District Human Development Report - 2017

Nagapattinam District

State Planning Commission
Tamil Nadu

NAGAPATTINAM

DISTRICT HUMAN DEVELOPMENT REPORT 2017

District Administration, Nagapattinam and
State Planning Commission, Tamil Nadu
in association with
Annamalai University

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

S. Palanisamy, I.A.S.
District Collector

Collector's Office
Nagapattinam - 611001
Ph: 04365-252700
Fax: 04365-253048

15.07.2015

PREFACE

It is my pleasure to present to you the 2015 District Human Development Report of Nagapattinam. The district has gone through enormous changes, vast opportunities and complex challenges, lots of them linked to the realm of extractive industries. The discourse on human development has come a long way since the publication of the first global Human Development Report was published in 1990. Ever since then, people have become central to development issues, with the main concerns being that all sections of the society should benefit from economic prosperity, enjoy long, healthy and productive lives, and optimize their potential in all spheres.

Proceeding with a similar sensibility, the first District Human Development Report for Nagapattinam was published in 2008. The Report highlighted the need for increased people's participation in order to achieve progress in human development on the basis of the partnerships forged between the community and the Government.

The economy of Nagapattinam has witnessed a high growth rate during the last decade. Poverty has been reduced considerably. There has been an expansion in employment opportunities as well as in access to housing and many basic services. Public health facilities and educational opportunities have undergone tremendous expansion. This has been reflected in a very high level of satisfaction expressed by people across the board regarding the various aspects of life. Notwithstanding the overall impressive gains accruing to various groups, however, disparities still persist amongst these groups. There are some particularly vulnerable groups of people such as the homeless, child workers, the differently- abled and the elderly, whose relative exclusion based on human development considerations, warrants focused attention from policy-makers. Public safety has recently emerged as a major area of concern bringing forth an important aspect of human development.

This Report has been prepared with the association of Annamalai University and has been synthesized and edited by an experienced team. Comments and suggestions for improvement in contents and presentation of the future issues of the report are most welcome. I wish that this document is updated periodically, with special focus on different sectors of Human Development, so that Nagapattinam District is able to achieve the 'Millennium Goals' of Human Development.

15/07/2015

S. Palanisamy

ACKNOWLEDGEMENT

The Tamil Nadu State Planning Commission in association with the United Nations Development programme has initiated the preparation of the District Human Development Report (DHDR) for all the districts of the State. The objective of this exercise is to make an analysis of the Status of Human Development in the District based on the internationally accepted specific Human Development Indicators. The task of preparing this report has been assigned to Annamalai University by the State Planning Commission in collaboration with the District Administration. The District level core committee was constituted with the **District Collector as the Chairman** and myself **Dr. E. Selvarajan**, Professor, Department of Economics, Annamalai University as the Coordinator. It is a pleasant task to thank all the people who have associated themselves with this project at various stages. Without their cooperation and support this task would have not achieved fruition.

First and foremost I wish to express my sincere thanks to **Tmt. Santha Sheela Nair**, IAS (Retd), Former Vice Chairman, State Planning Commission, Government of Tamil Nadu for constantly monitoring the progress of this exercise and for supplementing with valuable suggestions. I am extremely indebted to **Thiru M. Balaji**, IAS, the then Member Secretary, State Planning Commission who initiated this exercise and also my thanks is due to **Dr. Sugato Dutt, IFS,** Member Secretary i/c, State Planning Commission and **Thiru Anil Meshram, IAS,** Member Secretary, State Planning Commission for providing all necessary administrative support.

I take this opportunity to place on record my sincere thanks and gratitude to **Dr.S.Manian,** Vice Chancellor, Annamalai University**, Thiru Shiv Das Meena, IAS,** Principal Secretary to the Government Tamil Nadu and former Administrator of Annamalai University; **Dr. K. Arumugam,** Registrar i/c, **Dr. J. Vasanthakumar**, Registrar i/c, **Dr. N. Panchanatham,** former Registrar, Annamalai University; **Mr. Dinesh Oliver Ponraj,** DRO I, Annamalai University and **Mr. T. Christuraj**, DRO II, Annamalai University for their constant encouragement and unstinting cooperation.

I owe a deep sense of gratitude to **Thiru P. Selvarajan**, Head of Division, Rural Development, State Planning Commission and **Selvi.S. Namagiri**, Senior District Planning Officer, State Planning Commission, whose encouragement, and support from the preliminary to the concluding level enabled me to complete this task. I also thank **Dr.G.N.Krupa**, Planning Officer, State Planning Commission who rendered all support to the study team.

I sincerely acknowledge **Thiru S. Palanisamy, IAS.,** District Collector, Nagapattinam, **Thiru T. Munusamy, IAS,** former, District Collector, Nagapattinam for their constant encouragement and periodical reviews. My special thanks goes to **Tmt. Muthumeenatchi,** and **Thiru Mohan,** i/c, former District Planning Officers; **Tmt. Meenatchi,** i/c, District Planning Officer, and **Thiru Kamalakannan**, Statistical Inspector, Nagapattinam and this work would not have been possible without their continued support.

I would like to place on record my sincere thanks to **Dr. S. Nagini**, Director, Research and Development, Annamalai University, **Thiru S. Ravichandran**, Assistant Registrar (Grants), **Thiru M. Ramanathan**, Superintendent (Grants) and **Thiru VR. Murugappan**, Deemed Superintendent (Grants), Annamalai University for their administrative support.

I am grateful to **Dr. N. Ramagopal**, Head of the Department of Economics, Annamalai University, for his interest in the preparation of this report. I thank him for his valuable suggestions and constant encouragement

The preparation of the DHDR was possible owing to the untiring efforts of the study team that gathered good deal of qualitative and quanitative information. I am thankful to my fellow study team members **Dr. A.K. Ravishankar**, Assistant Professor in Population Studies, **Dr. G. Senthilkumar**, and **Dr. S. Tamilarasan**, Assistant Professors in Economics, Annamalai University for spending their precious time with me travelling the length and breadth of the district to take part in several stakeholders meet and focus group discussions and providing critical inputs.

It is my pleasure to acknowledge the help rendered by the Block Development Officers (BDOs), the elected representatives of the district, SHG members, and Municipal Commissioners. Besides, the various heads of department at the district level provided invaluable assistance. Specifically Project Director, DRDA; Superintendent Engineer, TNEB; Joint Director, Health & Family Welfare, Joint Director, Agriculture; Deputy Director of Health Services, Chief Educational Officer, Chief Educational Officer (SSA); Project Officer, Mahalir Thittam, Executive Engineer, (Urban), TWAD, Executive Engineer, (RWS), TWAD, Deputy Director, Statistics, Special Deputy Collector, SSS; District Elementary Educational Officer, District Social Welfare Officer, Project Officer, ICDS; Labour Officer; Manager, Lead Bank, Manager, NABARD, All Executive Officers of Town Panchayats; All Block Medical Officers; and others who have also co-ordinated with us in executing the work.

I express my deep sense of gratitude to **Dr. R. Elango**, former Dean, Faculty of Arts and former Head of the Department of Economics, for meticulously reviewing the technical aspects of the report. I also take pleasure in thanking **Dr. Abdul Rahim**, Former Head, Department of English, Annamalai University, for looking out for syntax and semantic errors in the report.

I extend my thanks to **Mr. V. Magesh Kumar**, Project Assistant, Nagapattinam DHDR, who have shouldered the responsibility of executing various tasks of the project with involvement. He also deserves appreciation for his efforts behind the scene in organising several stakeholders meet and focus group discussions.

Lastly I acknowledge with a deep sense of appreciation, unremitting cooperation and help of all the officers and staff of the SPC and District Administration, without whom the present endeavour would not have achieved fruition.

Dr. E. SELVARAJAN
Annamalai University

List of Boxes

List of Figures

List of Tables

CHAPTER 1
NAGAPATTINAM DISTRICT - A PROFILE

Chapter
1
Nagapattinam District a Profile

Topography

Part of Nagapattinam district lies on the east coast to the south of Cuddalore district and another part of the district lies to the south of Karaikkal and Tiruvarur districts. This peninsular delta district is bounded by the Bay of Bengal on the east, Palk Strait on the south, Tiruvarur and Thanjavur districts on the west, and Cuddalore district on the north. The geographical extent of the district is 2569 Sq kms and covers 1.97 % of the total area of Tamil Nadu. The district lies on the shores of the Bay of Bengal between northern latitude 10.10' and 11.20' and eastern longitude 79.15' and 79.50'. It has a 187.9 km long coastline, stretching from a Kodiyampalayam in the north to Kodiyakarai in the south, which constitutes about 15 per cent of the coastline of Tamil Nadu.

Land

The district is underlined by sedimentary formations as one of the major land forms that occur, and there are natural levees near Mayiladuthurai coastal plain, covering almost the entire district with beaches, beach ridges, mud flats, swamps, and back waters along the coastal stretch. The deltaic plains are found near the confluence of River Coleroon with sea in the east and also in the south. Flood plain deposits are observed along the river courses. The present geomorphic set up of the district is the result of the action of the major rivers with their distinct tributaries, oscillations in the sea level, tidal effects of Bay of Bengal, and forces of wind. The entire area is a plain terrain with a gentle slope towards the east and the southeast. The maximum elevation is about 21m above mean sea level in the west. The coastline of Nagapattinam is straightened by south the bound long shore currents from the Kollidam river mouth to point Calimere. From Point Calimere to further south, the coastline forms a bay.

Soil

The district is covered by very dark grey brown to dark grey brown soils derived from the alluvial deposits. The soils are very deep, moderately drained, clay to sandy clay loam in texture with deposits

of sand in intermittent layers. The soils are somewhat saline in nature due to the influence of tidal waves. Some patches of Aenacious soils are also found along the coastal line. In Nagapattinam district, 15 soil series excluding sand (2.03%), swamp (1.28%), and reserve forest (2.00%) have been identified. The major soil series are Kolathur, Adhanur, Kilvelur, and Meelkadu. Kilvelur soil series consist of dark yellow-brown, very deep, heavy textured, slightly saline alluvial soils. Melkadu soil series are dark brown, very deep, sandy, calcareous coastal alluvial soils.

Drainage

The northern tributary of river Cauvery called Kollidam and its tributaries flow through Nagapattinam district. Cauvery is considered to be the best of the rivers that drain the Southern Peninsula of India. There are 14 river systems sub-divided into 180 drainage canals of 346 km length in Nagapattinam. The river Cauvery flows through the entire district in different names with its 14 tributaries - South Rajan, Pudumaniyar, Manjalar, Mahimalaiyar, Veeracholanar, Vettar, Odambogiyar, Kaduviayar, Panadavayar, Vellaiyar, Harichandra, Adappar, and Mullaiyarrun before draining into the Bay of Bengal.

Climate and Rainfall

The district receives rainfall almost throughout the year. The normal annual rainfall of the district is 1230mm. The district receives major portion of its annual rainfall during the north eastern monsoon period, and a moderate amount of rainfall is received during the south west monsoon period. A good part of the rainfall occurs as very intensive storms resulting mainly from cyclones generated in the Bay of Bengal, especially during northeast monsoon. Vedaranyam which is at the southeast corner of the district receives an annual rainfall of 1500mm and rapidly decreases to about 1100mm towards the west of the district. The district enjoys humid and tropical climate with hot summers, mild winters, and moderate to heavy rainfall. The relative humidity ranges from 70–77% and the temperature varies from 40.6 to 19.3°C with sharp fall in night temperatures the during monsoon period.

History

Nagapattinam, on the east coast of Tamil Nadu in India has occupied a “very important” place in the medieval and subsequent periods in the history of Tamil Nadu, and was well known in all South-East

Asian Countries. It finds mention in the Historical Chronicles and inscriptions of the medieval and later periods - Malaysia, Indonesia, China, Myanmar, Sri Lanka, and Tamil Nadu - as a great "Seaport City" of Cholas. It was from here that Emperor Rajendra Chola I and Emperor Virarajendra Chola under the command of Kulothunga Chola I sent Chola forces in many ships and captured many near and far countries in the South and South-East Asia. It was from this seaport city many Chola trade embassies were sent to China, Myanmar, Malaysia, & Indonesia, and during this period, many traders from eighteen different countries including Sri Vijaya, Kadarem, Rammanadsa, China, and Arab countries were trading at this seaport city of Nagapattinam, and some even settled down in this region.

The Copper Plates issued by Emperor Rajaraja Chola I, Emperor Rajendra Chola I, and Emperor Kulothunga Chola I too refer to the grant of the village Aanaimangalam of Nagapattinam by Rajaraja Chola I to build a Buddhist temple named the "Chulaamanipanma Vihar" alias "Rajarajaperumpalli" and another built by Rajendra Chola I known as "Rajendra Cholaperumpalli" at the request of the two Sri Vijaya Emperors of Indonesia namely the Chulaamanivarman and Mara Vijayotungavaman. The Chinese Emperor Ta-Sung, of a later period built a Buddhist Vihar named the Padikrama Vihar at Nagapattinam, which was also known as the Chinese Pagoda.

The foremost three of the 63 Tamil Saiva Saints namely Thirunaavukkarasar, Thirugnanasampanthar, and Sunthatharar have referred to Nagapattinam "as a seaport city" in their Tamil Thevara Pathikams, and it is also referred to in the Tamil Saivite literature, the Periyapuraanam of this period. The ancient "Thiru Nagapattinam kaaronam Siva temple" at Nagapattinam has been adorned by the Thevara Thiruppathikams of the great Tamil Saiva Saints of Tamil Nadu. Temple inscriptions reveal that the Sri Vijaya kings of Indonesia too have given many grants through their envoys to this temple.

The earliest reference to Nagapattinam is found in a Burmese Chronicle of the 3rd century B.C. which mentions the "existence" of a Buddhist temple at Nagapattinam known as Asokavihar (Asoka Vihar) which was built by the Emperor Asoka of Magadha kingdom of North India. The 7th century Chinese Buddhist Monks named Wou-Hing (who actually visited Nagapattinam) and Tche-hong who visited India have mentioned in their travel writings about the "Nagapattinam" Port of Tamil Nadu. The other well-known Chinese Buddhist Monk of this same period who has referred to this great seaport city as Nagapattinam in his travel writings is I-sting. The Pallava king of the later period, Rajasimhan (A.D.690-728), permitted the delegation sent by the ruling Chinese king to build a

Buddhist Vihar at Nagapattinam. Nagapattinam continued to be of great historical importance also during the rule of the Paandiya kings who ruled Tamil Nadu after the fall of the Cholas. As early 1505, Ludovico de Varthema refers to the presence of Christians in this area. During that time, this area was under king Narasinga of the Vijayanagar Empire. Three powerful captains were ruling these territories on his behalf. They were Nayaks of Madurai, Gingee, and Tanjore. Nagapattinam belonged to the Tanjore Nayaks. Portuguese had commercial connections with this town during the Tanjore Nayakkas rule.

Portuguese commercial contact was established in 1554; Under a commercial contract, 10 villages were taken control by the Portuguese traders. Since then, Christianity began to take roots and Velankanni Church came into existence. Nagapattinam is referred by the early writers and the Portuguese as “the city of Coromandel”. During 1620 AD, a Danish settlement was established at Tharangambadi in this district. Later, this area came under the control of the British East India Company till India became independent in 1947.

Language

Nagapattinam was referred by early writers and the Portuguese as "the city of Coromandel". Appar and Tirugnanasambandar, the 7th-century saint poets refer the city as Nagai in their verses in Tevaram. The town was originally called "Nagai" and the word Pattinam was attached during the Chola era when the town emerged as an important port. Tamil is the widely spoken language, with the standard dialect being Central Tamil dialect. This history of Nagapattinam district dates back to Paleolithic age. The Official languages spoken in the district is Tamil one of the oldest languages greatly influenced by its rich and colourful past. Today, one can hear several languages such as Telugu, Malayalam, Kannada, Hindi and other Indian languages being spoken in the district. Above all, the foreign visitor need not have any fear of not being understood as English is spoken with considerable fluency in most parts of the district. Two prominent English newspapers and a number of economic dailies besides several newspapers in the local vernacular are brought out from here.

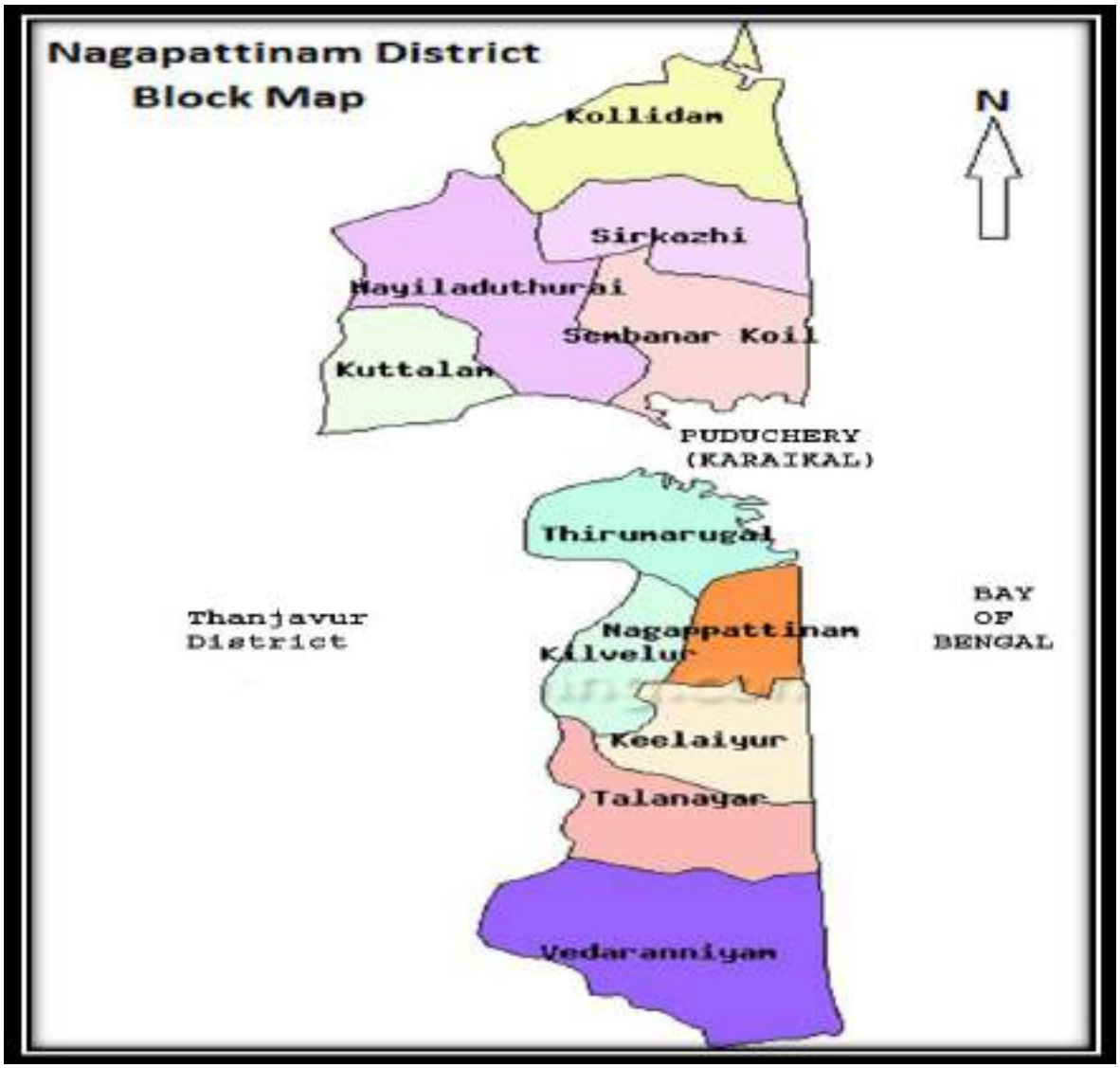
Art, Architecture and Culture

There are a number of ancient temples in the district, and Kayarohanaswami Temple, a Hindu temple dedicated to Shiva, is located in Nagapattinam town. The temple has been in existence from the 6th century and has been revered by the verses of Tevaram, the 7th - 8th century Saiva canonical work by Appar, Sambandar, and Sundarar. The temple is one of the seven temples of the Thyagaraja cult, classified as Saptha Vidangam, where the deity Thyagaraja is believed to portray different dance styles. Soundararajaperumal Temple is a Hindu temple in Nagapattinam dedicated to Vishnu. It is one of the Divya Desams, the 108 temples of Vishnu referred to in Nalayira Divya Prabandham by the Tirumangai Azhwar, one of the 12 poet saints called Alwars of the 6th-9th century. The other prominent Hindu temples in the district are Sikkal Singaravelan Temple at Sikkal, Vedaranyeswarar Temple at Vedaranyam, Ettukudi Murugan Temple, and Koothanur Maha Saraswathi Temple.

Poompuhar is in Sirkali Taluk of Nagapattinam District. It is known as Kaveripoompattinam. A beautiful seven-tired building of great sculptural value has been built as Sillappathikara Art gallery. The first storey is 12" high and each storey above it has a height of 5 feet". "The Magara Thoranavayil" at the entrance of the art gallery imparts an imposing and beautiful look to the whole structure. It has been designed on the pattern of Magara Thorana Vayil found in Suruli Malai Mangaladevi koil. There is also an ankle shaped tank in the art gallery. On the sides of this tank, are erected the statues of Kannagi and Mathavi. Scenes from Sillappathigaram, the epic of the land, have been given lively shapes in stones on the walls of the gallery. These sculptures, carved by the sculptors of Mamallapuram Art College, remain the treasure house of Tamil culture. Nagore, as a pilgrim town, has the Dargaha of saint Hazrat Meeran Sultan Syed Shah Abdul Hameed [Hazrat Mian]. It is a sea-side town, now bustling with activities both related to religion and commerce. Velankanni is one of the most visited pilgrim centres in India. It is a town situated on the shores of Bay of Bengal. This renowned shrine Basilica of our Lady of health draws pilgrims from all over the world. Not only Christians but the people of other faith also come to this Church to pray at the shrine of our lady of health. Danish Architecture is the attractions of Tranqubar. It is 35 kms north of Nagapattinam on the east coastal line of Bay of Bengal.

Kodiakkarai, which is 55 kms from Nagapattinam, also called Point Calimere, is situated abutting the Palk Straits. Spread over an area of over 312.17 hectares, this Wild Life Sanctuary boasts of mammals like blue buck, spotted deer, wild boar, semi wild ponies, bonnet macaque, water birds like flamingos, ibises, herons, and spoonbills. Sea turtle, starred tortoise, vipers, marsh crocodiles, etc., are some of the reptiles. Fish, dolphins, dugong, and sea lion, sea cow are occasionally found here. Besides, it is where varieties of corals are found. Tourism plays a key economic role of the district even though fishing is the major occupation.

District Map



Culture

Nagapattinam is derived from Nagar referring to people from Sri Lanka who settled here and pattinam referring to town. The town was also called Cholakula Vallipattinam during the Chola period, when it was one of the important ports. Ptolemy refers to Nagapattinam as Nikam and mentions it as one of the most important trade centres of the ancient Tamil country. This view is doubtful as there are no contemporary evidences to prove the existence of the town as a metropolis in the name of "Nikama" or "Nikam". Nagapattinam has a legacy of ancient tradition and rich cultural heritage. Similar art forms and sculptors found in the district date as far back as the 7th century AD. Famous temples still stand in all their pristine glory in several parts of this land, speak for themselves of the rich heritage of the Tamil people. Besides, handicrafts include the most intricately carved designs in wood, stone and metal.

Demography

The demography provides comprehensive and detailed information on the population growth, sex ratio, and literacy rate. In 2011, Nagapattinam had a population of 16,16,450 of which male and female where 7,98,127 and 8,18,323 respectively. The population of Nagapattinam district constitutes 2.24% of the total Tamil Nadu's population, and it ranks 23rd among the districts. Out of the total Nagapattinam population for 2011 census, 22.56 per cent lives in urban regions of district. In total, 3,64,624 people live in urban areas of which males are 1,78,758 and females are 1,85,866. More than three-fourth of the district population lives in rural areas. Nagapattinam district has a sizeable amount of Schedule Caste population as well. A total of 0.51 million SC populations live in the district as per 2011 Census, against 0.44 million in 2001. There has been a significant increase noticed in the total SC population in Nagapattinam district between the two censuses (15.65%).

With regard to sex composition, the male SC population stands at 0.25 million and female stands at 0.26 million during 2011. The average literacy rate of Nagapattinam district in 2011 was 83.59. Viewed from the gender perspective, male and female literacy are 89.79 and 77.58 per cent respectively. The district has a population density of 629 inhabitants per square kilometre. Its population growth rate over the decade 2001-2011 was 8.57%. With regard to sex ratio of Nagapattinam, it has 1025 females per every 1000 male. The population trend of the district in comparison with the State is given in Table 1.1.

Table 1.1: District Basic Demographic Indicators

S. No	Indicators	2001	2011
1	Population	14,88,839	16,16,450
2	Decennial Growth (%)	8.07	8.57
3	Density of population per Sq km	616	629
4	Urban population (%)	20.89	22.56
5	Sex ratio	1014	1025
6	Percentage of 0-14 year old	22.3	24.2

Source: Census of India during 2001 and 2011.

Economy

The economy of Nagapattinam is highly dependent on agriculture, its allied sectors, fishing and tourism. Presence of age old temples and monuments in the district which depict the culture of the ancient Tamils attracts tourists from all over India and abroad and hence tourism industry is a major contributor to the district economy. Though, the district economy is predominantly agrarian, with the crop sector experiencing a high degree of risk and uncertainty due to the vagaries of nature, livestock component offers a strong potential for a more stable and continuous employment and income to the rural poor, enabling them to overcome their income-generating difficulties. Nagapattinam is endowed with a long coast line and innumerable number of tanks, village ponds, and several rivers. All these water resources have been providing much needed fish to the people of the State. More than 9000 fishing vessels are engaged in catching and supplying fish to the population. Besides, a large number of farmers are engaged in aquaculture which contributes to the growing economy of the district.

Agriculture

Agriculture is the major means of livelihood for the people of this district. Located in the delta of the Cauvery River and crisscrossed by rivers and canals, the area is known for paddy cultivation though a number of other crops are also grown here. The traditional cropping pattern of cultivation in the three districts of the Cauvery delta is Kuruvai (June-September) followed by Thaladi (October-January/February). In the single crop land/area, Samba paddy is grown from September to January. In addition, wherever groundwater is available, especially in Cauvery sub-basin, farmers grow sugarcane, banana, cotton, vegetables, and other dry crops. The intensity of cultivation is 171% compared to the intensity of 113% in the entire state of Tamil Nadu, and the intensity of irrigation is

about 122% compared to the state average of 120%. Due to poor rainfall and non-availability of water from Mettur reservoir, the area under paddy in Cauvery delta is coming down. Among the three districts that are located in the Cauvery delta zone, Nagapattinam is the most affected by shortage of water. This is due to the fact that the water position in Mettur reservoir is frequently insufficient to allow enough outflow of water to reach the tail end of the delta. However, when there is higher rainfall in the coastal areas due to cyclone/depression in the Bay of Bengal, many areas of Nagapattinam district get flooded and water logging takes place. In both situations, agriculture is affected.

