and regular checkups like medical examination and consultation with doctors.

About 31 per cent of respondents were indifferent to the phenomena and acted on incidence of an event like an injury, delayed cure of illness, dizziness, blackouts and so on. When probed further, majority of them reasoned that life style and economic status as inhibiting factors to adopt better management of the phenomena. Many still manage to do with local practices. A group of respondents were indifferent and not seriously aware of potential effect.

A large number of low income group respondents are dependent on alternate medical practices. Middle and high income group supplement alternate medical practices with their routine medication.

Experts say that while the affluent have become aware of the disease burden and started working out to keep fit, the middle class are being largely affected. Lifestyle modifications, consumption of junk food and processed food and immense stress levels contribute to diabetes. Experts say that if people incorporate physical activity into daily regime, switch to traditional and natural food and do yoga or meditation every day, diabetes can be controlled better.

Conclusion

Tamil Nadu has a clear understanding on how to provide free and universal health care to its people. It is evident from the indicators of health mentioned in this chapter. Chennai as an urban centre is also equally doing well in all health indicators. The urban network of primary health centres and dispensaries run by corporation of Chennai are utilized well by people. People are aware about the benefits, schemes and importance of health and it resulted in better health care in Chennai. The effective role of ICDS in improving nutritional status of children resulted in better health for children as well as mothers. But still there are concerns about immunization coverage and sex ratio. The government should take necessary policy steps to improve on these parameters.

CHAPTER 4

LITERACY AND EDUCATION

CHAPTER

4

LITERACY AND EDUCATION

Introduction

A good education system not only provides a guarantee of economic liberty, it also enables social and political stability. An educated man is an asset for the nation: being productive, creative and innovative. Realising this need, India, is at the forefront in devising many welfare schemes that promote the universality of education.

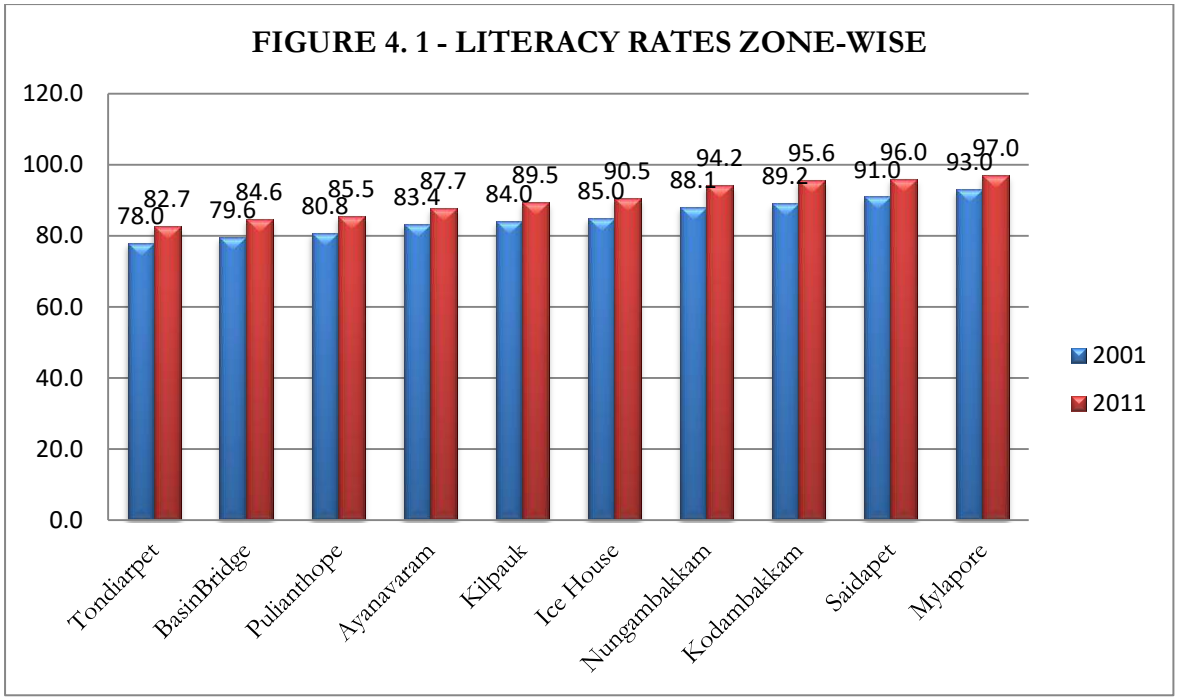
One of the much awaited Right to Education Act was finally implemented from April 1, 2010 in India. Subsequently, based on this act, Tamil Nadu framed its own version of the act namely *Tamil Nadu Right of Children to Free and Compulsory Education Rules, 2011*. According to this Act, a number of provisions are given for economically and physiologically weaker section of the students. It also stipulates minimum infrastructure including quality of teachers in all the schools.

Due to the thrust given during the 11th Five Year Plan period, nationwide there has been a significant expansion in overall school infrastructure and supplementary programmes. In this section, we provide an overview of the progress of various indicators with respect to elementary and secondary education in Chennai .

Literacy rate

The average literacy rate is a measure of progress in education. This rate has been increasing steadily over the years from 2001 to 2011. It now stands at 90.18% when compared to 85.33% during 2001. The gender wise literacy rate also throws some light on the status. The male literacy rate is 93.7% and the female literacy rate is 86.64% in Chennai district. The total literates in Chennai stands at 3,776,276 out of which 1,968,079 were males and 1,808,197 were females.

The literacy rate for each zones lends a perspective.



Source: Census 2011

Zone 10, Mylapore was the best performer of all having increased from 93% to 97% during the last ten years. Also, Zone I Tondiarpet ranks lowest in the table in the overall literacy rate. The gender gap is also the highest in this zone. The gender gap is lowest in the Zone 7 - Nungambakkam. The above figure 4.1 gives an idea of extent of work to be accomplished for 100 per cent literacy especially for the girl child. Zone 1- Tondiarpet(82.7%), Zone 2- Basin Bridge(84.5%) and Zone 3- Pulianthope (84.45%) are among the bottom. The literacy rate shows a clear difference upto 15% between Zone 10- Mylapore and Tondiarpet.

Elementary Education

Primary Education

Achievement of these ambitious objectives is not possible without suitable performance monitoring measures. Universally adopted educational indicators such as Enrolment rates and Completion rates provide this yardstick. In this section, we discuss the performance of Chennai zones for these indicators.

Gross Enrolment Rate

TABLE 4.1 GER – PRIMARY ZONE WISE (2012-13& 2013-14)

S. No.	Zone	Boys (2012-13)	Boys (2013-14)	Girls (2012-13)	Girls (2013-14)
1	Tondiarpet	100.19	100.20	101.28	101.31
2	BasinBridge	99.17	99.18	101.5	101.56
3	Pulianthope	99.72	99.73	101.5	101.48
4	Ayanavaram	100.1	100.11	101.7	101.68
5	Kilpauk	99.13	99.14	101.2	101.24
6	Ice House	100.81	100.82	101.42	101.45
7	Nungambakkam	100.95	100.96	101.21	101.24
8	Kodambakkam	100.79	100.8	101.32	101.35
9	Saidapet	100.21	100.22	100.39	100.42
10	Mylapore	100.81	100.82	101.28	101.31
Chennai		**100.19**	**100.19**	**101.27**	**101.30**

Source: SSA Report

While, the GER numbers by themselves are very good, the GER value is greater than 100 in zones Tondiarpet, Ice house, Nungambakkam, Kodambakkam, Saidapet and Mylapore for boys. Kilpauk recorded the lowest enrolments for both boys and girls. For girls, the GER is greater than 100 for all the zones. Chennai has an average GER of 100.19% across all zones in 2012-13. The GER for girls stood at 101.27% in 2012-13. The reason for values being greater than 100% could be because of grade repetition and entry at ages younger or older than the typical age at that grade level. Identifying these repeaters is going to be a tough task for SSA.

A comparison between 2012-13 and 2013-14 indicates that the GER values remain the same.

Completion Rate and Dropout Rate in Primary Education

The primary completion rate is the ratio of the total number of students successfully completing (or graduating from) the last year of primary school in a given year to the total number of children of official graduation age in the population.

It may be observed that the State of Tamil Nadu has done exceptionally well in primary completion. It may be important to note that State Government policies and programmes are focused on achieving 0% dropout ratio. Given this background, it may be interesting to look at both completion rate and the dropout rate for Chennai.

TABLE 4. 2 - PRIMARY COMPLETION RATE & DROP OUT RATE ZONE-WISE

Zones	Primary Completion Rate							Primary Drop out rate						
	Boys		**Girls**		**Total**			**Boys**		**Girls**		**Total**		
	2011-2012	**2012-13**	**2011-2012**	**2012-13**	**2011-2012**	**2012-13**	**2013-14#**	**2011-2012**	**2012-13**	**2011-2012**	**2012-13**	**2011-2012**	**2012-13**	**2013-14#**
Tondiarpet	96.92	97.33	97.36	97.46	97.12	96.7	97.39	1.08	1.08	1.19	1.09	1.05	1.08	1.10
BasinBridge	96.83	97.24	96.55	96.65	97.13	96.11	96.94	0.77	0.77	1.01	0.92	1.05	0.85	1.00
Pulianthope	96.38	96.79	97.26	97.36	97.13	95.66	97.07	1.91	1.91	1.01	0.92	1.05	1.42	1.90
Ayanavaram	98.00	98.41	97.43	97.53	97.46	97.03	97.97	0.66	0.66	1.17	1.07	0.98	0.87	1.00
Kilpauk	96.65	97.06	97.44	97.54	97.12	96.7	97.30	0.91	0.91	1.10	1.01	1.17	0.96	1.10
Ice House	96.73	97.14	97.26	97.36	97.13	96.44	97.25	0.48	0.48	1.42	1.30	1.05	0.89	0.70
Nungambakkam	98.17	98.58	97.55	97.65	97.32	96.9	98.12	0.91	0.91	1.38	1.26	1.13	1.09	1.10
Kodambakkam	96.82	97.23	97.26	97.36	96.79	95.91	97.29	0.77	0.77	1.23	1.13	0.97	0.95	1.60
Saidapet	96.75	97.16	97.35	97.45	97.12	96.7	97.30	0.83	0.83	1.01	0.92	0.92	0.88	0.80
Mylapore	96.79	97.2	97.15	97.25	96.96	96.54	97.22	0.90	0.90	1.22	1.12	1.09	1.01	0.90
Chennai	**97.00**	**97.41**	**97.26**	**97.36**	**97.13**	**96.71**	**97.39**	**0.92**	**0.92**	**1.17**	**1.07**	**1.05**	**1.00**	**1.10**

Source: SSA,#2013-14 Data available only for Total

Generally, dropout rate is defined as the ratio of pupils who fail to finish the school year as well as those who finish the school year but did not enrol in the succeeding year to students enrolled in the previous year. However the data is difficult to obtain unless it is covered by enumeration. Hence, we looked at two different data sets published by the government – namely, children never enrolled in schools and out of school children.

It may be observed from Table 4.2, for all of Chennai, the primary education dropout ratio was around 1%. As it is, there are no substantial differences with respect to zones on this parameter. Pulianthope and Ayanavaram form the upper and lower bound for the dropout rate. Although a lower drop-out rates are good for the district, it still remains to be studied whether the lower

drop-outs in primary are because of various measures taken by SSA or because of the external factors such as government policies. Almost all zones show marginal increase of completion rate during 2013-14. The various initiatives taken by SSA to improve the quality of education is given in Box 4.1.

Box 4.1 – Initiatives for improvement in quality of education

There are a number of initiatives taken by SSA to improve the quality of primary and upper primary levels. The following are the major efforts:

- Activity Based Learning (ABL) is implemented in all Government and Aided schools at primary level forClasses I-IV, Simplified Active Learning Methodology (SALM) for Class V and Active Learning Methodology (ALM).for Classes VI-VIII.
- TV and DVD players have been supplied to all Government primary and upper primary schools
- Learning corners have been set up in all schools and supplementary readers have been supplied for them.
- Science Mobile Van
- The State Government provides free textbooks for all subjects to all children studying in classes I to X standard.
- Similarly free uniforms were provided to all children studying in Classes I-VIII by the State Government.
- For effective classroom processes TLM grant and School grant are provided to all Government and Aided schools.
- 132 Computer Aided Learning centres have been established in132 schools.

Source: SSA Report

Upper Primary Education

Enrolment Rates in Upper Primary

Similarly, Table 4.3 shows the total enrolment across all the zones in Chennai for the upper primary education. The upper primary data on enrolment shows a flat trajectory with the enrolment figures staying the same across all the zones during both 2012-13 and 2013-14. As discussed earlier, some of the zones like Ice house, Todiarpet, Basin Bridge, Pulianthope have registrations lower than the average for all zones. Though it could be related to size of the age of school-going population, it is abysmally low for Ice House.

TABLE 4.3 - GER - GENDER-WISE IN UPPER PRIMARY

S. No.	Zone	Boys (2012-13)	Boys (2013-14)	Girls (2012-13)	Girls (2013-14)
1	Tondiarpet	101.9	101.77	102.14	102.14
2	Basin Bridge	102.39	102.26	101.12	101.12
3	Pulianthope	101.79	101.66	101.44	101.44
4	Ayanavaram	102.48	102.35	101.21	101.21
5	Kilpauk	101.80	101.67	101.82	101.82
6	Ice House	102.43	102.30	102.17	102.17
7	Nungambakkam	101.88	101.75	103.39	103.39
8	Kodambakkam	102.31	102.18	101.23	101.23
9	Saidapet	101.78	101.65	103.77	103.77
10	Mylapore	103.14	101.23	101.23	101.23
Chennai		**102.19**	**102.06**	**101.95**	**101.95**

Source: SSA

The GER Table shows that the upper primary performance is not good compared to GER of primary. The higher GER values may be due to higher age entrants or repeaters which needs to be probed.

Completion Rate and Dropout Rate

Upper primary completion rate is defined as the ratio of number of upper primary school graduates to number of children of upper primary school graduation age.

TABLE 4.4 - UPPER PRIMARY COMPLETION RATE AND DROP OUT RATE

Zones	Upper Primary Completion Rate							Upper Primary Drop out rate						
	Boys		**Girls**		**Total**			**Boys**		**Girls**		**Total**		
	2011-2012	**2012-13**	**2011-2012**	**2012-13**	**2011-2012**	**2012-13**	**2013-14#**	**2011-2012**	**2012-13**	**2011-2012**	**2012-13**	**2011-2012**	**2012-13**	**2013-14#**
Tondiarpet	96.57	96.7	97.71	97.81	97.05	97.24	98	2.71	2.57	2.09	2.09	2.46	2.33	1.40
Basin Bridge	97.55	97.7	98.01	98.11	97.82	97.88	97.55	1.85	1.76	2.19	2.19	2.00	1.97	1.80
Pulianthope	97.44	97.5	98.58	98.68	98.02	98.11	97.9	2.03	1.93	1.55	1.55	1.65	1.74	1.60
Ayanavaram	99.16	99.3	99.1	99.2	99.16	99.23	98.3	0.24	0.23	0.45	0.45	0.53	0.34	1.60
Kilpauk	98.37	98.5	99.07	99.17	98.76	98.82	97.58	1.48	1.41	0.94	0.94	1.10	1.17	1.40
Ice House	98.42	98.5	98.58	98.68	98.6	98.6	97.72	1.24	1.18	1.3	1.3	1.29	1.24	1.10
Nungambakkam	97.6	97.7	98.61	98.71	98.17	98.2	98.34	2.17	2.06	1.31	1.31	1.71	1.69	1.20
Kodambakkam	97.86	98.0	99.07	99.17	98.46	98.57	97.26	2.03	1.93	0.92	0.92	1.44	1.42	1.50
Saidapet	99.25	99.4	98.76	98.86	98.97	99.11	97.98	0.79	0.75	1.21	1.21	1.02	0.98	1.60
Mylapore	98.71	98.8	98.52	98.62	98.46	98.72	97.9	1.21	1.15	1.67	1.67	1.51	1.41	1.20
Chennai	**98.09**	**98.21**	**98.60**	**98.70**	**98.35**	**98.45**	**97.83**	**1.58**	**1.50**	**1.36**	**1.36**	**1.47**	**1.43**	**1.40**

Source:SSA,#2013-14 data available only for Total

Table 4.4 indicates that the Completion rate and Dropout rates in all of Chennai's zones are good. There is no significant difference between the Upper primary completion rate and Upper primary dropout rate over the years, as the completion rate nears 100. Achieving 100% completion rate may only be possible through concerted and consistent efforts by the stakeholders.

Transition Rate from Primary - Upper Primary and Upper Primary - Secondary

Transition rate is the next important measure of education perspective as part of human development index. Transition rate talks about what is the percentage of people move from primary to upper primary schooling. The rate makes it mandatory to study up to the age of 14. If one assumes successful completion of education at a particular when a student reaches age of 14, he or she should have completed upper primary. As per SSA report, Sarva Siksha Abhiyan focuses on quality and improved education of children at this level as well. Given this background, one would expect Chennai to reach 100% transition rate.

TABLE 4.5 - TRANSITION RATE

Zones	Primary to Upper Primary							Upper Primary to Secondary					
	Boys		**Girls**		**Total**			**Boys**		**Girls**		**Total**	
	2011-12	**2012-13**	**2011-12**	**2012-13**	**2011-12**	**2012-13**	**2013-14***	**2011-12**	**2012-13**	**2011-12**	**2012-13**	**2011-12**	**2012-13**
Tondiarpet	98.80	98.80	98.60	99.03	99.00	99.10	98.53	97.01	97.05	99.10	99.60	98.30	98.30
Basin Bridge	98.80	98.80	97.60	98.30	98.50	98.60	98.55	98.10	98.14	97.40	97.90	97.00	98.00
Pulianthope	98.90	98.90	97.60	98.30	98.50	98.60	98.56	97.31	97.35	96.30	96.80	96.80	97.10
Ayanavaram	98.60	98.60	98.20	98.90	98.70	98.70	98.73	96.39	96.43	97.10	97.60	96.80	97.00
Kilpauk	98.40	98.40	98.30	98.90	98.60	98.70	98.27	97.08	97.12	97.30	97.70	97.20	97.40
Ice House	98.90	98.90	99.10	99.80	99.20	99.30	98.12	98.09	98.13	98.20	98.70	98.20	98.40
Nungambakkam	98.80	98.80	98.60	99.30	99.00	99.10	98.53	98.49	98.53	95.20	95.60	96.80	97.10
Kodambakkam	95.80	95.80	98.10	98.70	97.20	97.30	98.39	98.11	98.15	98.30	98.70	98.20	98.40
Saidapet	97.90	97.90	98.30	99.00	98.30	98.40	98.12	99.20	99.24	99.40	99.80	99.30	99.50
Mylapore	98.90	98.90	98.60	99.30	99.20	99.10	98.45	99.32	99.36	98.20	98.70	99.30	99.00
Chennai	**98.30**	**98.38**	**98.30**	**98.98**	**98.62**	**98.69**	**98.4**	**97.91**	**97.95**	**97.70**	**98.10**	**97.80**	**98.00**

Source: SSA *Data for 2013-14 available only for Total

For Chennai, Table 4.5 shows that the average transition rate from primary to upper primary is more than 98% for both boys and girls. It may also be observed that there is no significant difference across the zones. Like in the case of completion rate, in transition rate, girls fare marginally better than the boys.Apart from these indicators, it is important that the reading and writing skills of primary and upper primary children are improved in unconventional ways. One of the methodology mentioned in the SSA report is the activity based learning which supposedly improves the reading and writing skills. The overview of this is given in Box 4.2.

Box 4.2 – Reading and writing skills for primary and upper primary school children

Activity-Based Learning or ABL has been a boost to education. The skills for reading and writing in the primary and upper primary school children are imparted through the ABL methodology. Under the ABL methodology, a combination of audio-visual technology along with print materials is used to train the children to speak in second language. The print materials, teaching manuals are all developed, printed and distributed by SSA itself. These materials encourage children to actively participate in the classroom discussion thereby enabling them to communicate and learn effectively.

To augment the classroom experience, an audio visual CD "Hello English" developed by Regional institute of English was given to selected schools and children were exposed to it. Children watched the CD and then did activities suggested on it. Teachers and students were delighted with their programme and have been able to overcome psychological barrier in learning English. The success of the programme has enabled SSA to expand the program across different schools in Tamil Nadu. The list of CDs now includes "Simply English" and "English around us".

Source : SSA report

Access to Schools

As per norms of the Government of Tamilnadu, Chennai Corporation areas has more number of schools when compared to other districts.

TABLE 4.6 – AVAILABILITY OF SCHOOLS

Zones	Number of Habitations	Number of Primary Schools	Number of Upper Primary Schools
Tondiarpet	13	27	16
Basin Bridge	13	19	20
Pulianthope	18	33	25
Ayanavaram	18	21	17
Kilpauk	14	25	21
Ice House	15	21	21
Nungambakkam	18	24	25
Kodambakkam	17	20	19
Saidapet	16	16	17
Mylapore	12	23	16
Chennai	**155**	**229**	**197**

Source : SSA

Table 4.6 gives the total number of schools in each zone.

As per our discussions with authorities, Chennai district is sufficient in terms of number of schools and is able to satisfy the demand because of which we do not find any new additions in the recent years. Also, the Chennai Corporation plays an important role in ensuring education reaches the lowest strata of the society as well. Box item 4.3 illustrates the role played by the Chennai Corporation.

Box 4.3 Role of Corporation Schools in Education

Education Department, Corporation of Chennai which was started with 40 primary schools in the year 1912. The socio-economic needs of the Chennai population is met by the Education department of Chennai corporation. According to the open source information, there are 42 high schools and 19 higher secondary schools run by Corporation of Chennai as of 2015. Also, there are a number of primary and secondary schools run by the corporation.313 Schools are maintained by the Corporation of Chennai comprising 139 Primary Schools, 109 Middle Schools, 42 High Schools and 27 Higher Secondary Schools.

The web site of Corporation of Chennai lists objectives of the education department. One may note socio –economic objectives of Chennai population are being fulfilled through the department.

Some of the salient activities of Chennai corporation is listed here and is illustrative.

1. All Corporation schools follow The Tamil Nadu State Board syllabus. Co - curricular activities such as Sports, Scouts & Guides, N.C.C., N.S.S., J.R.C., have been introduced for developing rounded personality.
2. Corporation School total health programme is aimed at life coping skills, way to live healthy life, interact with community and self-confident individuals.
3. Teachers are encouraged to go through extensive training in English to impart language skills.
4. All students up to primary school and students belonging to SC/ST are given free education to encourage them to attend schools. For all others from upper primary to higher secondary education, corporation schools charge a nominal tuition fees between Rs.200 to Rs.500 per student per year which is quite nominal.
5. Computer education and education through computers is being imparted among all the high and higher secondary schools and in many middle schools.
6. Corporation of Chennai has established four centres to help those who could not afford higher education in the fields of Nursing, Mechanism, Computers, Bakery Industries, Office Management etc., without any donations or without any tuition fee or Special fee.
7. Chennai Corporation has set up an Industrial Training Institutes in six trades namely: Computer Operator and Programming assistant; Plumber; Electrician; Fitter; Electronic Mechanic and Mechanic Motor Vehicle. This was first initiated with one trade in 2007 and all six are operational from 2011.
8. Corporation schools implement welfare programmes of the government and also do a number of incentives and awards to students and teachers.

   There are certain challenges in operation of Corporation schools. Some of these are highlighted by various studies and experts. There are opportunities in such challenges as well. Some of these are:

   1. Corporation schools have challenge of infrastructure. With increase in registration of students and class levels going up, space is a constraint.
   2. Schools which were established long time back have problem of developing infrastructure because of congested growth of localities. Lack of playground in some of the schools is a common problem for many schools including the private schools.

Reference: http://www.chennaicorporation.gov.in/departments/education/history.htm

Pupil Teacher Ratio

It is an important measure to improve the overall quality of education. Also, availability of quality teachers and recruiting them on time is an essential aspect of development management in education for a society. The key indicator for this is Pupil Teacher Ratio(PTR) for different levels namely primary school and upper primary school. This ratio is defined as the total number of enrolments in the schools to the total number of teachers in the schools. Generally, a lower number is desired because lower PTR indicates more number of teachers per student so that individual focus is provided.

TABLE 4.7 A – PUPIL TEACHER RATIO (PRIMARY)

Zones	Primary				
	2009	**2010**	**2011**	**2012**	**2013**
Tondiarpet	32.57	30.2	27.44	30.2	33.12
Basin Bridge	27.19	25.58	23.25	25.58	27.03
Pulianthope	26.02	29.77	27.06	29.77	26.61
Ayanavaram	26.31	29.83	27.11	29.83	24.4
Kilpauk	23.59	30.12	27.38	30.12	24.02
Ice House	23.72	24.80	22.54	24.80	29.68
Nungambakkam	24.06	33.11	30.09	33.11	24.69
Kodambakkam	22.78	24.80	22.54	24.80	23.23
Saidapet	24.82	34.97	31.78	34.97	28.33
Mylapore	27.93	24.95	22.67	24.95	28.71
Chennai	**26.05**	**29.05**	**24.99**	**29.95**	**26.98**

Source: Sarva Siksha Abhiyan (SSA)

TABLE 4.7 B – PUPIL TEACHER RATIO (UPPER PRIMARY)

	Upper Primary				
	2009	**2010**	**2011**	**2012**	**2013**
Tondiarpet	48.72	37.51	32.52	37.51	30.66
Basin Bridge	35.84	30.53	26.47	30.53	17.15
Pulianthope	32.53	28.34	24.57	28.34	26.42
Ayanavaram	30.21	32.49	28.17	32.49	26.33
Kilpauk	29.4	35.22	30.54	35.22	27.81
Ice House	21.66	23.7	20.55	23.7	18.75
Nungambakkam	26.02	29.01	25.15	29.01	17.04
Kodambakkam	22.28	34.91	30.27	34.91	32.48
Saidapet	41.48	30.29	26.26	30.29	28.05
Mylapore	41.42	32.56	28.23	32.56	28.04
Chennai	**31.31**	**36.11**	**34.82**	**36.11**	**25.27**

Source: Sarva Siksha Abhiyan (SSA)

It may be seen from Tables 4.7A and 4.7B that PTR shows a mixed trend over the years for both Primary and Upper primary. In the case of primary, although the overall Chennai data is better at 26, the Zone Tondiarpet has a poor PTR. The variation could be because of the changes in the strength of students in the class and also because of attrition/recruitment of teachers and this is not clear from the data.

Basin Bridge has shown good improvement during 2013 with lowest PTR of 17.15. The zone Kodambakkam shows a difference in trend for primary and upper primary. While primary PTR values are better, it is the upper primary which is a cause for concern.

The PTR for 2011 for primary stands at 24.99 while for upper primary it is 34.82 in order to maintain ratio of 1:40, which stands well in comparison with the all India ratio of 30:1 for primary 1:35 for upper primary. So, the pupil teacher ratio is moderate in Chennai compared to other districts.

Secondary Education

The data for secondary education is consolidated for entire Chennai district due to non-availability of zone-wise data from Rashtriya Madhyamik Shiksha Abhiyan (RMSA) department. Here we present the relevant indicators for secondary education taken overall.

TABLE 4.8 - SECONDARY EDUCATIONAL INDICATORS – 2013-14

Indicators	Boys	Girls	Total
GER	85.91	91.07	88.39
NER	75.28	79.21	77.17
Transition rate VIII-IX	89.21	87.06	88.14
Transition rate IX-X	93.88	96.34	95.09
Completion Rate	85.09	85.64	85.74
Dropout rate	8.44	8.57	8.53

Source: Rashtriya Madhyamik Shiksha Abhiyan (RMSA)

In all the major indicators, the performance of secondary education is lagging behind. A field visit to RMSA and also interaction with various secondary education teachers in this regard especially regarding dropout rate indicates:

1. Most of the parents of the wards are employed in the informal sector. As the wards attain the physical stamina and growth, in order to help family the wards are engaging in informal sectors for pecuniary gains.
2. Currently, till class 8 there is a lack of rigour in assessment and a liberal approach of students towards learning. It is widely perceived by parents that education becomes more rigorous from standard 9. Since parents do not have time to devote to educating the children they do not take it seriously when the wards drop out from schools. A public campaign on encouraging students and parents favourably positioned towards assessment would be welcome.
3. Importantly, the dropouts are also related to parents' mentality of shifting the wards to private schools which is also a cause for concern.
4. Because of the lack in rigor of assessment till class 8, there is a lackadaisical attitude among teachers and a tendency towards perpetual absenteeism in different schools. Hence, quality of teaching suffers.
5. Heads of these educational institutions seem to lack authoritarian powers and are finding it difficult to take remedial measures against erring teachers. This also affects the quality of teaching.

Access to Higher Secondary Schools

Basic Infrastructure

As we look at the enrolment trend, the immediate relational analysis is the school infrastructure. It is important that a decent infrastructure is being provided to encourage enrolment. Access to schools is improved by providing basic infrastructure facilities in all the schools.

TABLE 4.9 - GOVT. SCHOOL INFRASTRUCTURE- CLASSROOMS

Zones	Total No. Of Schools	With 3 class rooms	more than 3 class rooms	With out toilet	Without girls toilet	Without Electricity	Without compound wall	Without Drinking water	Without desk and chair
Tondiarpet	35	0	35	1	7	0	2	0	0
Basin Bridge	28	0	28	0	1	2	1	0	0
Pulianthope	46	0	46	1	6	0	3	0	0
Ayanavaram	32	0	32	1	3	0	1	0	0
Kilpauk	34	0	34	0	3	0	0	0	0
Ice House	27	0	27	0	1	0	0	0	0
Nungambakkam	31	0	31	0	2	0	0	0	0
Kodambakkam	32	0	32	1	6	0	1	0	0
Saidapet	29	0	29	1	4	0	1	0	0
Mylapore	32	0	32	0	7	0	0	0	0
Chennai	**326**	**0**	**326**	**5**	**40**	**2**	**9**	**0**	**0**

Source: SSA

The status of government school infrastructure is good with all schools having more than 3 classrooms (Table 4.9). These schools currently lack in one of the most important indicator, namely, Schools without Girls' toilet.

As per the data from SSA from the above table, there are no schools with less than 3 class rooms and all the schools have more than 3 classrooms. While, Chennai performs well in the other indicators, it can be seen that there 40 schools or 12% of the total schools that are without girls' toilet. This is a cause for concern and steps need to be taken immediately to address this gap.

From our visit to some schools, we found that the basic amenities like water facilities are not maintained properly. The PVC pipes laid in the school get easily damaged by mischievous students. The quality of materials used in these kind of facilities needs to be improved.

The general hygiene in girls' toilet is very poor. The toilets are clogged with sanitary napkins thrown by the students. There should be a proper system for maintaining hygiene in Girls' schools.

TABLE 4.10 - HOSTEL FACILITIES FOR SCHOOLS 2011

Sl.No	Hostel Name	Total no of Students
1	Govt School Hostel Rayapuram	68
2	Govt School Hostel Villivakkam	55
3	Govt Tribal Hostel	55

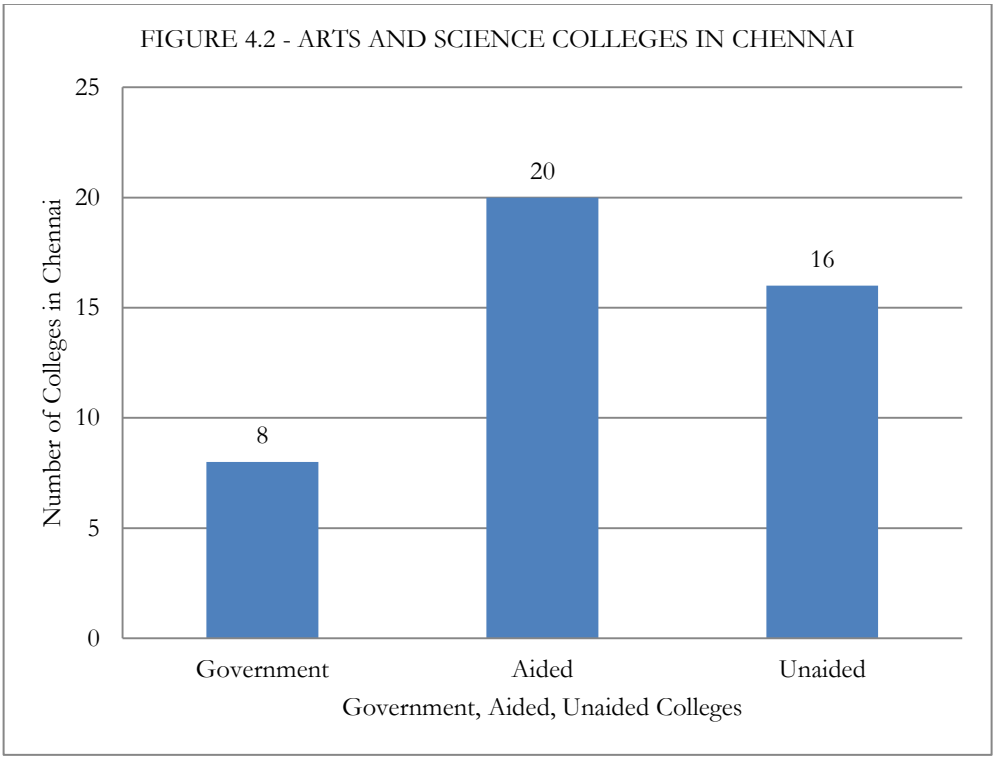
Source: District Adi Dhravidar Welfare(DADW) Chennai-600001

Technical education

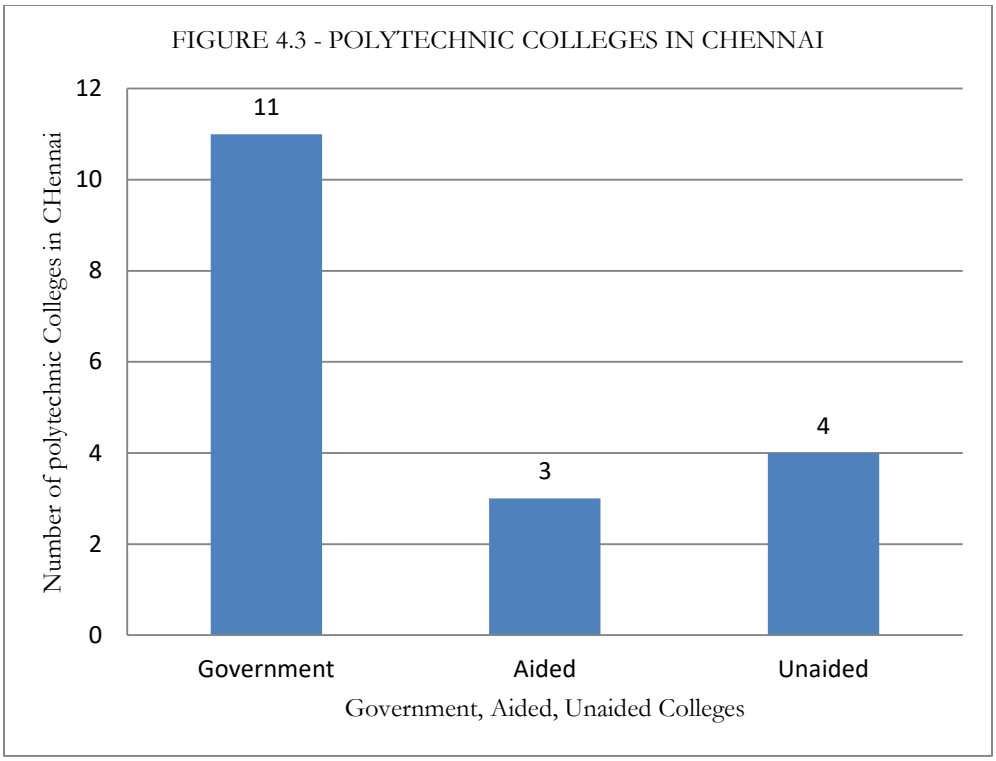
Arts and Science Colleges

Apart from the school education, Chennai has many Arts and Science colleges. The total number of these institutes stands at 44 as per the Directorate of College Education report. The following figures give the number of various institutes according to the DOCE report:

FIGURE 4.2 - ARTS AND SCIENCE COLLEGES IN CHENNAI



Source: Directorate of Collegiate Education, Government of Tamil Nadu



Source: Directorate of Collegiate Education, Government of Tamil Nadu

The number of polytechnic colleges in Chennai stands at 18. Out of this, there are 11 Government institutes, 3 Aided institutes and 4 Unaided institutes.

Research Institutions in Chennai

Chennai is the home of many research institutions across domains. The universities, institutes and colleges have well established research practice and facilities. Some of the premier research institutes are:

1. Central Leather Research Institute, located in Adyar is a leading research institute focusing on leather industry. It is a constituent of the Council of Scientific and Industrial Research, India and is the premier institution of education and research in the leather sector in India.
2. The Central Electronics Engineering Research Institute, which is an important center for electronics research in India has a branch in Chennai. The center focuses on advanced sensor technologies, process control instrumentation and automation and machine vision technologies.
3. Centers for research in mathematical, physical and computer sciences include the Institute of Mathematical Sciences (IMSc) and the Chennai Mathematical Institute (CMI). The IMSc focuses

on research in theoretical computer science, mathematics, and theoretical physics, while the CMI specializes in algebraic geometry, representation theory, Lie groups, logic, languages and automata theory.

4. Madras School of Economics, a premier post-graduate institution for teaching and research in economics is in Chennai.
5. Madras Institute of Development Studies focuses on research in the development sector.
6. M.S.Swaminathan Foundation is another leading international research foundation located at Chennai.
7. The Institute for Financial Management and Research, which is a leading business school and a prominent research institution in the area of finance and economics, is located at in Chennai. Also, there are a number of management institutions like Loyola Institute of Business Administration, Great Lakes Institute of Management, Department of Management Studies, IIT, Madras and others offering management education and research.

Reputed Institutes of Higher Learning

IIT Madras started in 1959 is ranked among the top centres of engineering education in India. College of Engineering, Guindy is among the best known engineering colleges in India. Anna University (1978) is formed from a merger of the College of Engineering, Guindy (1794), the Madras Institute of Technology (1949), the Alagappa College of Technology (1944), and the University Of Madras School Of Architecture and Planning (1957). Almost all colleges in Tamil Nadu that offer programs in engineering, technology and architecture are affiliated to Anna University. There are a number of affiliated colleges, autonomous colleges in Chennai offering engineering, technology and management education in Chennai and nearby Chennai Urban Agglomeration. The growth performance of private colleges is heartening and phenomenal in attracting talents. This could be one of the reasons for Chennai becoming hub of IT industry in India. There are autonomous deemed universities operating in Chennai.

Madras Medical College, established in 1835, is one of the oldest educational institutions to offer medical education in India. Stanley Medical College, Kilpauk Medical College and Sri Ramachandra Medical College and Research Institute are other medical colleges in the city. Some of the best known doctors are alumni of these colleges. There are a few more medical colleges within agglomeration. There are also a number of dental colleges which have come up. Para medical and nursing courses are provided by hospitals and other institutions like Apollo group of hospitals, SankaraNethralaya and so on. This forms a critical base in terms of medical

education infrastructure. There are also institutions offering alternate medical education like Siddha in Chennai.

Madras Veterinary College established in 1903 was the first institution of its kind in India. The arts and science colleges in the city include Loyola College, Women's Christian College, Madras Christian College and Presidency College. Some of the schools in Chennai are recognized among the top schools in the nation. Loyola ranks among the top 10 colleges in India consistently. Over the last three decades more of colleges including women's college. Apart from colleges which run regular programmes, school of arts and dance also trains professionals. There is a film institute which produces high level technicians, artists and creative media professionals. There are again institutions offering media programme and creative media programmes in Chennai.

Some of the names of above mentioned institutions include: Vivekananda College (1946), The New College, Chennai (1951), Madras School of Social Work Chennai (1953), DG Vaishnav College Chennai (1964) all of which affiliated themselves to the University of Madras on its formation. Other autonomous educational establishments include B. S. AbdurRahman University (1984), SRM University (1968), Bharath University (BIHER) (1974), Sathyabama University (1987), Queen Mary's College (1914), Women's Christian College (1915), Ethiraj College for Women (1948), Loyola College, Chennai (1925), Stella Maris College (1947), Stella Matutina College of Education (1961), the National Institute of Fashion Technology (1995), Asian College of Journalism (2000) and the Madras School of Social Work (1952). The Dr. Ambedkar Government Law College, Chennai, a prominent law college in Tamil Nadu was founded in 1891.