Box 1.1: Adopting System of Rice Intensification (SRI) and Integrated Farming for increased income and utilization of available resources

The objective of the case study is to share the experiences of on-going project funded by the UGC and being carried out by Dr. D. Murugan of the department of economics of Annamalai University. He has come across various issues on integrated farming and he shared a case for emulation. Farming has not been profitable for many farmers of Nagapattinam district, which is predominantly a paddy cultivation belt, mainly due to depletion of ground water potential and acute labour scarcity. Here is the story of Thiru. G. Jeevanandham, a farmer who had utilized the available opportunities and overcome challenges to disprove the saying: "Paddy and Poverty Go together".

He has been practicing System of Rice Intensification (SRI) method of rice cultivation since its introduction at Tamil Nadu Rice Research Institute (TRRI), Aduthurai. He has raised paddy seedlings in raised beds under garden land condition and used successfully for SRI planting. The seed requirement is less than 5kg/acre. He has used well decomposed cattle manure for his nursery at 10t/ac. He has also tried raising of paddy seedlings under shade net. The growth of seedlings was satisfactory. He has applied mixture of well decomposed cattle manure and soil to a height of 5 cm over polythene sheet spread on the beds. The seedlings were vigorous and ready for planting on the 14th day. Adopting all the SRI technologies recommended by KVK, Sikkal, he got higher yield and income.

Integrated Farming System

Upon the principles of low external inputs for sustainable agriculture, he is establishing an integrated farming system. He is maintaining about 20 goats under stall feeding system and a few milch animals. He has raised enough fodder CN3 and now has introduced CN4 grass for his animals. Besides using dung for fertilizing his ponds for fish culture, he is converting dung from milch animals and goat manure into vermin-compost for his vegetables, crops and for incubating bio fertilizer for use in other crops. He is also maintaining several layers and turkey. The droppings are used to fertilize the ponds for culturing fish. He is also practicing composite fish culture for several years and has wide knowledge in fish culture. He is also culturing Azolla for feed to his animals, poultry, goats, and fish thereby utilizing all resources.

Industries

This District has got around nine large/medium scale industries, offering employment to nearby people. Some of the products manufactured in the above units are cotton thread spinning, sugar, rice bran oil, liquid bromide, liquid alkaline bromide, liquid petroleum gas, naphtha, high speed diesel, high purity kerosene, etc. Mat weaving, Cane work industrial clusters are seen in Kollidam block. Salt Manufacturing clusters are seen in Sirkali and Vedaranyam blocks. Vedaranyam salt swamp runs along the coast from Point Calimere for about 48 Kms and is about 7 to 8 Km. wide. This is the longest swamp of its kind in the State. It is filled by two periodical high tides during the full moon of months May and June and retains sea water to a depth of two feet over a considerable area enclosed by low earthen banks, which is closed to prevent the water from flowing back into the sea after the tide recedes, and it is in this manner that the well-known Vedaranyam spontaneous salt is produced. Candle manufacturing clusters are prevalent in Vellankanni town.

Income

Table 1.2 highlights the sectoral distribution of Gross District Domestic Product in Nagapattinam district during 2011-2012. During 2011-2012, the district's GDDP is Rs. 6,40,418 in lakh. Of this, the contribution of tertiary sector is very high (57.43%) followed by primary (25.83%) and secondary (16.74%). This trend could be seen for the last three years with some marginal variations.

Table 1.2: Sectoral Distribution of Gross District Domestic Product

Year	GDDP - At Constant (2004-05) Prices (In lakh)		
	Nagapattinam		
Sector	2009-10	2010-11	2011-12
Primary	1,53,871 (27.58)	1,43,856 (24.29)	1,65,406 (25.83)
Secondary	88,418 (15.85)	1,00,312 (16.94)	1,07,225 (16.74)
Tertiary	3,15,524 (56.56)	3,47,987 (58.77)	3,67,787 (57.43)
Total	5,57,813 (100)	5,92,155 (100)	6,40,418 (100)

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

Box 1.2: An Economic Analysis of Bamboo Based Industries in Nagapattinam district, Tamil Nadu

The objective of the case study is to summarize a Ph.D dissertation submitted in Annamalai University. This dissertation highlights a traditional practice of bamboo manufacturing products taking place in Kollidam block of Nagapattinam district. Dr. A.Logu and Dr. K.Kottaiveeran of the Department of Economics of Annamalai University have carried out study during 2011.

In Nagapattinam district, most of the bamboo based industries are located in Kollidam block, especially in Thaikkal and Thulasiyaendirapuram villages of Anaikkaran chathiram Panchayat. Both the villages are surrounded by Kumaratchi Taluk towards west, Sirkali Taluk towards South, Keerapalayam block towards North, and Melbhuvanagiri block towards North. Sirkali, Parangipettai, Neyveli, and Tarangambadi are the nearby cities to Thaikkal. These Places are in the border of the Nagapattinam district and Cuddalore district. Kumaratchi is towards to west towards this place. These are near Bay of Bengal. Both the villages are situated on the Chidambaram - Mayiladuthurai national highway with the distance of 10.2 km from Chidambaram and 9.8 km to Sirkali. These villages are nearby famous holiest tourist places like Vaitheeswarankoil, Sirkali, and Chidambaram. In both the villages, agriculture is the main occupation. Bamboo based industrial activities are additional non-farm sector occupation of these villagers. For more than 100 years, bamboo based industries have been performing well without any remarkable assistance and promotional measures by the Government. Some people are working part time with agriculture and some are engaging full time as a business. As per the information given by the District Industrial Centre (DIC) and Ministry of Small and Medium Enterprises (MSME), there are 500 registered bamboo based industrial units performing in this area. The total turnover of these industries is Rs.2 crore by providing employment opportunities to 5000 employees. Apart from this, as per the information received from the local Non- Governmental Organization (NGO) called Global Multi-Purpose Social Development Society which is working in this area, there are another 428 unregistered bamboo based industries identified in the study area.

The bamboo based products produced in Thaikkal and Thulasiyendrapuram are made from three types of bamboo species raw material which are available from different parts of the world. One type of bamboo imported from Malaysia by wholesale traders in Chennai, and another one bamboo species available at North Eastern states like Assam which are also bought by wholesale traders of Chennai, and a third type of bamboo raw material is available in the local area. Some owners of bamboo based industries have been purchasing their raw materials. Some small and medium scale industries owners have been getting their raw material from local retailers which are located at Thaikkal and Kollidam. The location of these bamboo based industries is very much helpful to market their product. The owners need not necessarily go anywhere to sell their products, because both village industries are located along the roadsides of the national highway and the tourists and the people who have been travelling towards the famous tourist places like Thanjavur, Nagore, Velankanni, Chidambaram, and Pondicherry are easily attracted to buy these aesthetic bamboo based products. The remaining products are sold to various other States through various sources.

Out of 928 bamboo based industries in the study area, 25 per cent (232) of industries have been selected for the study. The data were collected by personal interview method through a well-designed and pre-tested interview schedule to analyze the growth and problems of bamboo based industries. The study found that there are 43 high level, 132 medium level, and 57 low level growth of industries in the study area. The industry is mainly facing six problems. Out of 232 units, 145,148, 138, 104, 159, 48 industries are facing marketing, finance, raw material, labour, power, and expertise guidance problems respectively. The study suggests that institutional support is necessary to improve the growth levels and overcome the problems faced by the bamboo based industries in Nagapattinam district.

Per Capita Income

PCI is one of the indicators highlighting the economic development of the region. In order to measure the real growth of PCI, per capita is worked out at constant prices (2004-05). Table 1.3 highlights the per capita income of the district as well the state. During 2004-05, the district PCI was Rs.24,609, which was far below the State PCI of Rs.33,998 at constant prices.

Table 1.3: Per Capita Income

At Constant Prices (2004-2005)		In Rupees
Year	Nagapattinam	Tamil Nadu
2004-05	24,609	33,998
2005-06	27,657	38,435
2006-07	33,721	43,941
2007-08	31,563	46,293
2008-09	32,583	48,473
2009-10	36,095	53,359
2010-11	38,205	59,967
2011-12	41,208	63,996

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

During 2011-12, the PCI of the district had increased to Rs.41,208, and the State PCI had also increased to Rs.63,996. However, the disparity between the State and district per capita income has increased from Rs.9,389 to Rs.22,788. It reveals that the rate of growth in the District's economic activities were somewhat slower than that of the State level. Since the district is one of the coastal districts of the State, it faces various natural hazards and the scope of enlarging economic activities is rather limited.

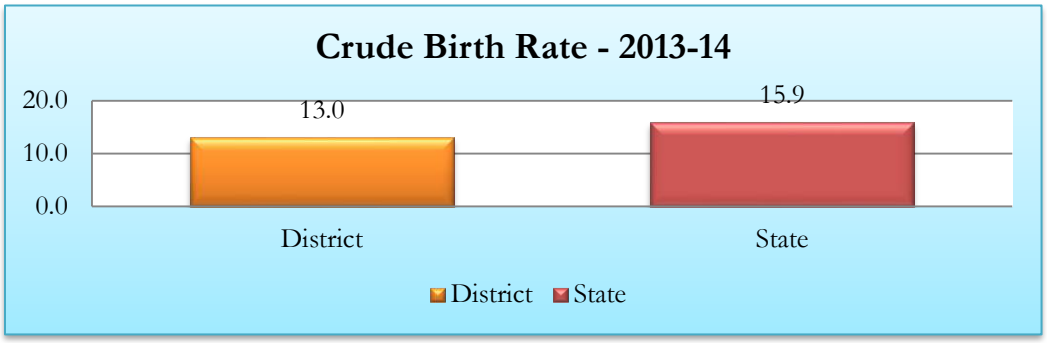
Social Sector

Health

In this District, 11 government hospitals and seven 24 hours service primary health care centres are available with various facilities. The services available in the government hospitals are X-ray, Ultra sound scan, and Ambulance services. As per 2014 CBR data, there is a marginal difference between State (15.9) and District (13.0). Even though the district has performed relatively better, there is a scope to reduce the CBR at the optimum level. In the case of IMR, the District performs (14.0) better

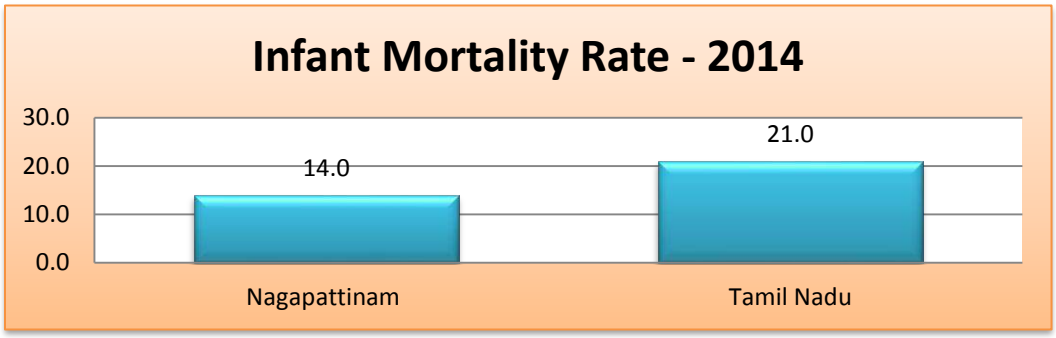
than the State (21.0) during 2014. However the rates are high and it can be controlled by way of implementing the on-going programmes effectively.

Figure 1.1: Crude Birth Rate in District and State



Source: Health Department, Nagapattinam, 2014.

Figure 1.2: Infant Mortality Rate in District and State



Source: Health Department, Nagapattinam, 2014.

Literacy and Education

Globally, literacy is a key for socio economic progress. The number of literates in Nagapattinam district is 1.21 million and literacy rate had increased by 21.67% from 2001 to 2011. As per 2011 census, Nagapattinam district literacy rate was 83.6%, and the level was well above the Tamil Nadu average literacy rate of 80.1%.

In total, 1765 Schools are functioning in the district. Other educational institutions of the district include 9 Arts and Science Colleges, 9 Polytechnics, 15 ITIs, 7 Engineering Colleges, 27 Teacher Training Institutes, and other institutions. A separate university for the development of fisheries is set up at Nagapattinam district in Panangudi and Nagore villages in an area of 85 acres at an estimated cost of Rs. 30 crores. The university plays a significant role in upgrading the exchange of technologies in fisheries science, human resource development, and usage of fisheries.

Box 1.3: Positive Impact of MGNREGS on Living Standards

The objective of the case study is how MGNREGS act as a complementary income for meeting their needs. This case is identified randomly and assessed the impact of ongoing employment guarantee scheme. One of the main objectives of Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is a significant reduction in labour migration through the provision of locally available work in rural areas. MGNREGA is designed as 'a safety net to reduce migration by rural poor households in the lean [agricultural] period'–the number of work days has been limited to 100 because the rest of the year is assumed to be dedicated to agricultural work. Another goal of the programme is to rejuvenate agriculture, notably through the construction of water harvesting structures, so that farmers go 'back to farming'. The perceived 'normal' activity is agriculture – in or around the village, as opposed to migration to cities.

Anathandavapuram is situated about 68 miles from the district headquarters. The total number of households is 881 and the population is 3,621. The total SC population of the village is 830. The main livelihood of the people is agriculture and the major crops are paddy and sugarcane. Vijaya is a poor illiterate widow living below poverty line. She has four children, two boys, two girls aged 14, 12, 10 and 6. She does not own any land, she works in a nearby agricultural land and earns about Rs.120 per day. She is one of the several women who struggle very hard for livelihood. The availability of jobs under the scheme, within or near the village, has enabled Vijaya and other poor people especially women to work without the need to migrate to distant places. Apart from supplementing family income, this means less disruption to children's education and family life while saving the monetary cost of migration such as travel and maintaining a second establishment.

The payment of MGNREGS wage in many states is mandatorily made into the bank accounts of the workers and not in cash (to reduce the possibility of payment to fictitious persons). At the same time, this requirement has forced many villagers including Vijaya to open savings accounts in banks or post offices for the first time in their lives, helping them to gradually develop the habit of saving a small amount each month in their bank account. Apart from reducing fraudulent payment, it is contributing to the goal of financial inclusion and increasing the savings rate for both individuals and the nation.

Conclusion

This chapter highlights topography as well as the socio-economic and demographic profile of the district, which has paved way for making an in-depth analysis for measuring human development with various dimensions. The setting of this chapter brings, into focus the core issues as well as some incidental developments that has occurred over the years through various central and State government sponsored programmes in the district. A detailed analysis is presented in the following chapters.

CHAPTER 2

STATUS OF HUMAN DEVELOPMENT

Chapter

2

Status of Human Development in Nagapattinam District

Introduction

United Nations Development Program (UNDP) transformed the basic notion of development theory, measurement, and policy with the publication of its first annual Human Development Report (HDR) and the introduction of the Human Development Index. HDR 1990 presented the concept of "Human Development" as progress towards greater human well-being, and provided country-level data for a wide range of well-being indicators. The UNDPs establishment of the HDR expanded both the availability of measurement and comparison tools used by governments, NGOs, and researchers, and our common understanding of development itself.

The Human Development Index, or HDI, embodies the 1998 Economics Nobel prize winner Amartya Sen's "capabilities" approach to understanding human well-being, which emphasizes the importance of ends like a decent standard of living over means like per capita income. Key capabilities are incorporated in HDI by the inclusion of proxies for three important ends of development - access to health, education, and goods. Empowered by these and other capabilities, people can achieve their desired state of being.

HDI has been the pivot of the HDRs since 1990, and the latest edition, HDR 2013, includes HDI rankings for 186 countries. In HDI, component indices for life expectancy, literacy, school enrolment, and income are combined together into a single index that can be used to compare the level of human well-being among countries or to monitor one country's progress over time. HDI provides an alternative to the still common practice of evaluating a country's progress in development based on per capita national income.

Human Development Index —Inter-Block Variations

An attempt has been made to measure the human development index of the district level using the available data. In total, 11 indicators were used covering the area of living standard, education, and health. These indicators are conceptually valid indicators and would help in ascertaining the level of

human development in the district. After making data validation exercises at different levels, various block wise sectoral indices namely health and living standards are computed. There are three indicators for measuring health, three for education, and five for standard of living. All these indicators reflect human development. The details are given below.

Dimensions	Indicators
Standard of living	Access to Cooking Fuel Access to Toilet Facilities Access to Drinking Water Access to Electricity Access to Pucca Houses
Health	Infant Mortality Rate Maternal Mortality Rate Under 5 Mortality Rate
Education	Literacy Rate Gross Enrollment in Primary Gross Enrollment in Secondary

Human Development Index is a measure of economic development and economic welfare. An attempt has been made to work out the HDI at the district level, following the guidelines given by UNDP. Table 2.1 shows top and bottom three blocks of three human development index.

Table 2.1: Top and Bottom three blocks in Human Development Index, 2014

Top 3	Bottom 3
Mayiladuthurai – (0.866)	Kilvelur – (0.531)
Nagapattinam – (0.853)	Vedaranyam – (0.528)
Thirumarugal – (0.714)	Thalainayar – (0.435)
Source: Computed.	

The performance of top three blocks is Mayiladuthurai, Nagapattinam and Thirumarugal. Of the chosen indicators, these blocks have scored well in all parameters. The population of Mayiladuthurai block is 2,59,634 during 2011 and the sex ratio is 1024. The proportion of SC population is 29.29, which is marginally lower than the district population (31.54). The worked out Human Development Index value is 0.866 and the block has reached to the position of 1st rank. Among the three sectoral indices of HDI, Mayiladuthurai block has scored well in all the three sectoral indices such as, standard of living and education, health. In the context of standard of living, the block has scored

very well in the provision of drinking water and electricity. At the next level, 52.84 per cent of the households live in pucca houses. The toilet facilities is used only 63.11 per cent of the households in the block. The modern cooking fuel like LPG is used only by 58.53 per cent of the population. Even though the index value reflects that the block scored first rank at the relative level, at the absolute level it has to reach the mark of hundred. Special interventions are needed to control open defecation to enhance the overall health status. Further, using locally available fire wood as cooking fuel generates negative impact on health of women folk. Steps may be taken to control indoor air pollution.

In the context of HDI health index, Mayiladuthurai block has scored the value of 0.770. The rates of IMR and U5MR are relatively low in the block. However, the on-going health care services may be implemented in an effective way with a due care for reaching the targets. The block's literacy rate is 86.01. It shows that there is a scope to achieve hundred per cent literacy through informal and formal education provided to the illiterate adults and children. The primary and secondary enrolment ratios are upto the mark. Since the State Government introduced unique policy in promoting students without fail up to 9th standard, the quality of education is questionable and the passing rate at the 10th and +2 levels has come down drastically. The details are given in the Appendix : Table 9.1. This block has number of private and public schools. These schools may come forward to introduce some innovative practices to enhance the quality of education to treat as model to other blocks.

The population of Nagapattinam block is 1,86,018 during 2011 and the sex ratio is 1021. The proportion of SC population was 21.55, which was lower than that of district population (31.54). The worked out human development index value is 0.853 and the block has reached to the position of 2nd rank. Among the three sectoral indices of HDI, Nagapattinam block has scored well in all the three sectoral indices such as, standard of living, education, and health. In the context of standard of living, the block has scored well in the provision of drinking water and electricity. However, the quantity and quality of drinking water has to be assured by the local bodies. It was observed during the field visit, that people living in slum and other vulnerable areas face severe drinking water problems. In the context of health sector, it performs poorly compared to other two sectors. At the next level, 56.70 per cent of the households live in pucca houses. The toilet facilities were used only in 81.73 per cent of the households. The modern cooking fuel like LPG was used only by 55.74 per

cent of the population. This block is one of the coastal blocks of the district and has its own disadvantages. Further it has recovered from the severe 2004 Tsunami loss. The government as well as NGOs has provided adequate inputs to rehabilitate them. These damages can be mitigated only in the long run. Special interventions are needed to control open defecation by way of providing sustainable water supply to the households as well as to the community toilets. Even though the block comprises of maximum urban population, around 56 % of the households use modern cooking fuel like LPG. It is noticed that using locally available fire wood as cooking fuel generates negative impact on health of women folk. The block people have not prioritized and come forward to use modern utilities due to financial constraints.

In the context of HDI health index, Nagapattinam block has scored the value of 0.747. The IMR (9.54) is relatively low in the block. Still there is a scope in executing the on-going health care services in an effective way with due care for reaching the targets, aiming to bring down the data to the level of zero. The literacy rate of block is 86.69. It shows that there is scope to achieve hundred per cent literacy through informal and formal education. The primary and secondary enrolment ratios are up to the mark. However, the situation arises to concentrate on quality of education, imparted by both public and private schools.

In the context of top performance blocks, Thirumarugal block reaches to the level of third rank. The population of Thirumarugal block was 1,53,446 during 2011 and the sex ratio was 1033. The proportion of SC population is 31.53, which is equal to that of district population. The worked out human development index value is 0.714. Among the three sectoral indices of HDI, Thirumarugal block has scored very well in all the three sectoral indices such as standard of living (0.673) and education (0.669), health (0.808). In the context of standard of living, the block has scored very well in the provision of drinking water and electricity. At the next level, 52.69 per cent of the households live in pucca houses. Most of the houses are built through various housing schemes introduced both Central and State Governments. The toilet facilities is used only 53.73 per cent of the households. The target can also be achieved by way of making continuous awareness and interventions. The modern cooking fuel like LPG is used only 36.92 per cent of the population. Using locally available fire wood as cooking fuel generates negative impacts on health of women folk. The people have not realized the importance of modern cooking fuel and their advantages. According to them, it is highly expensive.

In the context of HDI health index, Thirumarugal has scored the value of 0.808. The rates of IMR and MMR are relatively low in the block. However, the ongoing health care services may be implemented in an effective way with a due care for reaching the targets and bring the figure to zero level. The literacy rate of block is 83.66. It shows that there is a scope to achieve hundred per cent literacy through informal and formal education provided to the illiterate adults. Through community colleges, the school and college dropout children may also be encouraged to partake in skill upgradation activities and join the mainstream of employment. The primary and secondary enrolment ratios are up to the mark. However, there is a scope in enhancing the quality of education.

The performance of bottom three blocks are Kilvelur (9^{th}), Vedaranyam (10^{th}), and Thalainayar (11^{th}). The population of Kilvelur block is 78,933 during 2011 and the sex ratio is 1028. The proportion of SC population is 52.81, which is higher than that of other blocks and district population (31.54). This block is one of the communally and politically sensitive blocks of the district. The worked out human development index value is 0.531 and the block has reached to the position of 9^{th} rank. Among the three sectoral indices of HDI, Kilvelur block has not scored fairly well in all the two sectoral indices such as, standard of living (0.497) and health (0.417) except education (0.722). In the context of standard of living, the block has scored well in the provision of drinking water and electricity. Since these services are provided by the government, the performances are better in the block. At the next level, 55.84 per cent of the households live in pucca houses.

The marginalized scheduled caste populations have been provided with Government allotted concrete houses. Access to pucca houses seems to be greater in the case SC population. The toilet facilities are present in 70.11 per cent of the households. Some of the households report that there is no adequate provision of water supply to the households as well as to the toilets. The district administration has to ensure adequate water supply to the households from the existing integrated drinking water scheme. The modern cooking fuel like LPG is used only by 24.99 per cent of the population.

Special interventions are needed to control open defecation by way of providing water supply to the houses built by the government through various schemes. It is noticed that using locally available fire wood as cooking fuel generates negative impact on health of women folk.

In the context of HDI health index, Kilvelur has scored the value of 0.417. The rates of MMR (347) were relatively high in the block. During 2013-14, there were 1153 live births registered in the block. Of these, only 4 mothers have died at the time of delivery. The same trend could not be seen over the years. However, the ongoing health care services may be implemented in an effective way with a due care for reaching the targets. The literacy rate of block is 83.09. It is understood that the literacy gap could be seen among the adult category. The same can be provided through informal education to the illiterate adults. The primary and secondary enrolment ratios are up to the mark. The ongoing efforts on enhancing reading and writing skills may be fine-tuned in understanding the skill gap of the students.

The population of Vedaranyam block is 1,75,214 during 2011 and the sex ratio is 1016. The proportion of SC population is 20.13, which is lower than that of district population (31.54). The worked out human development index value is 0.528 and the block has reached to the position of 10^{th} rank. Among the three sectoral indices of HDI, Vedaranyam block has scored well in education (0.915) and the performances are relatively poor in standard of living (0.547) and health (0.293). In the context of standard of living, the block has scored cent per cent in the provision of drinking water and electricity. At the next level, 56.99 per cent of the households live in pucca houses. The toilet facilities are used in only 51.38 per cent of the households. Awareness may be created in using toilets and its benefits. The modern cooking fuel like LPG is used by only 26.13 per cent of the population. Using locally available fire wood as cooking fuel generates negative impacts on health of women folk. Generally, they prefer to use locally available material and conserve the same to minimize expenses.

In the context of HDI health index, Vedaranyam block has scored the value of 0.293. The rates of IMR (21.43) and U5MR (22.00) are relatively high in the block. The ongoing health care services may be implemented in an effective way with a due care for reaching the targets. The literacy rate of block is 83.46. It shows that there is a scope to achieve hundred per cent literacy through informal

education provided to the illiterate adults. The primary and secondary enrolment ratios are up to the mark. The quality of education may be enhanced by way of introducing certain novel practices.

The population of Thalainayar block is 73,978 during 2011 and the sex ratio is 1018. The proportion of SC population is 36.54, which is higher than district population (31.54). The worked out human development index value is 0.435 and the block has reached to the position of 11th rank. This block is one of the backward blocks of the district. Among the three sectoral indices of HDI, Thalainayar block has performed very poor in all the three sectoral indices such as, standard of living (0.380), education (0.617), and health (0.350). In the context of standard of living, the block has scored well in the provision of drinking water and electricity, where the government provides the same as free and paid. At the next level, 57.78 per cent of the households live in pucca houses. The toilet facilities are used by only 51.74 per cent of the households. The modern cooking fuel like LPG is used only 22.49 per cent of the population. Special interventions are needed to control open defecation to enhance the overall health status. Further, awareness and incentives may be provided to use smokeless chullahs, to avoid indoor air pollution and enhance the health of women folk.

In the context of HDI health index, Thalainayar block has scored the value of 0.350. The rates of IMR (17.10), MMR (101), and U5MR (22.70) are relatively high in the block. It is observed that the population of the block tries to avoid girl children following certain traditional illegal practices. In the course of detection and abortion MMR has occurred at higher level in this block. Due to lack of participation and cooperation, the para medical could not control the same. These pregnant mothers try to avoid the advice of village health nurses. The on-going health care services may be implemented in an effective way with a due care for reaching the targets. The literacy rate of block is 80.02. It shows that there is a scope to achieve hundred per cent literacy through formal and informal education. The primary and secondary enrolment ratios are up to the mark. However, the situation arises to concentrate on quality of education.

Apart making top and bottom three performance blocks, the performance of all elven blocks could be seen in Appendix : Table 9.2. It portrays the block wise standard of living index. Among the eleven blocks of the district, only two blocks such as Mayiladuthurai (0.869), and Nagapattinam (0.978), scored above the level of the district. Of these two blocks, Mayiladuthurai and Nagapattinam block data comprised both rural and urban areas. Hence it gives a better picture

compared to other blocks. From a close scrutiny of the sectoral index values, one can easily identify the poor performance blocks. In this district, eight blocks come under the category. They are: Sembanarkoil (0.678), Thirumarugal (0.673), Sirkali (0.662), Kuthalam (0.586), Vedaranyam (0.547), Kilvelur (0.497), Keelaiyur (0.418), and Kollidam (0.357).

The performance of Kollidam block is very poor in respect of creation of pucca house (0.095) and toilet facilities (0.090). Since, these indices reflect the relative performances of the blocks considering the minimum and maximum values, some of the blocks performances seem to be very poor. It could be construed that poor performances only reflect the relative performance differences of the blocks. However, the services of making provision of pucca houses and toilet facilities to the marginalised population are the functions of the government. Hence the district administration can prioritize the blocks and make provision of the basic needs. Since the standard of living is poor in eight blocks of the district, adequate attention may be given to those blocks.

On comparison, only four blocks have performed very fairly. They are Kollidam (0.679), Mayiladuthurai (1.000), Nagapattinam (0.927), and Sirkali (0.649). Among the eleven blocks of the district, very poor performance is registered in three blocks, such as Keelaiyur (0.124), Kilvelur (0.124), and Thalainayar (0.059). The indicator on cooking fuel accommodates the modern fuels like LPG, electricity, gas, etc. Hence the performance is very poor in the three blocks of the district. It could be construed that the fuel supplies have not been distributed equally either on their income levels or any other factors in this matter.

Among the eleven blocks of the district, only two blocks performance in using toilets is very poor. They are Kollidam (0.090), and Kuthalam (0.161). The Central and State governments have introduced various programmes in controlling open defecation and created community as well as individual household toilets. But these benefits have not been trickled down to the blocks of Kollidam and Kuthalam as targeted by the government. However, the rest of the blocks performances are at the level of satisfaction. The accessibility of potable water has been taken into account as one of the indicators for measuring the standard of living. Habitation wise data was generated by the rural development department of the district and compiled by Ministry of Rural Development, Government of India. As per the records of the year 2014, block wise analysis is

carried out and presented in Appendix : Table 9.2. There are two major problems reported in this district, such as ground water depletion and sea water intrusion. In realising the importance, the State Government introduced integrated drinking water supply programme in this district. However, the benefits have not reached all the villages of the district. There are certain stumbling blocks in the execution of the programme. These stumbling blocks have to be arrested at a fast phase.

The Government has given top priority in making provision of electricity to all households inclusive of free electricity to all huts. However the performances are very poor in the blocks of Keelaiyur (0.448), Kilvelur (0.353), and Thalainayar (0.405). Around 85 per cent of the households of these three blocks have the provision of electricity supply. However, steps may be taken to identify the left out households and making provision to all. It is interesting to note that all households of eight blocks have accessed the services of electricity. Pucca house is introduced as another proxy indicator for measuring the standard of living. The Governments have introduced various housing schemes to the socially and economically deprived population of the country. The district too has enjoyed the benefits of the schemes. Poor performance is recorded in Kollidam block (0.095), where only 29.53 per cent of households have possessed pucca house. At the next level, 40.99 per cent of households have possessed pucca houses in Sirkali block and index value is 0.462. These blocks may be prioritised and funds be earmarked for the creation of pucca houses on par with the performance of other blocks.

Health index has been evolved after taking a stock of all available health data, both at the district and block levels. Finally, three indicators identified for assessing the health status of the population. Appendix : Table 9.2 shows the performance of health index and it comprises IMR, MMR, and U5MR. Of the 11 blocks in the district, five blocks have performed poorly compared to the district average. Among the blocks, Thalainayar and Vedaranyam blocks have scored very poorly in terms of all the three indicators, such as IMR, MMR, and U5MR. Specifically, the population of the region tries to avoid girl children through illegal means and finally ended up with high MMR. Since they have not fully cooperated with the health officials, this has happened in this block. Overall in health status, a better performance is recorded in Thirumarugal (0.808) and Mayiladuthurai (0.770) blocks. The better performance is associated with better health care services provided by the government as well as the private hospitals and clinics. The minimum and maximum health index values differ

around three times. The following blocks performances have gradually come-down from the district's performance. They are: Vedaranyam (0.293), Thalainayar (0.350), Kilvelur (0.417), Sembanarkoil (0.480), and Keelaiyur (0.635). Among the blocks, Vedaranyam has performed very poorly (0.293). The authorities have to bestow additional attention towards achieving the targets.

The better IMR performance is registered in Thirumarugal block (1.000), and the worst performance is reported in Vedaranyam block (0.135). The differences between minimum and maximum index values are around eight times. There is no constant records in registration of IMR both at block and district levels. It shows that the occurrence of IMR is not only due to health factors but also socio-economic and cultural factors. Maternal mortality rate is worked out considering one lakh live births during a year. Governments have taken serious steps in tracking pregnant mothers and in providing all types of assistances. The roles of VHNs are remarkable in reducing mortality rates, specifically MMR. The worst performance is recorded in Kilvelur block (0.091). However, the performances are relatively better in the rest of the ten blocks of the district. The role of NRHM is witnessed in all the rural and urban areas of the district. However, there is a scope for strengthening the existing health care services and creating effective delivery mechanism. Under five mortality rate is one of the indicators for measuring the health status of the population. The performance is good in Mayiladuthurai block (1.000) and the performance is poor in Thalainayar block (0.143). The differences between minimum and maximum index values are around eight times. Even though governments have created adequate health infrastructure in all areas of the district, the performances are not uniform both in rural and urban areas. It shows that the provision of medical services alone are not enough but proper counselling have to be provided to the parents in taking care of their kids. Hence, it is warranted that the district's health administration may be bifurcated into two for effective functioning of hospitals and their services. Education has been accepted as the most powerful tool for empowerment. It should reach the door steps of the poor and needy, especially the economically deprived and socially depressed classes. In view of the same, the government with the noble intention of imparting free and compulsory education to all children and to encourage them to complete their schooling with ease had announced 14 welfare schemes. Besides, the Government has announced other welfare schemes for enhancing the quality of education at all levels. An attempt has been made to assess the education attainment of the population of the district, incorporating literacy rate, primary, and secondary school enrolment. The worked out

education index of the blocks is presented in Appendix : Table 9.2. A close scrutiny of block wise education index values reveals that there is a significant difference among the eleven blocks of the district. Better performance is registered in Mayiladuthurai block (0.973) and poor performance is recorded in Thalainayar block (0.617). The educational services are provided by the Government as well as the private schools. The objective of the Government schools is promoting education and achieving over all welfare of the children. The primary goals of private schools are profit, and their secondary goal is imparting education. Hence the effectiveness in delivering education services differs between private and public schools. The literacy rate is obtained from the Census of India 2011 and they define that the total percentage of the population of an area at a particular time aged seven years or above who can read and write with understanding.

The overall literacy rate of the district is 83.59. The performance of literacy rate differs significantly among the eleven blocks of the district. The better performance is registered in Nagapattinam block (1.000), which is not only the headquarters of the district but also accommodates both rural and urban areas, poor performance is reported in the blocks of Kollidam (0.514) and Thalainayar (0.567). The differences between the minimum and maximum values are around two times. It shows that government has a rich scope in strengthening the educational system in achieving hundred per cent literacy both in rural and urban areas of the district. The State government has taken steps in promoting primary education and arresting 'out of school children'. It is interesting to note that there is no much difference in the performances of providing primary education. All the blocks index values are more than 0.9, which is a remarkable achievement of the school education department of the district. The same picture could not be seen in the gross enrolment of secondary education. The district secondary enrolment rate is 108.1. A similar picture is noticed in all the blocks of the district. Since the index values are portraying the relative block wise performances, it differs significantly between minimum and maximum. The maximum score is recorded in Vedaranyam block (1.000) and minimum score is reported in Thirumarugal block (0.380). In this context, actual rates may also be considered for evolving policies and making specific block wise interventions.

Gender Inequality Index—Inter-Block Variations

Gender Inequality Index have been worked out and the details are given below.

Dimensions	Indicators
Health	MMR
	Share of Institutional Delivery
	Share of Antenatal Coverage
Empowerment	Female Literacy Rate
	Male Literacy Rate
	Share of Female Children 0 – 6 years
	Share of Male Children 0 – 6 years
	Share of Male Elected Representatives in RLBs and ULBs
	Share of Female Elected Representatives in RLBs and ULBs
Labour market	Female Work Participation Rate
	Male Work Participation Rate
	Female Work Participation Rate in Non-Agriculture Sector
	Male Work Participation Rate in Non-Agriculture Sector
	Female Agriculture Wage Rate
	Male Agriculture Wage Rate

Table 2.2: Top and Bottom three blocks in Gender Inequality Index, 2014

Top 3	Bottom 3
Vedaranyam – (0.044)	Nagapattinam – (0.091)
Thirumarugal – (0.044)	Keelaiyur – (0.092)
Kollidam – (0.055)	Kilvelur – (0.144)
Source: Computed.	

Table 2.2 shows the top and bottom three blocks of gender inequality index in Nagapattinam district. Accordingly, the top performers are Vedaranyam, Thirumarugal and Kollidam. The bottom performers are Nagapattinam, Keelaiyur, and Kilvelur. Women and girls are discriminated against in health, empowerment, and the labour market. GII is the measure of these inequalities built on the same framework as the Human Development Index to better expose differences in the distribution of achievements between men and women.

The Vedaranyam block scores 1st rank in GII and worked out index values is 0.044. Among the three sectors of health, empowerment and labour market, this block has performed well (Appendix : Table 9.3, 9.4 and 9.5). The performance of literacy rate differs significantly between male (90.9) and female (76.2). The differences are around 14 percentiles. In the case of 0-6 year population, the differences between girls (48.2) and boys (51.8) have come close together. A better performance is recorded in male (66.7) and female (33.3) elected representatives. Since the index shows a relative performance of the blocks, the block performance is better than other blocks in terms of gender development. On the other hand the same block has performed very poorly in human development. The gender differences on wages are very significant between male (Rs.350) and female (Rs.110). Since the opportunities are restricted for the female population, the wage rates are lower than that of male. In the context of health, this block performs better and reaches to the score value of 100 in terms of MMR, Institutional Deliveries and Antenatal Coverage.

The Thirumarugal block scores 2nd rank in GII and worked out index values is 0.044. Among the three sectors of health, empowerment and labour market, this block has performed well (Appendix : Table 9.3, 9.4 and 9.5). The performance of literacy rate differs significantly between male (90.0) and female (77.5). The differences are around 13 percentiles. In the case of 0-6 year population, the differences between girls (48.9) and boys (51.1) have come close together. A better performance is recorded in male (67.4) and female (32.6) elected representatives. Since the index shows a relative performance of the blocks, the block performance is better than other blocks in terms of gender development. It is observed that gender development and human development move together in this block. The gender differences on wages are very significant between male (Rs.350) and female (Rs.110). Since the opportunities are restricted for the female population, the wage rates are lower than that of male. In the context of health, this block performs better and reaches to the score value of 100 in terms of MMR, Institutional Deliveries and Antenatal Coverage.

The Kollidam block scores 3rd rank in GII and worked out index values is 0.055. Among the three sectors of health, empowerment and labour market, this block has performed well (Appendix : Table 9.3, 9.4 and 9.5). The performance of literacy rate differs significantly between male (85.7) and female (73.0). The differences are around 12 percentiles. In the case of 0-6 year population, the differences between girls (48.6) and boys (51.4) have come close together. A better performance is recorded in male (54.4) and female (45.6) elected representatives. The index shows a relative

performance of the blocks. The block performance is better than other blocks in terms of gender development. The gender differences on wages are very significant between male (Rs.350) and female (Rs.130). Since the opportunities are restricted for the female population, the wage rates are lower than that of male. In the context of health, this block performs well in Institutional Deliveries and Antenatal Coverage. In the case of MMR, the worked out value is 94. This can also be controlled by way of executing the programmes in a participatory manner.

The performance of bottom three blocks are Nagapattinam, Keelaiyur and Kilvelur. The Nagapattinam block scores 9th rank in GII and worked out index values is 0.091. Among the three sectoral indices of GII, this block has scored very poor in all the three sectoral indices such as, health, empowerment and labour market, (Appendix : Table 9.3, 9.4 and 9.5). The performance of literacy rate differs significantly between male (92.3) and female (81.3). The differences are around 11 percentiles. In the case of 0-6 year population, the differences between girls (48.8) and boys (51.2) have come close together. A skewed performance is recorded in male (62.0) and female (38.0) elected representatives. Since the index shows a relative performance of the blocks, the block performance may not be construed as a better block in terms of gender development. On the other hand the same block has performed well in human development and reached the rank of 2nd. The gender differences on wages are very significant between male (Rs.350) and female (Rs.110). Since the opportunities are restricted for the female population, the wage rates are lower than that of male. Further the female folk use to restrict to involve only in certain activities, the wage differences are very high. In the context of health, this block performs better and reaches to the score value of 100 in terms of Institutional Deliveries and Antenatal Coverage. The MMR is 83 during 2014 and this rate is not constant over the years in this block.

The Keelaiyur block scores 10th rank in GII and worked out index values is 0.092. Among the three sectoral indices of GII, this block has scored very poor in all the three sectoral indices such as, health, empowerment and labour market, (Appendix : Table 9.3, 9.4 and 9.5). The performance of literacy rate differs significantly between male (89.9) and female (76.5). The differences are around 13 percentiles. In the case of 0-6 year population, the differences between girls (48.6) and boys (51.4) have come close together. A skewed performance is recorded in male (68.4) and female (31.6) elected representatives. It shows that the block has enjoyed the women reservation. Since the index shows a relative performance of the blocks, the block performance may not be construed as a better

block in terms of gender development. On the other hand the same block has performed poorly in human development and reached 7th rank. The gender differences on wages are very significant between male (Rs.350) and female (Rs.110). Since the opportunities are restricted for the female population, the wage rates are lower than that of male. Further the female folk use to restrict to involve only in certain activities, the wage differences are very high. In the context of health, this block performs better and reaches to the score value of 100 in terms of Institutional Deliveries and Antenatal Coverage. The MMR is 84 during 2014. It is expected that VHNs may also pay attention in controlling the same.

The Kilvelur block scores 11th rank in GII and worked out index values is 0.144. Among the three sectoral indices of GII, this block has scored very poor in all the three sectoral indices such as, health, empowerment and labour market, (Appendix : Table 9.3, 9.4 and 9.5). The literacy rate differs significantly between male (89.7) and female (76.7). The differences are around 13 percentiles. In the case of 0-6 year population, the differences between girls (48.9) and boys (51.1) are not significant. A skewed performance is recorded in male (61.0) and female (39.0) elected representatives. However, it shows that the block has enjoyed the women reservation. Since the index shows a relative performance of the blocks, the block performance may not be construed as a better block in terms of gender development. On the other hand the same block has performed poorly in human development and reached 9th rank. The gender differences on wages are very significant between male (Rs.350) and female (Rs.110). Since the opportunities are restricted for the female population, the wage rates are lower than that of male. Further the female folk use to restrict to involve only in certain activities, the wage differences are very high. In the context of health, this block performs better and reaches to the score value of 100 in terms of Institutional Deliveries and Antenatal Coverage. The MMR is 347 during 2014 and this rate is not constant over the years in this block. The live birth at Kilvelur block is 1153 and the mortality is only 4. Since the MMR is worked out for one lakh live birth, the figure seems to be very high at the block level.

The GII shows the loss in human development due to inequality between men and women. It ranges from zero to one. The value zero indicates that women and men fare equally well, and one indicates that women fare as poorly as possible in all measured dimensions (Table 2.5). Among the 11 blocks of the district, the minimum value and the maximum value of the GII index is recorded in Thirumarugal and Vedaranyam blocks (0.044), and Kilvelur block (0.144) respectively. On

juxtaposition of district and block GII values, four blocks have performed fairly compared to the district and the remaining seven blocks have performed poorly. These are only relative performances across the blocks. However, the index values are around 0.1, which shows that all the blocks have performed well. Further, it reveals that there is a rich scope for eradicating gender inequality and achieve equity in all means. This may reflect the overall development of the households.

The empowerment bar has been worked out incorporating three indicators such as proportion of male and female literacy, proportion of boys and girls 0-6 year population, and proportion of male and female elected representatives. In the case of literacy rate, the proportion of male (89.80) and female (77.60) is well below the mark of hundred. The differences between male and female are very high, and to the level of twelve percentiles. This trend could be seen in all the blocks of the district. It shows that the male and female discrimination still exist in the district in providing education. The proportion of boys (51.0) and girls (49.0) in the 0-6 year population is very close in achieving gender equality in the district. The marginal differences may also be avoided by way of giving equal importance to the girl children and wiping out the social evils of dowry. The same trend is observed in all the blocks of the district.

The proportion of male and female elected representatives is worked out to examine the participation of female members in the political activities. The government has enacted the law and made special provisions in encouraging the female folk in participation in all public activities. The district's female participation is 41 and the male participation is 59. The minimum female participation is recorded in Keelaiyur block (31.60) and the maximum is reported in Kollidam block (45.60). These differences may be reduced by way of encouraging and suggesting them to participate in all public and political activities.

In the context of health bar index, there are three indicators incorporated to assess the magnitude of gender inequality prevails in the blocks of the district. They are: maternal mortality rate, institutional deliveries and antenatal coverage. The minimum value is recorded in Kilvelur block (0.029), which shows worst performance. The maximum value is registered in Thirumarugal and Vedaranyam blocks (1.000). Even though the government has tracked all the pregnant mothers through CHNs

and VHNs, the performances are differed significantly among the blocks of the district. It depends on not only health care services and also other social, cultural and economic factors.

The index value of institutional deliveries is recorded as one in all the blocks of the district. This could be treated as significant achievement of the health department of the district. The services rendered by the village health nurses are remarkable and without their services this could not be achieved in all the blocks of the district. The antenatal coverage index is reached one in the block of Kuthalam. There is no significant difference between minimum and maximum index values (0.9 in nine blocks). It shows the achievement of the health department of the district. However, there is scope to scale up the activities and reach one in all the blocks of the district. The maximum value of (0.9) is reached in Vedaranyam and Thirumarugal blocks and minimum value is recorded in Kilvelur block (0.301). Around more than three times differences between these two ends. It reveals that the overall health of the female in the district is not up to the mark. Hence, the female health oriented activities may be scaled up to higher level.

The labour bar has been worked out integrating three indicators such as work participation rate for male and female, work participation rate for male and female in non-agricultural sector, and wage rate for male and female (Appendix : Table 9.5). The work participation rate female index is relatively higher in the blocks of Thalainayar (0.376) and Kilvelur (0.359). The work participation rate of female in the district is 25.8. The minimum work participation rate is recorded in the block of Nagapattinam (17.8) and the maximum work participation rate of female is 37.6 in the block of Thalainayar. It is interesting to note that the work participation rate of both male and female is very high in Thalainayar block. This block is a coastal block and the population involves agricultural and fishery oriented activities.

The female work participation rate of non-agricultural sector in the district is 24.20 and male is 45.2. It shows that the male participation is more or less double than the female participation. A similar picture could be seen in all the blocks of the district. However, the differences in work participation in non–agricultural sector are around five fold in female and three fold in male. The highest female work participation rate is registered in Nagapattinam block (51.9), which has good access to the urban area as well as the growth centre. The lowest work participation rate is recorded in Kilvelur block (10.4). This block performance is relatively better in the agricultural sector. Similarly the male

work participation rate is very high in Nagapattinam block (76.3), and it is low in Thalainayar block (24.8). It is observed that the blocks, which had good access to the urban and semi-urban area, they have enjoyed the opportunities both in agricultural and non-agricultural sectoral activities. These performances are reflected in the index values. Block-wise wage rate has been assessed for both male and female. The female wage rate of the district is Rs.120 and male is Rs.350. The wage differences between male and female are around three times.

A similar picture is noticed in all the eleven blocks of the district. The higher female wage rate Rs.130 is recorded in five blocks. They are: Kollidam, Kuthalam, Mayiladuthurai, Sembanarkoil, and Sirkali. At the next level, the female wage rate of Rs.110 is reported in the blocks of Keelaiyur, Kilvelur, Nagapattinam, Thalainayar, Thirumarugal and Vedaranyam. The wage differences are attributed to the crops grown in the blocks and involvement in the SHGs activities. Gender discrimination in terms of wages is found in all the blocks of the district. However, the government introduced equal wages for both male and female through MGNREGS. This will take a long time to achieve and establish equal wages in all the activities. Labour bar index has been worked out accommodating the three indicators. Since the labour force use migrate to nearby areas and involve themselves both in agricultural and non-agricultural activities, there is no clear picture among the blocks and their endowment of resources. It is observed that these labour force avail good opportunity by way of having mobile phones.

Child Development Index—Inter-Block Variations

Child Development Index has been worked out and the details of indicators are given below.

Dimensions	Indicators
Health	U5MR
	Child Sex Ratio
	Percentage of Malnourished Children
Education	Gross Enrollment Ratio in Primary
	Gross Enrollment Ratio in Secondary
	Children Never Enrolled in Schools
	Transition Rate from Primary to Upper Primary
	Transition Rate from Upper Primary to Secondary

The performance of CDI is portrayed in Table 2.3. Among the eleven blocks in the district, the top performance blocks are Mayiladuthurai, Kilvelur and Kuthalam and bottom performance blocks are Sirkali, Kollidam, and Thalainayar.

In the context of child development index, the Mayiladuthurai block has reached the rank of 1st reflects as one of the top performance blocks. The worked out index is 0.727 (Appendix : Table 9.7). Of the chosen indicators of CDI, the block has performed well in reduction of U5MR and malnourished children. The ongoing programmes may be scaled up for reducing the same. In the case of educational attainment, the block performance in primary (99.76) and secondary (116.8) enrolment is up to the mark and this has to be maintained at the level of 100. Since the index shows the relative performance, Mayiladuthurai block enjoys 1st rank.

Kilvelur block has reached the rank of 2nd in CDI reflects as one of the top performance blocks. The worked out index is 0.667 (Appendix : Table 9.7). The block has performed well in reduction of U5MR and malnourished children. The ongoing programmes may be executed for reducing the same. In the case of educational attainment, the block performance in primary (99.82) and secondary (104.1) enrolment is up to the mark and this also be strengthened to reach the level of 100. The enrollment rate has gradually come down when the level of education goes up. This has to be viewed seriously and control the dropouts at the level of secondary education. Since the index shows the relative performance, this block enjoys 2nd rank. However, the activities may be monitored to enhance the quality of education.

Table 2.3: Top and Bottom three blocks in Child Development Index, 2014

Top Three blocks with higher CDI value			Bottom Three blocks with lower CDI value		
Mayiladuthurai	–	(0.727)	Sirkali	–	(0.456)
Kilvelur	–	(0.667)	Kollidam	–	(0.375)
Kuthalam	–	(0.628)	Thalainayar	–	(0.366)
Source: Computed.					

The 3rd rank holder in CDI is Kuthalam block. It reveals as one of the top performance blocks. The worked out index is 0.628 (Appendix : Table 9.7). Of the identified indicators in CDI, the block performance is marginally above the level of district's performance in terms of U5MR (13.7) and

malnourished children (17.0). The ongoing programmes may be evaluated and identify the loopholes in reaching the targets. In the case of educational attainment, the block performance in primary (99.81) and secondary (104.9) enrolment is up to the mark and steps to be taken to sustain at the same level. Kuthalam block enjoys 3rd rank, which shows only relative performance. However, there is a scope in enhancing the quality and its related activities.

Another set of low performance block is discussed in this section. Sirkali block has reached the rank of 9th in CDI reflects as one of the bottom level blocks. The worked out index is 0.456 (Appendix : Table 9.7). The block has not performed well in reduction of malnourished children (25.0) and above the level of district's performance are 20.0 (Appendix : Table 9.6). The ongoing programmes may be strengthened and periodically monitored to achieve the efficacy of the programmes. In the context of educational attainment, the block performance in primary (99.34) and secondary (109.9) enrolment have reached to the target of 100. This block enjoys 9th rank, which highlights the relative performance.

Kollidam block has reached the rank of 10th reflects as one of the bottom performance blocks of the district. The worked out index is 0.375 (Appendix : Table 9.7). The block has not performed well in reduction of malnourished children (29.0). Juxtaposing to the performance of the district, the block performs very poorly. Proper incentive mechanism may be introduced to execute the programs as well as to achieve the targets. The block performance in primary (99.41) and secondary (108.5) enrolment is up to the mark.

Thalainayar block has reached the rank of 11th in CDI reflects as one of the bottom level blocks, which is also one of the backward blocks of the district. The computed index is 0.366 (Appendix : Table 9.7). The block has not performed well in reduction of U5MR (22.7) and malnourished children (21.0). The relative performance along with the district is not uniform to all the selected indicators. The efficacy in execution of programmes may be strengthened for achieving the targets. The block performance in primary (99.60) and secondary (102.2) enrolment is up to the mark.

Multi-Dimensional Poverty Index —Inter-Block Variations

MDPI has been worked out and the details are given below. Table 2.4 shows the MDPI indicators

and index values of standard of living, health, and education. Lower index values are shows higher performance with low level of poverty. Accordingly, top three blocks are Nagapattinam, Mayiladuthurai and Thirumarugal, and bottom three blocks are Thalainayar, Keelaiyur, and Kollidam.

Dimensions	Indicators
Health	IMR
	Higher Order Birth Rate
	Malnourished Children
Education	Dropout in Primary
	Dropout in Secondary
Standard of living	Access to Cooking Fuel
	Access to Toilet Facilities
	Access to Drinking Water
	Access to Pucca Houses
	Access to Electricity

Nagapattinam block has performed well in MDPI and earned the score of 1st and the index value is 0.092 (Appendix : Table 9.9). Of the three sectoral indicators of health, education, and living standard, the performance of health is not up to the mark. However, this has to be viewed seriously and try to reduce IMR (9.5), HOB (5.5), and Malnourished children (14.0). The proportion of households live below poverty is 34.61 during 2014, which is below the level of district average (35.02). Still there is a rich scope to alleviate poverty in this block. It is understood that there are some issues in identifying BPL households. An alternative approach may be introduced to identify the BPL households. Health specific interventions may also be given by way of making temporal analyses to avoid sporadic incidences and outbreak.