Libraries

Libraries are key constituent of higher education system. Chennai has some well-known internationally acclaimed libraries. The Connemara Public Library built in 1890 is one of the four National Depository Centres in India. These centres receive a copy of all newspapers and books published in India. It has been declared as a UNESCO information centre. Other important libraries include the Archaeological Survey of India library at the Fort St. George, the Theosophical Society library at its headquarters in Adyar, the Ramakrishna Math Library and The Krishnamurti Foundation library in the premises of the Krishnamurti Foundation world headquarters. The Anna Centenary Library (ACL) is a newly established library, located in

Chennai. Built at a cost of 1,720 million, it is the largest library in Asia. An overview of this library and its facilities are given in the following case study.

Case Study 4.1: The Anna Centenary Library

The Anna Centenary Library (ACL), a state-of the-art library was inaugurated on September 15, 2010 on the occasion of the 102nd birth anniversary of the former Chief Minister of Tamil Nadu Dr. C N Annadurai, popularly called 'Anna'. By reason of his great interest towards the books and library, this library is named as 'Anna Centenary Library'.

Analysis:

At present it has five lakh books covering wide range of subjects to serve the information needs of the public, academic and corporate community. The Anna Centenary Library has a Braille Section, Own Books Reading Section, Children's Section, Periodicals and Newspapers Section, Tamil books Section and English Books Section. One of the special features of this library is that it is a partner of the World Digital Library (WDL). The average number of readers during weekdays is approximately around 1500 and it has an increased number of users during weekends which are around 1800. Some of the most utilized sections are the kids section, Tamil literature and the section which houses books on technology. Another notable section is Braille Section in which special care is taken to facilitate Braille readers. This section has 1500 printed Braille books, 145 e-books and 1080 Audio Books. The section is equipped with Braille Refreshable Display Readers. An entire book in Tamil, or any other Indian Language and English can be stored and indexed in the Braille Reader. The visually challenged can select a book of any language, stored in the Braille Reader and read line by line and page by page. The navigation controls are in Braille format which can be operated and navigated with ease. Each Reader can store 1000 books of 300 pages on an average. The section has Software tools that convert text composed in Tamil, English or any other Indian Languages in to Braille text for visually challenged readers.

This is one state of the art assets created for uplifting human development through reading and interactions on knowledge frontiers. However, the utilization needs to go up. Moreover, the spread of users must be widely distributed so that each of the domains covered are adequately used. The authorities must create campaign in colleges and schools for driving utilization of the asset. Regular competitions based on readings of new arrival, contemporary works and involving champions for connecting knowledge communities which would make the asset better utilized.

Private Schools of Chennai

The growth of Chennai schools is an interesting study by itself. It is a commonly accepted fact that the demographic profile is the driver behind the growth of schools. This was true in case of Chennai two decades back. With the accelerating growth of Chennai population, Government was not able to cater to the need of education which was why the private schools started filling this gap.

Contrary to the popular belief, since 1990's, the development of Chennai has followed the trajectory of development of schools. If we consider the reason behind this development, it is the affordability of land for starting schools. Of late, schools have started to procure land at places where the land was cheaply available with virtually no playgrounds for students. A case in point is Mugappair area. This area now hosts popular private schools but many of these schools lack basic infrastructure such as playgrounds.

A similar trend continues even today with lot of schools now being started in the Grand Southern Trunk road and NH4 – The Bangalore highway. In fact, new International schools have been located in these roads.

Chennai is renowned for competitive educational infrastructure. It is home to many famous private schools like Padma Seshadri Bala Bhavan, Sishya, SBOA School and Junior College and D.A.V. Currently, the private schools cater to the demand of Chennai's burgeoning young population. The history of some of these schools date back to 1960s.

Type of private schools

The private schools of Chennai can be classified into different categories based on the curriculum they follow as in: Central Board of School Education (CBSE); Indian Certificate of Secondary Education, The International Baccalaureate (IB) - International; Matriculation; Montessori and Nursery.

Demand for Private Schools

As pointed out earlier, to satisfy the need for education among the school age population, there are a lot of private schools in Chennai. Based on the student population group they cater to, various schools are as under:

TABLE 4.11: NUMBER OF SCHOOLS OTHER THAN CORPORATION SCHOOLS

Type of Schools	Number of Schools
Aided High Schools	47
Aided Higher Secondary schools	103
Aided Primary Schools	127
Aided Primary Schools (Special)	2
Aided Middle Schools	77
Matriculation Higher Secondary Schools	208
Matriculation High Schools	122

Anglo-Indian High Schools	4
Anglo-Indian Higher Secondary Schools	17
Kendriya Vidyalaya Schools	5

Source: http://www.chennai.tn.nic.in/schools.htm

Conclusion

Chennai is doing well in terms of primary, upper primary, secondary and higher education over the years as reflected in the data analysis. However, as is evident from the data, there is a need to seamlessly coordinate between SSA and RMSA to ensure the success of SSA is carried over to the secondary education. Currently, there is a high dropout rate in secondary education primarily due to availability of work elsewhere, pressure to perform in secondary education and lack of power with the higher authorities in the schools to take corrective measures.

Most importantly, there is a need to educate parents on coping with the change in assessment from class 9. Suitable awareness campaigns may be conducted from primary so that parents are also able to cope with the assessment methods.

In addition to assessment mechanisms, the government has to evolve a sustainable way of maintaining hygiene and regularly maintaining toilets and other facilities in the schools.

There is pressure for using increased educational resources and the government may have to work more ingeniously in striking Public – Private Partnership like allowing corporation and government assets to be rebuilt for incremental capacity addition.

CHAPTER 5
GENDER

CHAPTER 5 GENDER

Introduction

This chapter analyses the status of women in Chennai on different parameters like education, health, employment and social status. Women population is analysed for literacy rate, participation in work force, and sex ratio. The level of resource accessibility by women is also given in terms of number of SHGs and their credit amount. Women's health provides policy inputs in terms of development schemes for the government. Social parameters like average age of marriage indicates the status of women in our society and provide inputs to policy makers.

Gender disparities are prevalent in all societies and India is no exception. Gender inequities in human development are an important issue to be addressed by policy makers. Indian women have grown in status during last decade due to improvement in education, employment opportunities, health status, awareness about society and increasing role in family unit. More women are employed today and more are involved in economic activity. But this development is more in urban areas than rural areas. Compared to men, women are still lagging in many parameters like literacy, marriage, employment, health.

The third UN millennium development goal is related to discrimination against women in the society. The constitution of India confers equal rights and opportunities for men and women in the political, economic and social areas. Gender equality and the empowerment of women is one of the objectives of the Tenth Plan (2002-07). The government announced the National Policy for the Empowerment of Women in 2001.

Status of Women

TABLE 5.1 COMPARATIVE STATUS OF WOMEN

	Chennai District
Female Population	2310888
% in total population	49.3%
Sex-ratio	986
Female literacy	87.16
School enrolment	100 % (Rounded off)
MMR	33
No. of women worker in agriculture sector	4236
No. of women in non-agriculture sector	362910

Source: Census 2011

The population has a share of 49% women and Tamil Nadu scores better compared to all India statistics. This is reflected in the sex ratio. As per Census 2011, the proportion of total child population in Chennai has fallen from 10 in 2001 to 9.9 in 2011. The proportion of female children is lower than males. The child sex ratio has fallen from 972 (2001) to 950 (2011). It is observed that the child sex ratio is lesser than adult sex ratio in all zones as per 2011 census which is a cause of concern. The share of female children also stood at 49%.

Similarly on female literacy though Tamil Nadu scores better than All India, Chennai is well above at 87 per cent reflecting the character of a metropolitan city which focuses on advancement of literacy levels. School enrolment for girls is around 99.7 per cent. While MMR is high for All India, relatively high for Tamil Nadu, it is 33 in Chennai. This reflects the support system mothers receive in the city of Chennai from the Corporation health services.

Chennai economy is predominantly non-agricultural in character, in which women participation is high. Women are employed in both formal and informal sectors. Formal sectors include apart from government and its agencies, education sector mainly in schools, banks and financial services, Information Technology, Business Process Outsourcing companies, hospitals, hospitality (hotels & restaurants), merchandising in shops, malls and manufacturing like electronic, garments and so on. The informal sector includes women working as house maids and support housekeeping function at offices. For Chennai the WPR has improved between the years 2001 and 2011 from 34.3 to 39.1 respectively. The WPR for males also grew from 54.1 to 58.6 between 2001 and 2011. However the WPR for females continued to be less than that of males. It however grew from 13.5 in 2001 to 19.4 in 2011. Infact as per Census 2011, districts of Erode, Namakkal, Perambalur and Tiruppur had higher WPR than that of Chennai.

TABLE 5.2: GENDER INDICATORS – ZONE WISE

Zone	Female Literacy Census 2011	Female WPR Census 2011	Male WPR Census 2011
Tondiarpet	82.4	15.86	59.62
Basin Bridge	84.7	15.10	58.06
Pulianthope	81.5	16.29	57.91
Ayanavaram	85.3	18.15	58.07
Kilpauk	86.5	20.48	58.53
Ice House	85.5	19.35	58.50
Nungambakkam	91.9	22.08	60.14
Kodambakkam	93.8	22.72	59.69
Saidapet	87.3	19.32	57.95
Mylapore	92.8	24.14	58.46

Source: Census 2011

Table 5.2 shows that in 2011, overall literacy rate was 90.18% as compared to 85.33% during 2001, showing an improvement. The average male literacy rate was 93.7% in Chennai district. The average female literacy rate was lower at 86.64% in 2011, which was an improvement over 2001 when it was from 80.4%.In case of female literacy, Kodambakkam, Mylapore and Nungambakkam were among the top 3, whereas Pulianthope, Tondiarpet and Basin Bridge were the bottom 3. The gender gap was lowest in Nungambakkam. The female literacy rate in Chennai was much better than in Tamil Nadu (73.4) and India (64.6) in 2011. Kanniyakumari at 89.9 was the best for female literacy in 2011 among the other districts.

Table 5.3: MMR and Institutional deliveries for Chennai 2013-14

	Thiruvottiyur	Manali	Madhavaram	Tondiarpet	Royapuram	Thiru-Vi-Ka-Nagar	Ambathur	Anna Nagar	Teynampet	Kodambakkam	Valsaravakkam	Alandhur	Adyar	Perungudi	Shozhiganallur	Total
MMR	21.6	NA	64.3	60	39.7	22.6	35	29.8	40.9	11.2	NA	0	28.7	NA	NA	32.9
% of Institutional Deliveries	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: District Family Welfare Bureau, Corporation of Chennai

Table 5.3 gives the figures to understand the status of gender in the zones. Among the zones, Madhavaram and Royapuram has performed poorly compared to other zones. Across the zones more than 99% of all births took place in hospitals, health and other private clinics under proper care in 2011. The effort of the government for better awareness has resulted in better institutional deliveries. The Chennai figures are better than for Tamil Nadu (94%). Again with respect to ante-natal coverage: in 2011, this was 100% in Chennai and is better than that of Tamil Nadu (95.6%).

Box 5.1 Status of Gender in the district

Table: Women Development Indicators

Indicators	Chennai		Tamil Nadu	
	2007-08	2012-13	2007-08	2012-13
Mean age of marriage for girls	23.1	23.2	21.3	22
Married women below 18 years of age %	6.3	2.2	9.1	5.3
Married women who are illiterate %	NA	14.2	22.3	31.9
Married women with 10 or more years of schooling %	NA	57	29.1	36.1
Pregnant women who received any antenatal check-up %	100	80.8	98.8	90.7
Pregnant women who had three or more ANC visits	99.5	58.5	95.6	71.2

Source: DLHS 2007-08 and 2012-13

It can be seen that female worker participation is lagging much behind the male workers, much more so in the non-agricultural sector. The market is skewed towards male worker participation which is consistently above 100% across the zones. The literacy rate for females is also less than that of males. However the government has made efforts to improve the maternal health indicators which over time have shown improvement.

Overall women are doing well in Chennai. The average age of marriage has improved and more women are literate before their marriages. But with respect to maternal

health, there is a decline in status.

The sex ratio of 986 women for every 1000 men is better than 2001 data (957). The child sex ratio is not showing healthy signs. It has declined by 2.25% in 2011 compared to 2001. There is gender bias in cities like Chennai. Though government has worked to stop infanticide, many incidents occur but are under-reported. With improvement in literacy among women and better awareness, it can be hoped that this problem will get solved in the future. Due to development of IT sector in Chennai, more women have more employment opportunities. With more women going to work in different sectors, there is a hope for gender equality in all fronts in the society.

Access and Control over Resources

Mahalir Thittam is a socio-economic empowerment programme for women implemented by Tamil Nadu Corporation for Development of Women Ltd (TNCDW). Mahalir Thittam is based on Self Help Group (SHG) approach and is implemented in partnership with Non-Governmental Organisations (NGOs) and Community based organizations.

The SHG approach was started in a small way in Dharmapuri district in the year 1989 with the assistance of International Fund for Agricultural Development (IFAD). Later the scheme was extended to the erstwhile Salem and South Arcot districts in the year 1991-1992 and further extended to Madurai and Ramanathapuram in the year 1992-93. Following the success of the IFAD project, Mahalir Thittam project was launched with State Government funding from 1997-1998 and was progressively introduced in all districts of the State. Today this has grown into a mammoth movement covering all districts of the State targeting poor families and the marginalised sections of the society.

TNCDW which has been spearheading the SHG movement has brought out qualitative change in the lives of women through its definitive interventions over the last two decades. In order to enable all poor women living below poverty line to join and benefit from the Self Help Group movement, the group formation is undertaken with special focus on NREGS women workers, urban slum dwellers and in Village Panchayats where SHG coverage is still inadequate. Hence, Tamil Nadu will have the distinction of enrolling all women living below the poverty line into SHG movement.

Chennai has 31,344 self-help groups operating in different zones and total members in these SHGs are 4,83,322. Some of them are getting financial assistance from government while many are self-sustaining.

TABLE 5.4: ACCESS OVER CREDIT 2011-12 (RS. IN LAKHS)

Zone	Number of SHGs	SHG Credit Linkage Amount Disbursed	Group total savings
Tondiarpet	785	18.53	79.38
Basin Bridge	817	19.78	64.08
Pulianthope	936	20.55	81.54
Ayanavaram	1086	20.93	87.84
Kilpauk	1095	21.53	78.48
Ice House	695	16.99	43.2
Nungambakkam	1097	20.93	42.3
Kondambakkam	1434	22.93	63
Saidapet	1531	25.23	82.08
Mylapore	1626	35.53	94.86

Source Tamil Nadu Corporation for Development of Women Ltd

It can be observed from the above Table 5.4 on access to resources and credit that there are more number of SHGs operating encouraging savings and there is a higher number of SHGs which are operating under the credit linked system. SHG savings deposits to disbursal shows a lower amount which needs to be improved. This would happen if velocity of deposit and credit disbursal is optimized.

Employment

The average female workers participation rate is 20% in Chennai. The zone wise worker participation rate is given in Table 5.2. The highest female worker participation is in Mylapore, a well-developed zone with more literacy. There is a strong correlation between zone wise female workers participation rate and female literacy rate in respective zones. If the female literacy rate is high then more women are participating in work force. The lowest one is Basin Bridge, where female literacy rate is low and labour force and low income people reside. The number of slums also is very high in this region.

TABLE 5.5: TRENDS IN POLITICAL PARTICIPATION

Member ship	Total No of seats	Men	Women	% of women
State Assembly	16	13	3	18.75
Local Body	200	127	73	36.5

Source: www.chennaicorporation.gov.in

Political participation figures show that women have a long way to go even in a State like Tamil Nadu where they are more empowered. Women have a share of 36.5% at the local level which is better than that seen in the State Assembly. Increasing women participation will help in enhancing work towards gender development in the state.

Women Health and Marriage status

TABLE 5.6 MATERNAL HEALTH IN CHENNAI 2007-08 AND 2012-13

MATERNAL HEALTH	Chennai (2008-09)	Tamilnadu (2008-09)	Chennai (2012-13)	Tamilnadu (2012-13)
Mothers registered in the first trimester when they were pregnant with last live birth/still birth (%)	89.8	76.8	51.4	53.9
Mothers who had atleast 3 antenatal care visits during the last pregnancy (%)	99.5	95.6	58.2	71.2
Mothers who got at atleast one TT injection when they were pregnant with last live birth/still birth (%)	100	97.2	77.6	82.7
Institutional births(%)3	100	94	98.9	98.9
Delivery at home assisted by doctor/nurse/LHV/ANM(%)3	100	94	98.9	98.9
Mothers who received post-natal care within 48 hours of delivery of their last child(%)3	98.5	85.9	81.6	61.1

Source: DLHS 2007-08 and 2012-13

In 2007-08 (DLHS – 3), 6.3 per cent of girls were marrying before 18 years which has come down to 2.2% in 2012-13 (DLHS-4). Chennai is better than Kolkata and Bangalore in this parameter. Literacy level has improved and it has had its effect on marriage incidence below 18 years of age. The mean age at marriage for girls was 23.2 in 2012-13 which is marginally higher than in the previous survey of 2007-98 which was 23.1 years.The percentage of births to women who were aged between 15-19 years out of total births was 4.9 in 2007-08 (DLHS-3) which has improved to 1.1%, according to DLHS-4. It shows that awareness about young age pregnancy is improving and it is a healthy trend among women in Chennai.

Table 5.6 on maternal health in Chennai shows 90 percent registration of mothers in their first trimester when they were pregnant. Close to 100 percent mothers had atleast three antenatal care visits in 2008-09.

Table 5.7 Ante-Natal Coverage in Chennai

Zone	2012-13		2013-14		2014-15	
	AN Registration	AN TT II doses	AN Registration	AN TT II doses	AN Registration	AN TT II doses
Thiruvottiyur	5392	5392	5162	5162	4818	4818
Manali	NA	NA	NA	NA	1332	1332
Madhavaram	1529	1529	1623	1623	1679	1679
Tondiarpet	11568	11568	11024	11024	10413	10413
Royapuram	11633	11633	10781	10781	10308	10308
Thiru-Vi-Ka-Nagar	10342	10342	9678	9678	8887	8887
Ambathur	6182	6182	6505	6505	6752	6752
Anna Nagar	11583	11583	10560	10560	10580	10580
Teynampet	12229	12229	10914	10914	10190	10190
Kodambakkam	10979	10979	9499	9499	9122	9122
Valsaravakkam	NA	NA	NA	NA	2823	2823
Alandhur	2972	2972	2697	2697	2980	2980
Adyar	7296	7296	7613	7613	7764	7764
Perungudi	NA	NA	NA	NA	3514	3514
Shozhiganallur	NA	NA	NA	NA	1144	1144

Source: District Family Welfare Bureau, Corporation of Chennai

But according to recent data from District Family Welfare Bureau, Corporation of Chennai, ante-natal coverage with two TT injections for 2013-14 was 100%.

The Tamil Nadu government has implemented a maternity assistance scheme which is described in Box 5.2.

Box 5.2 Dr. Muthulakshmi Reddy Maternity Benefit Scheme

The State of Tamil Nadu has always given precedence to the empowerment of women and children. As evidence of this priority, a number of health programmes focusing on women welfare have been announced for implementation, of which Dr.Muthulakshmi Reddy Maternity Benefit Scheme is one of the major schemes. The scheme has been strengthened to provide enhanced maternity assistance of Rs.12,000 up to two deliveries for poor women.The scheme is being continued in the Twelfth Plan period at a proposed outlay of 3,000 crore. So far, 20 lakh pregnant women have benefitted at a cost of Rs.244.7 crores from this scheme.

The consistent policy of the State is to strengthen the primary health care system by posting three staff nurses to provide 24x7 services. Although the State recorded a fall in IMR from 35 in

the year 2007 to 22 in the year 2011 (SRS 2012), a fall of more than one third over a four year period, there still remains a number of issues. The State Government undertook a number of programmes to deliver better care in all PHCs as well as providing Skilled Birth Attendant training to all staff nurses and Auxillary Nurse Midwives (ANM) along with improved facilities for emergency obstetric care developed under the World Bank funded Health Systems Project has lowered the MMR of the State. Tamil Nadu has already achieved the Millennium Development Goal (MDG of UN) of reducing MMR below 107. The MMR is 33 in 2013-14. This huge success rate was also supported by a number of programmes to reduce maternal death by properly managing antenatal care.