Table 2.4: Top and Bottom three blocks in Multidimensional poverty index, 2014

Top Three blocks with Lower MDPI value	Bottom Three blocks with Higher MDPI value
Nagapattinam – (0.092)	Thalainayar – (0.518)
Mayiladuthurai – (0.266)	Keelaiyur – (0.519)
Thirumarugal – (0.280)	Kollidam – (0.639)
Source: Computed.	

Mayiladuthurai block has performed well in MDPI (0.266) and earned the rank of 2nd (Appendix : Table 9.9). Poverty statistics has been computed by TNSRLM and Pudhu Vazhvu Project officials. The district administration has enumerated the BPL for the implementation of developmental programmes. This statistics has been worked out on the basis of participatory method. The current poverty level is 31.00 per cent. The on-going income and asset creation programmes may be implemented with effective participation of the targeted groups. Of the three sectoral indicators of health, education, and living standard, the performance of health is poor in this block. This has to be viewed seriously and try to reduce IMR (13.0), HOB (7.5), and malnourished children (19.0). All the health parameters have to be examined over the years for execution of all health care programmes.

The 3rd rank reached to Thirumarugal block and the computed MDPI is 0.280 (Appendix : Table 9.9). The proportion of poverty is 36.00, which is also above the mark of district level (35.02). Of the three sectoral indicators of health, education, and living standard, the performance of health is relatively poor in this block. This has to be viewed seriously and try to reduce IMR (7.7), HOB (7.7), and malnourished children (14.0).

Among the three bottom scored blocks in Nagapattinam district, Thalainayar block has not performed well in MDPI (0.518) and earned the score of 9th rank (Appendix : Table 9.9). The current poverty level is 34.21 per cent (Table 3.7). The performances are well above the levels of district's performance (35.02). Of the three sectoral indicators of health, education, and living standard, the performance of health is poor in this block. This has to be viewed seriously and try to reduce IMR (17.1), HOB (7.0), and malnourished children (21.0). Further, these health parameters have to be examined not only for a specific period and have to be seen over the years for assessing

the chronic ailments prevail in the block. In the context of living standards the performance is very poor in using cooking fuel (22.49%) and pucca houses (57.78%). Specific interventions are needed to enhance the living standard of the block population.

Keelaiyur block has performed well in MDPI (0.519) and earned the rank of 10th. The level of poverty is 31.18 per cent (Table 3.7), which is worked out on the process social mapping. Of the three sectoral indicators of health, education, and living standard, the performance of health is very poor in this block. This has to be examined and try to reduce IMR (12.5), HOB (8.1), and malnourished children (17.0). The IMR and HOB performances are well above the levels of district's performance. In the case of living standard, the performances are very poor in respect of cooking fuel (24.98%) and toilet facilities (55.48%). These issues have to be addressed to enhance the overall living standard. Kollidam block has not performed well in MDPI (0.639) and earned 11th rank. It is rather surprise to see very high level of poverty in the district 32.14% (Table 3.7). Efficacy of poverty alleviation programmes may be evaluated; and making provision of exclusion and inclusion of households under BPL. Of the three sectoral indicators of health, education, and living standard, the performance of living standard is very poor in this block. The performance of consuming cooking fuel (46.25%) and using toilet facilities (40.68%) is not up to the mark. Further, the performance of health indicators IMR (11.8), HOB (12.2), and malnourished children (29.0%) are relatively high. These parameters have to be prioritized and funds be earmarked to enhance the overall development of the block.

Integrated Analysis: Human Development Index

Human development index is worked out following the prescriptions of UNDP. Since the data is not available at the sub district level, the following three indicators are adopted in evolving HDI. The indicators are standard of living, health, and education. Of the first phase, sector wise index values were worked out. At the next level, geometric mean is worked out incorporating all the three sectoral indices and evolve human development index presented in Table 2.5. On comparing the block performances, the Mayiladuthurai block (0.866) reached higher level and Thalainayar block (0.435) reached lower level. It reveals that the overall performance differs significantly among the eleven blocks of the district. These values help in identifying the gap between the current level of

development in the district and the immense possibilities that the district can realize with respect to human development. Of the eleven blocks, two blocks scored above the level of the district's performance. The differences between minimum and maximum HDI values are around two times. On human development perspective, adequate attention may be given to the rest of seven blocks of the district. Among the nine blocks, government can prioritise sectors and earmark the funds for achieving human development uniformly in all the areas of the district. Hence, some of the blocks performance is very high compared to other blocks. It is interesting to note that Thirumarugal block has recorded 0.714, which has only rural population and ranked as top three. At the same time, the block Sembanarkoil has not been portrayed in the two categories of blocks. It stands exactly at the middle level bifurcating for both the categories. Among the eleven blocks of the district, Mayiladuthurai stands at top (0.866) followed by Nagapattinam (0.853) and Thirumarugal (0.714).

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

S. No.	Block /District	Index values and Ranking							
		HDI	Rank	GII	Rank	CDI	Rank	MDPI	Rank
1	Keelaiyur	0.589	7	0.092	10	0.529	5	0.519	10
2	Kilvelur	0.531	9	0.144	11	0.667	2	0.436	8
3	Kollidam	0.570	8	0.055	3	0.375	10	0.639	11
4	Kuthalam	0.680	5	0.075	7	0.628	3	0.334	4
5	Mayiladuthurai	0.866	1	0.062	6	0.727	1	0.266	2
6	Nagapattinam	0.853	2	0.091	9	0.585	4	0.092	1
7	Sembanarkoil	0.636	6	0.059	4	0.510	6	0.428	7
8	Sirkali	0.705	4	0.061	5	0.456	9	0.391	6
9	Thalainayar	0.435	11	0.084	8	0.366	11	0.518	9
10	Thirumarugal	0.714	3	0.044	2	0.497	7	0.280	3
11	Vedaranyam	0.528	10	0.044	1	0.483	8	0.359	5

Source: Computed.

On the other hand, Thalainayar block has scored only to the tune of 0.435 HDI, which shows around two times differences between the minimum and maximum values of HDI. It could be concluded that there is a wide disparity of human development among the blocks of the district.

Integrated Analysis: Gender Inequality Index

Women and girls are discriminated against in health, empowerment, and the labour market. GII is the measure of these inequalities built on the same framework as the Human Development Index to better expose differences in the distribution of achievements between men and women. The Gender Inequality Index (GII) reflects women's disadvantage in three dimensions-reproductive health, empowerment, and the labour market. The indicators of reproductive health that are considered for calculating GII are MMR, are institutional deliveries and anaemia. The indicators of empowerment are women literacy rate and women elected members. Labour market indicators include non-agricultural women workers, women workers participation rate, women agricultural wage rate, and women non-agricultural wage rate. Using the above indicators, the three sectoral indices namely health, empowerment, and labour market are calculated block wise, based on which the final GII is calculated.

The GII shows the loss in human development due to inequality between women and male achievements in these dimensions. It ranges from zero to one. The value zero indicates that women and men fare equally well, and one indicates that women fare as poorly as possible in all measured dimensions (Table 2.5). Among the 11 blocks of the district, the minimum value and the maximum value of the GII index is recorded in Vedaranyam and Thirumarugal blocks (0.044), and Kilvelur block (0.144). On juxtaposition block GII values, six blocks have performed fairly compared to the district and the remaining five blocks have performed poorly. These are only relative performances across the blocks. However, the index values are around 0.1, which shows that all the blocks have performed well. Further, it reveals that there is a rich scope for eradicating gender inequality and achieve equity in all means. This may reflect the overall development of the households.

Integrated Analysis: Child Development Index

Assessing and measuring the levels of child development is one of the indicators of human development. This has been presented in Table 2.5. The health and education sectoral indices are taken into account for arriving at the Child Development Index. The lowest value is recorded in Thalainayar block (0.366), and the highest value is recorded in Mayiladuthurai block (0.727). The details are given in the Appendix : Table 9.7. It could be seen that the minimum and maximum

values vary widely. Almost a twofold difference between Mayiladuthurai and Thalainayar blocks is noticed. Thus there is a rich scope to enhance the efforts for reaching the targets and achieving health development in some blocks. The state and the district administration are playing a major role in imparting education to children. Besides, tracking the children at different levels during their schooling period, the children are also promoted compulsorily up to the ninth standard. At the same time, it might have an adverse effect on the quality to some extent when the students opt for higher studies and competitive exams in the next stage of their progress.

Integrated Analysis: Multidimensional Poverty Index

Table 2.5 shows the multidimensional poverty index computed for the eleven blocks of the district. This index comprises health, education, and standard of living. The health index comprises of IMR, high order birth, and malnourished children, and the education index includes primary and secondary school dropout ratios. The standard of living index accommodates access to cooking fuel, toilet, drinking water, electricity, and pucca house. The overall MDPI has been worked out with simple average of all indices subtracting with one. The details are given in the Appendix : Table 9.9. It is expected that the worked out index will reflect the true picture of the population. According to this index, only five blocks performance is better compared to the other blocks. They are: Nagapattinam (0.092), Mayiladuthurai (0.266), Thirumarugal (0.280), Kuthalam (0.334), and Vedaranyam (0.359).

In general, the performances of Nagapattinam, Mayiladuthurai, Thirumarugal, Mayiladuthurai, Kuthalam, and Vedaranyam blocks are relatively high compared to the district level performance. As the local problems and needs of different blocks show substantial differences among themselves, they warrant specific policies to address them individually. The minimum and maximum values of the block wise index differ around five times. It reveals that the level of poverty differs significantly among the eleven blocks of the district. In the light of the above discussion, it could be concluded that the level of employment, income, and poverty are well below the mark of the state average, and the district be prioritised in differentiating the development activities for enhancing substantial employment and income. The low outcome of the district and its impact on the population is discussed in the next chapter.

Conclusion

This chapter incorporates theoretical and conceptual framework and the methodology for evolving various indices such as HDI, GII, CDI, and MDPI. Each index reflects the development of specific sector and reveals the pros and cons of each block. This analysis would help the policy makers for evolving policies and achieving overall development of the block both at the household and regional levels. Further, it gives guidelines for removing stumbling blocks in the execution of various development programmes conceived for alleviating poverty and reduction of inequality in the district. Each index, indicators and blocks wise performances are categorized as top and bottom three blocks. Juxtaposition of the results, there is no symbiotic relationship among the indices as well as within the index. It shows that the level of development varies among the blocks as well as various sectors. It clearly prescribes specific sector and block wise interventions needed in achieving sustainable and balanced development in the district. This can be achieved during the long run.

CHAPTER 3

EMPLOYMENT, INCOME AND POVERTY

Chapter
3
Employment, Income and Poverty

Introduction

This chapter focuses on employment, income and poverty both in rural and urban areas of the district and compares them with the State scenario. Further, the chapter provides a detailed intra-district analysis of the rural and urban areas of the district. In certain cases, the disaggregated data is not available, hence the district level analysis alone has been made.

Relationship between Economic Growth and Employment

Reducing poverty is a key element of the State's inclusive growth strategy, and there is steady progress in achieving the targets. Whether they are subsistence farmers, salaried workers or self-employed entrepreneurs, poor people derive most of their income from work. It means that level of employment, quality of jobs, and access to decent earning opportunities will be the crucial determinants of poverty reduction. Hence, national development strategy focuses on employment generation as a major channel for poverty reduction.

Fundamentally, the concept of poverty is associated with socially perceived deprivation with respect to basic human needs. These basic human needs are usually listed in the material dimension as the need to be adequately nourished, the need to be decently clothed, the need to be reasonably sheltered, the need to escape preventable diseases, the need to have (at least) minimum education, and the need to be mobile for purposes of social interaction and participation in economic activity. Although the scope of poverty is limited to material dimension, deprivation may indeed exist in non-material dimensions as well; for instance, gender based or caste-based discrimination. Even in the material dimension, the composition of the minimal basket of basic human needs that the society would expect every citizen to satisfy may be expected to keep expanding with economic and social progress of the society.

According to the official poverty estimates, the percentage of the population living in India below the poverty line had declined by 8.5 percentage points between 1993-94 and 2004-05. Since the

appropriateness of the poverty line was questioned in some quarters, the Union Government appointed an Expert Committee under the Chairmanship of the late Prof. Suresh Tendulkar. The Tendulkar Committee recommended a recalibration of the rural poverty line to make it more comparable with the urban poverty line, which it found to be appropriate. The application of the Tendulkar Committee poverty line provides a higher estimate of rural poverty and therefore also of total poverty.

The Eleventh Plan had set a more ambitious target of achieving a decline in poverty ratio of 2 percentage points per year. While the actual performance in this regard was below this target, it was better than it was in the earlier decade. Preliminary estimates using the latest NSS survey for 2009-10 suggest that the percentage of the population in poverty declined at a faster pace than before, by approximately one percentage point per annum, during the five-year period 2004-05 to 2009-10. The summary assessment is that the pace of poverty reduction has accelerated, though it may still be short of the target. Nevertheless, it is heartening to note that looking ahead, India is well poised to meet the Millennium Development Goal target of 50 per cent reduction of poverty between 1990 and 2015.

One critical parameter to examine the degree of inclusiveness is to see what has happened to the real farm wages in the rural areas. The largest number of poor, primarily landless workers, are in rural areas, and the majority of them still rely on farm work for their livelihood. It is comforting to see that during 2007-10 (calendar years), the average real wage rates increased by 16.0 per cent at the all India level. The mission of rural development is to provide basic amenities in rural areas to the standard of urban areas so that the pressure of urban migration can be reduced. Elimination of poverty, empowerment of women, and delivery of high quality services should be the basic premises upon which the planning of rural development is to be based.

The Government of Tamil Nadu accords top priority to Rural Development as the share of allocation in the total outlay for Rural Development (12.0 per cent) is next to Transport (13.65 percent) and Energy (12.59 per cent). Yet, disparities exist among the districts/blocks and village panchayats. Despite planned interventions for improvement in access to sanitation, housing, and common infrastructure facilities, gaps still remain. Poverty reduction has been the main objective of planned

development. Nearly half of the State population lives in rural areas. The spread of rural population varies significantly across the districts.

The declining share of agriculture to the economy and the share of rural population necessitate appropriate livelihood strategies for poverty reduction and empowerment. The State aims at socio, economic, and political development with people's participation. Provision of basic infrastructure facilities, ensuring quality services for cleaner and greener villages, creation of productive assets for sustainable livelihoods, enhancing rural economy and thereby establishing improved quality of life are the major thrust areas for the Twelfth Five Year Plan (Approach paper for twelfth five year plan (2012-17) Tamil Nadu). Tamil Nadu has been very successful in reducing poverty. According to the Tendulkar methodology, which is being followed by the Union Planning Commission, the State's poverty has fallen to 18.3 percent in 2009-10 from 28.9 percent in 2004-05. In absolute terms, as many as 60 lakh persons in Tamil Nadu have been moved above poverty line. However, as many as 130 lakh persons are still languishing in poverty.

Employment

Table 3.1 reveals block-wise size of workforce and work participation rate of Nagapattinam district during the period of 2001 and 2011. All the urban areas have been clubbed into the concerned rural blocks of the district. It is observed that the population has increased from 14.88 lakh to 16.16 lakh in the district, but there is no substantial increase in the workers' participation. The total workers of the district increased from 586 thousands to 671 thousands between the year 2001 and 2011.

The decadal growth rate of total workers is 14.53 in the district. The same performance could not be seen in all the blocks of the district. This may be attributed to endowment of natural and manmade resources. For instance, the total workers are very high in Mayiladuthurai, Sembanarkoil and Vedaranyam blocks compared to other blocks. In some of the blocks, the total workers are relatively low. The size and number of Panchayat villages differ significantly among the thirteen blocks of the district. Hence, there is a significant variation in terms of population and total workers. The main workers of the district has steadily increased from 4,68,754 (2001) to 4,86,328 (2011). The computed growth rate of the district is 3.75. A similar trend could be seen in all blocks of the district. The

government aims to reduce marginal workers as well as non- workers by way of generating additional employment both in farm and non-farm sectors.

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

S. No	Block/ District	Total workers		Main Workers		Marginal Workers		Non Worker		Total Population	
		2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
1	Keelaiyur	33056	40201	28150	25359	4906	14842	43953	46984	77009	87185
2	Kilvelur	34364	37082	31149	29688	3215	7394	41097	41851	75461	78933
3	Kollidam	49212	58269	35482	39802	13730	18467	76155	79602	125367	137871
4	Kuthalam	55422	61776	44671	51792	10751	9984	85258	91670	140680	153446
5	Mayiladuthurai	89864	103089	78604	76229	11260	26860	152761	156545	242625	259634
6	Nagapattinam	58298	67874	51260	55664	7038	12210	111224	118144	169522	186018
7	Sembanarkoil	69031	81381	55810	60408	13221	20973	111394	113193	180425	194574
8	Sirkali	59858	70129	48517	49871	11341	20258	96668	103079	156526	173208
9	Thalainayar	32390	41902	21938	32120	10452	9782	35275	54487	67665	96389
10	Thirumarugal	37650	36006	26486	19058	11164	16948	53273	37972	90923	73978
11	Vedaranyam	67589	74285	46687	46337	20902	27948	95047	100929	162636	175214
	District	586734	671994	468754	486328	117980	185666	902105	944456	1488839	1616450

Source: Census of India 2001 and 2011.

Note: Municipalities, CT and TP are added in the respective rural blocks.

However, the growth rate of marginal workers is very high to the level of 57.37 in the district. The proportion of marginal workers is close to total population. In the case of non-workers, the growth rate of the district is 4.69. However there is a rich scope in eliminating non workers in all the blocks of the district. Further, due to good communication and road facilities, workers have better opportunities and migrate to nearby places. It is witnessed in the district that most of the workforce had two wheelers and mobile phones.

Work Participation Rate

Table 3.2 compares the size of gender and area wise workers of Nagapattinam district between the period of 2001 and 2011. Work participation rate is worked out from the Census of India during 2001 and 2011. During 2001, the proportion of rural and urban workers of Nagapattinam district was 41.51 per cent and 32.05 per cent respectively. These proportions have marginally changed as 43.58 per cent in rural areas and 34.69 per cent in urban areas during the year 2011. The percentage of the total workforce of the district has marginally increased during 2001 and 2011 and it stood at 39.41 and

41.57 respectively. However, there is a marginal decline in the male workforce from 55.49 (2001) to 57.78 (2011). This may be attributed to the migration of labourers from rural to urban area.

Table 3.2: Work Participation Rate during 2001 and 2011

	Rural/Urban	2001	2011
Rural Worker	Male	56.34	58.43
	Female	26.84	29.03
	Persons	41.51	43.58
Urban Worker	Male	52.51	55.53
	Female	12.09	14.64
	Persons	32.05	34.69
Total Worker	Male	55.49	57.78
	Female	23.55	25.76
	Persons	39.41	41.57

Source: Census of India 2001 and 2011.

It also shows that total urban workers both male and female have significantly increased during 2001 and 2011. Among female workers in urban areas, the work participation rate is significant and it is calculated as 12.09 and 14.64 respectively during 2001 and 2011.

Box 3.1: Risk Management: Successful Farming

The objective of the case is to bring focus on diversified organic farming in the district. Since the organic farming activities are taking place only in select locations, the Sirkali farmer has been identified for his successful practices in generating income.

Inclement weather, bureaucratic approach, and absence of proper marketing channels have made the life of farmers miserable. With a failed crop, depleting water table, and mounting debts, many farmers choose to commit suicide thinking it would end their problems. The common thread, which runs in all these suicides, is that most of these farmers have grown pure crops (monocrops) in large areas and failed to get a good harvest. In many cases the crops grown were not suited for that area or soil. According to Balaji Shankar, a successful organic farmer of Sirkali, Nagapattinam district, crop diversity, organic farming, native seeds, farm pond, milch cattle and planting trees are useful and significant components of a practical risk management plan. Organic farming substantially reduces input costs. For example, by composting vegetables and farm waste with cow dung and urine, the production cost may come to only two rupees. A farm pond guarantees irrigation water for at least one crop in a year, and growing fishes in the pond can be an additional source of income. Mixed cropping reduces pests and also increases yield. Native seeds are cheap, resistant to pests and diseases, and withstand both drought and flood.

Keeping cattle assures a steady income and also retains and replenishes the soil by urine and dung. As for working capital requirement, a farmer should only plant as much acreage as his resources permit. "For example instead of spending Rs.10,000 per acre to cultivate hybrid crops and earning a gross income of about Rs.20,000 (if at all) in six months a farmer can spend Rs.1,000 per acre and grow multiple vegetables and earn a net income of Rs.15,000," Shankar said.

Box 3.2: Status of Child Labour in Nagapattinam District

There is no child labour reported in the district. The steps taken by the district administration is quite appreciable. Even though as a regular exercise the followings are celebrated in the district. Anti-Child Labour Day 2013 celebrated on 12-6-2013. Competition on Child labour eradication among school going children are conducted on 7-10-2013. Stickers depicting anti child labour slogans were fixed in establishments, shops auto rickshaws.

Sectoral Composition of Workers

Block wise sectoral composition workers of the district is presented in Table 3.3. The total workers are classified in four categories, such as cultivators, agricultural labourers, household industry workers, and other workers. The number of total workers during 2001 is 5,86,734 and it increased to 6,71,994 during 2011. The growth rate of total workers is 12.7. Across the blocks, the proportion of total workers varied significantly. The minimum proportion is recorded in Thalainayar block (6.42) and the maximum proportion is registered in Mayiladuthurai (15.32) during 2001. The same trend could be seen during 2011 with some marginal variations. The number of cultivators has declined from 72,010 to 67,482 with a negative growth of 6.29%. It shows that the cultivators have switched over to other than agricultural activities.

Except Kuthalam block, the proportion of cultivators to total workers have come down in all the blocks of the district. A significant reduction of cultivators is observed in Thalainayar block from 5,404 to 3,864. It is interesting to note that the cultivators intend to diversify the crops and minimize the risk. Further, they have experienced that the agricultural activities is not attractive compared to non-farm activities. In the context of agricultural labourers, the growth rate is 10.5, which is marginally lower than the growth rate of total workers. Among the blocks, the proportion of agricultural labourers to total workers have marginally increased only in four blocks of the district, such as Keelaiyur, Kilvelur, Thalainayar and Vedaranyam.

The number of household industry workers has increased from 11,460 to 11,555 during 2001 and 2011 respectively. Among the eleven blocks of the district, the numbers have increased only in four blocks. They are: Keelaiyur, Mayiladuthurai, Nagapattinam and Sirkali. Of these four blocks, except Keelaiyur block all the remaining blocks are urban cum rural blocks. The opportunities for involving

in households industrial activities are relatively high compared to other exclusively rural blocks. The growth rate of household industrial workers of the district is 0.82.

Table 3.3: Compositions of Workers in Major Sector during 2001 and 2011

S. No	Block / District	Total workers		Cultivators		Agricultural Labourers		Household Industry		Other Worker	
		2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
1	Keelaiyur	33,056	40,201	4,520	5,230	18,898	24,100	569	627	9,069	10,244
2	Kilvelur	34,364	37,082	3,766	3,583	22,876	25,240	657	459	7,065	7,800
3	Kollidam	49,212	58,269	5,277	4,584	30,052	33,778	1,187	1,000	12,696	18,907
4	Kuthalam	55,422	61,776	6,805	7,640	33,943	35,500	1,098	976	13,576	17,660
5	Mayiladuthurai	89,864	1,03,089	8,586	7,230	38,688	43,724	2,137	2,326	40,453	49,809
6	Nagapattinam	58,298	67,874	2,854	3,122	16,449	17,025	1,126	1,342	37,869	46,385
7	Sembanarkoil	69,031	81,381	7,020	5,853	38,629	43,580	1,381	1,285	22,001	30,663
8	Sirkali	59,858	70,129	6,098	5,334	32,609	35,749	902	1,283	20,249	27,763
9	Thalainayar	32,390	36,006	5,404	3,864	21,205	25,096	547	465	5,234	6,581
10	Thirumarugal	37,650	41,902	4,272	4,113	23,680	25,325	594	784	9,104	11,680
11	Vedaranyam	67,589	74,285	17,408	16,929	31,739	35,940	1,262	1,008	17,180	20,408
	District	5,86,734	6,71,994	72,010	67,482	3,08,768	3,45,057	11,460	11,555	1,94,496	2,47,900

Source: Census of India 2001 and 2011.
Note: Municipalities, CT and TP are added in the respective rural blocks.

The number of other workers has increased from 1,94,496 to 2,47,900 during 2001 and 2011 respectively. The computed growth rate is 21.5. The maximum number of other workers is recorded in Mayiladuthurai (49,809) and Nagapattinam (46,385) during 2011. The minimum number is registered in Thalainayar (6,581) and Kilvelur (7,800) during 2011. This data indicates that the growth rate of other workers is significant in all the blocks of the district. It shows that the occupational diversification has taken place in the district. It is observed that the skills of the workers, accessibility, communication facilities, and other infrastructure facilitate the diversification to their activities and sustain in enjoying employment opportunities in the district.

Box 3.3: MGNREGA – Employment and Income

MGNREGA is one of the flagship programmes of the central government aiming to provide sustainable employment and building basic infrastructural facilities in the rural areas. This programme has been executed in the district as per the guidelines. Total Number of panchayat villages are 434. The total works taken under MGNREGS during 2013-14 is 4627 at the allotment is Rs.162,98.099 lakh. Of these, 1,487 works have been completed. The total expenditure is Rs.91,75.371 lakh and created 71,24,588 man days. The total families covered 100 days of employment are 7,331 in the district.

Table: Employment Generated During The financial Year 2013—2014-MGNREGA

S.No	Block / District	No. of HH issued job cards	No. of HH provided employment	No. of HH completed 100 days	No. of Disabled beneficiary individuals
1	Keelaiyur	13,755	12,672	419	150
2	Kilvelur	15,001	15,071	1,100	123
3	Kollidam	27,874	23,424	920	111
4	Kuttalam	25,580	20,493	374	511
5	Mayiladuthurai	28,841	26,194	739	241
6	Nagappattinam	13,383	11,336	671	16
7	Sembanarkoil	30,822	27,471	960	260
8	Sirkali	26,364	22,185	1,098	112
9	Thalainayar	12,728	9,865	171	105
10	Thirumarugal	16,625	14,182	191	13
11	Vedaranyam	17,057	14,617	688	131
	District	2,28,030	1,97,510	7,331	1,773

Source: DRDA, Nagapattinam, 2014.

The following categories of work are undertaken under MGNREGA.
Under farm ponds, 5,500 farmers are identified and works are given to 4,615 farmers. In total, 4,178 works are completed. Under afforestation activities, 291.73 acres are identified in 302 village panchayats. Administrative sanctions are given to 225 village panchayats for 177.60 hectares of land. The total works completed are 113 in 74 panchayats with the expenditure of Rs.177.62 lakh. Of the 62 coastal village panchayats, 24 village panchayats are identified and covered afforestation activities in 48.175 hectares. Among these, 12 works are completed at the cost of Rs.15.09 lakh in 11 village panchayats. Plantation activities in panchayat union roads are carried out under this 5057km of village panchayat road and 1653km of panchayat union road. The estimated amount is Rs.1072 lakh. In total, 57.7 km of works are completed at the cost of Rs.25.71 lakh. Under plantation activities on the lands of farmers, 238 farmers with 12.85 hectares of land are identified in 41 village panchayats. Under this 2 works are completed in one village panchayat with the expenditure of Rs.0.10 lakh. Under the individual household latrine, the administrative sanction was given for 22,863 households in 66 village panchayats at the estimated cost of Rs.1144.269 lakh. Of this 9576 works are completed at the expenditure of Rs.430.92 lakh. Eleven Solid Waste Management (Compost Pit) is created in 9 village panchayats at an estimated cost of Rs.9.65 lakh. Of this 2 works were completed at a cost of Rs.1.17 lakh. Under village panchayat service centre, 182 sites are selected at the estimated amount of Rs.1820 lakh. All works are under progress now. Under block panchayat service centre, 4 sites are selected at the estimated cost of Rs.100 lakh. No work is completed at present.

The government has provided employment to target groups who have registered themselves and received job card. Table shows the blocks wise details of employment provided through MGNREGS during 2013-14. Of the 3,49,799 rural households in the district, 67 per cent received employment through the scheme. The relative performance among the blocks are varied significantly. The performances are varied around three times between minimum and maximum proportions. It reveals that the market wage is very high compared to the wages disbursed through the scheme, the target groups opt the scheme according to the preferences. Through the scheme they have renovated and restructured the existing infrastructural facilities available in the villages. It is expected that the scheme would enhance the overall productivity of the village.

Registration and placement provided by Employment office

Table 3.4 shows the growth rate of employment recorded in the district employment office. In general, after completion of school/college education, the students used to register in the government employment office for availing themselves of government job opportunities. However, all graduates register in employment exchange after completion of their degrees.

Table 3.4: Registration and Placement Provided by Employment office during 2007–2014

S. No.	Year	Registration	Placement	Percentage of Placement
1	2007	12,820	265	2.07
2	2008	13,721	301	2.19
3	2009	13,812	317	2.30
4	2010	14,121	369	2.61
5	2011	14,367	396	2.76
6	2012	15,766	402	2.55
7	2013	32,691	488	1.4
8	2014	33,050	112	0.3
	Total	1,50,348	2650	1.76

Source: District Employment officer, Nagapattinam district, 2014.

These registrations have grown constantly in the district from 12,820 (2007) to 33,050 (2014). But the district has recorded only around 1.76 per cent placements. Since, the opportunities are very poor in government offices, potential job seekers have to develop their real skills to enter and cater to the needs of the private sector enterprises.

Income

Table 3.5 highlights the sectoral distribution of Gross district domestic product in Nagapattinam district during 2009-2012. During 2009-10, the district's GDDP is Rs. 5,57,813 lakh at constant prices of 2004-05. It has grown continuously and reached to Rs. 6,40,418 lakh during 2011-12. The computed growth rate is 20.81 during the last three years. During the same period, the state GDDP growth rate was 14.81, which is marginally high. Of this, the contribution of tertiary sector was very high (57.43) followed by primary (25.83) and secondary (16.74) sectors.

Table 3.5: Sectoral Distribution of Gross District Domestic Product

Year	GDDP - At Constant (2004-05) Price (In Lakh)					
	Nagapattinam			Tamil Nadu		
Sector	2009-10	2010-11	2011-12	2009-10	2010-11	2011-12
Primary	1,53,871 (27.58)	1,43,856 (24.29)	1,65,406 (25.83)	32,79,727 (9.20)	35,16,987 (8.72)	38,72,767 (8.94)
Secondary	88,418 (15.85)	1,00,312 (16.94)	1,07,225 (16.74)	108,57,492 (30.44)	1,25,42,302 (31.09)	1,30,39,248 (30.10)
Tertiary	3,15,524 (56.56)	3,47,987 (58.77)	3,67,787 (57.43)	21,5,25,966 (60.36)	2,42,82,284 (60.19)	2,64,11,788 (60.96)
Total	5,57,813 (100)	5,92,155 (100)	6,40,418 (100)	3,56,63,185 (100)	4,03,41,573 (100)	4,33,23,803 (100)

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

The sectoral contribution of the secondary and tertiary sectors has marginally increased during the last three years. It reveals that the quantum of primary sector activities has been reduced from 27.58 % to 25.83 % in the district.

Per Capita Income

PCI is one of the indicators highlighting the economic development of the region. In order to measure the real growth of PCI, per capita is worked out at constant prices (2004-05). Table 3.6 highlights the per capita income of the district as well the State. During 2004-05, the district PCI is Rs.24,609, which is far below the State PCI of Rs.33,998 at constant prices.

Table 3.6: Per Capita Income

At Constant Prices (2004-2005)		In Rupees
Year	Nagapattinam	Tamil Nadu
2004-05	24,609	33,998
2005-06	27,657	38,435
2006-07	33,721	43,941
2007-08	31,563	46,293
2008-09	32,583	48,473
2009-10	36,095	53,359
2010-11	38,205	59,967
2011-12	41,208	63,996
CAGR	6.66	8.23

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

During 2011- 12, the PCI of the district has increased to Rs.41,208, and the State PCI has also increased to Rs.63,996. However, the disparity between the state and district per capita income has increased from Rs.9,389 to Rs.22,788. It reveals that the district economic activities are somewhat slower than that of the State level. The Compound Annual Growth Rate of per capita income has been worked out for the last eight years from 2004 -05 to 2011-12 and presented in Table 3.6. The CAGR of the district is 6.66, which is lower than State (8.23).

Box 3.4: Biofloc - Eco-friendly, Disease Resistant Shrimp Farming

The objective of the case study is to highlight an innovative practice introduced by an ecofriendly worker in his own farm on controlling the negative externalities of shrimp farming. High-Density Polyethylene (HDPE)-lined shrimp ponds dot the landscape of Mahendrapalli, a small village on the banks of Pazhayar about 18 km from Kollidam. Here, Suryakumar Boriah, is silently working on an eco-friendly, disease resistant shrimp farming called biofloc on his vast farm. Biofloc is a beneficial bacterial colony-based culture that keeps other bacterial diseases at bay, making it an ecologically sustainable symbiotic system. Biofloc shrimp farming differs from traditional plankton-based shrimp culture that often keeps farmers on tenterhooks due to the threat of disease outbreak. Owning the only one-of-its-kind farm in the State, Mr.Suryakumar is one of the very few farmers in the country practicing biofloc since 2011.

Zero Water Exchange

The zero-water exchange of biofloc makes it eco-friendly. The bioflocs keep the pH levels steady and feed on the nitrogen produced by the shrimps. "In conventional farming, nitrogen is flushed out through water exchange every 25-30 days to keep animals stress-free and disease-free. The bioflocs use up the nitrogen and convert it into proteins, for the shrimps," says Mr. Suryakumar. This cuts down artificial probiotics for the animals.

Traditionally, water exchange is often a contention between local land users and shrimp farms. "The tightly HDP-lined ponds insulate the animals from diseases and the HDP linings are intact for five years," says Mr. Govindaraj, manager of Suryakumar's farm. It costs about Rs.14 lakh per hectare for a biofloc pond, thrice as much as a traditional pond. But the capital investment is out-weighed by the benefits of the system. "There is no dry-out season, and the ponds are crop ready anytime. Production per unit area is high in biofloc system. Production per hectare in a conventional pond is 10-15 tonnes, while a biofloc pond gives out 20-30 tonnes. The stocking density of animals in HDP-lined biofloc pond is twice the density of an ordinary shrimp pond".

Poverty and Inequality

BPL households are usually identified by the Rural Development Department of the district, following the guidelines prescribed by the National Rural Livelihood Mission. From the statistics obtained, it is learnt that various programmes are being implemented in the district. Overall, 35.02% of the households live below the poverty line (Table 3.7). Across the eleven blocks of the district, 40.58% of

the BPL population live in Vedaranyam block. More than 35% is recorded in the blocks of Kuthalam (40.48%), Kilvelur (36.18%), Thirumarugal (36.00%), and Sembanarkoil (35.78%). It is interesting to note that in the process of development, there may be some inclusions and exclusions of households.

Table 3.7: Below Poverty Line Households during 2014

S. No.	Block /District	Total No. of Households	Total No. of BPL Households	% of BPL Households
1	Keelaiyur	24,420	7,614	31.18
2	Kilvelur	20,963	7,585	36.18
3	Kollidam	36,100	11,603	32.14
4	Kuthalam	38,357	15,525	40.48
5	Mayiladuthurai	65,163	20,200	31.00
6	Nagapattinam	43,768	15,146	34.61
7	Sembanarkoil	48,505	17,357	35.78
8	Sirkali	43,716	14,596	33.39
9	Thalainayar	19,937	6,821	34.21
10	Thirumarugal	24,473	8,810	36.00
11	Vedaranyam	48,435	19,653	40.58
	District	4,13,837	1,44,910	35.02

Source: Project Officer, Mahalir Thittam and Pudhu Vazhu, Nagapattinam 2014.

Since the exercise has not been done by the State administration periodically; the same BPL list is followed by the district administration in the execution of various development programmes. Table 3.6 shows the block wise BPL households in the district. On comparing with the district level, there are five blocks, which are above the mark. The district administration can prioritize these blocks and earmark the funds.

Family Card Holders

The Public Distribution System in Tamil Nadu is unique, since it is based on the choice of the people and covers all families, either economically backward or forward, without any discrimination between urban and rural population. Under Targeted Public Distribution System (TPDS), food grains supply is

restricted to 75% of the rural population and 50% of the urban population. The National Food Security Act emphasizes that TPDS will lead to deprivation of benefit to the larger section of the public. The Tamil Nadu State Food Policy follows a Universal Public Distribution System (PDS) to ensure non-excludability, easy access, and adequate availability of food grains at affordable prices. Family Cards are issued to the people of the State based on their needs and preferences. The essential commodities supplied through PDS include rice, wheat, sugar, and kerosene. The Special PDS which was initiated to protect people from steep increase in prices of essential commodities includes pulses like Toor and Urud dhal, Palmolein oil, and fortified flour. Table 3.8 shows the family card holders in the district of Nagapattinam during 2014. In total, there are 750 PDS outlets functioning in the district covering all the rural and urban population. In the urban area, 95 full time shops and 12 part time shops function and deliver essential goods and services.

Table 3.8: Family Card Holders - 2014

S.No	Taluk/District	Households having family Cards
1	Nagapattinam	74,448
2	Kilvelur	37,858
3	Thirukuvalai	16,116
4	Vedaranyam	60,277
5	Mayiladuthurai	69,639
6	Kuthalam	35,313
7	Tarangambadi	53,973
8	Sirkali	89,500
	District	4,37,124

Source: District Supply Officer, Nagapattinam, 2014.

Among the eight taluks, the numbers of full time shops are high in Mayiladuthurai (26) and Nagapattinam (27) urban areas. In the case of rural areas, there are 518 full time shops and 125 part time shops. The district supply office maintains data at the taluk level, hence analysis has been made on the same lines. It is interesting to note that 4,37,124 family card holders have benefitted in the

district. Across eight taluks, the number of family card holders varies around five times between Thirukuvalai 16,116 and Sirkali 89,500.

Conclusion

In view of the facts discussed above, it could be concluded that the district's work participation rate has marginally increased between 2001 and 2011. A similar picture is obtained both in rural and urban areas of the district. In the context of composition of workers, the number of cultivators has drastically come down in the district. This has been offset in agricultural labourers, household industry workers, and other workers. It reveals that there is a transition from agriculture to non-agricultural activities due to vagaries of monsoon and to avoid risk in agriculture. This district is specifically recovering from the severe Tsunami and Thane devastations. Further avenues opened up in the district to switch over for having high profit jobs. Besides, government has executed MGNREGS in all the blocks of the district for providing sustainable employment.

The secondary objective of the scheme is building and strengthening the existing infrastructure in the villages in expectation of enhancing productivity in agriculture. This has been witnessed in all the blocks of the district. The role of district employment exchange in providing employment is very marginal and the opportunities are very limited in government sector. The district per capita income is low compared to State income. It reflects the number of below poverty line households. The level of poverty varies significantly among the blocks. There is a rich scope in addressing poverty and alleviating the same specifically vulnerable population live in the blocks of the district. This government is providing a lot of freebies to the targeted population expecting to fill the income gap at the household level. The perception of the people is to execute the program without much political intervention, pilferage and corruption to reach the target of the programme. This chapter leads to make further analysis on demography, health, and nutrition, which follows in the next chapter.

CHAPTER 4

DEMOGRAPHY, HEALTH AND NUTRITION

Chapter
4
Demography, Health and Nutrition

Introduction

This chapter portrays the demographic profile of the district and its decadal growth rate, health, and nutritional status of the population that live in the district. Demographic analysis has been done totally on the basis of the Census of India 2001, and 2011.

Demography

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

Population and Demographic Transitions during 2001 and 2011

Table 4.1 shows that the population of the district has increased by 1.2 lakh between 2001 and 2011. Among the blocks, Mayiladuthurai and Sembanarkoil has the highest population (2.59 lakh) and (1.94 lakh) respectively in the district and Thalainayar (0.73 lakh) has recorded the lowest during 2011. Its population growth rate over the decade 2001-2011 was 8.57 and it is marginally low as compared to the state growth rate of 15.6. The growth rate varies marginally among blocks of the district. The net growth can be seen in the form of in migration, out migration, and births recorded in the concerned blocks. The population density of the district is 658 persons per Sq.km in 2011, when compared to 593 during 2001. The density of population has increased in all the blocks and the district. Specifically the density is very high in the blocks of Nagapattinam (1379), and Mayiladuthurai (937). These blocks had good access to the other parts of the district and neighbouring districts. The density is very low in the blocks of Keelaiyur (476), Thalainayar (443), and Thirumarugal (424). Thalainayar block is one of the coastal blocks and have limited potential for further development. The decadal growth rate of SC population of Nagapattinam district is 15.42. In total, 0.51 million SC population were living in the district during 2011, against 0.44 million in 2001. A significant increase is noticed in the total SC population in the district between the two censuses. With regard to the sex composition of the

Nagapattinam district, the male SC population stands at 0.25 million and female stands at 0.26 million during 2011.

Table 4.1: Population and Demographic Transitions during 2001 and 2011

S. No	Block/District	Population		Density		SC Pop	
		2001	2011	2001	2011	2001	2011
1	Keelaiyur	77,009	87,185	420	476	31.77	34.31
2	Kilvelur	75,461	78,933	474	496	49.20	52.81
3	Kollidam	1,25,367	1,37,871	531	584	35.78	37.83
4	Kuthalam	1,40,680	1,53,446	713	778	30.27	31.53
5	Mayiladuthurai	2,42,625	2,59,634	875	937	27.24	29.29
6	Nagapattinam	1,69,522	1,86,018	1257	1379	19.91	21.55
7	Sembanarkoil	1,80,425	1,94,574	643	693	29.16	30.94
8	Sirkali	1,56,526	1,73,208	690	763	32.93	34.94
9	Thalainayar	67,665	73,978	405	443	34.61	36.54
10	Thirumarugal	90,923	96,389	400	424	37.24	39.95
11	Vedaranyam	1,62,636	1,75,214	461	496	19.02	20.13
	District	14,88,839	16,16,450	593	658	29.64	31.54

Source: Census of India 2001 and 2011.
Note: Municipality, CT and TP are added in the respective rural blocks.

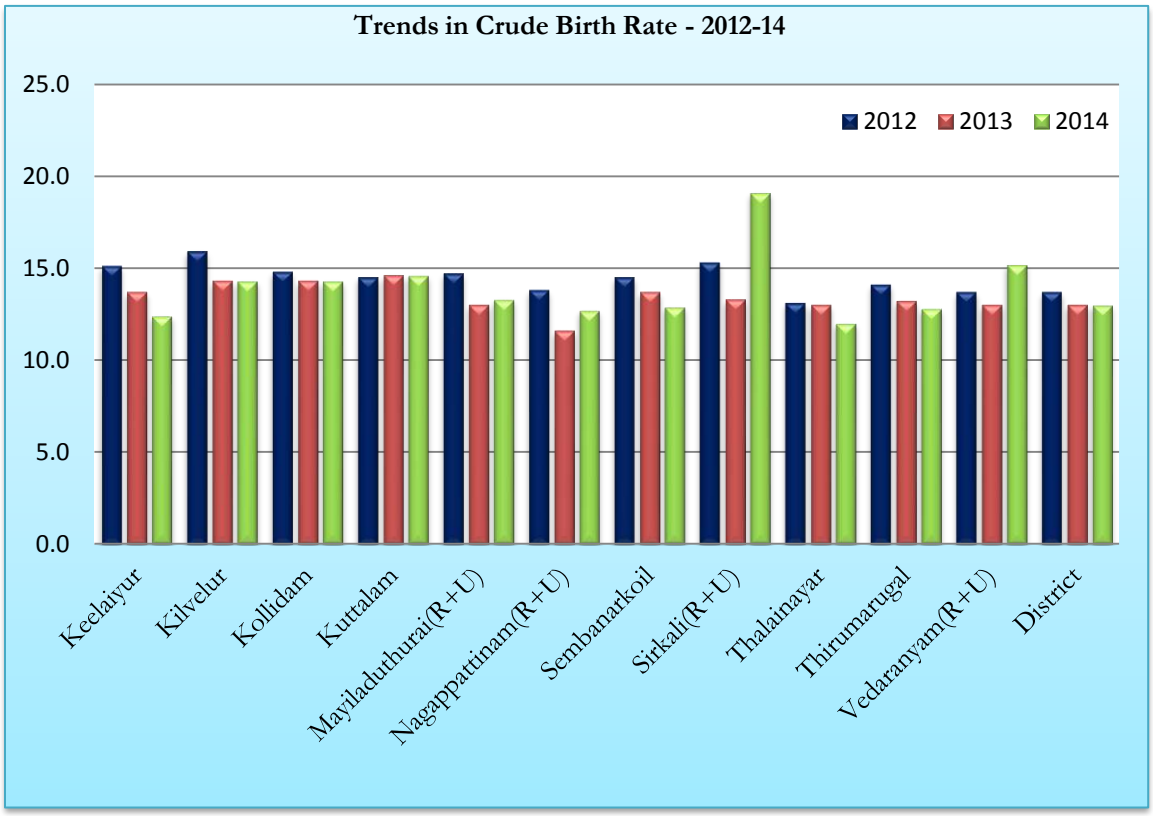
The proportion is very high in the blocks of Kilvelur (52.81), and Thirumarugal (39.95). Due to high concentration of SC population and the less proportion of fertile lands in their possession, it stands as an impediment for their development. The percentage of SC population is relatively very low Vedaranyam (20.13), and Nagapattinam (21.55). It is observed that the SC populations still follow the native practice in living with their community members. Communal tensions have flared up in the past in the district and the district has seen the community living in closed neighborhoods to combine their resources and strength.

The total ST population in Nagapattinam district is 3420 in 2001 and 3756 in 2011. The decadal growth rate of the district is 9.82. Comparing the rural and urban scenario, the urban ST population has higher negative growth rate (-14.21) than the rural growth rate of 36.59. It reveals that ST population had the opportunity and migrate to other places. They use to enjoy various privileges introduced by the government in favour of them. The proportion of ST population is less than one per cent in the district. A similar trend could be seen in all the blocks of the district.

Crude Birth Rate and Crude Death Rate

Birth and death rates are the deciding indicators of population growth. The crude birth rate of the Nagapattinam district is given in the figure 4.1. The average CBR is 13.7 in 2012 and 13.0 in 2014. The progress during 2012–2014 is only 0.7 per cent (Appendix : Table: 9.10). Across the blocks, the crude birth rate varies marginally. For instance, 15.2 is registered in Vedaranyam block and 19.1 is reported in Sirkali block. A marginal variation can be seen in the remaining blocks of the district. It shows the achievement of the government in controlling population growth in all the blocks.

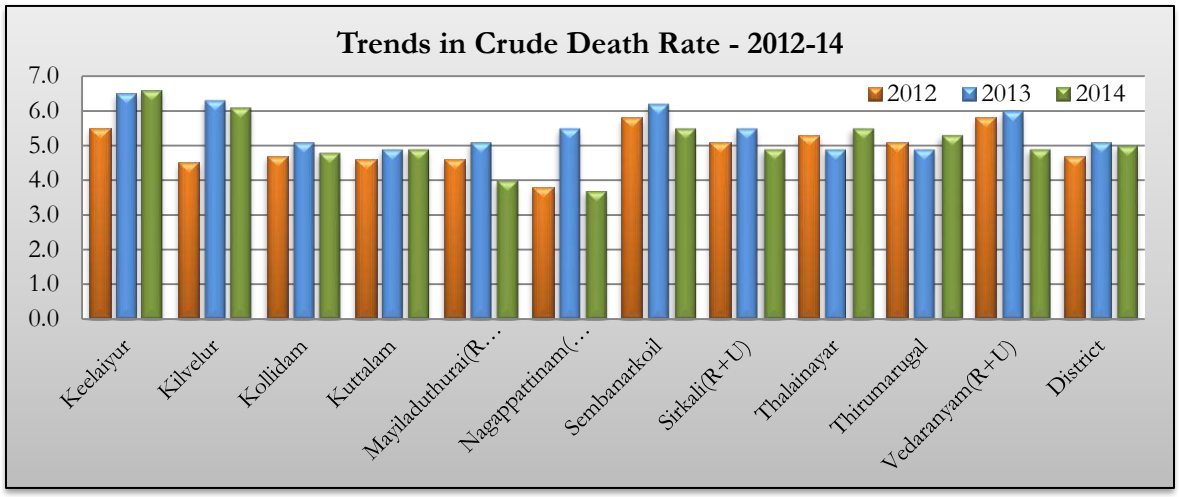
Figure 4.1: Trends in Crude Birth Rate



Source: Health Department, Nagapattinam, 2014.

The average CDR of the district is 4.7 in 2012 and 5.0 in 2014 (Appendix : Table: 9.10). In all the blocks, crude death rates are varied marginally with ups and downs. It is noticed that natural death and pre-mature deaths were reported in all the blocks of the district. This has been attributed to socio-economic, cultural and environmental factors of the district. The district's department of public health still has scope to reduce the CBR and CDR in the district.

Figure 4.2: Trends in Crude Death Rate



Source: Health Department, Nagapattinam, 2014.

Sex Ratio

There have been discussions concerning the issue of female deficit ever since the first Census of British India in 1872. However, the Nagapattinam district sex ratio (2011) shows a positive sign invariably in all the blocks. The overall sex ratio of Nagapattinam district is 1025 females per 1000 males, which is higher than the State average of 995 in 2011.

Table 4.2: Sex Ratio during 2001 and 2011

S. No	Block/District	General		Increase or Decrease	Child Sex ratio		Increase or Decrease	SC Sex Ratio		Increase or Decrease
		2001	2011		2001	2011		2001	2011	
1	Keelaiyur	1044	1026	-18	985	946	-39	1017	1032	15
2	Kilvelur	1027	1028	1	996	959	-37	1031	1018	-13
3	Kollidam	1003	1033	30	949	946	-3	1002	1021	19
4	Kuthalam	1023	1033	10	955	977	22	1005	1005	0
5	Mayiladuthurai	1000	1024	24	974	977	3	992	1002	10
6	Nagapattinam	1014	1021	7	959	953	-6	1017	1030	13
7	Sembanarkoil	1030	1041	11	983	977	-6	1007	1044	37
8	Sirkali	994	1016	22	936	947	11	994	1000	6
9	Thalainayar	1009	1018	9	970	977	7	999	1026	27
10	Thirumarugal	1021	1022	1	952	956	4	1003	1021	18
11	Vedaranyam	1020	1016	-4	951	932	-19	1022	1049	27
	District	1014	1025	11	963	959	-4	1006	1020	14

Source: Census of India, 2001 and 2011.

Note: Municipality, CTs and TPs are added in the respective rural blocks.

The overall sex ratio of Nagapattinam district has registered 11 point increase between the two census periods from 1014 to 1025. Of the total 11 blocks, three blocks show the declining trend of sex ratio, and all the other remaining eight blocks have registered an increasing trend over the decade. It is also noticed from Table 4.2. The Keelaiyur block witnessed the highest sex ratio of 1044, followed by Sembanarkoil block with a sex ratio of 1030 in 2001. According to the 2011 census, the Sembanarkoil stood at the top with the sex ratio of 1041 females per 1000 males followed by the Kollidam and Kuthalam block (1033). The Sirkali and Vedaranyam blocks recorded the lowest sex ratio (1016) in the district. Table 4.2 that the overall sex ratio of the SC population is 1020 in Nagapattinam district during 2011 and it increased by 1.39 percent over a period of ten years. Overall, in the district as well as in almost all the blocks the sex ratio is showing an increasing trend. This may be attributed to two reasons; first the district has matriarchal society which does not allow discrimination between a daughter and son. Second in Nagapattinam, since women receive education and proper health care their survival chances' are as good as those of men. It is also possible that the male out-migration is higher in the district in search of employment.

Child Sex Ratio

When human beings are born, their sex ratio on average is naturally recondite. However, this balance in the sex ratio of human beings seems to be distorted by the artificial manipulation of the sex ratio at birth through developments in medical technology. Means of altering the sex structure of births include sex selective abortion, and female infanticide. Concerted efforts are needed to create equal regard and affection for the girl child. The sex ratio among children (0 to 6 years) is showing a marginal decline. Many families wilfully decide to remove the female foetus in a quest for sons. Unfortunately this happens in the more educated and affluent families too. The motivation is primarily to protect property, family business and to avoid giving dowry. If there has to be a change in mind-set, leaders in society have to show the way. Otherwise the population will become skewed leading to a host of societal problems like increased crime against women. Child sex ratio is another vital indicator of population dynamics. The child sex ratio of Nagapattinam district is given in Table 4.3. The child sex ratio is relatively high in the blocks of Kuthalam (977), Mayiladuthurai (977), Sembanarkoil (977), and Thalainayar (977). The lowest child sex ratio was noticed in the Vedaranyam block (932). In the rest of the seven blocks, the child sex ratio is less than district sex ratio. The district average is 959 girls per 1000 boys.

Table 4.3: Child Sex Ratio during 2011

S.No	Block/District	Male	Female	Person	Sex Ratio
1	Keelaiyur	4,671	4,420	9,091	946
2	Kilvelur	4,079	3,911	7,990	959
3	Kollidam	7,859	7,431	15,290	946
4	Kuthalam	7,898	7,713	15,611	977
5	Mayiladuthurai	12,577	12,282	24,859	977
6	Nagapattinam	10,901	10,385	21286	953
7	Sembanarkoil	10,258	10,026	20,284	977
8	Sirkali	9,096	8,617	17,713	947
9	Thalainayar	3,661	3576	7,237	977
10	Thirumarugal	5,218	4,986	10,204	956
11	Vedaranyam	8,117	7,563	15,680	932
	District	84,335	80,910	1,65,245	959

Source: Census of India, 2011.