Conclusion

Chennai is faring well in terms of women employment. The government has also been able to work towards greater women's empowerment through various programs. The female literacy rate is 87% and school enrolment is almost 100% for girls in Chennai. It however needs to work towards greater gender sensitization in the areas of MMR and Maternal care. The awareness of marriage at the right age is good as inferred from better average age of marriage for women in Chennai. Pregnant women are now regular in check-ups and maternal care are better. They are aware of many schemes offered by government. The SHGs are doing yeoman work in bringing financial stability in the lives of women in the State. Overall, Chennai is doing well on women development and their empowerment.

CHAPTER 6

SOCIAL SECURITY

CHAPTER

6

SOCIAL SECURITY

Introduction

The State of Tamil Nadu has been in the forefront in assuming the role of a protective, benevolent parent, taking care of its citizens. It has been a forerunner for several social welfare measures. Over the years, the government has strived to cater to the most vulnerable sections of society namely, the women, the children and the handicapped. This chapter looks at the various social security schemes.

One of the ways to design for the needs of the city is to understand the age structure of a population in a city / metropolis which plays a major role in urban planning. We have seen the change in the profile of the city for the young in terms of education, the health sector has been discussed. This chapter looks at the social security programs in place in the district.

TABLE 6.1 POPULATION IN AGE GROUPS (%) & DEPENDENCY RATIO, 2001 and 2011

	Population %			**Dependency**		
Year/ Age group	**0-14**	**15-59**	**60& above**	**Dependency Ratio**	**Young Dependancy Ratio(YDR)**	**Old Dependancy Ratio (ODR)**
2001	23.1	65.6	8.1	479	—	—
2011	21	69	11	457	313	143

Source: Census 2001&2011

Chennai is seeing an increasing dependent old population and decreasing young population. (Table 6.1). The dependent ratio is 479 of which nearly 2.2% have a disability in 2001.

The young dependency ratio (YDR) of India has declined from 672 in 1991 to 621 in 2001 and to 510 in 2011. This means that child population showed a slight decline and at the same time earning population has increased. For Tamilnadu, the Young dependency ratio is 358 in 2011

and it is 313 for Chennai. The above figures are less than India's young dependency ratio. Reduction in Dependency Ratio indicates a phase of population transition where a higher percentage of persons in the working age group may translate into higher per capita income for the economy. This transition phase is faster in Chennai.

The old dependency ratio (ODR) of India has increased from 122 in 1991 to 131 in 2001. It has further increased to 142 in 2011. This is rising due to higher life expectancy at birth. For Tamil Nadu, Old dependency ratio is 158 in 2011 and it is 143 for Chennai.

For a developing country like India, the increase in the size of elderly population, may pose mounting pressures on various socio economic fronts including pension outlays, health care expenditures, fiscal discipline, savings levels etc. Again this segment of population faces multiple medical and psychological problems. There is an emerging need to pay greater attention to ageing-related issues and to promote holistic policies and programmes for dealing with the ageing society.

Recently Government of Tamil Nadu has launched a health insurance scheme for senior citizens with easy access. Due to better health care, medical facilities and economic wellbeing there is an increase in life expectancy at birth. The population of senior citizens has grown and is expected to double in the next twenty five years. The social scene has undergone drastic changes with the joint family system breaking down. Migration to cities in search of better opportunities, migrating overseas and breakdown in relationships etc. also contribute to isolation of the aged. A large percentage of these elders are poor and destitute who are in need of food and shelter. This brings to the fore the need for social security and protection in terms of medical and emotional wants. Chennai city wakes up almost every morning to the cold truth of being totally urban in terms of the cold urban spaces where many under privileged are left out in the race for higher incomes and better lives.

Demographic Profile of the Aged

In any economy, age distribution matters for productivity and providing social security to elderly population. With the age expectancy increasing, ageing population and reduction in birth rate may have pressures on managing elderly population.

TABLE 6.2 - AGE STRUCTURE IN CHENNAI METROPOLITAN AREA (%)

Age group	1961	1971	1981	1991	2001	2011
0-4	13.20	12.51	11.03	8.68	7.31	7.08
5 – 9	12.39	11.74	10.35	9.56	7.97	6.94
10 – 14	10.64	10.97	11.37	10.51	8.95	7.48
15-19	8.66	9.97	10.61	10.22	9.55	7.86
20-24	10.73	11.05	10.68	11.14	10.47	9.32
25-29	10.21	9.29	9.61	10.20	10.33	10.22
30-34	7.98	7.15	7.46	8.06	8.46	9.07
35-39	6.69	6.99	6.66	7.48	8.04	8.63
40-44	5.49	5.14	5.36	5.68	6.19	7.38
45-49	4.15	4.33	4.70	4.98	5.50	6.54
50-54	3.65	3.51	3.70	3.92	4.37	5.22
55-59	2.10	2.46	2.73	2.90	3.10	4.29
60-64	2.06	2.30	2.40	2.64	2.83	3.58
65-69	1.10	1.15	1.37	1.51	1.96	2.30
>70	1.20	1.65	1.97	2.33	3.02	3.95
Not stated	0	0	0	0.18	1.93	0
Total	100	100	100	100	100	100

Source: CMDA/TRF Study data handbook & Census of India

In 2001, the population of Chennai above 60 years of age was 8% and it has increased to 10% in 2011. Managing these people and providing enough social support should be considered more important in our governance.

Geriatrics is the branch of medicine dealing with the diseases and care of the aged which is gradually catching up the attention in India. The Government General Hospital, Chennai, is one such medical institution which treats the senior citizens exclusively. This hospital started the first geriatric treatment unit in the country in the form of an out patient department two decades back. Today it has grown into an exclusive Department of Geriatrics treating the senior citizens and teaching young medicos to treat the aged. The pioneering geriatrician in the county, Dr. V.S. Natarajan, formerly head of the Department of Geriatrics in the Madras Medical College emphasising the need of specialised medical facility for the senior citizens explains that the approach for treatment adopted by this hospital is unique.

To cope with the special needs of the elderly people, this medical unit starts with the interaction of the patient with the department's social worker. The main aim of the counseling is to ease the mental suffering of the patient as most of the old people have nobody to listen to them. The second part of the treatment is with the geriatrician who diagnoses and prescribes medicines for

them. Medicines are given for weeks free of cost and this helps the patient to take it regularly without fail. Another aspect is, elders get opportunity to meet regularly with each other when they come to the hospital and share their problems. This helps them psychologically to unleash the trauma of loneliness and tensions. The third phase of treatment is that the patient is sent to the physiotherapist to help them keep fit. Also, health camps for old people are organised in the rural areas. There are three more peripheral hospitals equipped with geriatric wards in Tamil Nadu.

Case Study 6.1: Comprehensive Health Insurance Scheme

Introduction

The Chief Minister's Comprehensive Health Insurance Scheme (CMCHIS) is one of the ambitious State sponsored health insurance schemes in the country which has received wide publicity. It was launched in January 2012 with the aim of benefiting 1.34 crore families in the State. The scheme provides cashless medical and surgical treatment in Government and Private hospitals to the members of any family whose annual family income is less than Rs.72,000/- (as certified by the Village Administrative Officers). Under the Scheme, the sum assured for each family would be Rs.1 lakh every year for a total period of four years and for a total value of Rs. 4 lakh. In the case of certain specified ailments and procedures of critical nature, the ceiling would be raised to Rs.1.5 lakh per annum. The CMCHIS includes 1016 procedures, 113 follow-up procedures and 23 diagnostic procedures. The scheme is implemented by the Tamil Nadu Health Systems Society (TNHSP) with United India Insurance Company Ltd (UIIC) as the underwriters.

Scheme implementation

Initially enrolment of beneficiaries was carried out by the empanelled hospitals through health camps. The new enrolment and issue of cards will be done through district kiosk established by the insurance company at the District Collectorate. As on May 2014, the number of smart cards issued stood at 1,29,03,756. A total of 113 single speciality and 690 multi speciality hospitals have been empanelled in the scheme. Under this Scheme, 'Insurance Wards' (designated as Ward no. 500) have been set up in public hospitals in order to improve its utilization. Besides, a 24 hour Call Centre has been set up at CMCHISTN Project Office with sufficient manpower with toll free help line. All details regarding the scheme including the list of empanelled hospitals, status of smart cards distributed, procedure list and package rates, remaining sum assured for individual smart cards are all available on the scheme's website cmchistn.com. The scheme received the e-India Jury Award 2012 for the Best Practices in Health Insurance with IT enabled solutions.

The table below shows printing, dispatching and distribution of cards among eligible beneficiaries in Chennai. About 472627 smart cards are issued in Chennai alone which is nearly 37 per cent of smart cards issued across Tamil Nadu.

SMART CARDS DETAILS FOR CHENNAI DISTRICT

	PRINTED& DISPATCHED			DISTRIBUTED		
Taluk	Phase I	Phase II	Total	Phase I	Phase II	Total
Perambur & Purasaiwalkam	121785	170	121955	118958	170	119128
Fort & Tondiarpet	117031	251	117282	114983	251	115234
Mambalam & Guindy	47962	0	47962	47961	0	47961
Chennai Corporation	120390	81055	201445	118054	71364	189418
Egmore – Nungambakkam	0	707	707	0	707	707
Mylapore – Triplicane	0	179	179	0	179	179

Source: http://www.cmchistn.com/smartcard/chennai.php, retrieved June 5, 2014

Findings:

Field survey of more than 600 women and involved focus group discussions with several city based NGOs and SHGs and key interviews with those working in insurance companies brought out the issues with regards to the awareness of the scheme among women and their perception about ease of membership and support received from the scheme. The key findings included:

- Nearly 93% of the respondents had heard and were familiar with CMCHIS. They were aware of its main benefits (100% reported its usefulness in health emergencies)
- A moderate level of awareness on empanelled hospitals (75%) and diseases and procedures covered (50%)
- Perceived difficulties in enrollment, especially among women from Chennai urban areas – which arose mainly due to lack of documents to show proof of residence, long absence from home during enumeration and migration.
- Certain misconceptions about the scheme were identified owing to the overlap with earlier schemes. For example, the increase in the total sum assured amount and the grace period of two years for using the old card was also not well publicized.
- A favorable perception on CMCHIS was seen among those who had to undergo high end procedures and also those who had availed and benefitted by the scheme.
- There was a strong need felt for financial coverage of non- communicable diseases, out-patient expenses including drugs by respondents in general.

Conclusion: CMCHIS is a well-intended scheme and women are looking forward to enjoy benefits of the scheme. However, there are misconceptions about the scheme coverage and its overlap with previous schemes. Also respondents wanted financial coverage for non-communicable diseases and coverage for out-patients expenses including drugs.

Financial security of the aged

One of the major socio economic problems faced by the elderly people is the breaking up of joint family system. Recent studies conducted among the old people (all India) shows that 35 per cent of them in the urban area are living alone. In rural area, they constitute 32 per cent. There is none to look after them - financial constraints and lack of life security adds to their troubles. Thus dependency - mentally and physically - becomes unavoidable.

Studies in Chennai, Lucknow, Delhi and Mumbai reveal that out of the surveyed older population, 52 per cent did not have any income at all. A closer look at the difficulties faced by the elderly people reveals that, it is the women who suffer most and in great numbers. The longevity of women plays an important factor in this. After the husband's death they are left to fend for themselves. Also elders are abused verbally, psychologically and physically.

Social defense of the aged has been one of the top priorities in the Government's agenda. Since 1992, the Union Ministry of Welfare (now Ministry of Social Justice and Empowerment) implemented a scheme of assistance to voluntary organisations for programmes to help senior citizens. Through this scheme, voluntary organisations are provided financial assistance to set up and continue provision of Day Care Centres, Old Age Homes and Mobile Medicare Units. The Government supports their efforts by giving 90 per cent of the expenditure as grants. Non institutional services for the aged, who lack family support and are unable to fend for themselves is another programme run with the support of the Central Government. Here an appointed social worker acts as the eyes and ears of the aged person where he is helped to get services like assistance for getting pension, bank dealings and medical assistances.

There are 6 Homes for the Old Age Persons maintained by the NGOs at Chennai with the assistance of grant and another 25 Old Age Homes maintained without any aid from the Central Government and State Governments from Central Government and State Governments.

Providing financial security through pension and other support schemes is a key role of local administration. Programmes of Central and State governments are being implemented in the state rigorously. Beneficiaries in most of the schemes are eligible for Rs.1000/- per month; a free saree or dhoti for Deepavali and pongal festivals and 2 kgs. of free rice per month for those who partake in noon meals under free meals programme or 4 kgs. of free rice per month for

those who do not partake in free meals programme. The many schemes include (i) Old age pension scheme – for those aged above 60 years; (ii) Physically handicapped destitute's pension scheme for persons 18 years and above; (iii) Destitute widow's scheme with no age limit; (iv) Deserted wife pension where the person should be of minimum 30 years; (v) Destitute agricultural labourers pension for those aged above 60 years.

There is also (a) Accident relief scheme for persons engaged in 43 specified poor occupational categories. The scheme helps with Rs.15,000 to the poor family who lost their breadwinner; Rs.7,500 to Rs.15,000 to the injured person according to the degree of injury or Rs.25,000 to the family of the building and construction worker. (b) Distress relief scheme is for the bereaved family who have lost their breadwinner. Here Rs.10,000/- is given to the bereaved family of the poor household. Those eligible include agricultural labourers solely dependent on wage income; marginal farmers who possess less than 2.5 acres of irrigated land or 5 acres of unirrigated land or a total of 5 acres of irrigated and unirrigated land and having annual income of Rs.7,200 from all sources.

TABLE 6.3 OLD AGE PENSION SCHEME- NO. OF BENEFICIARIES (AS ON 01.06.2013)

Scheme	Number of beneficiaries
Indira Gandhi National Old Age Pension (IGNOAP – Central Scheme)	101569
Indira Gandhi National Widow Pension (IGNWPS - Central Scheme)	69669
Indira Gandhi National Disability Pension (IGNDPS - Central Scheme)	2428
Destitute/ Deserted Wives Pension (WP- State Scheme)	64595
Destitute Widow Pension (DWP- State Scheme)	10458
Physically Handicapped Pension (PHP – State Scheme)	8949
Pension to Un-married poor, incapacitated women of age 50 years and above (UWP – State Scheme)	1318
TOTAL	258986

Source: Chennai Collectorate-Schemes, http://www.chennai.tn.nic.in/schemes.htm (Accessed on 23/06/2014)

Totally 2,59,000 people are benefitting from the different schemes of State and Central government (Table 6.3).

Differently Abled Assistance

The Government of Tamil Nadu through various policies and initiatives has extended full support to the Differently Abled Persons in their pursuit of full and equal involvement in every aspect of society. Various schemes have been announced by the Government to make sure that the differently abled persons are in equal status to the other people. The State Policy for the Differently Abled Persons was in 1994 taking into account the latest developments in Science and Technology. This policy also provides for a mechanism for promotion and protection of the rights of Differently Abled Persons and methods for ensuring equal opportunities for their full participation in social life.

The Department for Rehabilitation of the Disabled aims to provide comprehensive welfare services, which include provisions of special education, vocational training, job placement, and assistance for self-employment, free supply of aids and appliances with the ultimate objective of making differently abled persons self-reliant and economically independent.

TABLE 6.4 DIFFERENTLY ABLED PERSONS IN CHENNAI

Age Group	No. of disabled	In seeing	In Hearing	In Speech	In Movement	Mental Retardation	Mental Illness	Any Other	Multiple Disability
Total	163428	16874	42066	7003	26344	10809	4252	46926	9154
0-14	26520	2673	7466	1374	1490	2820	178	8700	1819
15-59	115573	11322	28499	4964	20464	7480	3604	33006	6234
60+	21071	2852	6019	656	4368	497	465	5121	1093
Age not stated	264	27	82	9	22	12	5	99	8

Source: Census 2011

It is the responsibility of everybody in a civil society to play a vital role in creating an inclusive society where differently abled persons have equal opportunities and full participation in the growth and development of the country. A change of mind set and an approach with human touch towards the challenges faced by differently abled persons are the aims of this Government so that they lead a life of dignity and honour. Our cities should be designed to support people diversity. Government should develop policies to support differently abled persons in terms their travel, movement, public infrastructure, education etc.

Box 6.1 Various schemes for differently abled persons

Welfare of Differently Abled Persons- Schemes provided by Government of Tamil Nadu.

1. 3 percent reservation of seats in educational institutions
2. Appointment of guardians to special categories of differently abled persons under National Trust Act, 1999
3. Artificial limbs
4. Assistance for delivery / miscarriage of pregnancy / termination of pregnancy to a female differently abled person
5. Assistance for marriage
6. Assistance for purchase of spectacles by a differently abled person
7. Assistance to law graduate
8. Assistive devices for differently abled persons tricycles
9. Behind the ear hearing aid
10. Braille watches
11. Calipers and crutches
12. Cash prize and assistance to higher education for the hearing impaired students
13. Cash prize and assistance to higher education for the visually impaired students
14. Cell phone service and maintenance training course
15. Computer training course
16. Day care centre for muscular dystrophy affected persons
17. Diploma in medical laboratory technology training
18. Distribution of pre-recorded text compact discs and CD players to visually impaired persons
19. Early intervention centre for infant and young children with hearing impairment in 31 districts.
20. Early intervention centre for the mentally retarded children
21. Early intervention centre for the visually impaired
22. Financial assistance on the natural death of a differently abled person
23. Financial assistance to meet the funeral expenses of a differently abled person
24. Financial assistance to non-governmental organisations
25. Goggles and folding sticks
26. Government Care Camp, Melpakkam
27. Government Institute for the Mentally Challenged, Chennai
28. Government rehabilitation homes
29. Hearing aids and solar rechargeable batteries
30. Homes for the mentally ill

Source: Government of Tamil Nadu

Crime against Women

Development indicators in a society and economy include: equity across income and wealth groups and fairness and equality of social class, religion and gender especially on safety and security are key for advancement. A number of policy measures and political leadership drive towards these are constantly taking place. However, with the growth of urban agglomeration and increased floating population especially in derived and odd jobs, crimes are likely to go unabated. Tamil Nadu and Chennai are well regarded for the capability of police and security of people especially women and children.

Further the Government through the Department of Social Defence is working to ensure protection of children and women from neglect, maltreatment, abuse, exploitation etc., and to facilitate them to lead a meaningful life by evolving appropriate intervention strategies and programmes for their reintegration into the mainstream.

TABLE 6.5 - CRIME AGAINST WOMEN IN CHENNAI (NUMBER OF CASES)

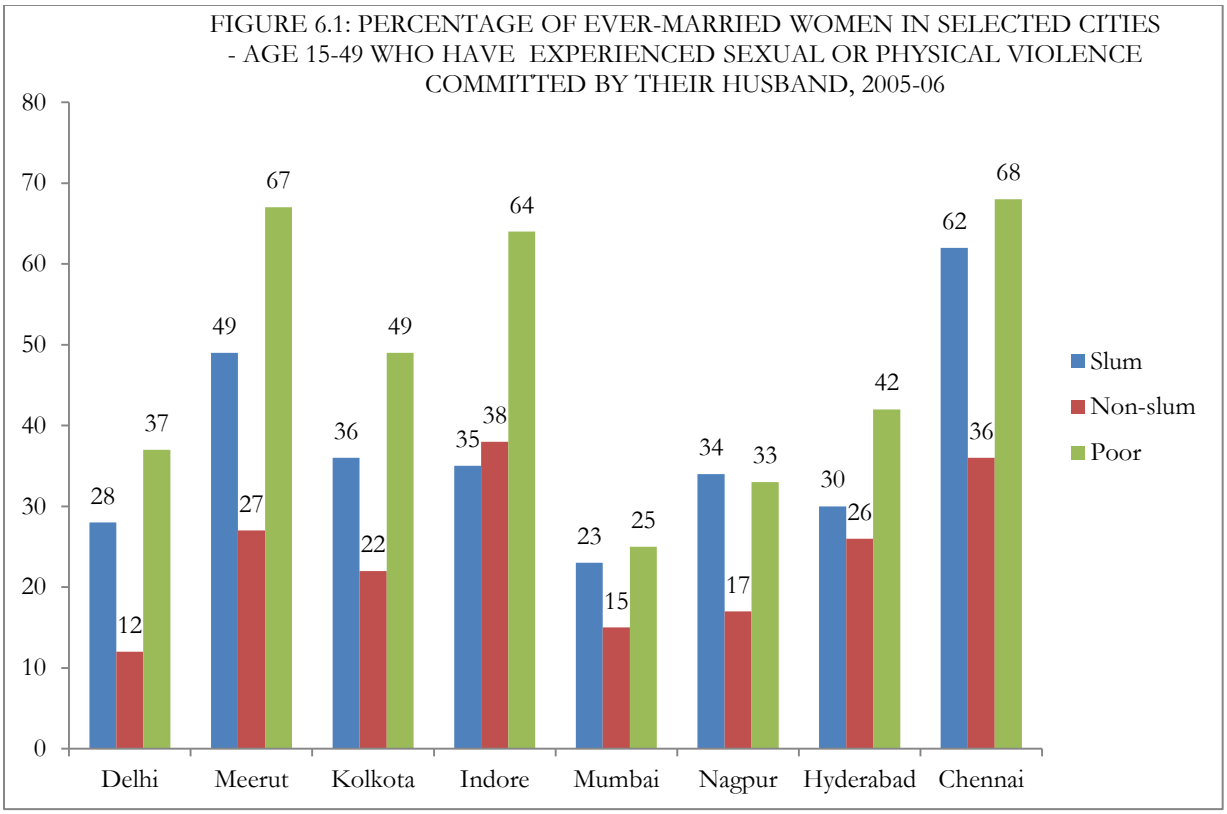
Category	2010	2011	2012	2013
Rape	76	52	84	83
Dowry Death	34	14	8	12
Molestation	106	49	85	55
Sexual Harassment	110	51	132	155
Cruelty by Husband and his relatives	182	177	220	221
Kidnaping and Abduction	46	36	57	42

Source: TN Police Department

Table 6.5 gives certain insights about crimes against women. Between 2010 and 2013, the average number of crimes against women under six categories is around 522. Though crimes like dowry death and molestation have come down over the years, crimes like rape and kidnaping and abduction are unabated.

The experience of spousal physical or sexual violence among ever-married women varies from 15 percent in Delhi to 41 percent in Chennai. In every city except Indore, reported spousal violence is much more prevalent in slum areas than in non-slum areas. The poor women in Chennai were experiencing more violence (68%) during 2005-06 (Figure 6.1). The current status is not known since NFHS-4 is yet to be completed. However, Chennai is among the highest on this parameter, which is a matter of concern.

Presence of all women police station is one of the parameters which is used to assess accessibility for women to complain crime against them. There are 35 all-women police stations in Chennai.



Source: NFHS-3 2005-06

The State also provides maternity assistance. We have discussed the same in the chapter on Gender. The department of Family Welfare Bureau has 10 Emergency Obstetric care (EOC) Units. Major services include: maternal health care, child health care, family welfare services, adolescent health care, treatment of RTI/STI, cancer cervix mass screening, education of self-breast examination and health education. There are special programmes like 24 hours Emergency Obstetric Centre, Birth Companionship and 100% Antenatal screening for HIV and Prevention of Parent to Child Transmission of HIV.

Box 6.2 Marriage Assistance schemes for women in Chennai

Year	Moovalur Ramamirtham Ammaiyar Scheme	E.V.R.Maniammaiyar Scheme
2010-11	160228	7264
2011-12	163228	6145
2012-13	119684	4845
Source from District Family Welfare Bureau, Corporation of Chennai		

Tamil Nadu government has a number of social welfare schemes for the benefit of women and children, especially those who are deprived and suffering due to socio-economic inequality. The schemes listed in the table are those focused on helping women. The schemes cover comprehensively for different categories like - for girls belonging to poor families below poverty line, inter caste marriage, widow's daughter marriage, widow re-marriage and orphan girls marriage. It is seen that 5,335 persons were given marriage assistance and 95,165 given maternity assistance in Chennai in 2011. Chennai accounted for nearly 33 per cent of total beneficiaries.

The government in 2013 increased the annual family income ceiling from Rs.24,000 to Rs.72,000 to make Moovalur Ramamirtham Ammaiyar Ninaivu Marriage Assistance Scheme and E.V.R. Maniammaiyar Ninaivu Poor Widow Daughter's Marriage Assistance Scheme accessible to more families. The Moovalur Ramamirtham Ammaiyar Ninaivu Marriage Assistance Scheme, one of the five such schemes of the State government, is to help economically poor parents in getting their daughters married. It is also to promote the educational status of poor girls. Under the scheme, the present Government has hiked for women holding undergraduate degree or diploma, the assistance from Rs.25,000 to Rs.50,000. In the case of poor women, it will be Rs.25,000. For both categories, the 4 gm gold will be given free.

Social security for Homeless People

The largest majority of urban homeless people are those who sleep on pavements and sidewalks, under ledges of shops and homes, in market places, at bus-stands and platforms of railways stations, and outside places of worship, often in daily danger of being killed by unruly vehicles and tortured by local mafia and other criminal minded people. They spend their nights/ or days at shelters, transit homes, short stay homes, beggars' homes and children's' homes or live in temporary structures without walls under plastic sheets or thatched roofs on pavements, parks, nallah beds and other common spaces. This group faces multiple degrees of vulnerability.

It has been estimated that in Chennai, there are homeless people (0.64%) who lacked proper shelter. However the houseless were reported to have ration cards and voter identities unlike most other cities (NSS Survey 2004-05). This has been possible because the Corporation of

Chennai is a pioneer in the Shelter for Homeless programme. It started the first Shelter for homeless in the year 1992 before the Supreme Court directions to all States. Public Health Department in May 2010 also started to identify homeless people and brought them under health check-up. After counselling and treatment, many of them were united with their families. This initiative is a continuous process under the aegis of Corporation of Chennai.

The Corporation of Chennai started 15 shelters to accommodate homeless people during the night since 2010. These shelters function as a space for convergence and provisions for various entitlements of social security, food, education for all the children in the shelter, and livelihood and housing schemes of the Government. As of 2013-14, there were 28 shelters for the urban homeless functioning under Corporation of Chennai with 1410 beneficiaries. It is planned to start 40 more shelters in 2014 –2015 such that there is one shelter per one lakh population. Many shelters run by NGOs are being supported from Corporation of Chennai and Corporates.

CaseStudy 6.2 - Amma Unavagam

Introduction

Amma Unavagam is one of the recent successful socio-economic programme implemented by Tamil Nadu Government. It was first launched in Chennai and then later implemented in other corporations of Tamil Nadu. What is envisioned through this programme is to reduce urban poverty throughout the State at corporation level and improve quality of labour force in the unorganized sector. The objective of the programme is to provide cost effective, hygienic and quality food at an affordable price to urban poor people through Municipal Corporation.

The programme has been a runaway success which has been expanded in Chennai to all 200 wards, hospitals and other public locations. The success of Amma Unavagam has led to initiatives in the same umbrella brand into water, salt and pharmacy. Endorsement of the programme has been widely covered in media and public speeches. Many Governments such as in Gujarat have tried to replicate the model.

Performance analysis:

This is based on analysis of the data collected form 540 respondents at different outlets.

- Majority of the people eating at the canteens were daily wage earners with porters (49%) making up the majority. The second major group constituted the students. It has been noted that the students who earlier used to miss their breakfast or carry lunch from their homes now preferred eating at these canteens. Third, drivers found this place an ideal place to eat from. The popular reasons for spread of Amma Unavagams in the city is the quality of food and the choice available.
- 89% of the people who eat at Amma Unavagam have wages less than Rs. 400 on days they have work. This shows that Amma Unavagam has helped people to save their low income, since it is cost effective.

- Over 80% of the individuals having breakfast and over 50% of the individuals having lunch were regulars. It was interesting to note that there were individuals who only have food at home for one meal, at night. Porters and daily wage earners were most regular for both breakfast and lunch while the students preferred to have their breakfast at these outlets more often. Also, in the case of drivers, it was noticed that they preferred their breakfast at these outlets.
- About 59 per cent of the current customers of Amma Unavagam used to eat at road side eateries or small hotels. This was attributed to the fact that most of them were those who left home much early at home before lunch or breakfast was prepared at home, or were people who did not stay with their families or were contract workers who shifted from one location to another. In the survey it was found that about 41% of customers used to bring food from home, which was difficult in terms of the time and effort towards preparation. The main reason that they carried home food was to reduce cash spend for freshly cooked food and health factors. Amma Unavagam has been able to convert them from bringing food from home to eat at canteens since it is less costly and trouble-free as well as quality is highly acceptable.
- About 87 per cent of the respondents feel that outlets are maintaining hygiene factor to the satisfaction of customers who dine there. Hence, it is evident that the outlets in general are maintained hygienically clean and free of flies. Customers are also sensitive to the same and support the facility to be neat and clean. However, rush hour factors contribute to otherwise common belief.

Conclusion

Customers are satisfied with the price point, quality and quantity of food and other support factors like location, water served and so on. Customers are able to save money and spend usefully for alternate purposes. Overall objective of the project namely to support urban poor who form part of labour force to be benefited out of the programme has been satisfied.

Conclusion

It is quite clear that Tamil Nadu is a pioneer State in launching programmes to protect and promote the welfare of its citizens. The social protection schemes has tried to ensure that a vulnerable individual, family or group is provided support for the basic needs – health, housing, income, education and food. Tamil Nadu government has shown unprecedented efforts to address the social protection needs. However the case studies of rehabilitation projects show that much more could be done so that they become a milestone in the lives of millions of people. Similarly the policy measures can be further strengthened to ensure the wellbeing of the aged while strengthening their legitimate place in the society to lead a dignified and peaceful life.

CHAPTER 7
INFRASTRUCTURE

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Introduction

Infrastructure is the key to the growth of any urban agglomeration especially for a city like Chennai which has been attracting a lot of investments in sectors like manufacturing more specifically automotive and services like IT, Health care and process outsourcing. This calls for the city to expand horizontally and vertically and the local administration needs to speed up creation and utilization of infrastructure for rapid growth in demand. The demand comes from different components like creation of facilities and support systems, transitory time period for resources like labour to create facilities and sustenance of growth. It may also be kept in mind that a metropolitan city like Chennai with a floating population has spikes of high and lows requirement of resources which leads to a stress on infrastructure. The standard of living conditions are given in the box.

Box 7.1: Standard of Living in Chennai

The standard of living indicators are access to cooking fuel (99.61%), toilet facilities (95.59%), pucca houses (97.93%) and electricity (99.07%). It can be seen that these indicators show good results in Chennai because of the various measures taken by the government.

	Zone	Standard of Living Indicators				
		Access to Cooking Fuel	Access to Toilet Facilities	Access to Drinking Water	Access to Electricity	Access to Pucca Houses
		2011	2011	2012-13	2011	2011
1	Tondiarpet	72.21	95.78	68.12	99.26	93.75
2	Basin Bridge	81.42	94.02	65.48	99.03	93.46
3	Pulianthope	69.24	91.64	82.63	98.49	91.88
4	Ayanavaram	86.54	97.45	80.17	98.25	94.00
5	Kilpauk	87.50	97.27	75.85	99.49	95.16
6	Ice House	83.57	91.03	81.75	98.88	94.24
7	Nungambakkam	85.14	94.06	71.77	98.79	94.68
8	Kodambakkam	89.63	96.45	82.22	98.98	95.61
9	Saidapet	83.66	94.71	73.46	99.27	94.77
10	Mylapore	84.07	94.55	74.44	99.14	93.81

Source: Census 2011, Data for access to drinking water 2012-13, GoTN.

(i) Access to cooking fuel: It is seen that in Chennai 99.61% of households have access to cooking fuel. Nearly 82.3% have access to LPG in Chennai, 14% use kerosene and 2.8% are still dependent on firewood. Chennai does much better than Tamil Nadu which shows that only 47.9% use LPG. Overall in India the percentage is 28.6. In Tamil Nadu, Chennai fares better for use of LPG in comparison with Coimbatore (71.4%), Thiruvallur (66.2%), Kancheepuram (62.6%) and Tiruppur (66.2%). All other districts have lesser access to LPG as cooking fuel.

(ii) Access to toilet facilities: Chennai shows a healthy trend of 95.6%. This number represents the toilet available within premises. Chennai fares better than Tamil Nadu (48.3%) and India (46.9%). With respect to other districts Kanniyakumari is the closest with 87.5% access to toilet facilities followed by Thiruvallur (67.9%) and Kancheepuram (65.5%).

(iii) Access to drinking water: This is a challenge for the large metropolis. Chennai (82.1%) has better access than Tamil Nadu. The neighbourhood districts of Kancheepuram (73.7%) and Thiruvallur (66.6%) are lesser than that of Chennai. However many districts in the State fare better than Chennai, such as Ariyalur (87.5%), Vellore (82.5%), Tiruvannamalai (83.7%), Tiruchirapalli (86.7%). The highest is that of Theni (94%) and Coimbatore (93.8%). It is seen that Tamil Nadu (79.8%) has been able to do much better than India (43.5%).

(iv) Access to electricity: Chennai boasts of 99.1% access to electricity. Of course Chennai fares better than all other districts in the State. Tamil Nadu (93.4%) as a whole has done better than India (67.3%).

(v) Access to pucca house: Chennai has done well with respect to access to pucca houses showing 97.93% which is actually an increase from 87.16% in 2001.

Accessibility to water remains an issue in various parts of Chennai district. Basin Bridge forming Zone 2 has one of the lowest access to drinking water at 65.48%. The indicators that looks achievable are toilet facilities for which the Corporation has looked at innovative methods like 'namma toilets' in recent times. There are efforts being made to look at low cost housing for poor.

Houses, Household Amenities and Assets

Details	India	Tamil Nadu	Chennai
1. Total no. of HHs	24,66,92,667	1,84,93,003	11,06,567
2. Household amenities			
(i) source of lighting (electricity)	67.3	93.4	99.1
(ii) latrine facility available within premises	46.9	48.3	95.6
(iii) bathroom available	42.0	49.9	95.6
(iv) closed drainage	18.1	25.4	96
(v) kitchen available	61.3	76.5	94.3
(vi) use of LPG for cooking	28.6	47.9	82.3
3. HHs having assets			
(i) radio/transistor	19.9	22.7	36
(ii) television	47.2	87	95.4
(iii) computer/laptop (with internet)	9.5	10.6	32.2
(iv) telephone (landline/mobile)	63.2	74.9	91.9
4. Others			
(i) transport	70.5	81.8	96.8
(ii) availing banking services	58.7	52.5	71.1

Source: Census 2011

The data on types of houses, household amenities and assets helps in understanding the overall social status of the citizens of Chennai in comparison with the State and All-India. It clearly shows that in all the parameters, Chennai fares much better than those at the State level and All-India. It can be seen that successive Governments have taken trouble to make available to the citizens all amenities and assets.

Those that stand out is the low percentage of radios(36%) owned in the city. The other interesting statistic is those availing banking service which stands at 71.1%.

Chennai is in the forefront of issuing BPL ration cards as well as Antodya Anna Yojana cards to identified families. BPL ration cards are issued to the houseless population as well in Chennai. The poor get rice, dhal, oil, sugar and tea at subsidised rates. The prices are normally 50% lower than the market prices in Chennai city. Woman/man who have lost the sole breadwinner of the family and aged less than 65 years get a family pension of Rs.400/- per month. It is estimated that about 18 lakh families of the State are entitled to 35 kg of rice per month under the scheme. However it is observed that the exact number of cards issued in Chennai city is not known.

Chennai is in the forefront of providing cooked meals to all the school children in the Government and Government-aided primary schools. Even the Integrated Child Development Schemes provide supplementary diet to pre-school children, lactating, and expectant mothers. Today there are also 'amma canteens' providing cooked meals at heavily discounted rates to the public and is highly frequented by many local and migrant workers.

Given this background, we have analysed here infrastructure availability from the perspective of road, sea, rail, airport, sewerage and, power.

Roads

Length of the roads is one of the key indicators of the road infrastructure in a society. Chennai has long bituminous roads covering 96 per cent of the surface topped, balance of 2 per cent being concrete roads. Though quality of the bituminous roads in weather conditions like rain and heat may be debated, it is the most ideally suited for a condition like Chennai which experiences warm temperatures for most of the months.

TABLE 7.1 DISTRIBUTION OF TOTAL ROAD LENGTH (2010 -11)

Type	in Kms
Cement Concrete	14.71
Bituminous	613.26
Water Bound Macadam	10.80
Total For Surfaced Road	638.77

Source: Statistical Handbook 2013

75 per cent of Chennai district's roads (those which are not part of state highways) are double

lanes. National highways and State highways (145.12 Kms) comes under the jurisdiction of the Tamil Nadu highways department. 97 per cent of state highways are multilane. Length of national highways is about 52.50 kms, State highways around 92.62 Kms, district main roads 47.74 Kms and other roads 59.85Kms. This adds up to 246.71 Kms.

Electricity

There are two major power plants located in and around Chennai namely the Ennore Thermal Power Station (ETPS) - 450 MW (2x60, 3x110 MW) and North Chennai Thermal Power Station (NCTPS) 1830 MW (3x210 MW, 2x600 MW). The distribution of power is taken care by Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO). According to 2011 census, about 99% of the Chennai households have electricity connections and a large number of establishments with LT and HT industrial connections. The demand has gone up over the years and the Government has focused on this area for action in the last few years to have a friendly investment climate. Electricity connections to the households are another important development indicator in the modern era. Chennai is served by Tamil Nadu Electricity Generation and Distribution Company limited whose growth as an urban agglomeration pushes up the demand for connections.

TABLE 7.2: HOUSEHOLD WITH EB CONNECTION

Sl.No	Block wise/District/State	Domestic Services		Hut Services	
		2001	2011	2001	2011
1	Chennai North	658572	1227493	8756	4601
2	Chennai South	402687	784540	8630	7769
	Total	1061259	2012033	17386	12370

Source: Tamil Nadu Generation and Distribution Corporation Limited

Table 7.2 on Household with EB connections for the period 2001 to 2011 shows near doubling of demand in a period of 10 years. The CAGR for Chennai North is 6.4 per cent and for Chennai South is 6.9 per cent and overall connections have gone up by 6.6 per cent, which seems to be a natural consequence of growth and migration into the city for livelihood leading to creation of new dwellings for accommodating increased population.

Telecommunication System

Communication system by way of telephone, computer and internet connections across the citizens in a city is a key developmental indicator. With the explosion of technology in mobile phone with respect to handsets and service network, there has been a proliferation of phones and connectivity.

TABLE 7.3 TELECOMMUNICATION SYSTEM

Description	%
Total Household (Nos)	1106567
Computer / Laptop (total)	32.2
Computer / Laptop (with Internet)	19.6
Computer / Laptop (without Internet)	12.5
Telephone (total)	91.9
Telephone (Landline only)	10.3
Telephone (Mobile only)	62.3
Telephone (both Landline and Mobile)	19.3

Source: Census 2011

As it can be seen from Table 7.3 on Telecommunication system, 32 per cent of households have a computer or a laptop. It is further interesting to note that nearly 20 per cent of households have internet connectivity. This clearly shows the potential for speedy and web based communication and transactions which the households can take.

Similarly 92 per cent of households have an access to a telephone. The data shows that the landline alone is only 10 per cent of households and both landline and mobile as 19 per cent. Nearly 30 per cent of households have landline connections. More importantly large number of households, about 81 per cent have access to mobile communication.

Financial Institutions

TABLE 7.4 OPERATION OF COMMERCIAL BANK IN CHENNAI

	2011- 12	2012 – 13
No of offices	1170	1199
Deposits	238299	199163.2
Advances	244069.5	248079.7
Credit – deposit ratio	102	124.6

Source: Statistical Handbook 2013

It may be observed from Table 7.4 that though the number of branches and advances (credit) has increased, the deposits have decreased leading to an increase in credit deposit ratio. Credit Deposit ratio is the ratio of how much a bank lends out of the deposits it has mobilised. It indicates how much of a bank's core funds are being used for lending, the main banking activity. A higher ratio indicates more reliance on deposits for lending and vice-versa. It also means that bank liquidity is more stressed as the bank may be borrowing in short term markets to meet liquidity requirements. However, a lower ratio is also not welcome as it could mean that savings opportunities are more than investment which is not an ideal situation for a growth in economy.