Note: Municipality, CT and TP are added in the respective rural blocks.

It reveals that the child sex ratio is gradually declining in all the blocks of the district. In general, the elders try to avoid the female children due to some social evils like dowry and sexual harassment. In spite of the various legal provisions and women's specific developmental programmes, the gender bias and deep-rooted prejudices still persist. With modernization, acceptance of the small family norm, access to pre-natal sex determination tests and abortion technologies has further aggravated the situation.

A change in social outlook aiming to reduce the excessive son preference would only increase the female child population. The general thrust of the policies is to increase the value of daughters to their parents. Under the prevalent traditional social system, women's contribution to their parent's family is non-existent; even most educated, well paid women are unable to contribute to their parent's well-being. There is a popular perception that investing in daughters is tantamount to investing in another family's daughter in-law.

Similarly, urban formal and informal activities that have given rise to savings, pensions, insurance, social security and better health facilities should be extended to the rural areas. Such development will definitely reduce son preference. With the individual pursuit of security goals, son preference is higher among the women than their husbands, mainly because women outlive their husbands by 5-15 years.

Women tend to live longer and as monetary support or social security measures for women are lower, there is a preference of son as an old age security. Further in reducing son preference, social reformer activism as well as State policies can play an important role.

The family size is getting smaller in this region, two child norm may be followed to sustain the population. The availability of reliable and affordable old age pensions, social security and life insurance programmes in rural and urban areas will possibly reduce the excessive dependence on sons. There is need for effective risk coping institutions in rural and urban areas that would consider son and daughters alike.

Life expectancy

Life expectancy at birth indicates the number of years a new-born infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life. It is the number of years an individual is expected to live, according to statistical estimates, taking into account sex, physical condition etc.

Table 4.4: Life Expectancy at Birth during 2013-14

S. No	District/State	2013-14		
		Male	Female	Combined
1	Nagapattinam	64.5	70.1	67.2
2	Tamil Nadu	71.8	75.2	73.4

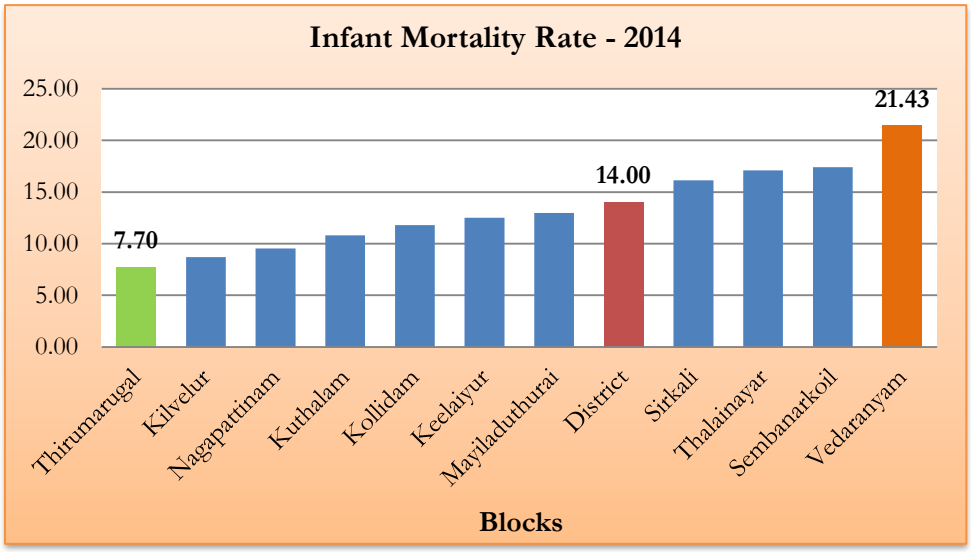
Source: State Planning Commission, 2014.

Table 4.4 shows the life expectancy values of the district and State. These values are very close to one another. Interestingly, an average woman lives longer than a man at all levels namely district and state level. In general, the district performs poorer than the State. However, other health indicators have to be explored to assess the overall health status of the population.

Infant Mortality Rate

IMR is measured in terms of the number of children that die within the first year of their life, and it is a proxy for assessing the functioning and status of the health system. It is also noticed from figure 4.3 that the Thirumarugal block has recorded (7.70) the lowest IMR in the district (Appendix : Table: 9.11). The increase in medical attention to the pregnant women at the time of live birth may have resulted in the decline in IMR over the period. We may attribute this to the services of para-medical staff in tracking the pregnant women and offering various services to them. This provides inspiration to strengthen such interventions in other places also to reduce IMR still further.

Figure 4.3: Infant Mortality Rate



Source: Health Department, Nagapattinam, 2014.

Figure 4.3 shows the IMR status of the district, which is an important indicator of health. The IMR of 11 blocks is presented. Out of the 11 blocks, the Vedaranyam block witnessed the highest IMR among blocks with 21.43 followed by the Sembanarkoil block (17.40) and the Thalainayar block (17.10). The district IMR is 14.00 in 2014. The Kilvelur and the Thirumarugal blocks recorded the lowest IMR in Nagapattinam district. The differences in IMR could be seen in figure 4.3. The minimum and maximum values differ around three times. This has been attributed not only to socio-economic conditions but also to the environmental conditions of the region. Overall, still there is a scope in scaling up the campaign activities to further reduce the IMR in the district.

Maternal Mortality Rate

Maternal mortality rate is another important indicator of the health status of the district. The MMR is the ratio of the number of maternal deaths during a given time period per 1,00,000 live births during the same period.

Table 4.5: Maternal Mortality Rate during 2013-14

S. No	Block / District	2013-14
1	Keelaiyur	83
2	Kilvelur	347
3	Kollidam	94
4	Kuthalam	135
5	Mayiladuthurai	120
6	Nagapattinam	83
7	Sembanarkoil	72
8	Sirkali	87
9	Thalainayar	100
10	Thirumarugal	0
11	Vedaranyam	0
	District	88

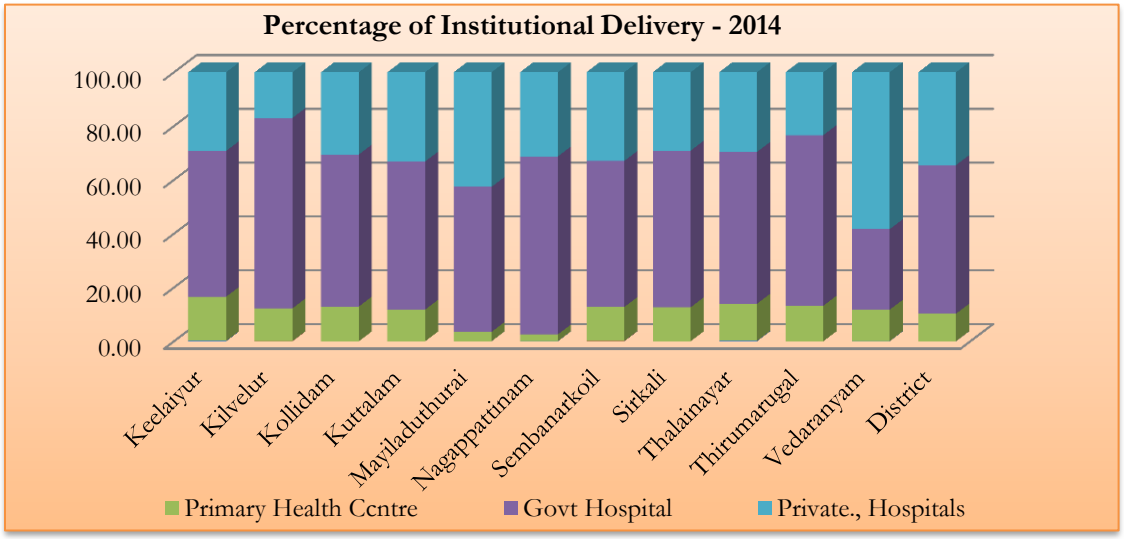
Source: Health Department, Nagapattinam, 2014.

A maternal death refers to a female death from any cause related to or aggravated by pregnancy or its management during pregnancy and child birth or within 42 days of the termination of pregnancy, irrespective of the duration and site of the pregnancy. As could be seen from Table 4.5, there is an overall fluctuation of MMR in the district. The block that witnessed the highest MMR during 2014 is Kilvelur (347) and the lowest was recorded in Thirumarugal and Vedaranyam (10 each). The live birth at Kilvelur block was 1153 and the mortality was 4. Since MMR was worked out for one lakh live births, the figure seems to be very high at the block level. The same picture is not obtained in all the rural blocks. The population in general follows the practice of avoiding girl children and some of the hospitals illegally detect and reveal the sex of the baby. They may also go to the neighbouring districts to avail such type of services. Further, they try to follow certain traditional practices to dispose the female baby at the womb, violating the advice of local village health nurses. There is no constant record in each block about these cases. However these practices may be ignored out and the women health has to be protected. In total, the efforts of the district administration in reducing MMR could be witnessed in all the regions of the district.

Place of Delivery

It is no doubt that the place of delivery is an important determinant for reducing the risk of infant and maternal death. The reproductive and child health programme of India is also encouraging deliveries in proper hygienic conditions under the supervision of trained health professionals. Figure 4.4 gives the details about the number of live births by place of delivery in Nagapattinam district during 2014 (Appendix : Table: 9.12).

Figure 4.4: Percentage of Institutional Delivery



Source: Health Department, Nagapattinam, 2014.

Of the 22,115 total child deliveries, overwhelming majority of the child deliveries were done at any one of the institutions at Nagapattinam district, and only 10 child deliveries took place at home itself. It is also quite interesting to note that more than one-third of the children were born at private hospitals (34.51 per cent). Of the 2,259 total deliveries in PHCs, the Sembanarkoil block had 350 deliveries during 2014, followed by the Sirkali block with 280 deliveries. The Nagapattinam block showed a low performance of 60 child deliveries only. Since the block is situated next to the district headquarter government hospital, the number of deliveries are very poor in number. Of the 12,211 deliveries at GH, the Mayiladuthurai GH had handled about 1,865 deliveries, and the next highest deliveries were performed by Nagapattinam GH with 1,586 deliveries. The Sembanarkoil, Sirkali, Kollidam and Kuthalam GH have also had more than thousand deliveries in 2014. The Keelaiyur 658 GH carried out very low number of child deliveries among the Thalainayar blocks with 558 child deliveries in 2014.

With regard to private hospital deliveries, Mayiladuthurai ranked the top with 1,474 followed by the Vedaranyam private hospitals (1,312). Overall, the performances of deliveries depend on the services and the goodwill earned by the concerned health delivery institutions functioning in the district. Good practices may be encouraged to preserve the health of baby and mother.

Still Birth Rate

The death of even one baby is a tragedy for their family and so the steep decline in SBR is highly commendable. This steep decline in SBR could be attributed to the efforts taken by the VHNs and healthcare professionals, who identify any risks that could affect the health of the baby and provide advice and support that is appropriate to both the mother, and their partner.

Table 4.6: Still Birth Rate during 2011-2014

S. No	Block / District	Still Birth Rate			
		2011	2012	2013	2014
1	Keelaiyur	20.4	20.4	10.6	9.1
2	Kilvelur	18.8	18.8	9.4	22.1
3	Kollidam	12.3	12.3	10.1	9.3
4	Kuthalam	10.5	10.5	5.4	7.2
5	Mayiladuthurai	8.9	6.4	1.8	5.4
6	Nagapattinam	20.0	9.7	6.5	7.4
7	Sembanarkoil	11.9	11.9	12.7	11.8
8	Sirkali	16.5	13.8	10.6	8.9
9	Thalainayar	20.4	20.4	10.0	11.0
10	Thirumarugal	11.3	11.3	20.8	11.4
11	Vedaranyam	16.0	16.0	16.8	11.8
	District	15.2	13.8	10.4	10.5

Source: Health Department, Nagapattinam, 2014.

The district administration has also undertaken steps in all the blocks of the district and has been carrying out of a lot of work to raise awareness of the issues surrounding still births. The block wise incidents of still births data show that the Mayiladuthurai, Kuthalam and Nagapattinam blocks recorded the lowest still birth rate of (5.4, 7.2, and 7.4) and the highest still birth rate is observed at the Kilvelur block with 22.1 during 2014 (Table 4.6). There is no uniform trend in Kilvelur block (18.8 in 2011 and 22.1 in 2014) and there are ups and downs in the rates of SBR. A continuous declining trend can be seen in the blocks of Keelaiyur and Sirkali. It is understood that these rates depend not only health care services and the cooperation and participation of the people.

Immunization

Immunization programmes aim to reduce mortality and morbidity due to vaccine preventive diseases (VPDs), particularly for children. India's immunization programme is one of the largest in the world in terms of quantities of vaccines used, number of beneficiaries, and number of immunization sessions organized and geographical area covered. Under the immunization programmes, vaccines are used to protect children and pregnant mothers against six diseases. They are: Tuberculosis, Diphtheria, Pertussis, Polio, Measles, and Tetanus.

Table 4.7: Immunization (Below 5 Years) - 2014

S. No	Block/District	Total No. of Children Below 5 year	Total no. of Children Immunized	% of Children Immunized
1	Keelaiyur	1,293	1,239	95.82
2	Kilvelur	1,252	1,187	94.81
3	Kollidam	2,235	2,274	101
4	Kuthalam	2,291	2,292	100
5	Mayiladuthurai	3,750	3,575	95.33
6	Nagapattinam	2,580	2,321	89.96
7	Sembanarkoil	3,119	2,787	89.36
8	Sirkali	2,622	2,235	85.24
9	Thalainayar	1,054	1,036	98.29
10	Thirumarugal	1,419	1,352	95.28
11	Vedaranyam	2,361	2,345	99.32
	District	23,976	22,643	94.44

Source: Health Department, Nagapattinam, 2014.

Immunization is one of preventive measures for health attainment. The total number of children immunized in the district during 2014 is given in Table 4.7. It is expected that it will reduce IMR and under 5 mortality rates in the district. The district's average coverage is 94.44 per cent. The percentage of immunization coverage varies from 100 per cent in Kollidam and Kuthalam blocks, 85 per cent in Sirkali block. It is observed that the parents availed the services, wherever it is convenient. Hence, the performance marginally differs among the blocks.

Box 4.1: Salt Industry: Initiatives Needed (A Study)

A Study was conducted by Dr. Soumya Swaminathan, Director, National Institute for Research in Tuberculosis, Chennai, about the living conditions of salt workers. Vedaranyam in Nagapattinam district is home to about 10,000 salt worker families. Most salt pan workers earn Rs.50-Rs.100 a day, far below the minimum wage and that too after a hard day toiling under the harsh sun. They suffer from the ailments usually associated with poverty—malnutrition, anaemia, Vitamin B, A, and D deficiencies, manifested by aches and pains, poor night vision, and accelerated ageing. In addition, several occupational hazards have been documented in salt workers—the most common being chronic dermatitis (skin ulcers) caused by constant exposure to sharp salt crystals, especially on their hands and legs.

Exposure to bright, white, reflected light and dust leads to premature loss of vision and growth in the cornea of the eyes called pterygia. They are also at higher risk for hypertension (high blood pressure), presumably because of the higher salt content in their blood from inhalation of salt aerosols–salt factory workers being most at risk. There are a number of young women and girls with goitre—a swelling of the thyroid caused by iodine deficiency. Because the salt they panned was packed and shipped right away without iodization, most people in the area consume non-iodized salt.

Initiatives Needed:

The present living conditions of the workers in the salt pan and salt industry also require drastic improvement. Availability of basic amenities like sanitation, drinking water, proper housing, etc., should be ensured. Provision of smokeless chulhas (safer stoves) will help ameliorate the problem of indoor air pollution. Attention must also be paid to the nutritional status of the workers and their families. Since, salt workers leave home around 2 a.m., their children are not properly attended to, and many of them do not go to school regularly. Special educational programmes are needed to solve this issue and reduce school dropouts. Further, the income of the salt workers is seasonal; Policy initiatives are needed to provide saving-cum-relief as in the case of fisher folk, who are provided with monetary compensation during the monsoon season. Finally, (and most importantly) they must be given iodized salt at subsidized rates. People working in saltpans also need access to iodized salt even though they produce salt for many region of the country.

Female Infanticide

Female infanticide is the deliberate killing of new-born female children or the termination of a female fetus through selective abortion. Child sex ratio in Nagapattinam district is reduced from 963 during 2001 Census to 959 women per 1000 men during 2011. It is potential question that has come up owing to the decline in the (-0.42 %) decade. In earlier, CASSA (Campaign against selective sex abortion) with support of local NGOs and Women Federation conducted a comprehensive base line survey. It had been quite interesting to interact with these people. The surveyors said the pregnant woman directly be informed about the sex of the baby. The cost of abortion varies from stage to stage and depends on the fetus maturity. The village health nurses have moral responsibility to be vigilant on these matters. The technology and cultural values are the real push factors.

The prevalence of dowry system in a fast pace is spreading through City/Town to village hamlets. Dowry in some other way determines the family value. Even in Nagapattinam district, the bride gets minimum 5-10 sovereign gold and the groom gets motorbike even in the poor family. The wedding is being held in towns from village. The total cost of wedding had increased three fold as per the narration of rural women. The girl is expected to give the dowry all her life. However, female feticide is examined by social workers/activists. Age by age the male preference is prevalence in the Indian society. Now, high order birth and female infanticide have come down drastically due to continuous monitoring by health officials in the district. The distortions are very high between male and female. The child sex ratio has been analysed and presented in this chapter. It shows that the child sex ratio is lower when compared to overall sex ratio.

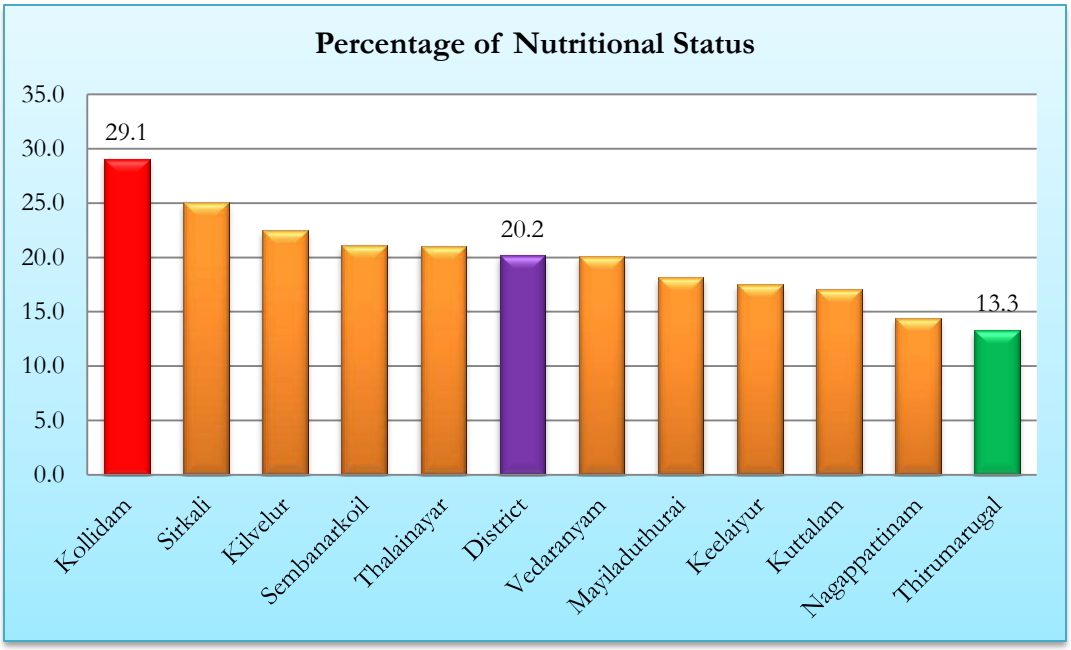
Nutritional Status

Children who manage to survive malnutrition in their early years' experience stunted growth and cognitive development, undermining their future productivity and therefore income. This warrants immediate focus on nutrition of mothers and children during a child's first 1,000 days, an effort that can have long-term consequences for growth, health and intellectual capacity. Utmost priority must be given to the health of women and girls, by way of boosting general nutrition, reducing pregnancy complications and boosting fetal growth and development.

Community health programs offer a prime opportunity to increase coverage and provide services to population, who presently lack access. Community health workers hold great promise to bring

nutrition services to those most vulnerable to malnutrition, and their capacity to carry out this work should therefore be strengthened.

Figure 4.5: Block Ranked by Malnourished Children



Source: District Project Officer - (ICDS), Nagapattinam, 2014.

One of the major goals of the nutrition programme is to reduce the prevalence of underweight children. The State aims to eradicate severe malnutrition and also reduce the incidence of micro nutrient deficiencies, which are often not visible, but can severely impede the development of the child. Of the total 1,03,421 children reported during 2014, 20.2% are treated as malnourished children (Appendix : Table: 9.13).

Of the total 20,657 malnourished children, only 179 cases come under the category of SUW. It reveals that the maximum number of cases is in the category of MUW. As could be seen from figure 4.5, these proportions vary significantly across the blocks of the district and ranges from 29.1 (Kollidam) to 13.3 (Thirumarugal). Even though the Central and State Governments introduced various schemes, the data reveal that there is a rich scope for strengthening the programmes and controlling the malnourishment in the district.

Box 4.2: Nutrition Programmes of Government

There are 1,325 anganwadi centres in Nagapattinam district. Among this, 1,150 is considered as main centre and 175 is mini centre. Main centre consists of 25-40 children with one teacher and one ayya and mini centre consists of 15 children or below with one teacher only. There are 27,999 children in all 1,325 centres. Among these, 13,798 are male and are 14201 female. The total scheduled caste children are 15,288, ST 43, BC 10,976. Eggs are supplied to the children in the age group of 1-2 years. The total egg beneficiaries are 11,777. Among this, male are 6,050 and female are 5,724. Total SC is 6,097, ST is 15, BC is 4,926, and others are 736. The training for adolescent girls is conducted in all 11 blocks. The total beneficiaries are 10,800. The total expenditure per block for the training is Rs.1,10,000/- In total Rs.12,10,000/-has been spent for the entire training. The refresher training for anganwadi workers are also conducted. Total beneficiaries are 800. Total expenditure is Rs.4,89,965/-. All State and Central Government programmes are implemented in the district.

Mid-day meal scheme is a programme designed to improve the nutritional status of school age children. This programmes supplies free lunches on working days for the children in primary and upper primary schools. Integrated Child Development Services was launched in 1975. Its aims to reduce the prevalence of malnutrition of the country. The beneficiaries of the programme are children below 6 years pregnant and lactating mothers and women in the age group of 15-45 years.

The Special Nutrition Program (SNP) was launched in the country in 1970-71. It provides supplementary feeding to preschool children nursing mothers. At present 21.5 million beneficiaries are covered by it. Balwadi Nutrition Programme (BNP) is being implemented since 1970-71 through voluntary organizations. About 0.23 million children in the age group of 3-5 years in 5640 balwadies were covered by the Scheme. Wheat based supplementary nutritional programme was introduced in 1986. At presents 3 million children and nursing mothers are covered under this programme.

Nutritional Anemia prophylaxis programme was launched in 1970 to prevent nutritional anemia in mothers and children. This programme covers children and pregnant women with hemoglobin level less than 8 gm per cent and 10 gm per cent respectively. Prophylaxis programme against Blindness due to vitamin A deficiency: under this programme children in the age group of 1-5 years are given an oral dose of 0.2 million I.U of vitamin A in oil every six months.
Goitre control programme: It was launched in 1962 to identify goitre endemic regions and to assess the impact of goitre control measures. National Diarrhoeal Diseases control programme was introduced in 1981 to reduce the mortality in children below five years due to diarrhoeal diseases through introduction of oral dehydration therapy.

State Schemes:

Tamil Nadu Integrated Nutrition Programme is being implemented since 1981. At presents it covers 316 blocks in Tamil Nadu. Under this project, nutrition is being provided to children below six years and nursing mothers. This project is assisted by World Bank. The total outlay for the project is Rs.321 crores. Midday meal Programme was introduced in 1956. The erstwhile Madras State launched the mid-day meal programme of providing free meal to the elementary school children with a view to (a) enrolling poor children who generally remain outside the school due to poverty and (b) giving one meal to the children attending the school.

Provision of IFA Tablets

Iron deficiency anaemia is the most common micronutrient deficiency in the world. It is a major threat to safe motherhood and to the health and survival of infants. Many research findings indicate that the right amount of folic acid can help prevent certain types of birth defects and other problems during pregnancy. With this background, Table 4.8 discloses that out of 11 blocks in Nagapattinam, nine blocks recorded the highest supply of IFA tablets to the women (Mayiladuthurai and Thalainayar (100 %), Nagapattinam 99.3%, Sirkali 98.9%, Thirumarugal 96.1%, Kuthalam 99.3%, Vedaranyam 98.8%, Keelaiyur 98.5%, Kilvelur 96.3%, Kollidam 98.1% and Sembanarkoil 77.7%). This could be treated as an achievement of the health department in controlling anaemic. The high performance reveals that the educated women have realized the importance not only to consume and also educate the neighbours and friends. With regard to the receiving pattern of IFA tablets among children and adolescent in Nagapattinam district, have reached 100 per cent.

Table 4.8: Provision of IFA Tablets 2013-14

S.No	Block /District	ANC Target	No of Women took IFA tablets	% of Women took IFA tablets	IFA small Tablet Target	No of Children took IFA tablets	% of Children took IFA tablets	Adolescent target	No of Adolescent took IFA tablets	% of Adolescent took IFA Tablets
1	Keelaiyur	982	967	98.5	5,408	5,408	100	5,679	5,679	100
2	Kilvelur	541	521	96.3	4,962	4,962	100	5,326	5,326	100
3	Kollidam	579	568	98.1	9,603	9,603	100	12,590	12,590	100
4	Kuthalam	807	801	99.3	9,012	9,012	100	10,335	10,335	100
5	Mayiladuthurai	1,834	1,834	100	12,835	12,835	100	15,854	15,854	100
6	Nagapattinam	1,848	1,836	99.3	9,489	9,489	100	8,518	8,518	100
7	Sembanarkoil	1,151	1,124	97.7	12,118	12,118	100	15,391	15,391	100
8	Sirkali	1,020	1,009	98.9	9,046	9,046	100	13,065	13,065	100
9	Thalainayar	986	986	100	4,641	4,641	100	5,408	5,408	100
10	Thirumarugal	1,063	1,022	96.1	7,068	7,068	100	5,923	5,923	100
11	Vedaranyam	1,016	1,004	98.8	8,775	8,775	100	13,345	13,345	100
	District	11,827	11,672	98.7	92,957	92,957	100	1,11,434	1,11,434	100

Source: Health Department, Nagapattinam, 2014.

Overall, the IFA tablet distribution pattern was adequate among women, children and adolescent populations in Nagapattinam district. As a routine duty of the health department, they identify the target groups and distribute the tablets. But they could not follow up, to find out of the recipients

have actually consumed the tablets or not. People have some fear about the consumption of tablets. Proper counselling and follow up is necessary for achieving the goals in the distribution IFA tablets.