Agricultural advances at Rs.13,110.81 crores in 2012-13 in Chennai are of lesser proportion compared to medium and small scale industries segment which was at Rs.23,495.96 crores in 2012-13 and also for weaker sections of the society advances at Rs.18,586.74 crores in 2012-13. This is completely understandable given the low agricultural land availability in the metropolitan area. Upliftment of weaker sections, education, housing and SMEs are key deployment areas. However, it may be noted that all of these form only 25 per cent of total as advances when compared to the large corporate and personal loan segment which has a sizeable part of loan deployment.

Apart from SBI group, public sector banks like Indian Overseas Bank, Indian Bank, Canara Bank, Syndicate Bank, Punjab National Bank and private sector banks like HDFC Bank, Axis Bank, ICICI Bank and KVB are playing a significant role.

Insurance

Availability of insurance as a financial service in a society is key to the strength of the social fabric as life and health have random features of occurrence which may challenge a family's

social and economic status. Over the years, India has evolved in providing life and health insurance. It has been the monopoly of Life Insurance Corporation of India (LIC) when it came to insuring life and non-life including medical it had been again some of the government insurance companies like United India Insurance Ltd, New India Assurance Company Ltd, National Insurance Company Ltd, and the Oriental Insurance Company Ltd. However, with privatization and increasing intensity of competition, there are a number of players who are now operating in India. Chennai has all of these companies serving the people directly and through banks and network of operators (intermediaries) to reach out to people. The sops given in income tax and general awareness have exploded the insurance market. The proliferation of internet and service support like registration, renewal and settlement through internet and business process outsourced services and other intermediaries have been a boon to the people.

Over and above all the mentioned services, the Tamil Nadu Government has provided medical and health insurance for the common man. This Insurance Scheme launched by the Tamil Nadu State Government through the United India Insurance Company Ltd (a Public Sector Insurer headquartered at Chennai) undertakes to provide free medical and surgical treatment in Government and Private hospitals to the members of any family whose annual family income is less than Rs.72,000/- (as certified by the Village Administrative Officers) .The Scheme provides coverage for meeting all expenses relating to hospitalization of beneficiary as defined in the Scope of the Scheme.

The scheme seeks to provide cashless hospitalisation facility for certain specified ailments/ procedures. The scheme provides a coverage up to Rs.1,00,000/- per family per year on a floater basis for the ailments and procedures as listed in its scheme. For certain specified ailments and procedures of critical nature, which are listed in the Scheme, the overall limit is increased from Rs.1,00,000/- to Rs.1,50,000/- Apart from hospitalization, the scheme also provides for follow –up treatment and diagnostic procedures.

Free health camps / screening camps are conducted by network hospitals as per the directions given by Project Director of Tamil Nadu Health Systems Society. The persons who need treatment are identified in the Health camps. Such patients can approach the hospital in the network. Even those patients who have the smart cards, though not identified through the Health Camps can also avail the benefit as above.

Bus transport

Road transportation is a key connectivity in urban conglomerate in most parts of India and in Chennai. Unlike Mumbai, where rail line in central and west Mumbai is the key to mobility of people to work in urban economic chores, Chennai widely depends on road network. However, in recent decades, there has been a lot of focus on adding rail line for people movement.

Chennai depends on local public bus transport for intra district movement of people for work, education, leisure and entertainment and so on. Recognizing the importance of the public transport a number of actions have been initiated over the years.

TABLE 7.5 METROPOLITAN BUS STATISTICS

Description	1972	2014	CAGR
Depots	8	27	2.94%
Fleet	1029	3750	3.13%
Routes	176	802	3.68%
Employees	12178	23881	1.62%
Passengers per day (Avg)	12 lakhs	50.29 lakhs	3.47%
Collection per day (Avg)	Rs. 2 lakhs	292.39 lakhs	2.94%

Source: http://www.mtcbus.org, accessed on May 29, 2014

In 1947, the Government of Madras nationalized the passenger transport by introducing 30 buses in the then Madras city. Private operators were allowed to ply. In 1972, the government formed Pallavan Transport Corporation Limited under the Companies Act 1956. The fleet size was 1029 buses. There were no private operators since then. The expansion of city required additional fleet to be brought in the system and on January 1, 1994, there was a bifurcation of the company. The fleet size combined was then 2332. The divisions were amalgamated into a single corporation under the name Metropolitan Transport Corporation (Chennai) Ltd. with effect from 10-01-2001 for better operations and leveraging of common resources. The snapshot of growth is given in Table 7.5.

It may be observed from the table 7.5 that though the absolute numbers depict sizeable growth but on the long term the average compound growth rate of passengers is around 3.5 per cent and routes have also grown closer to the same at 3.7 per cent. The growth of agglomeration and increase in youth population will need more transportation needs. As could be seen in a later section, private vehicles especially two wheelers and cars are in substantial numbers and from

social perspective, it may not be welcome sign of growth of the city of Chennai.

Another aspect is to understand the short to medium term of operations of MTC. It can be observed from the data that the compound annual growth rate of fleets was at 2.8 per cent as total number of fleets went up from 3260 in 2008-09 to 3637 in 2012-13. New buses are introduced in lots. 732 buses were introduced in 2008-09 and 774 buses in 2009-10 whereas 143 buses were introduced in 2012-13. Further, scheduled services which were around 3000 in 2008-09 went up to 3365 in 2012-13 at a CAGR of 2.9%.

Number of kilometers a bus runs in a day is also an important parameter to be looked into - kilometer per bus per day which was at 298 in 2008-09 went up to 309 in 2012-13 at a CAGR of 0.9%. One cannot expect much progress in this unless road and traffic conditions improve. In fact though road conditions were improving in parts, new projects like metro and other constructions but increasing traffic brings down the efficiency of distance covered.

From customer perspective namely passengers, two more indicators would be relevant. These two are related to usage of buses by passengers. First, passengers per day in lakhs which was at 47.76 in 2008-09 went up marginally to 48.07 lakhs per day which is again insignificant growth. Second, occupancy percentage which was at 75.27% in 2008- 09 went up to 75.83 % which is having a marginal impact.

Commercial Vehicles

Three kinds of commercial vehicles are popular in Chennai - 'Motor cab' which is any motor vehicle constructed or adapted to carry not more than six passengers excluding the driver for hire or reward; 'Maxi cab' - any motor vehicle constructed or adapted to carry more than six passengers, but not more than twelve passengers, excluding the driver, for hire or reward and 'Omnibus' to mean any motor vehicle constructed or adapted to carry more than six persons excluding the driver. These three segments of commercial vehicles which move more number of persons in a trip constitute approximately 31 per cent of total commercial vehicles registered. This is a key mode for both inter and intra district movement for work and education.

As of 2011, registered autorickshaws was 66,679 units constituting about 42 per cent of total commercial vehicles. It shows how city depends upon movement of people using autorickshaws. There has been increasingly high focus on streamlining autorickshaws operations in Chennai as it was highly notorious for fleecing customers for trips. Insistence of fair meters

for usage and charge by meters is gaining popularity. Still there are issues for people to use the same. They cater to around 1.5 million commuters daily. The growing travel congestion and long travel hours have resulted in a feeder system. The predominant feeder system in Chennai is the share auto services which exist in various popular pockets of the city. Share Autos are a preferred mode of transportation for short distances in Chennai. This is more common in the city for people who have migrated from other parts of the State and India as it is highly convenient and informal compared to crowded buses. They can get on board or get off wherever they seek to. Moreover, this system is well connected and passengers are not forced to wait long for another Share Auto to take them forward. Further, this automobile's design makes it easily maneuverable in traffic, and reduces the probability of road accidents. Also, for operators it involves comparatively less capital and maintenance costs.

Next set of significant registrations include light commercial vehicles. Light commercial vehicles (LCVs) are goods and carriage vehicles with light capacity. Some of the popular offerings in the field of light commercial vehicles in India are from the Tata Motors which include: Tata 407 (2.25 tones), Tata 709 (3 tonnes) and Tata Ace (less than a tonne). This is a critical component of transportation in Chennai mainly for inter and intra district movement of goods. Retail and trade largely depends upon this segment. Further these kind of movements require trucks coming in everyday into and moving out of the city. There are rules which limit truck plying inside the city during day time. There are some facilities built across for truck layoff. One such in Madhavaram is being given in Case study. Chennai requires more and better facilities for the same.

Case Study 7.1: Madhavaram Truck Terminal: Need for repositioning

Introduction

Infrastructure is created at different points in city of Chennai to facilitate free movement of vehicles and people across the city for enabling service levels to different stakeholders. At times, the growth may outpace the assumptions taken at the time of infrastructure planning. Also, infrastructure is built on some user perspectives and standards to be followed. This could also change over time. Hence, certain changes or reconditioning of infrastructure may be required to meet contemporary developments. It may useful to study one such infrastructure namely the Madhavaram truck terminal which is supposed to ease effort of truck operators and traffic by providing infrastructure for holding space and administration.

Analysis

CMDA has developed the Truck Terminal at Madhavaram over an extent about 100 acres at the cost of about Rs. 6 crores. It is located at the junction of Inner Ring Road and the Northern Trunk Road, with easy access to Chennai city, Port and Railways. The terminal is functioning since 1992.

When the terminal was planned in late 1980s, it was to be provided with adequate facilities for storage, loading / unloading of goods, vehicle repairs, idle parking, office space and other amenities and services required for the transport operators. Provisions have been made for Auto work shop, Administrative Building, Electric Substation, Fire Station, Post Office, Police Station, Petrol Bunk, Warehousing, Truck Parking Area, Telephone Exchange, and Weigh Bridges. 194 plots of varying size (ranging from 220 sq.m to 880 sqm.) were alloted to the truck operators and the booking agents. About 185 allottees are operating in the terminal.

On any given day an average of 500 trucks are parked and about 1000 movements take place. These trucks come from all the national highways for loading and unloading. They use the terminal between 10 pm and 6 am using the appropriate entry and exits as per the Corporation rules. More than 5,000 trucks take the city roads during night hours. Trucks carrying vegetables, construction material, finished goods, raw material, foodgrains and export goods take Chennai Bypass Road that passes through Perungulathur , Kunrathur, Maduravoyal and Madhavaram. Hundreds of trucks can be seen lined up at the northern end of Inner Ring Road, including Manali High Road and Thiruvottiyur-Ponneri-Panchetti Link Road, due to poor facilities at Chennai Port. Madhavaram Truck terminal plays a crucial role in absorbing some of this traffic.

CMDA allotted land to the allottees, who were in the road transport sector by allowing them to buy land as a one time settlement. The terminal corporation is supposed to provide roads, water, lighting, drainage and other facilities. The association of allottees is supposed to take care of security of cargo, other assets and people, safety and implement a number of welfare measures to the driver and other operating community. The association provides health camps, AIDS awareness camp and many other activities which could improve quality of life of truck drivers and operating crew. The association is charging no-parking fee or entry fee. They collect administrative charges between Rs.5 and Rs.10 per vehicle which uses the terminal.

Our observations of the terminal:

1. Entry point road is with pot holes and does not provide free movement into the terminal.
2. Parking is haphazard and there is congestion inside the terminal. There is no free flow of trucks which defies the logic of a truck terminal.
3. Because of this there is underutilization of the facility. Though it is claimed that the facility can handle more than 1000 trucks, its utilization is at around 60 per cent and yet inefficient.
4. Roads are not well paved and maintained. Side parking are not well utilizing the space due to poor maintenance of the inside roads.
5. There is extremely high scope for improvement of layout and provision of right infrastructure defining flow of movement and so on will improve the utilization factor.
6. There are about 6 acres still retained by CMDA but utilized by the community inside the terminal.
7. There is a need to reassess the asset value and improve its utilization even if it requires a review of the operating model.

Conclusion: The facility is strategically located and needs to be well maintained and deployed. Current state of infrastructure mainly internal roads and access are poor leading to congestion and sub optimal utilization. It is important that all stakeholders are addressed for upscaling the facility as the city in its growth may find it difficult to meet demands of such terminal. Land being so precious, the priority should be to upgrade and maintain the truck terminal effectively.

There are significant categories of commercial vehicles which include school buses, private service vehicles, ambulances and stage carriages including public transport like buses. Each of these play significant role for transportation of their niche demands like in the case of school and hospitals.

Non-commercial vehicles

As of 2011, the total vehicle population has increased to 36.81 Lakhs out of which two-wheelers alone account for 28.14 Lakhs during 2011 which is about 76%. Two-wheelers registered a remarkable increase from 4 lakh in 1981 to 28.14 lakhs in 2011. It may be observed that motor cycles which are more commonly used by men account for nearly 62 per cent in this category. It is also interesting to note that mopeds and scooters which are commonly used by women are having significant share and used for short distance movement for work and personal transport demands.

Cars account for nearly 18 per cent of non-commercial vehicles which is about 6.6 lakh cars as of 2011. It is believed that the sale of cars has increased over the years. However, in the long run transport movement would work effectively only when there is use of more of public transport compared to private transport. This has been envisaged in Vision 2023 document.

Road Accidents

In the sixteen years between 1998 and 2013, average number of fatal accidents was 758 and average number of persons killed were 794. However, the years 2005, 2006, 2007 and 2008 saw higher number of deaths. In the same period, average number accidents causing grievous injuries were 511 and average number of persons involved was 580. The years 1998, 2007, 2010, 2012 and 2013 show far higher than the average when detailed break up were looked into. Since fatal and grievous accidents and persons affected by them are of high concern, it may be noted that 8 out of 16 years from 1998 to 2013 average incidence has been higher. On an average, about 1374 persons were affected which is of high concern. There could be number of reasons for fatal and grievous accidents.

Police department has been taking a number of initiatives to improve awareness among people about safety. According to experts such accidents are due to rash driving by two wheelers, buses and trucks. Also, inadequate safety by not wearing helmets has also been the cause for grievous injuries. Another factor causing such accidents has been poor pedestrian crossing sense or lack of disciplined usage of roads by all stakeholders. It may be useful here to analyse two set of data namely classification of roads and accidents and accidents involving type of vehicles. The two set of data for the year 2013 is used to get an understanding of what happens in Chennai roads!

On accidents by type of roads for the year 2013, it is seen that there were 1958 accidents on the

national highways. District roads contributed more to fatal and accidents leading to grievous injuries with 7426 accidents. While rash and undisciplined driving could be a cause in highways, accidents on district roads where there could be little scope for high speed driving is of concern.

Similarly, on accidents by type of vehicles, it is observed that a large number of accidents are by private vehicles especially by two wheelers alone leading to 3125 of total 9705 accidents. The large number of vehicles plying is really cause of such accidents. There is a need to sustain the move to make mandatory use of helmets by the rider and increased safety awareness campaigns for reducing such incidence.

Road Bridges

TABLE 7.6: BRIDGES IN CHENNAI CORPORATION

Type	Number
High level bridges	65
Box culverts	31
Slab Culverts	81
Road Over Bridges	11
Road Under Bridges	16
Pedestrian subways	6
Causeway	6
Foot Bridges	35
Grade Separators	14
Total	265

Source: Chennai Corporation,

Bridges are important for smooth flow of traffic in different directions, level variations and inter junctions of multi modes. As the urban agglomeration grows, building bridges for enhanced traffic movements become critical. In Chennai city there are four water courses namely River Cooum, Buckingham Canal, River Adyar and Ooteri Nullah. These water courses run throughout the city. Hence bridges are required for vehicular movement connecting roads, culverts over water body and walk ways and so on. Bridges and sub ways are also required for pedestrian crossing and over or under railway lines for movement of vehicles. Bridges under the department concerned along with Railways is involved in constructing Railway Over Bridges and Subways in lieu of railway level crossings with a view to reduce travel time, achieve fuel efficiency and avoid traffic stress and accidents. Grade separators are again critical in main traffic zones like the ones at Kathipara junction or near Koyambedu junction.

Government has initiated foot over bridges to help pedestrians to safely cross roads. Exhibit below gives about one such initiative in Chennai.

Case Study 7.2: Foot Over Bridge (FOB) – J.N Road, Anna Nagar

Introduction

Trying to cross a busy main road in Chennai during day time especially during peak hours is a nightmare. Although, there are zebra crossings for purpose of pedestrians, some motorists do not stop at the signal and speed along the road which not only scares people but also result in accidents. In order to overcome this, Chennai has had foot over bridges and pedestrian subways are built at different locations. But they are over bridges conventional types that are not automatic requiring more physical effort and subways are encroached and generally not perceived to safe especially during non-peak hours of the day. Realising the need for safety of pedestrians and saving time during busy hours and to cater to the need of the old people during 2012, Tamil Nadu Government decided to construct automatic over bridge escalators at 7 places where large number of pedestrians are found. Escalators are supposed to be very helpful for the elderly. It may be useful to understand the working of the over bridge to suggest on perceived impact on the society based on a study.

Analysis

Foot over bridge at Tirumangalam near SBOA school on JN road between Tirumanagalam and Padi road was chosen for study. The area is densely populated with lot of educational institutions because of which there was lot of traffic prior to 2011. But, the situation got worse when the JN road was made one-way to facilitate the construction of flyover. This had forced residents to travel longer distance to reach school road.

The foot over bridge was inaugurated on 12-06-2014. As per the plan, escalators have been provided on both sides of the foot over bridge. Having escalators is a welcome idea because they score over the bridges with lifts where the people have to wait for the lift to board. These over bridges also have ramps constructed for the differently-abled.

One of the major concerns in using an electrical escalator in the past had been constant power outages. But this is something the civic body has factored in, there are electricians available at the site 24x7 and there is also a backup generator during these times. This over bridge is currently being used by numerous pedestrians.The over bridge functions from 6.30AM in the morning to 11PM during nights. Vijay Nirman Company manages the over bridge and has posted staff members to maintain the over bridge. They also help children, elderly and the women to board the escalators safely.

Following were the features/issues we understood from the field:

1. The FOB has gradient-cum-stairs, stairs and escalators on both sides.
2. The people who are posted at the location are helpful for the residents to use escalators safely.
3. Escalators can be used even rainy season unless the rains are heavy during which they might stop the function.
4. The main walking-ramp on the top of the road is sufficiently wide at 5 m and has sufficient protection even during rain.
5. They are also sufficiently knowledgeable in quickly repairing any minor glitches with the escalator which is a good sign.
6. The supervisor complained that the school children do not heed the advice and run down the escalators and if they skid it might result in fatal injury
7. The ramp under-side is being used by miscreants during the night time and they litter liquor bottles all along.

Conclusion

This is a well-designed and relevant for ease of people movement. This is also highly futuristic. However, providing in a direction escalator for movement upwards require elderly people to use ramp cum steps to walk down. Also it requires a bit of effort to move on to a vertical road as one climbs down from the steps. The miscreant behaviour can be curtailed by installing CCTV cameras at suitable locations and monitoring the footage. Though the project team would have considered viability and social benefits, user perspective is mentioned here to improve scope where ever it is possible.

Key concerns of road transport

It is envisaged that by the year 2026, the population within the Chennai Metropolitan Area (CMA) will be approximately 12.6 million. This would translate into an estimated 17.3 million daily vehicle-trips in the year 2026, which will be about two times the present vehicle-trips. Looking at the current pattern, motor vehicle population has increased at a phenomenal rate during the last few decades. The increase in private carriers and especially of two wheelers is of greater concern which is what would lead to increase in vehicle trips and an increased risk of accidents.

Further, most of the prominent radial arterial roads leading to the City are severely congested. Traffic volumes at inner cordon have averaged 7000 PCU during the peak hour and increased significantly over the decade. Arterial roads leading to the Central Business District (CBD) carry heavy traffic and are congested. Level of congestion on arterials and other major roads has increased eight-fold over the period 1984 to 2008 (CCTS Report). Lack of parking facility

worsens transportation problems. Acute shortage of parking supply is witnessed in commercial areas and is a serious concern. The haphazard parking has led to loss in the road capacity which is estimated to be ranging between 15% and 65%. Though traffic police takes measures to reduce such parking, stress on road transportation is high. Thus, phenomenal growth of vehicles, congestion during peak time and poor parking along with minimal increase in road space, has led to a low speed of 10 kmph in the CBD and 18 kmph in other major roads. This needs to be approached with a multipronged strategy for urban intra city movement.