Box 4.3: Sea Water Intrusion: Impact on Ground Water Quality

The objective of the case study is to realize the current problem of continuous sea water intrusion in the coastal regions of Nagapattinam district. After Tsunami and other natural disasters, this issue is witnessed by the local people as well as the scientists. Recently a centre was created by the central government located in Thiruvarur, which is one of the monitoring units for the districts of Nagapattinam, Thanjavur, Thiruvarur, and Cuddalore. In this context, the existing studies have been examined and chosen a study carried out by the student of environmental engineering.

D. Arivukkarasu, a student of Environmental Engineering, Sathyabama University conducted a study to examine the impact of sea water intrusion on the ground water characteristics. A study on Physio-Chemical parameters of water quality in the salinity affected areas of Nagapattinam district was taken up to evaluate its suitability for drinking and irrigation purposes. Ground water samples were collected from the salinity affected areas of Sirkazhi and Tarangampadi Taluks. The water samples collected were analyzed for pH, Sodium, Total Hardness, TDS, Chloride, Turbidity, Dissolved Oxygen, and Salinity. Geographic Information System (GIS) is used for spatial and temporal mapping of water quality in the study area.

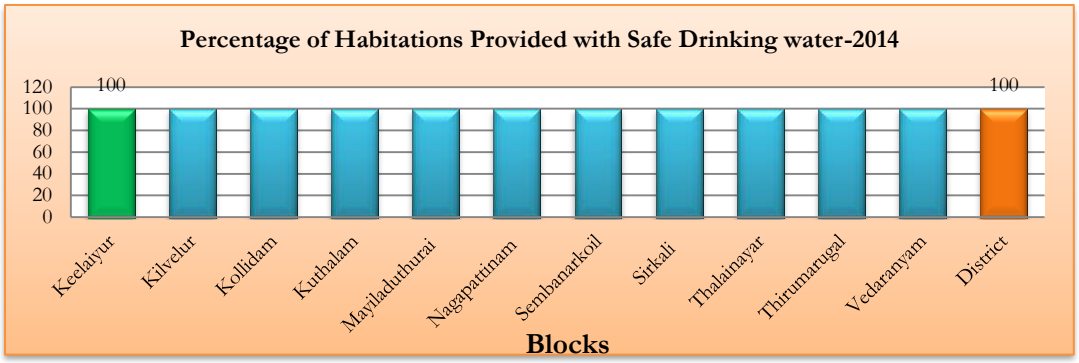
It is observed that the ground water is well within the permissible limit of pH, salinity, turbidity, prescribed by WHO and ICMR. Almost all other parameters like Chlorides (Cl), Sodium (Na), Hardness exceed the prescribed limit. The tsunami impact changed entirely the coastal geomorphology along this region. The ground water quality parameters show very significant change due to saline water intrusion. Suitable management strategies should be adopted for sustainable development of coastal land, irrigational fields, and water resources in the district.

Non –Nutritional Factors and their Impact on Nutrition

Water Supply

The provision of clean drinking water has been given top priority in the Constitution of India, with Article 47 conferring the duty of providing clean drinking water and improving public health standards of the State. The government has undertaken various programmes since independence to provide safe drinking water to the rural and urban areas. The accessibility to safe drinking water in Nagapattinam district data shows that all municipalities and all blocks (Appendix : Table: 9.14). The habitations covered with safe drinking water are portrayed in Figure 4.6. Among the blocks, 100 per cent habitations are provided with safe drinking water facility in the district, wherein the integrated water project is functioning.

Figure 4.6: Percentage of Habitations Provided with Safe Drinking water



Source: MDWS and EO (TP) and Municipal commissioner, Nagapattinam, 2014.

The district average also shows a satisfactory level towards supply of safe drinking water to their district population (100 per cent). However, the district and state administration have to provide adequate potable water to all habitations.

Sanitation : Toilet Facilities

Sanitation in India continues to be inadequate, despite longstanding efforts taken by the Governments and communities for improving the coverage. According to UNICEF, only 31 per cent of India's population used improved sanitation (2008); specifically in rural India only 21 per cent used improved sanitation facilities. Table 4.9 reveals the access to toilet facilities in Nagapattinam district. Of the eleven blocks of the district, only two blocks have provided more than seventy per cent of the households with toilet facility (Keelaiyur 70.11 per cent, and Nagapattinam 81.73 per cent). Kollidam block has reached worst picture with regard to availability of toilet facility that just 40.68 per cent of the households have availed. Awareness may be created among the marginalized population and subsidy may also be given to construct toilets. Government have created individual toilets through subsidy components in all the rural areas and created community toilets in the urban areas due to inadequate living space. After Tsunami, and the continuous intrusion of sea water in to ground water, the government could not supply water to the community toilets. Since they have no space to build or create toilets in their own premises, community toilets may be provided to control open defecation. The existing community toilets are not being utilized by the people due to inadequate water supply. Sustainable water supply may be created through water harvesting structures.

Table 4.9: Population Access to Toilet Facilities during 2014

S.No	Block/District	Total No. of Households	Households Having Toilet Facilities	% of Toilet facilities
1	Keelaiyur	23,322	12,938	55.48
2	Kilvelur	20,963	14,697	70.11
3	Kollidam	34,919	14,205	40.68
4	Kuthalam	38,357	16,827	43.87
5	Mayiladuthurai	65,163	41,126	63.11
6	Nagapattinam	46,043	37,631	81.73
7	Sembanarkoil	48,505	25,693	52.97
8	Sirkali	43,716	24,348	55.70
9	Thalainayar	19,937	10,315	51.74
10	Thirumarugal	24,473	13,150	53.73
11	Vedaranyam	48,439	24,887	51.38
	District	4,13,837	2,35,817	56.98

Source: MDWS site for blocks and EO (TP) and Municipal commissioner, Nagapattinam, 2014.
Note: The above total no. of HHs figure is 2011 census. HHs with toilet figure is 2014.

Special Programmes: HIV Positives

The data on prevalence of HIV positive cases in Nagapattinam district by different age groups during the period of 2013-14 (Table 4.10).

Table 4.10: Age and Sex wise HIV Positives

S. No	Block /District	Positive Cases in 2013-2014							
		0-14	15-19	20-24	25-29	30-39	40-49	50 & above	Total
1	Keelaiyur	0	0	0	0	1	1	0	2
2	Kilvelur	0	0	0	0	1	2	0	3
3	Kollidam	0	0	0	0	0	0	0	0
4	Kuthalam	0	0	0	0	2	0	0	2
5	Mayiladuthurai	2	1	1	1	4	8	4	21
6	Nagapattinam	1	3	3	5	9	17	4	42
7	Sembanarkoil	0	0	0	0	7	8	4	19
8	Sirkali	0	1	2	3	7	1	3	17
9	Thalainayar	0	0	0	0	2	0	0	2
10	Thirumarugal	0	0	0	0	2	0	0	2
11	Vedaranyam	0	0	1	1	0	1	0	3
	District	3	5	7	10	35	38	15	113

Source: JD Headquarters Hospital, Nagapattinam, 2014.

The prevalence was much higher (35) and (38) among 30-49 and 40-49 age groups, whereas in young population (7) - 20-29 has suffered much by this endemic. The HIV positive cases are reported in the district is (113) during 2013-14. It could be appreciated that the Governments have created adequate infrastructure in all the urban and rural hospitals to provide services and counseling to all the affected members of the households.

Box 4.4: Utilization of Public Health Services and Health Programmes of State and Central Government

Danida Assisted Tamil Nadu Area Health Care project –Phase III. Phase III is implemented in Dharmapuri, Thanjavur, Tiruvarur and Nagapattinam districts with an outlay of Rs.59.10 crores. The objective of the project was to improve the health and family welfare status of the rural population.

Reproductive and Child Health Project: The RCH is being implemented in Tamil Nadu under two components. i) A Sub project covering Madurai and Theni districts, ii) A state level component which will cater to the infrastructure needs of all the remaining districts in the state. The sub project implementation commenced from 1997-98 for a period of 5 years. The objectives of the sub project is a) Reduction of IMR to less than 50 per 1000 live births and MMR to less than 1 per 1000 pregnancy, b) Elimination of infanticide, c) Reduction in incidence of RTI and STIS, and d) Improved medical termination of pregnancy services and reduction in pregnancy wastages. The amount allotted for the entire project period is Rs.23.14 crores.

Aids Control Programme: The State AIDS Project cell was formed in1993. The aim of the Tamil Nadu State Aids Control Society is to control and prevent AIDS. TANSACS takes continued efforts to ensure that people living with AIDS have equal access to quality health services. State Rural Health Mission: The State Rural Health Mission was launched in Tamil Nadu with a view to bring instrumental correction of the health system to enable it to effectively handle increased allocation and to promote policies that strengthen public health management and service delivery as prescribed under NRHM of India. The programme period is 2005-2012. All the National State health programmes are brought under one umbrella called State Health Society was formed in 2006.

Table : Utilization of Govt. Health Care-2014

S.No	Block/ District	Total No.of OP	Total No.of IP
1	Keelaiyur	3,05,670	3,798
2	Kilvelur	82,700	1,354
3	Kollidam	1,93,591	3,257
4	Kuthalam	4,13,834	5,531
5	Mayiladuthurai	2,73,355	3,109
6	Nagapattinam	99,669	1,029
7	Sembanarkoil	2,66,499	3,695
8	Sirkali	2,00,833	2,669
9	Thalainayar	1,39,468	2,091
10	Thirumarugal	2,50,972	5,108
11	Vedaranyam	2,25,396	2,631
	District	24,51,987	34,272

Source: Health Department, Nagapattinam, 2014.

All programmes implemented by State and Central Government aiming to:

(a) Prevention and control of communicable and non-communicable diseases.
(b) Population stabilization –Gender and demographic factors.
(c) Access to integrated compressive primary health care
(d) Revitalizing local health traditions and main streaming ISM.
(e) Promotion of healthy life styles.

Other Programmes implemented in the district are: Nalamana Tamizagam, Anti-Shock Garment, School Health, Family Welfare, Immunization, Vector Born Diseases control, NPCB, NMHP, NPPC, NPPCD, and IDSP. The following Central Government Schemes implemented in the district are: National Control of Blindness, National Programme for control of Cancer, National Leprosy Eradication Programme, National Medical Health Programme, National Vector borne Diseases control, National TB Control Programme, Tobacco control programme, National Mental Health Programme, Family Planning, Immunization, and Deafness control Programme.

Tuberculosis and Leprosy cases

TB and HIV are co-infected diseases. TB is another communicable and killer disease. Leprosy causes permanent disabilities in the affected community. The statistics on TB and leprosy prevalence in the district is presented in Table 4.11. It is important to note that the prevalence of TB is high in the blocks of Vedaranyam (149), Nagapattinam (132), and Sembanarkoil (107). The district TB Cases is 875 during the period 2014.

Table 4.11: Positive TB Cases/Leprosy

S. No	Block/District	Positive TB Cases	Leprosy
		2014	2014
1	Keelaiyur	130	0
2	Kilvelur	82	0
3	Kollidam	15	3
4	Kuthalam	68	2
5	Mayiladuthurai	55	2
6	Nagapattinam	132	2
7	Sembanarkoil	107	5
8	Sirkali	31	16
9	Thalainayar	49	0
10	Thirumarugal	57	0
11	Vedaranyam	149	0
	District	875	30

Source: Health Department, Nagapattinam, 2014.

There were 30 leprosy cases reported in the district from six blocks. Of these, Sirkali block had recorded high number of 16 leprosy cases. The vertical disease control programmes like RNTCP and NLEP role were important to reduce and eradicate these diseases. It is important to state that the existing monitoring, evaluation, and mapping of diseases may be done effectively and intensive IEC programmes are to be carried out in a serious manner.

Conclusion

The demographic profile of the district highlights population, sex ratio, density, SC population, ST population, and juvenile sex ratio between 2001 and 2011. The district's decennial population growth rate is 8.57 (2011). This has been reflected in the density of population. There is a little change in sex ratio, SC population, and ST population. In general, the sex ratio of SC population is high compared to other classes. This segment of population does not make much gender discrimination and they treat

every child in a similar way. The child sex ratio of the district is low compared to overall sex ratio. This reveals that the population try to avoid girl children through illegal means. The life expectancy of the female in the district is low when compared to the State. The district's health administration have provided all types of health care services and tracking each and every case through VHNs/CHNs and controlled IMR, MMR, and SBR in the district. However, there is a rich scope in enhancing health care services both in rural and urban areas of the district. The district has achieved 100 per cent institutional deliveries, which is a remarkable achievement. The child development index highlights that the performance differs only on health rather than education in the district. The poor health performance is noticed in certain blocks and these blocks have to be provided with adequate attention in enhancing overall child health status in the district. The government has to scale up their activities in providing potable drinking water, good sanitation and controlling communicable and non-communicable diseases in the district. These factors are related to the levels of literacy of the population, which is analysed in the next chapter.

CHAPTER 5

LITERACY AND EDUCATION

Chapter
5
Literacy and Education

Introduction

India has 17 percent of world's population but 46 percent of the world's illiterates, and is home to a high proportion of the worlds out of school children and youth. At the same time, India has made encouraging progress in raising schooling participation. During 2002, the Constitution of India has been amended to provide elementary education as one of the fundamental rights. Pursuant to this, the Government of India has enacted the Right of Children to Free and Compulsory Education Act, 2009. This Act has come into force from 2010, and the main objective of the Act is to provide free and compulsory education to all children between the ages of 6 and 14 years.

Today education system in India

Pre- Primary - children of 3-5 years of age studying in nursery, lower/upper kindergarten

Primary - children of 6-11 years studying in classes first to fifth.

Middle - children studying in classes from sixth to eighth.

Secondary - students studying in classes ninth and tenth.

Higher Secondary - students studying in eleventh and twelfth classes.

Undergraduate - student goes through higher education - in college.

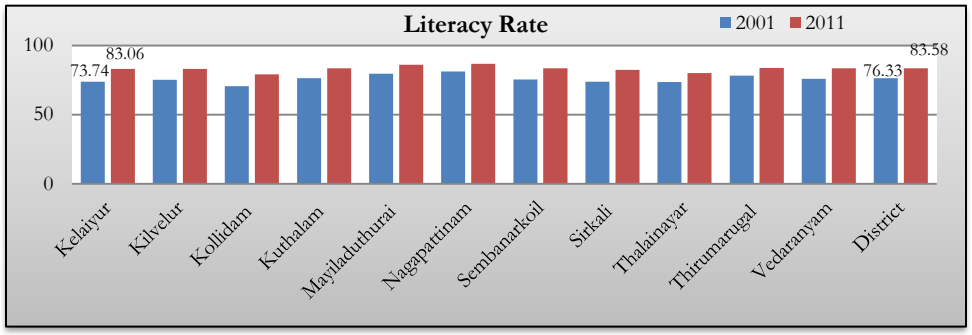
The Indian education system is based upon 12 years of schooling (10+2), which includes primary and secondary education and higher levels. Primary school includes children of ages six to eleven, organized into classes one through five. Middle school pupils aged eleven through fourteen are organized into classes six through eight, and high school students' between ages fourteen and seventeen are enrolled in classes nine through twelve. Higher education includes technical schools, colleges, and universities. The National Council of Educational Research and Training (NCERT)' assists and advises the Central and State Governments on academic matters related to school education. The NCERT provides academic and technical support for improvement of school education through its various constituents like the National Institute of Education (NIE), Central

Institute of Educational Technology (CIET), and a number of Regional Institutes of Education (RIE) located at different cities. In addition, NUEPA (National University of Educational Planning and Administration) and NCTE (National Council for Teacher Education) are responsible for the management of the education system and teacher accreditation. The current scheme of universalization of Education for All is the Sarva Shiksha Abhiyan (SSA) which is one of the largest education initiatives in the world. SSA is Government of India's flagship programme for achievement of Universalization of Elementary Education (UEE) in a time bound manner, as mandated by the 86thamendment to the Constitution of India, making free and compulsory Education to the Children of 6-14 years age group, a fundamental right.

Literacy performance of District

This section describes the educational scenario of Nagapattinam district at the block level. Figure 5.1 explains the literacy trend of Nagapattinam district over a period of one decade. The table highlights the literacy rate by sex during 2001 and 2011 (Appendix : Table: 9.15). There is a significant increase in literacy rate by place of residence both in rural and urban areas as well as by sex. The rate of change in literacy could be seen in all the blocks and municipalities of the district. This has been witnessed due to the continuous intervention of the Government as well as the participation of private institutions in providing educational services.

Figure 5.1: Literacy Rate during 2001 and 2011



Source: Census of India 2001 and 2011.

The percentage of literacy has increased from 76.34% in 2001 to 83.59% in 2011. The male literacy percentage has increased from 84.89%in 2001 to 89.79%. But the female literacy percentage has shown a remarkable increase from 67.96 % in 2001 to 77.58 % in 2011(i.e.,) an increase of almost 10%. It is interesting to note that the gender gap in terms of per cent has come down during the

decade. Among the blocks, the literacy rate has significantly increased in rural areas from 74.75% to 82.42% between 2001 and 2011, and, however, in urban areas the literacy growth rate is moderate from 85.90% to 89.73%. Thirumarugal, Nagapattinam, and Kuthalam blocks have recorded above the district average during 2001. Nagapattinam and Thirumarugal blocks have recorded above the district average during 2011. Figure 5.1 highlights the block wise literacy rates in Nagapattinam district during 2011. Among the eleven blocks of the district, the differences are significant. Even though the Government and private organisations have provided educational infrastructure and services to all areas, the end results differ. It reveals that a significant proportion of population have to come forward and partake in the activities of educational services. Steps may be taken to bring the rest of the population for achieving hundred per cent literacy.

Enrollment Ratio in Primary and Upper Primary Levels

The most important indicator pointing to the participation of children in schooling is the enrollment ratio. Tamil Nadu has India's highest student enrollment rate in primary (up to Grade V). A similar pattern of enrollment was noticed in Nagapattinam district.

Table 5.1: Gender Wise Primary Enrollment Ratio 2012-14

S.No	Block / District	Primary					
		Boys		Girls		Total	
		2012-13	2013-14	2012-13	2013-14	2012-13	2013-14
1	Keelaiyur	99.26	99.47	99.37	99.38	99.82	99.42
2	Kilvelur	99.29	99.97	99.77	99.67	99.53	99.82
3	Kollidam	99.99	99.43	99.44	99.39	99.72	99.41
4	Kuthalam	99.36	99.99	99.26	99.64	99.81	99.81
5	Mayiladuthurai	99.12	99.85	99.78	99.68	99.45	99.76
6	Nagapattinam	99.66	99.26	99.97	99.25	99.31	99.25
7	Sembanarkoil	99.44	99.56	99.01	99.49	99.73	99.52
8	Sirkali	99.98	99.35	99.44	99.34	99.71	99.34
9	Thalainayar	99.69	99.62	99.47	99.58	99.08	99.60
10	Thirumarugal	99.68	99.70	99.45	99.61	99.07	99.65
11	Vedaranyam	99.34	99.66	99.99	99.33	99.67	99.49
	District	99.68	99.63	99.75	99.48	99.71	99.55

Source: Education Department, Nagapattinam, 2014.

The primary enrollment ratio shows that almost all the eligible population in all the blocks of Nagapattinam district were enrolled in the school educational system during the academic year 2012-2014 irrespective of sex (Table 5.1). It is also noticed from the above table that the primary enrollment

ratios are relatively high in all the blocks of the district during 2013-14. Overall, the percentage of primary enrollment ratios are very close to one another, that is 99.71 and 99.55 during 2012-13 and 2013-14 respectively. It could be concluded that Nagapattinam district is committed to give free education for all children up to the age of 14 years.

Box 5.1: Teachers Trained by SSA on Educating Differently Abled

The objective of the case study is to make an account of on-going foundation course jointly introduced by the SSA and IGNOU for differently abled children. A three -month foundation course on 'education for differently abled children' for the benefit of teachers was organised by the Sarva Shiksha Abhiyan (SSA) and the Indira Gandhi National Open University (IGNOU) at the district-level resource centre at Kilvelur during December 2011. Divided into two phases and funded by SSA, the course was conducted to benefit resource persons drawn from different fields, physiotherapists and special teachers. A team of three – one block resource teacher educator and two teachers were selected from each block for undergoing the training. In the first phase, each participant was given a set of five books and a test was conducted for ascertaining their level of understanding. The resource persons dealt with the methodology of education for differently abled children and welfare schemes and concessions provided by the Central and State government.

Teachers visited day-care centres, inclusive schools, and special schools to understand the special skills of differently abled children. They were also exposed to the special education that is required for the children. Resource persons had first-hand exposure to difficulties experienced by children in attending regular schools and day-care centres, which forced them to remain in their homes. The day-care centres are maintained by SSA under the inclusive education for differently abled children programme in all blocks. The scheme aimed at improving the performance of differently abled children, who cannot be educated through the normal stream. While nourishments and snacks are being provided at the day-care centres, teachers, assistant, special teacher and physiotherapists monitor each and every child's performance and extend adequate training. The participants benefited in a big way through the experience. In the second phase, the participants sat for a model test and submitted four projects. The various instruments used by the differently abled children were shown to the participants and the resource persons explained the methods to safely handle them.

Completion Rate and Dropout Rate in Primary Education

Primary education completion and dropout rates were worked out for the years 2012-14. The proportion of students completing primary education during 2012-14 in Nagapattinam district is depicted in Table 5.2. The completion rate with respect to primary is recorded as 96.50 and 97.98 during 2012-13 and 2013-14 respectively. The completion rate of boys at primary level is 96.45 and 97.90 per cent and that of girls is 96.55 and 98.05 per cent respectively. It is very interesting to note that girls' completion rate is equal boys' completion rate at the primary level during 2012-14 in Nagapattinam district. However, the rest of the four per cent cases may be examined in detail and to make additional coaching. Proper counselling may be given for both student and parents.

Table 5.2: Primary Completion and Dropout Rate during 2012-14

S.No	Block / District	Completion Primary						Dropout Primary					
		Boys		Girls		Total		Boys		Girls		Total	
		012-13	013-14	012-13	013-14	012-13	013-14	012-13	013-14	012-13	013-14	012-13	013-14
1	Keelaiyur	96.21	97.66	96.29	97.79	96.25	97.73	0.68	1.30	0.36	1.00	0.52	1.20
2	Kilvelur	96.26	97.71	96.14	97.63	96.2	97.68	0.53	1.00	0.38	1.10	0.46	1.00
3	Kollidam	96.91	98.38	96.37	97.87	96.64	98.12	0.34	0.70	0.42	1.20	0.38	0.90
4	Kuthalam	96.49	97.94	96.51	98.01	96.5	97.98	0.49	0.90	0.42	1.20	0.46	1.00
5	Mayiladuthurai	96.13	97.58	96.63	98.13	96.38	97.86	0.69	1.30	0.34	1.00	0.52	1.20
6	Nagapattinam	96.47	97.92	97.03	98.54	96.75	98.23	0.48	0.90	0.22	0.60	0.35	0.80
7	Sembanarkoil	96.62	98.07	96.41	97.91	96.52	98.00	0.43	0.80	0.42	1.20	0.43	1.00
8	Sirkali	96.65	98.10	96.62	98.12	96.64	98.12	0.41	0.80	0.26	0.70	0.34	0.80
9	Thalainayar	96.31	97.76	96.25	97.75	96.28	97.75	0.57	1.10	0.36	1.00	0.47	1.10
10	Thirumarugal	96.53	97.98	96.91	98.42	96.72	98.20	0.46	0.90	0.17	0.50	0.32	0.70
11	Vedaranyam	96.39	97.84	96.93	98.44	96.66	98.14	0.61	1.20	0.16	0.50	0.39	0.90
	District	96.45	97.90	96.55	98.05	96.50	97.98	0.52	1.00	0.32	0.90	1.59	1.00

Source: Education Department, Nagapattinam, 2014.

Table 5.2 depicts primary drop out ratio during 2012-14 in Nagapattinam district. At the primary level, the overall dropout ratio in Nagapattinam district is recorded in1.00. The dropout ratio with respect to boys (1.00) is marginally above than girls (0.90) in the district during 2013-14. The boys' dropout ratio at the primary level is relatively high in all the blocks of the district. A similar picture could not be seen in the case of girls' dropout ratio. The higher dropout ratio is recorded in Keelaiyur and Mayiladuthurai, blocks (1.20), and Thalainayar (1.10). It is observed that the dropout of both boys and

girls depend of their parents socio-economic and employment condition. Even though the government has reduced the dropout to the level of less than one per cent, still there is a scope to bring down to the level of zero. The overall dropout ratio has marginally decreased from (1.59) to (1.00) in the district during 2012-13 and 2013-14 respectively. This rate of increase could be seen in all the blocks of the district. The reason for relatively high dropout in certain blocks may be due to seasonal migration of the marginal labourers. Due to high wage discrimination, labourers have been encouraged to migrate temporarily on other parts of the state.

Upper Primary/Middle School Education

Table 5.3 gives a picture on gender wise enrollment in upper primary education in the district during 2012 - 2014. The upper primary enrollment is very close to the enrollment level of primary education to the district. Overall the enrollment rate is 98.85 during 2012-13 and marginally increased to 98.87 during 2013-14. The same picture could be seen in all the blocks of the district as well as with respect to boys and girls. This could be treated as an achievement of the district for tracking all the eligible children and bringing them to the mainstream of education.

Table 5.3: Gender Wise Enrollment in Upper Primary Education during 2012-14

S.No	Block / District	Upper Primary					
		Boys		Girls		Total	
		2012-13	2013-14	2012-13	2013-14	2012-13	2013-14
1	Keelaiyur	98.45	99.11	99.32	98.77	98.89	98.94
2	Kilvelur	98.76	98.97	99.40	98.59	98.08	98.78
3	Kollidam	98.34	99.02	99.43	98.88	98.89	98.95
4	Kuthalam	99.45	99.16	99.33	98.99	98.89	99.07
5	Mayiladuthurai	98.15	99.07	99.45	98.92	98.80	98.99
6	Nagapattinam	98.50	99.11	99.45	98.97	98.48	99.04
7	Sembanarkoil	99.36	98.87	99.32	99.06	98.84	98.96
8	Sirkali	98.56	98.91	99.44	98.17	98.00	98.54
9	Thalainayar	98.46	98.79	99.56	98.65	98.01	98.72
10	Thirumarugal	98.49	99.01	99.43	98.74	98.96	98.87
11	Vedaranyam	98.35	99.06	99.77	98.35	98.06	98.70
	District	98.65	99.007	99.05	98.73	98.85	98.87

Source: Education Department, Nagapattinam, 2014.