Box 7.2 Kathipara Junction –One of the largest Cloverleaf Grade Separator in Asia

Kathipara Junction is an important road junction in Southern part of Chennai connecting city with airport an NH 45 Grand Southern Trunk Road. It connects with important urban residential and commercial areas and used to be a choking point of traffic. . A cloverleaf grade separator has been constructed as part of the NHDP to ease traffic congestion at the junction. The structure was built at an estimated project cost of ₹ 4,860 million with an initial deadline of March 2007. However, it was completed and opened for public in October 2008. It is the first of three grade separators being built on the Inner Ring Road to improve connectivity between the various National Highways radiating from the city, the other two being the one on Koyambedu junction (NH 4) near the Chennai Mofussil Bus Terminus and the one at Padi Junction (NH 205).

Rail Network

Chennai metropolitan area has been growing at a rapid pace and the traffic volumes have been increasing tremendously. This has placed tremendous stress on the city's transport system. To cater to the local transportation demand, Southern Railway and CMRC are involved in providing rail network. There have been also plans to implement monorail in Chennai. Given below are some of the highlights of rail movement options:

Southern Railway city operations

The commuter rail system in the Chennai metropolitan authority operated by the Southern Railways consists of four Broad Gauge lines:

TABLE 7.7 RAILWAY NETWORK AT CHENNAI

Corridor	Terminal station	Distance in kms	No of services	Remarks
South - West	Chennai Beach – Tambaram	30	250	Operates additionally from Tambaram to Chengalpattu and Kanchipuram
East - West	Chennai Central – Tiruvallur	42	240	Operates further down to Arakonam and Tirutanni
North - South	Chennai Central – Gummidipoondi	47	90	Operates further down to Sulluerpettah
Mass Rapid Transit System (MRTS)	Chennai Beach – Velachery	20	186	Planned for extension to St.Thomas Mount and further linking with South – West Corridor as well as Chennai Metro

Source: https://en.wikipedia.org/wiki/Chennai_Suburban_Railway & http://www.sr.indianrailways.gov.in/view_section.jsp?lang=0&id=0,1,263,579,580

The commuter rail system in Chennai metropolitan area is Chennai suburban railway which is operated by the southern railway. Nearly 2 million people use the rail network daily as per 2011-12 data. Chennai's railway network uses electrical multiple units (EMUs). The total network length is about 900Km considering the number of dedicated lines. The network is challenging in each of the corridors.

It is seen that South – West corridor is one of the busiest corridors and oldest as it connects the residential parts of the city with erstwhile Central Business District. As the city has grown along the corridor especially in the residential areas of Tambaram, Chrompet and Nanganallur, the demand of this sector has also gone up in the last two decades. Tambaram – Chrompet reports large number of rail accidents and authorities have increased investments in building subways and other safety initiatives. Chennai Urban agglomeration is widening beyond Tambaram up to Chengapattu with increased opportunities. Government investment has also proposed a moffusil terminus near Perunkulathur. This corridor connects with all southern districts of Tamil Nadu.

East – West corridor is well developed because of busy commercial and passenger routes trains seen in the Coimbatore, Kochi and Bangalore sections. Though the local services are through dedicated lines, busy operations obviously help for optimal utilization of railway investments. Traditionally this route connects industrial and residential areas along the route. The growth of urban agglomeration is leading to growth of residential areas beyond Ambattur further down to Tiruvallur, Arakonam and Tirutanni where both sides movement are increasing for work, education and living.

North – South corridor connects Chennai with Gummidipoondi and covers important part of Thiruvatriyur, Ennore, and Gummidipoondi. Apart from industrial belt, a large residential area is also covered. More importantly, it connects with border mandals of neighbouring state Andhra Pradesh where people move for trade and business. This is again part of the busy rail route of Southern Railways which connects with Eastern and Northern Regions.

MRTS corridor is the extension of the suburban system to connect areas which is not covered in suburban sections. It is a partially elevated double track and is an extension of the broad gauge line from Chennai Beach. Beach station serves both the existing suburban BG lines and the MRTS. This line is at surface level between Beach to Park station while the latter is not part of the South –West corridor but pans out to separate station in the MRTS line. The elevated line starts after this from Chintadripet and goes upto Thirumayilai (Myalpore) for about 9 kms. The MRTS line from Beach currently follows the Buckingham canal and goes to Thirumayilai (Mylapore), a distance of 8.97km. This line was commissioned on October 19, 1997. Later, from Thirumayilai, the elevated line continues up to Velachery. This came up in two phases. The first phase was extension up to Thiruvanmiyur which connects with IT corridor in 2004 and the second phase up to Velcachery, growing urban agglomeration, in 2007. The patronage is good and average daily traffic reported as of 2012 was 76,800. There is a plan to further extend to St. Thomas Mount station which is part of Beach - Tambaram suburban lines. This would allow passengers to move easily between the existing suburban lines and the MRTS there. However, it is not clear whether rakes would move across lines directly from one system to another. From Velacheri, it is expected that the extension will be at surface level until Adambakkam. Further an elevated track from Adambakkam to St. Thomas Mount railway station, where a new elevated station or extension of the current station will have to be built.

Thus, a total of 14.6 lakh people use the train services daily in the suburban sector. The low cost considering the passenger fare, speed and ease of travel has made trains the preferred mode of transport. In 2012, there was an overall increase of 13.2 per cent in passenger traffic in the suburban sector registered a 13.2 per cent increase.

Chennai Metro Rail

Comprehensive Traffic and Transportation Study (CTTS) for Chennai was carried out in 1992-95 for Chennai Metropolitan Authority (CMA) along with the preparation of Second Master

plan. As part of the CTTS study short, medium and long-term measures for improvement of road and transport infrastructure were identified and prioritized for investment purpose. Chennai Metro was proposed based on this study and a detailed project report was prepared then.

Based on the study and traffic projections, the following corridors are recommended:

Corridor-1: NH-45 (Airport)- Guindy- Sardar Patel Road- Kotturpuram High road - Cenotaph Road- Anna Salai – Gemini – Spencers - Tarapore Towers – Along Coum River upto Rippon building - Central Station - Broadway (Prakasam Road) – Old Jail road - Tiruvottiyur High Road (upto Tiruvottiyur)

Corridor-2: St.Thomas Mount, Vadapalani – CMBT- Along Poonamallai High Road (Corporation limits) - EVR Periyar Salai - Rajaji Road (North Beach Road) covering Koyambedu - Anna Nagar Arch - Aminjikarai – Kilpauk Medical College – Egmore - Central-Fort- Beach

Corridor-3: Ambathur Industrial Area (Mogapair) - Ring Road - Arcort road - Panagal Park - Theagaraya road - Eldams road - Luz Church Road - RK Mutt Road - Adyar Bridge - Lattice Bridge Road - Tiruvanmiyur

Corridor-4: Porur – Kodambakkam (Arcort Road) - Panagal Park – Theagaraya road - Eldams road - Luz Church Road - Kutchery Road - Kamrajair Salai

Corridor-5: Ring road

Corridor-6: Radhakrishnan Salai - Nugambakkam High Road- Mc. Nickols Road - KMC

Corridor-7: Along NH 5 Road

Out of these corridors, following 2 corridors have been selected in consultation with State Government for Phase 1: Corridor-1 Airport to Washermenpet and Corridor-2 Fort - Anna Nagar- Ring road- St. Thomas Mount.

TABLE 7.8 CHENNAI METRO PROJECT ROADMAP

METRICS	Corridors I (Airport - Washermenpet)			Corridors II (Fort -Anna nagar- Ring road- St.Thomas Mount)			Total		
	2011	2016	2026	2011	2016	2026	2011	2016	2026
Daily Pass	318532	403169	542444	254144	353297	521605	572676	756466	1064049
Length km	22.5	22.5	22.5	21.3	21.3	21.3	43.8	43.8	43.8
Pass-km	2632748	3280363	4575592	2137984	2866624	4323905	4770732	6146987	8899496
Average lead km	8.27	8.14	8.44	8.41	8.11	8.29	8.33	8.13	8.36

Source: http://chennaimetrorail.gov.in/pdf/project_brief_updated_aug08.pdf

While preparing the feasibility study, a detailed household survey was carried out to assess traffic demand. Based on the same, the demand projections were built covering total boarding, passenger kilo meters, average trip length and passenger km/km for various years covering these two corridors. The same is presented in the table 7.8.

From the Table 7.8 it can be inferred that the traffic demand is expected to grow at around 5% CAGR. This also assumes average lead distance in to be around 8 km. We may see this going up in all likelihood after the projects are completed. From demand side, it is an important project to handle future movement demand using motorized transport at Chennai.

It may be important to note that Chennai Metro is being implemented for a length of about 45 km - of which 21 km will be elevated and 24 km underground which would be a challenge in a busy urban agglomerate The loan agreement with JICA was signed on 19.3.2009 and MOU with GOI was signed on 15.2.2011. This project is being promoted by the Government of Tamil Nadu along with Government of India. 23 out of 23 packages have been awarded and works are under various stages of progress. CMRL project estimates the total project cost at Rs.14,600 crores of which equity is Rs.4,380 crores and debt Rs.1,574 cores. JICA has loaned Rs.8,646 crores. (htturbanindia.nic.in) Thus, Government of Tamil Nadu's leading infrastructure project of Chennai Metro will have a long and significant impact on movement of people in Chennai Metropolitan area.

Chennai Airport

Chennai International airport is one of the major airports in India especially in Tamil Nadu. Chennai airport ranks as the third busiest airport after Mumbai and New Delhi in India. Being long established in trade, business both in manufacturing and services, Chennai attracted

investment and airport formed a key component of development. As of 2011-12, the airport handles 12.77 million passengers annually and about 325 aircraft movements a day. Further the cargo handled in the same year was around 389,000 tonnes.

Chennai's airport modernisation is underway with an investment of approximately Rs. 18 billion including a new domestic terminal (67,700 m^2) and international terminal (59,300 m^2) with a total capacity to handle 23 million (7mn international and 16mn domestic) passengers annually. Total terminal floor space will add up to almost 190,000 m^2 once the expansion is completed. A new cargo terminal that will feature an automated storage and retrieval system (ASRS) is also under construction.

The available capacity and cargo handled at the terminal are listed below:

TABLE 7.9 AIRPORT CARGO CAPACITY AND THROUGHPUT IN TONNES

Area	Annual capacity	Annual tonnage
Export General	265,000	160,000
Import	277,460	130,000
Total	542,460	290,000

Source: http://www.aai.aero/cargo/chennai_yearlytonnage.jsp

The existing capacity of the air cargo complex is expected to meet the requirement till 2020. Phase III and IV of the new integrated cargo terminal with latest automated storage and retrieval system is under construction, enhancing the area from 35,920 sq m to 54,620 sq m. The new upcoming import cargo storage and processing facility would have a capacity to handle almost 800,000 tonnes of cargo annually from the existing 150,000 tonnes. The new warehouse management will have automated storage and retrieval system (ASRS). The ASRS would have over 8,000 storage bins and each bin would have a capacity to store 1.3 to 1.5 tonnes of cargo in it.

Chennai Sea Port

Chennai Port is located on the east coast of India. It is the second largest container port in India and a gateway port for the vast hinterland of the States of Tamil Nadu, Karnataka and Andhra Pradesh. The port is administered by Chennai Port Trust (ChPT). The port has three docks, namely, Ambedkar Dock, Jawahar Dock and Bharathi dock.

Rail Connectivity with Port

The rail network is having good connectivity with Chennai port. The Chennai Port is linked to Southern Railway network via Chennai Beach Railway which connects Chennai Port Station to Southern parts of Tamil Nadu and via Royapuram which connects Southern Railway Trunk line to Kolkata, New Delhi, Bangalore, Coimbatore etc. The Port's connection from via Royapuram station to Bharathi Dock is used to handle bulk cargo. A few other commodities were done through marshalling yard at Chennai port railway. The handling of containers from Chennai Beach Station into north and central yard of port railway system is taken care by CONCOR. CONCOR has a dedicated siding and port land for stacking of containers.

The Bharathi Dock Marshalling Yard has a capacity to handle 10 rakes of railway wagons per day for iron ore and 2 container rakes. Now that the bulk cargo are moved out of Chennai, in the long run this would become a cargo container terminal based port for liquid cargo.

Performance

Chennai is one of the leading and efficient ports in India. The containers handled are Chennai is the second largest after Navi Mumbai terminal. The performance of the port is highlighted below:

1. Average ship berth day output in tons for all commodity category like liquid bulk, dry bulk and break bulk was 12,462 and 15,419 in years 2012-13 and 2014-15 respectively.
2. Overall commodity / category wise ships handled was 1928 and 1790 in years 2012-13 and 2014-15 respectively. This includes container vessels of 786 and 762 in 2012-13 and 2014-15 respectively.
3. Average turnaround time for vessels in days for all categories including: liquid bulk, dry bulk and break bulk was 1.93 on port account and 1.31 on non-port account for the year 2012-13 and 1.63 on port account and 0.91 for non-port account for the year 2014-15.

The above shows consistency in operations of the port. The port has constraints of infrastructure and road connectivity as the primary hinterland being poor, the port has done well by interacting closely with the different stakeholders.

Ennore Port

Ennore port is another major port located in Chennai Urban agglomerate. This port has large

potential to grow and has drawn attention in recent years for taking away bulk cargo from Chennai port for ease of movement and handling. This port has much better depth and can attract larger ships. The port has constraints in terms of the road and rail connectivity which are now being focused. Ennore Port is keen on strengthening its rail link. One of the long term plans is to get a rail link aligned along the Outer Ring Road which will enable it to link to the proposed Chennai-Bangalore Industrial Corridor.

Similarly, the road along the creek is now being strengthened and the state government and the port is investing on the infrastructure. Ennore has a number of container yards and is attracting investment for building warehouses. The outer ring road connectivity would improve its linkages to industrial belts like Sriperambathur and others in Southern part Chennai as well.

L & T ship building and port facility which has come up in Ennore would boost Chennai's infrastructure.

Water Sources

The backbone of Chennai's drinking water supply is monsoon. The water stored during this period is used as source for drinking water supply. The drinking water comes from the Redhills lake located in the northwest region of the city along the Grand Northern Trunk road. Apart from the lake, there are four surface reservoirs - Poondi, Cholavaram, Redhills and Chembarambakkam. To avoid any loss of transmission through dry beds of the river, a separate lined channel from Poondi Reservoir connects the upper supply channel.

Due to the urbanization of Chennai, the city's demand started growing. To cater to the need of the Chennai's citizens, Veeranam water supply project was implemented as additional source of water to Chennai. The Project was commissioned in the year 2004 to supply 180 MLD of water to Chennai by drawing water from Veeranam Lake, Cuddalore district. This lake receives water from Cauvery River system. The capacity of the lake is 1465 Mc.Ft.

Apart from these two major sources, the city also relies on Chembarakkam tank for water supply. This is located about 12km from the city in the west. Chennai is entirely dependent on ground water resources to meet its water needs. Ground water resources in Chennai are replenished by rain water and the city's average rainfall is 1,276 mm. Chennai receives about 985 million litres per day (mld) from various sources against the required amount of 1,200 mld. This demand is expected to rise to 2,100 mld by 2031.

Supply of ground water to the residents and sewerage management in Chennai is taken care of by the Chennai Metropolitan Water Supply and Sewerage Board (Metro Water), also known as CMWSSB. As of 2011, Metro Water is catering to a population of 5 million. With the expansion of the Corporation area from 174 sq km to 426 sq km, which increased the number of wards of the Chennai Corporation from 155 to 200 and the number of zones from 10 to 15, Metro Water's customer base is expected to increase by an additional 1.7 million when the new areas are covered. As of 2012, Metro Water supplies about 830 million litres of water every day to residents and commercial establishments. Of 800 mld supplied to the city, nearly 710 mld is transmitted through pipeline. It is estimated that the demand of the expanded city would be 1,044 mld. Similarly, Metro Water has to provide infrastructure to treat and dispose an additional 219 mld of sewerage estimated to be generated in the merged areas.

Other components of infrastructure

On education and healthcare, Chennai scores very high in both perspectives and attracts a large number of people from outside. Around its suburban area there are a number of higher education institutions and universities which attract people from different parts of India. Similarly, Chennai healthcare is well advanced and people from different regions come here for treatment.

Similarly on entertainment, Chennai has been hub of entertainment in India after Bollywood. The production and distribution of entertainment from Chennai is well documented over years. There has been trend of increasing shopping and entertainment zones in the malls acting as hangouts.

Conclusion

Thus, Chennai has excellent infrastructure by way of roads, rail connectivity, bridges, airport and sea port. The services of buses are widely spread. Similarly, Chennai has good source of power generation linkages and well laid out distribution. One could observe water sources are being linked and by and large infrastructure is providing the required support. However, the pressure on the same is growing with increasing population. Good and safe infrastructure is key to manage an effective urban agglomeration.

CHAPTER 8
SUMMARY AND WAY FORWARD

CHAPTER

8

SUMMARY AND WAY FORWARD

Introduction

Tamil Nadu in South India is one of the most rapidly industrialising and urbanising State in India. Chennai is the Capital city. Madras as it was formerly known has had a long history. In 1871, it was British India's third most populous city after Calcutta and Bombay. It remains the same even today. It is the fourth largest urban agglomeration in the country spread over the three districts of Thiruvallur, Kanchipuram and Chennai. Among the urban agglomerations of Tamil Nadu, Chennai ranked first followed by Coimbatore, Madurai and Tiruchirappalli. Prior to its expansion in 2011, the Chennai city occupied an area of 174 km^2 (67 sq miles) with ten zones. After the absorption of the adjoining areas, its area more than doubled into a combined area of 426 km^2 (164 sq mi).

The population density of Chennai is next only to Delhi and higher than Mumbai and Kolkata. It is totally urban (100%). Chennai ranks first among all the districts in the state in population density per square kilometre which increased from 24,963 in 2001 to 26,903 in 2011.

It has one of the largest number of factories in the country and a large number of workers employed in the manufacturing sector. It has increasingly acquired a name for itself as a hub for production of automobiles. As per the Human Development Report of Tamil Nadu, 2003, Chennai's HDI value (0.757) was because of a high per capita income, literacy rate and life expectancy in comparison to other districts. Chennai also figured as the top most district for GDI (0.766).

Employment, Income and Poverty

Workforce composition is one of the major driving force for a thriving city. Chennai's GDDP in 2011-12 was Rs. 31,55,060 lakhs, whereas the State's GDDP was Rs.4,33,23,803 lakhs. It

contributes 7% to the State's GDDP. Chennai's workforce is young and nearly 50% of the workforce is having regular employment. While this is reasonable, the rise in casual employment figures of 25% is a cause for concern. The per capita income in 2010-11 was Rs.66,240/-.

Its work participation rates (WPR) are among the highest in the country. Among males 49.5% are regularly employed, 25.7% are self-employed and 24.8% are employed as casual labour. The WPR for female workers is less than that of males. It is seen that there is an increase of marginal workers in the 10 zones of the city.

Tertiary sector (85.72%), viz., services have the highest share in the total GDDP of the district. The main sub-heads under services which are predominant in the local economy include trade, hotel and restaurants, banking and finance, and real estate. The relatively low contribution of manufacturing (3.31%) to the State's GDDP is to be looked at.

Demography, Health And Nutrition

With population growth rate under control, Chennai's health and nutrition have improved at the overall level over the years. The reduction in infant mortality rate, improvement of adult sex ratio shows a positive trend. The credit for the improvement in health and nutrition can be attributed to a number of initiatives like ICDS schemes, Neonatal ICUs and home based new born care programmes among others. Even so the decline in child sex ratio from 972 in 2001 to 950 in 2011 is worrisome.

Among the zones, Tondiarpet in North Chennai lags behind on most indicators whereas Mylapore is in the forefront. Kodambakkam, Nungambakkam and Saidapet in Central Chennai have good access to hospitals. The government has many schemes to help women. All government hospitals provide service free of cost. There is no need to provide Identity card or any other document to get maternity services.

As of 2014-15, immunization of children under one year, 90% of children were covered fully. The proportion of malnourished children under five years is less than 0.06% in 2013. This is a huge improvement in children's health and the role of ICDS and support from state government should be given credit for this achievement.

Education

The male literacy rate is 93.7% and the female literacy rate is 86.64% in Chennai district. It performs well with respect to primary and upper primary education. As per norms of the

Government of Tamil Nadu, Chennai Corporation areas have more number of schools when compared with other districts. Chennai has an average GER of 100.19% across all zones in 2012-13.But, there is a high drop-out rate in secondary education primarily due to employment of children, pressure to perform in secondary education and limited authoritarian powers to higher authorities in the schools to enforce corrective measures.

Most importantly, there is a need to educate parents on coping with the change in assessment from class 9. Suitable awareness campaigns may be conducted from primary level so that parents are also able to cope with the assessment methods.

All the schools have more than 3 classrooms. While, Chennai performs well in the other indicators, it can be seen that there 40 schools or 12% of the total schools are without girls' toilet. This is a cause for concern and steps need to be taken immediately to address this gap. In addition to assessment mechanisms, the government has to evolve a sustainable way of maintaining hygiene and regularly maintaining toilets and other facilities in the schools.

Gender

Chennai's indicators on Gender dimension shows that it is better in terms of institutional deliveries and ante-natal coverage. But, from the perspective of female participation in the labour market especially in the non-agricultural sector is lagging behind. This could be primarily due to the predominance of manufacturing industries in Chennai, which employ more male workers than female workers.

On the human resources front, Chennai has a good population in the productive age group of 15-59 which can be put to good use. The statistics for differently-abled shows that the predominantly persons are suffering from hearing-disability.

Although latest technologies like e-portals are employed in Marriage and maternity assistance, the absolute number of targeted beneficiaries for marriage and maternity assistance has also gone down over the years. The aspect of women safety is another dimension where some focus is needed.

Social Security

The State of Tamil Nadu has been in the forefront in assuming the role of a protective, benevolent parent, taking care of its citizens. It has been a forerunner for several social welfare measures. Chennai is seeing an increasing dependent population. The dependent ratio is 479 of

which nearly 2.2% have a disability. It is estimated that about 10 per cent population would be in the age above 60 years post 2001. Totally 2,59,000 people are benefitting from the different schemes of state and central government.

There are 6 Homes for the Old Age Persons maintained by the NGOs at Chennai with the assistance of grant and another 25 Old Age Homes maintained without any aid from the Central and State Governments. It has been estimated that in Chennai, there are homeless people (0.64%) who lacked proper shelter. However the houseless were reported to have ration cards and voter identities unlike most other cities (NSS Survey 2004-05). This has been possible because the Corporation of Chennai is a pioneer in the Shelter for Homeless programme.

Infrastructure

Chennai has long history of infrastructure by way of roads, rail connectivity, bridges, airport and sea port. Sea port has a long history and Chennai port is increasingly becoming a container port with changing global trends of containerization. Ennore port matches for demands of all cargo. A long demand has been improving access roads close to Chennai port and Ennore port and improving primary and secondary hinterland connectivity for escalating demand. Also need to improve rail connectivity and container terminal facilities which are currently focused.

The services of buses are widely spread. Introduction of small buses to penetrate into new developed clusters of housing from main links across the city has been widely appreciated. Also plying of share auto and disciplining of notorious auto fare system are welcome on road movement. The key concerns have been that demand for public transport has not been met by bus operations and there has been an increase in private vehicles especially by two and four wheelers which brings pressure on the road. Dedicated lanes for two wheelers and cars which were earlier attempted on Anna salai are more welcome in major parts of the city.

Rail transport has been a multifold growth especially on Velachery to Beach station link. Chennai Metro would also ease congestion in traffic provided if the populist pricing is not adopted but fair and enabling commuters to hop from two wheelers and cars by adopting multi modal passenger link for their movement. This requires well executed parking at Metro stations and radial linkages to localities.

Similarly, Chennai has good source of power generation linkages and well laid out distribution. However, availability of power could be a larger issue in the years ahead if not addressed

comprehensively at the state level. Similarly, water sources are being linked across city localities. However, drinking water has been a high alert development perspective. Desalination plant has become handy and over years more capacity may be added under private – public partnership scheme. Thus, by and large infrastructure is providing required support, though demand and supply for future needs to be constantly monitored as the pressure on the same is growing with increasing population. Good and safe infrastructure is key to manage effective urban agglomerate.

Way Forward

There are a number of areas where improvement can be sought based on this study. In terms of education, some of the problems which persist in the corporation and government schools can be avoided through engagement of private sector in PPP mode. The primary advantage of PPP model is that it has the required flexibility and scalability and comes at a fraction of cost. It can be leveraged in places where outreach by government is weak. It could also be used to address the problems which persist in the already established schools.

This model can be explored by the government for providing support services to start with. The support services in education include Information Technology infrastructure and scientific laboratories which are currently costly for public schools to establish and maintain. Based on the success of this model, the engagement can be extended beyond support services to also educational services.

With respect to health care, of late, Chennai is attracting a lot of medical tourists owing to the availability of lot of medical facilities. Although there is good potential for Chennai to be a top medical tourist destination, the available infrastructure is not sufficient for the foreign tourists. The difficulties range from transport, accommodation and food to availability of stretchers. There is a general negative perception on the hygiene and sanitation standards. Apart from this, there is no specific policy in place for medical tourists. Government should take necessary steps to improve the public image by providing suitable facilities and creating an awareness campaigns.

Lifestyle diseases like diabetes and hypertension is impacting people across socio-economic status and gender. Though there is an increasing awareness on the need to manage the same more effectively, there are differences among people in Chennai in handling the same. This is

not specific to a segment though high income group respondents seem to be more conscious of the need to manage proactively. A better media campaign and stressing on the need to manage health may avoid dreadful impact of the diabetic phenomena on the people. Low income group seem to be more hampered and the ability to manage after a severe bout becomes difficult. Hence a proactive campaign by health authorities is welcome.

Over the years number of slums continued to grow and the existing slums grew beyond their recognized borders as residents built more housing to accommodate expanding families and for rental income. No new slums have been officially recognized since 1985. This has also given rise to a number of unrecognized slums. The government has only declared slums twice, at the time of establishment of the Tamil Nadu Slum Clearance Board in 1971 when 1202 slums were declared and again in 1985 when a small number of slums (only 17) were added to the existing list. So, it is high time that government comes with a new list of recognized slums as early as possible.

The city of Chennai had featured in the 2009 World Development Report as an example for the economic advantages of agglomerations in developing countries. Chennai has historically grown to attract investment and employment opportunities. Over the years it has brought together both human and entrepreneurial resources to the city. For the many who are continuously migrating to the city, Chennai holds out hope as a protective, benevolent state, taking care of the citizenry in general, and marginalized and vulnerable populations in particular. This entails the Corporation of Chennai to be ever more active and push ahead to improve the varied functions.

ANNEXURES

Annexures

Chapter 1

Figure 1.1 and 1.2 – Infant Mortality Rate and Crude Birth Rate

2011	IMR	CBR
Chennai	6.6	12.8
Tamil Nadu	22	15.9

Source: CBR – Health Department, GoTN
IMR – Family Welfare Department, CoC

Chapter 3 – Demography, Health and Nutrition

Figure 3.1 and 3.2 – Trends in Crude Birth Rate and Crude Death Rate

CBR and CDR

		CBR		CDR	
S.No.	Name of the zone	2012-13	2013-14	2012-13	2013-14
1	Thiruvottiyur	15.5	14.2	1.8	1.8
3	Madhavaram	12.8	12.5	2.7	2.3
4	Tondiarpet	13.7	13.5	1.8	1.9
5	Royapuram	15.1	13.9	1.7	1.8
6	Thiru-Vi-Ka-Nagar	12.9	12.4	2	2
7	Ambathur	11.9	11.9	1.7	1.8
8	Anna Nagar	15	13.3	2.1	2
9	Teynampet	13.3	12.2	2.1	2.3
10	Kodambakkam	12.9	11.8	2.2	2.5
12	Alandhur	15.4	14.2	2.2	2.6
13	Adyar	12.2	12.2	0.8	1.2
	Total	13.6	12.8	1.9	2

Source: District Family WelfareBureau, Corporation of Chennai

Figure 3.3 – IMR in Chennai

		IMR	
S.No.	Name of the zone	2012-13	2013-14
1	Thiruvottiyur	3.13	7.7
2	Manali	NA	NA
3	Madhavaram	1.98	7
4	Tondiarpet	8.33	8.1
5	Royapuram	4.16	5.3
6	Thiru-Vi-Ka-Nagar	8.41	8.1
7	Ambathur	1.22	3.6
8	Anna Nagar	6.5	6
9	Teynampet	7.5	6.7
10	Kodambakkam	9	7.1
11	Valsaravakkam	NA	NA
12	Alandhur	2.8	1.9
13	Adyar	5.9	7.4
14	Perungudi	NA	NA
15	Shozhiganallur	NA	NA
	Total	6.2	6.6

Source: District Family Welfare Bureau Corporation of Chennai

Figure 3.4 Institutional Deliveries (%)

Percentage of Institutiional delivery Year 2013-14

Sl.No	Block wise/District/State	% of Institutional deliveries
1	Thiruvottiyur	100
2	Manali	100
3	Madhavaram	100
4	Tondiarpet	100
5	Royapuram	100
6	Thiru-Vi-Ka-Nagar	100
7	Ambathur	100
8	Anna Nagar	100
9	Teynampet	100
10	Kodambakkam	100
11	Valsaravakkam	100
12	Alandhur	100

13	Adyar	100
14	Perungudi	100
15	Shozhiganallur	100
	Total	100

Source: District Family Welfare Bureau Corporation of Chennai

Figure 3.5 Access to drinking water

Table:Percentage of HH provided with safe Drinking water Year 2011-12

Sl.No	**Zone**	**Total Number of HHs**	**Number of HHs provided wth drinking water**	**% of HHs provided wth drinking water**
1	Tondiarpet	48420	32982	68.12
2	Basin Bridge	31115	20375	65.48
3	Pulianthope	45854	37891	82.63
4	Ayanavaram	78653	63055	80.17
5	Kilpauk	104436	79218	75.85
6	Ice House	33767	27603	81.75
7	Nungambakkam	42236	30311	71.77
8	Kodambakkam	97717	80346	82.22
9	Saidapet	58039	42633	73.46
10	Mylapore	107243	79829	74.44

Source: Chennai Metro Water Sewerage Board

Chapter 4

Figure 4.1 : Percentage of Literacy

Sl.No	Block wise/District/State	2001			2011		
		Male	**Female**	**Total**	**Male**	**Female**	**Total**
1	Tondiarpet	88	69	77	92.34	82.43	82.7
2	Basin Bridge	86	72	79	93.25	84.69	84.55
3	Pulianthope	86	73	80	90.34	81.49	85.45
4	Ayanavaram	88	76	82	91.52	85.32	87.71
5	Kilpauk	90	78	84	93.5	86.5	89.47
6	Ice House	90	80	85	93.5	85.46	90.47
7	Nungambakkam	92	84	88	93.87	91.89	94.22
8	Kodambakkam	93	85	89	96.3	93.83	95.59
9	Saidapet	93	88	91	93.59	87.25	96.03
10	Mylapore	94	92	93	96.58	92.82	97.01

Source From SSA

Figure 4.2 Arts and Science Colleges in Chennai

Type of College	**Number of colleges**
Govt. Colleges	8
Aided Colleges	20
Unaided Colleges	16

Source: Directorate of Collegiate Education, Government of Tamil Nadu

Figure 4.3 - Polytechnic colleges in Chennai

Type of College	**Number of colleges**
Govt. Colleges	11
Aided Colleges	3
Unaided Colleges	4

Source: Directorate of Collegiate Education, Government of Tamil Nadu

Government

1. Approach Paper for Twelfth Five Year Plan (2012-17), Tamil Nadu
2. Brief Industrial Profile of Chennai District 2012-13, MSME
3. Chennai District - Statistical Handbook , 2006
4. CMDA/TRF Study data handbook 1991 Census of India, Social & Cultural Tables 1961,1971,1981,1991,2001
5. Corporation of Chennai – Citizen Charter, 2012
6. Domestic Tourism in India, NSS 65th round, Government of India, Ministry of Statistics and Programme Implementation, NSSO, October 2010
7. Employment Review 2011, Ministry of Labour and Employment, GoI, 2013, dget.nic.inslashpublicationsslashaerslash2011slashMain
8. Health and Living Conditions in Eight Indian Cities (NFHS-3)-2005-06, Ministry of Health and Family Welfare, Government of India, 2009
9. Key Indicators of Drinking water, Sanitation, Hygiene, and Housing condition in India, NSS 69th round, July 2012-December 2012, Government of India, Ministry of Statistics and Programme Implementation, NSSO, December 2013.
10. Key Indicators of Slums in India, NSS 69th Round, July 2012-December 2012, Government of India, Ministry of Statistics and Programme Implementation, NSSO, December 2013
11. Migration in India 2007-2008, NSS 64th round, Government of India, Ministry of Statistics and Programme Implementation, NSSO, June 2010
12. National Family Health Survey (NFHS-3) India – Tamil Nadu Report 2005-06, www.rchiips.orgslashnfhsslashNFHS-3Data
13. NSS Report No.553(66/10/8), Employment and Unemployment Situation in Cities and Towns in India, July 2009-June 2010, NSSO, Ministry of Statistics & Programme Implementation, GOI, September 2013.
14. Press Note on Poverty Estimates 2011-12, Government of India, Planning Commission, July 2013.
15. Second Master Plan for Chennai Metropolitan Area, 2026, Volumes 1,2,3, September 2008, www.cmdachannai.gov.in, retrieved on 25th February 2014
16. Selected Socio-Economic Statistics India, 2011, Government of India, Ministry of Statistics and Programme Implementation , Central Statistics Office, Social Statistics Division, RK Puram, New Delhi, October 2011
17. Situation Analysis Of the Elderly in India-June 2011, Central Statistics Office, Ministry of Statistics & Programme Implementation, Government of India
18. Some Characteristics of Urban Slums 2008-09, NSS 65th Round (july 2008- June 2009), Report No.534(65/0.21/1)
19. Special Bulletin on Maternal Mortality in India 2010-12, December 2013, Office Of Registrar General, India
20. SSA Reports, 2011-2014
21. Statistical Hand Book 2013 :http://www.tn.gov.in/deptst/agriculture.pdf
22. Status of Education and Vocational Training in India, NSS 66th round, July 2009 to June 2010, Government of India, Ministry of Statistics and Programme Implementation, NSSO, March 2013
23. Tamil Nadu Government Schemes-Ready Reckoner-Tamil Nadu Tsunami Resource Centre, December 2007
24. Tamil Nadu Industrial Policy 2014
25. Tamil Nadu Urban Sanitation Policy, Municipal Administration and water supply department, February 2012. Government of Tamil Nadu
26. The Chennai City Municipal Corporation Act, 1919
27. The Information Hand Book under Right to Information Act-Chennai Metropolitan Development Authority, Chennai, 2010
28. Traffic & Transportation Policies and Strategies in Urban Areas in India, Ministry of Urban Development, May 2008

29. Twelfth Five year Plan, Tamil Nadu 2012-2017, Overview, State Planning Commission, 2012
30. Vision Tamil Nadu 2023, Strategic Plan for Infrastructure Development in Tamil Nadu, March 2012.

Human Developoment Reports

1. Delhi Human Development Report, 2013
2. District Human Development Report, Cuddalore District, 2009
3. District Human Development Report, Dindugul District, 2009
4. District Human Development Report-Dharmapuri District, 2011
5. Human Development Report 2013, The rise of the south: Human Progress in a diverse world, UNDP, 2013
6. Mumbai Human Development Report 2009
7. Tamil Nadu Human Development Report 2003, Government of Tamil Nadu and Social Science Press, 2004

Others

8. Atul Kohli, *Democracy and Development in India-From Socialism to Pro-Business*, Oxford University Press, 2009.
9. Carol K.Sigelman and Elizabeth A.Rider, *Human Development*, Wadsworth, New Delhi, 2003.
10. D.K.Srivastava, C.Bhujanga Rao, Swarna S.Vepa and Brinda Viswanathan, 2010, 'Urban Poverty Alleviation Strategies – A Study of Six Cities (in India)', *Monograph 7/2010*, Madras School of Economics, accessed on 2.6.2014 at www.mse.ac.in
11. Daniel Frankllin and John Andrews, *Megachange-The World in 2050*, The Economist and Profile Books, London, 2012.
12. David C.Korten, *The Great Turning- From Empire to Earth Community*, Kumarian Press and Berret-Koehler Publishers, San Francisco, 2006.
13. Dr.C Chandramouli, 'Slums In Chennai: A Profile' in Martin J. Bunch, V. Madha Suresh and T. Vasantha Kumaran, eds., *Proceedings of the Third International Conference on Environment and Health*, Chennai, India, 15-17 December, 2003. Chennai: Department of Geography, University of Madras and Faculty of Environmental Studies, York University,pp. 82 – 88.
14. Ian Goldin and Mike Mariathasan, *The Butterfly Effect*, Princeton University Press, Princeton, 2014.
15. Jean Dreze and Amartya Sen, *An Uncertain Glory-India and its Contradictions* , 2013, Allen Lane, Penguin, London.
16. K.R.Shanmugam, 'Monitorable Indicators and Performance: Tamil Nadu', *Monograph 17/2012*, Madras School of Economics, January 2012.
17. K.Vinayakam and S.P.Sekar, 'Rural to Urban Migration in an Indian Metropolis: Case Study Chennai City', *IOSR Journal of Humanities and Social Science*, ISSN:2279-0837, ISBN: 2279-0845. Volume 6, Issue 3 (Jan-Feb 2013). Pp32-35.www.Iosrjournals.Org
18. Lynn Bouselly, Shreekant Gupta and Debjani Ghosh, *Water and Urban Poor*, National Institute of Urban Affairs, NIUA WP-06-11, December 2006.
19. M.P.Mathur, 'Impact of the Constitution (74th) Amendment Act on the Urban Local Bodies: A Review', NIUA WP 07-02, National Institute of Public Affairs, New Delhi, retrieved 3rd February 2014.
20. M.Vijayabaskar, et.al, 'State Level Background paper on Tamil Nadu' for the Urban Infrastructure Reforms Facility at The School of Habitat Studies, Tata institute of Social Sciences, prepared by MIDS, July 2011, www.tiss-uirf.in.pdf, retrieved 30th January 2014.
21. Mahbub Haq, *Human Development in South Asia 2008*, Human Development Centre, Oxford University Press, 2009.
22. Mckinsey Global Institute, India's urban awakening: Building inclusive cities, sustaining economic growth, April 2010.
23. Media Centre –WHO-http://www.who.int/mediacentre/factsheets/fs312/en/

24. Naresh Gupta, *Democracy and Human Development in India*, publication Division, Ministry of Information and Broadcasting, Government of India, 2008.
25. P.Nayak, *Growth and Human Development in North East India*, Oxford University Press, 2010.
26. *Public Health and Air Pollution in Asia (PAPA): Coordinated Studies of Short-Term Exposure to Air Pollution and Daily Mortality in Two Indian Cities*, A research Report, Health Effects Institute, Boston, Massachusetts, Number 157, March 2011.
27. Ramamani Sundar and Abhilasha Sharma, 'Morbidity and Utilisation of Healthcare Services A Survey of Urban Poor in Delhi and Chennai', *Economic and Political Weekly*, November 23, 2002, pp. 4729-4740.
28. Sonalde B.Desai, Amaresh Dubey, Brij Lal Joshi, Mitali Sen, Abusaleh Shariff, and Reeve Vanneman, *Human Development in India-Challenges for a society in Transition*, Oxford University Press, 2010, New Delhi
29. Tara Ramanathan and Paramita Datta Dey, 'Urban Poverty Reduction Strategies-Past, Present and Future', NIUA WP-06-06, December 2006.
30. V.Anil Kumar, 'Federalism and Decentralisation in India: Andhra Pradesh and Tamil Nadu', WP 208, Institute for Social and Economic Change, 2009, retrieved 19th February 2014.
31. Vydyanathan Lakhsmanan, 'A Statistical Insight into Health and Education in Chennai Slums', CCS WP.227, Centre for Civil Society, 2006-07.

Websites

1. http://cma.tn.gov.in
2. http://indiabudget.nic.in
3. http://nlep.nic.in - National Leprosy Eradication Programme
4. http://www.chennai.tn.nic.in
5. http://www.cmchistn.com
6. http://www.rbi.org.in
7. http://www.tnpolice.gov.in
8. www.cmdachannai.gov.in
9. www.tndce.in
10. http://www.who.int/mediacentre/factsheets/fs312/en/
11. http://www.chennaicorporation.gov.in/departments/bridges/aboutBridges.htm