Box 5.2: Reading and Writing Skills among Primary and Upper Primary School Children

The State government evolved a policy for promoting the children up to 9th standard without any break. However, for ensuring the quality of education, the reading and writing skills are assessed periodically by the schools. It is expected that these skill tests would enhance the quality of education. Primary education cannot be considered a public good because it does not meet the theoretical criteria of non-rivalry in consumption, non-excludability, and externality. However, in most of the developing societies, it is considered as a merit because its universal consumption has a high intrinsic value determining the physical quality of life in the society.

Table: Reading and Writings skills among Primary and Upper Primary Students

S. No	Block / District	Primary %		Upper Primary %	
		Reading	Writing	Reading	Writing
1	Keelaiyur	51	34	53	43
2	Kilvelur	56	44	61	52
3	Kollidam	55	52	58	55
4	Kuthalam	55	49	63	59
5	Mayiladuthurai	57	51	61	65
6	Nagapattinam	63	58	69	65
7	Sembanarkoil	59	53	62	52
8	Sirkali	53	51	58	50
9	Thalainayar	59	44	80	71
10	Thirumarugal	34	27	57	43
11	Vedaranyam	59	58	62	60
	District	55	47	62	53

Source: Education Department, Nagapattinam, 2014.

Early childhood education in India is subject to two extreme but contrary deficiencies. On the one hand, millions of young children in lower income groups, especially rural girl children comprising nearly 40% of first grade entrant's never complete primary school. Even among those who do, poorly qualified teachers, very high student-teacher ratios, and inadequate teaching materials, and out-dated teaching methods result in a low quality of education that often imparts little or no real learning. It is not uncommon for students completing six years of primary schooling in village public schools to lack even rudimentary reading and writing skills. Table depicts the facts regarding the reading and writing skills of the primary and upper primary students studying in the various blocks of the district. It can be seen from Table that only around 50% of the enrolled children in primary classes have the ability to read and write. The situation shows a slight improvement in the case of upper primary classes. It is evident that we have to perform much better to reach the targets. There is not much variation among the blocks. On the whole, the Thirumarugal block has registered very poor percentage with respect to reading and writing skills in primary education. The ability of the students can be improved by way of providing periodical training to the teachers, revising curriculum, introduction of digital class room and digital equipment, conducting periodical evaluation, controlling absenteeism, reporting the progress of students and home works to parents through SMS and etc.

Completion and Dropout Rate in Upper Primary Education

This section provides completion and dropout rates at the levels of upper primary and middle schools education. Completion rate for upper primary education during 2012-14 in Nagapattinam district is portrayed in Table 5.4. The completion rate with respect to upper primary is recorded as 92.81 and 96.23 during 2012-13 and 2013-14 respectively. The completion rate of boys in upper primary level is 93.80 and 96.20 per cent and that of girls is 91.81 and 96.25 per cent respectively. It is very interesting to note that there is no significant difference between boys and girls in Nagapattinam district. Among the blocks, the completion rate of boys in all the eleven blocks is very close to the district's performance. In the case of girls' completion rate is relatively better than boys' completion rate in all the blocks of the district. Overall, access to education may be encouraged by way of providing better transportation facilities to the schools and creating all facilities in the schools. There is not much difference in completion rate during 2013-14 among the blocks. A marginal change could be seen during 2012-14. However, effort needs to be made to achieve hundred per cent completion rate in the district.

Table 5.4: Completions and Dropout Rate in upper primary education during 2012-14

S.No	Block / District	Completion Upper Primary						Dropout Upper Primary					
		Boys		Girls		Total		Boys		Girls		Total	
		2012-13	2013-14	2012-13	2013-14	2012-13	2013-14	2012-13	2013-14	2012-13	2013-14	2012-13	2013-14
1	Keelaiyur	94.38	97.44	92.41	96.54	93.4	95.47	0.78	0.89	1.47	1.48	1.13	1.17
2	Kilvelur	93.33	96.35	91.59	95.70	92.46	95.15	0.67	0.81	1.95	1.96	1.31	1.33
3	Kollidam	93.56	96.59	91.60	95.72	92.58	96.49	1.57	1.48	1.63	1.64	1.60	1.58
4	Kuthalam	92.80	95.81	90.94	95.03	91.87	94.51	1.23	1.23	1.06	1.07	1.15	1.19
5	Mayiladuthurai	94.82	97.90	92.14	96.27	93.48	94.91	1.53	1.45	1.79	1.80	1.66	1.64
6	Nagapattinam	93.22	96.24	91.79	95.91	92.51	96.28	0.94	1.01	1.87	1.88	1.41	1.41
7	Sembanarkoil	94.60	97.97	92.13	96.26	93.37	95.20	1.31	1.29	1.26	1.27	1.29	1.30
8	Sirkali	93.41	96.44	91.55	95.66	92.48	95.28	1.44	1.39	1.97	1.98	1.71	1.68
9	Thalainayar	93.44	96.47	91.54	95.65	92.49	96.06	1.58	1.49	1.61	1.62	1.60	1.56
10	Thirumarugal	93.10	96.12	91.43	95.54	92.27	95.01	1.19	1.20	1.78	1.79	1.49	1.49
11	Vedaranyam	95.12	98.21	92.79	96.94	93.96	94.63	0.87	0.96	1.14	1.15	1.01	1.07
	District	93.80	96.20	91.81	96.25	92.81	96.23	1.50	1.20	1.59	1.60	1.39	1.40

Source: Education Department, Nagapattinam, 2014.

The dropout at the upper primary level is relatively high compared to primary level education in the district. The dropout rate of girls' is marginally high compared to boys' for last two years. During 2012-13, the dropout rate of boys is 1.5. Among the blocks, the dropout rate is very high in Thalainayar (1.58) and Mayiladuthurai (1.53). The dropouts of girls' are 1.59 and 1.60 for the years 2012-13 and 2013-14 respectively. The girls' dropout is relatively high in the blocks of Sirkali (1.98), Kilvelur (1.96), Nagapattinam (1.88), and Mayiladuthurai (1.80) during the year 2013-14. Even though the differences are very marginal, adequate attention may be given to reduce the drop rate to the level of zero in all the blocks of the district. Overall, the dropout has marginally increased from 1.39 to 1.40 during 2012-13 and 2013-14 respectively. The dropout is very high in the blocks of Sirkali (1.68), Mayiladuthurai (1.64), Thalainayar (1.56), and Kollidam (1.58). It is noticed that the level of education as well as the rate of dropout is moving together for both boys and girls in the district. The existing education system may be fine-tuned in attracting the category of dropout children. Even though the proportion is very insignificant on both the categories, the department of education is tracking case by case and bring them to mainstream. Due to certain familial reasons, these types of developments occur only among the marginalized population.

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

Transition rate means the percentage of students advancing from one level of schooling to the next, for example, primary to upper primary, upper primary to secondary school and so on. When transition rate from primary to upper primary schools is considered, all the blocks of the district recorded almost 99% irrespective of sex during 2013-14. These trends are depicted in Table 5.5. Transition rate from primary to upper primary is recorded as 98.96 per cent. It is clear from the table that transition rate from primary to upper primary is quite appreciable in Nagapattinam district. Further, there is no significant variation among the blocks regarding transition rate from primary to upper primary level. Table 5.5 gives information on the transition rate of the students from upper primary to secondary school during the year 2013-14 in Nagapattinam district. The trend is similar to that of the transition rate from primary to upper primary noticed in upper primary to secondary school. Overall, the transition rate of boys and girls has been computed as 99.00% for the year 2014 respectively.

Table 5.5: Transition Rate from Primary to Upper Primary and Upper Primary to Secondary

S.No	Block / District	Transition Rate from Primary to Upper Primary				Transition Rate from Upper Primary to Secondary			
		2011	2012	2013	2014	2011	2012	2013	2014
1	Keelaiyur	99.40	99.39	99.39	99.16	99.39	99.39	98.94	98.98
2	Kilvelur	99.10	99.11	99.11	98.88	99.11	99.12	99.45	99.50
3	Kollidam	98.90	98.90	98.91	98.68	98.90	98.89	98.95	98.99
4	Kuthalam	99.00	99.04	99.04	98.81	99.04	99.04	98.89	98.93
5	Mayiladuthurai	99.00	99.03	99.03	98.81	99.03	99.02	98.86	98.90
6	Nagapattinam	99.50	99.50	99.50	99.27	99.50	99.40	98.96	99.00
7	Sembanarkoil	99.10	99.14	99.15	98.92	99.14	99.13	98.79	98.83
8	Sirkali	99.20	99.17	99.17	98.85	99.17	99.16	98.95	98.99
9	Thalainayar	99.20	99.24	99.25	99.02	99.24	99.23	98.89	98.93
10	Thirumarugal	99.20	99.20	99.20	98.97	99.20	99.20	98.93	98.97
11	Vedaranyam	99.30	99.28	99.28	99.05	99.28	99.27	98.90	98.94
	District	99.19	99.19	99.19	98.96	99.19	99.20	98.96	99.00

Source: Education Department, Nagapattinam, 2014.

As per the Government's policy, all the students have to be promoted compulsorily up to ninth standard. However, in certain blocks, the performance is less than hundred, which shows due to socio-economic reasons of the family. Further, the school administration at the district level follows up continuously and tracking them through their parents in achieving the targets. These strategies and efforts would have helped in promoting education in all the blocks of the district.

Availability of Schools

Table 5.6 gives a detail of schools functioning in Nagapattinam district during 2014. In this district, there are 1,765 schools are functioning in eleven blocks. Among these schools, the number of schools is very high in Mayiladuthurai block (260). Less number of schools is recorded in Keelaiyur block (99). In the case of levels of schools, the strength of school is in declining condition at higher levels, wherein the number of primary school was 951, secondary schools 156 and higher secondary schools 127.

Table 5.6: Availability of school in Nagapattinam district during 2014

S. No	Block / District	Number of Habitation	Number of schools				
			Primary	Upper Primary	Secondary	Higher Secondary	Total
1	Keelaiyur	155	46	34	10	9	99
2	Kilvelur	199	63	29	9	4	105
3	Kollidam	209	84	45	13	7	149
4	Kuthalam	196	81	51	10	10	152
5	Mayiladuthurai	259	140	74	26	20	260
6	Nagapattinam	157	92	53	16	18	179
7	Sembanarkoil	293	118	64	19	19	220
8	Sirkali	231	104	46	17	12	179
9	Thalainayar	252	54	29	12	5	100
10	Thirumarugal	224	76	31	10	5	122
11	Vedaranyam	108	93	75	14	18	200
	District	2,283	951	531	156	127	1,765

Source: Education Department, Nagapattinam, 2014.

These schools are inclusive of private and aided schools. The concentration of private and aided schools in the district differ among the blocks. The philanthropists and voluntary organisation have come forward to develop schools in their own locality for providing educational services. Hence there is a skewed performance in the category of schools.

Pupil-Teacher Ratio in Primary and Upper Primary

Primary/upper primary school pupil-teacher ratio is the number of pupils enrolled in primary/upper primary school divided by the number of primary/upper primary school teachers (regardless of their teaching assignment). According to this definition, the pupil – teacher ratio was as good as in Mayiladuthurai block with 23:1 at the primary level which is better than the district average of 27:1. The pupil – teacher ratio was noticed in Keelaiyur, Kilvelur, Nagapattinam, Sirkali block with 28:1,

which is relatively poor compared to other blocks (Table 5.7). However these ratios are up to the prescribed limit.

Table 5.7: Pupil Teacher Ratio during 2013-14

S.No	Block / District	Primary School	Upper Primary School
		Pupil Teacher Ratio	Pupil Teacher Ratio
1	Keelaiyur	28:1	24:1
2	Kilvelur	28:1	23:1
3	Kollidam	27:1	20:1
4	Kuthalam	24:1	25:1
5	Mayiladuthurai	23:1	26:1
6	Nagapattinam	28:1	24:1
7	Sembanarkoil	27:1	23:1
8	Sirkali	28:1	21:1
9	Thalainayar	26:1	25:1
10	Thirumarugal	26:1	25:1
11	Vedaranyam	23:1	19:1
	District	27:1	20:1

Source: Education Department, Nagapattinam, 2014.

While looking at the pupil – teacher ratio at upper primary level, it ranges between Vedaranyam 19:1 and Mayiladuthurai 26:1. The better pupil-teacher ratio was noticed at the Vedaranyam block as 19:1 on 2014. These ratios are upto the level of the prescribed limit. It is observed that the ratios are depending upon the overall performance of the schools, inclusive of infrastructure, qualified and committed teachers.

Secondary Education

Table 5.8 shows secondary school enrollment ratio registered during 2013-14 in Nagapattinam district. At the secondary school level, girls' enrollment is very close to equal to the level of boys' enrollment

of 107. Across the blocks, there are some marginal variations between boys' and girls' enrollment. In Nagapattinam district, overall girls' enrollment is 107.4% and boys' enrollment is recorded as 108.8%.

Table 5.8: Enrollment in Secondary Education during 2013-14

S. No	Block / District	Enrollment Ratio in Secondary Schools 2013-2014		
		Boys	Girls	Total
1	Keelaiyur	109.2	106.1	107.6
2	Kilvelur	104.9	103.2	104.1
3	Kollidam	109.1	107.8	108.5
4	Kuthalam	105.9	103.9	104.9
5	Mayiladuthurai	117.3	116.3	116.8
6	Nagapattinam	110.3	106.2	108.3
7	Sembanarkoil	108.2	107.9	108.1
8	Sirkali	110.2	109.5	109.8
9	Thalainayar	102.2	102.2	102.2
10	Thirumarugal	101.2	100.9	101.1
11	Vedaranyam	118.3	116.9	117.6
	District	108.8	107.4	108.1

Source: Education Department, Nagapattinam, 2014.

It is interesting to note that there is no much variation between boys and girls in secondary enrollment ratios. The ratios are more than hundred per cent in all the blocks. It reveals that the levels of secondary students who used to migrate and avail the educational services. Across the blocks, there is no significant variation either at block levels or between genders. It reveals that the pupil use to opt the schools in terms of accessibility, security, better infrastructure, good teaching, etc.

Dropout Ratio in Secondary Schools

Table 5.9 brings to focus the gender wise drop out ratio recorded at the secondary schools of Nagapattinam district. Overall, the dropout ratio of the district in secondary education is 5.52. In the case of gender in secondary education, the dropout boys are high (6.69) compared to girls (4.35). The same trend could be seen in all the blocks of the district. Across the blocks, the highest boys' dropout ratio is recorded in Thirumarugal block (11.79) and the lowest dropout is reported in Vedaranyam block (3.92). But the girls' dropout ratio is relatively lower in all the blocks, and the highest value is registered in Thirumarugal block (8.02), and the lowest value is registered in Mayiladuthurai (2.30). It is observed that the dropout ratio for both boys and girls at secondary schools are very high in

Thirumarugal block. It shows that the dropouts occurred due to withdrawal of the student from the school not only for personal reasons and also due to the delivering of poor quality of educational services by the schools.

Table 5.9: Dropouts in Secondary Education during 2013-14

S.No	Block / District	Drop out Ratio in Secondary Schools		
		2013-2014		
		Boys	Girls	Total
1	Keelaiyur	5.89	4.89	5.39
2	Kilvelur	8.01	4.91	6.46
3	Kollidam	8.11	3.01	5.56
4	Kuthalam	6.21	4.45	5.33
5	Mayiladuthurai	4.02	2.30	3.16
6	Nagapattinam	7.25	5.40	6.33
7	Sembanarkoil	6.21	4.79	5.50
8	Sirkali	5.13	3.10	4.12
9	Thalainayar	7.01	4.01	5.51
10	Thirumarugal	11.79	8.02	9.91
11	Vedaranyam	3.92	2.98	3.45
	District	6.69	4.35	5.52

Source: Education Department, Nagapattinam, 2014.

This block requires special attention in controlling dropouts and in promoting higher education. Overall, the dropout ratio of girls is marginally low were compared to boys. However, steps are to be taken in controlling dropout ratios both at the secondary and higher secondary levels and encourage them to have higher education. Specific attention may be given to first generation literates and rural students.

Basic School Infrastructure

The State Government has opened up a new vista for financing much-needed school infrastructure in Tamil Nadu through Public-Private Partnership with domestic and other institutions. Table 5.10 reveals the fact that of the total 951 primary schools located in the district about 38 per cent of the schools is equipped with three class rooms. Among the blocks, the Mayiladuthurai block recorded the

highest proportion of schools with three class rooms (41.42%), followed by the Sembanarkoil block with 36.44 per cent. The Keelaiyur block witnessed the lowest number of the schools (15) with three class rooms. Of the total number of schools in the district, 19.66 % of the schools have more than three class rooms. These proportions are very close with the number of schools functioning across the blocks. The compound walls have not been provided to all schools functioning in the district (16.72%).

Table 5.10: Block-wise Primary School Infrastructure during 2013-14

S. No	Block /District	Total No. of Schools	With 3 Class Rooms	More than 3 Class Rooms	Without Compound Wall
1	Keelaiyur	46	15	15	13
2	Kilvelur	63	32	11	5
3	Kollidam	84	35	24	8
4	Kuthalam	81	39	14	26
5	Mayiladuthurai	140	58	24	27
6	Nagapattinam	92	19	22	16
7	Sembanarkoil	118	43	11	15
8	Sirkali	104	34	25	13
9	Thalainayar	54	29	9	7
10	Thirumarugal	76	42	17	18
11	Vedaranyam	93	17	15	11
	District	951	363	187	159

Source: Education Department, Nagapattinam, 2014.

This has been witnessed in all the blocks and the district administration prioritizes the works on the basis of the availability of funds. It is interesting to note that all the schools of the district have been equipped with desks and chairs. It is expected that all the schools will function with necessary facilities in near future. The Supreme Court of India on Oct 18, 2011 directed all states and union territories to build toilets, particularly for girls, in all government schools by April 2013. It reveals that there is a rich scope for strengthening the infrastructure and its quality. The district administration can earmark sizable funds from the budget and provide the basic infrastructure to the schools without any discrimination.

Table 5.11 gives an account of basic infrastructure facilities available in the schools of Middle, secondary and higher secondary in Nagapattinam district during 2014. In total, there are 814 schools

functioning across eleven blocks in the district. Seventy seven per cent achievements can be seen in the provision of drinking water, girls toilet (76.78) and electricity supply (76.78).

Table 5.11: Basic Infrastructure in Middle, Secondary and Higher Secondary schools - 2013-14

S. No	Block / District	Total No. of Schools	No of Schools with Drinking water facility	No. of Schools with Girls Toilet	No. of Schools with Access Ramp	No. of Schools with Boundary wall	No of Schools with Playground	No of Schools with Electricity connection	No of Schools with Kitchen shed for Mid-Day Meal
1	Keelaiyur	53	41	41	39	35	28	40	34
2	Kilvelur	42	38	38	38	33	21	38	33
3	Kollidam	61	48	48	42	33	32	47	43
4	Kuthalam	76	60	60	57	58	46	60	58
5	Mayiladuthurai	110	73	72	66	65	52	73	66
6	Nagapattinam	86	63	63	58	56	50	63	56
7	Sembanarkoil	101	72	72	61	64	57	72	66
8	Sirkali	76	58	58	51	52	36	58	48
9	Thalainayar	45	42	42	39	36	31	41	34
10	Thirumarugal	46	40	39	35	34	25	39	34
11	Vedaranyam	108	84	82	81	73	64	84	72
	District	814	629	625	577	556	452	625	554

Source: Education Department, Nagapattinam, 2014.

Seventy percent of schools are equipped with ramp facility for helping the physically challenged in schools. Boundary walls are provided in 68 per cent of the schools. The remaining schools have to be covered by way of allocating additional funds. This will help in ensuring social security among the girl children. It is very sad to note that all the schools have not been equipped with playground facilities. Only 55 % of the schools are provided with playground facilities and the levels of facilities significantly differ among the schools. Around 68 % of the schools are equipped with kitchen shed for the preparation of mid-day meals. It is expected that these facilities would help in preparing hygienic food to the students.

Box 5.3: Initiatives for Improvement in Quality of Education

The district administration adheres to the guidelines of the State Government and tries to enhancing the quality of education at all levels. The details are: Under Sarva Shiksha Abhiyan Scheme to improve the quality of education the following initiatives are undertaken.

Activity Based Learning System: The implementation of the approach was divided in to four phases viz. Preparation of this Building phase, Experimental phase, Extension phase and Evaluation phase.

Activity Learning Method: Under this method worship was organized for teachers. The workshop explored Active Learning methodologies that are being practiced by the School, that shift the focus of the classroom from teaching to learning and from the teacher to the learner.
Enriching English language at the primary level: In ABL methodology English is introduced in class 1 through conversation cards. An audio visual CD "Hello English" developed by the regional Institute of English was given to the schools and children were exposed to it.

Design and Development of Simple English: To enable children to listen to English conversation Handbook for teachers, workbook for children and duplication of CDs are also developed and made available Mathematics skill development programme: Under this programme Material development in different types of Maths related activities, Training of trainers and teachers in Maths, Action Research and quality monitoring for tracking children's performance on a regular basis.

ICT in Schools: This programme provides Information and Communication Technology facility through BOOT model over a period of five years commencing from 2011-12.under this scheme computers are provided to HS and HSS Schools Smart Schools: In Smart schools the emphasis would not only be on the use of information technology but also on the use of skills and values that will be imparted in the next millennium.

Education content Server (ECS): The EMIS server would have e-versions of various contents and resources that would help the teaching, learning process for both curricular and co – curricular activities.

Smart Class: It facilitates teaching learning process effective using computer enabled techniques; teaching through multimedia projector, smart Board helps more visualization of lessons.
Chess Game: Chess clubs are formed in schools. Awards available in school, zonal, district and state level.

Hostel Facilities

Table 5.12 depicts a brief idea about the number of students who avail themselves of hostel facilities to pursue their schooling. Totally 2,225 BC and MBC students and 1,873 SC students from faraway places utilize the hostels to pursue their studies.

Table 5.12: Hostel Facilities during 2014

S.No	Block / District	Backward welfare Hostels			Adi-dravida Welfare Hostels	
		No.of BC Hostels	No.of MBC Hostels	No.of Students	No.of Hostels	No.of Students
1	Keelaiyur	1	0	55	0	0
2	Kilvelur	2	0	105	1	55
3	Kollidam	0	2	100	2	110
4	Kuthalam	0	3	150	1	55
5	Mayiladuthurai	2	2	290	6	455
6	Nagapattinam	1	1	100	3	170
7	Sembanarkoil	2	3	270	4	220
8	Sirkali	3	1	200	7	483
9	Thalainayar	3	0	165	2	105
10	Thirumarugal	0	0	0	2	110
11	Vedaranyam	8	3	790	2	110
	District	22	15	2225	30	1873

Source: Education Department, Nagapattinam, 2014.

Eleven schools in Sirkali have hostel facilities followed by Mayiladuthurai block with 10 Hostels. In general, the number of students enrolled in hostels is high in municipal regions. However, the expectation of parents and students are high and they prefer to have better infrastructure and quality food.

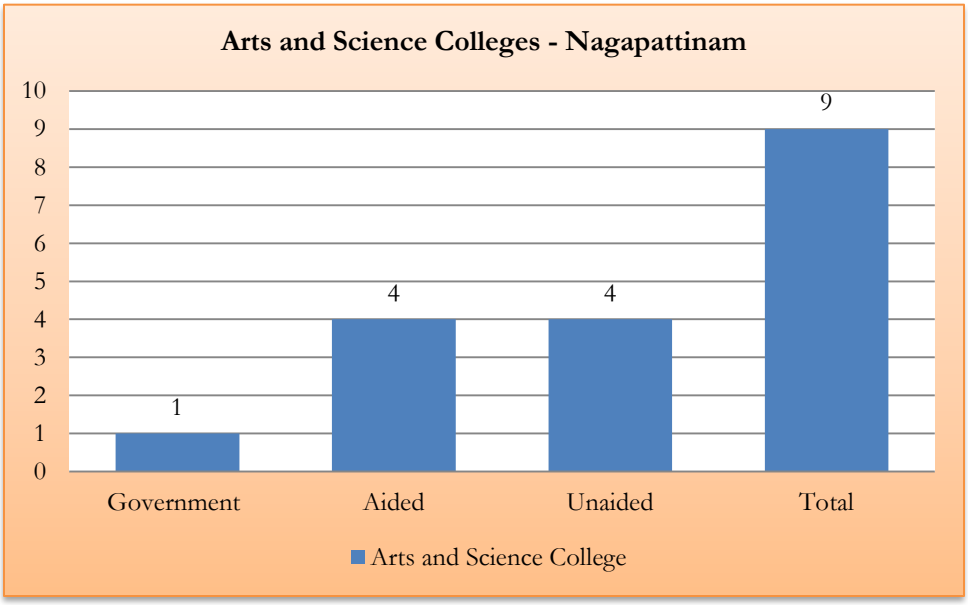
Higher Education

Government of Tamil Nadu is to make institutions of higher education emerge as centres of innovation, excellence and development. Higher education enables people not merely to subsist, but also provides the basis for a high quality of life.

Arts and Science Colleges

As on 2014, totally 9 arts and science educational institutions are functioning in Nagapattinam district. Of these, one is Government College, 4 are aided and unaided colleges. Overall, 7,985 students were enrolled in the higher education system in this district. Half of them have joined in the Arts and Science course. With regard to the number of Arts and Science Colleges, Nagapattinam, and Mayiladuthurai have three colleges each. Sembanarkoil has one college and Vedaranyam block has two Arts and Science College. However, the Mayiladuthurai Arts and Science College enrolled the highest number with 1500 students followed by Nagapattinam Arts and Science College. On the basis of accessibility and quality of education, students choose specific college. Hence the enrollment differs among the colleges.

Figure 5.2: Arts and Science Colleges

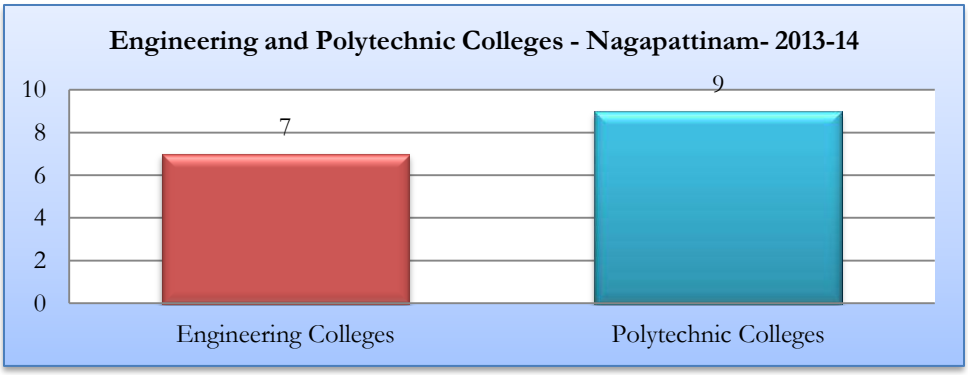


Source: http://www.colleges.in.tn.com/Dated:7.5.15.

Technical Education

Figure 5.3 portrays number of engineering colleges and polytechnic colleges functioning in Nagapattinam district. As on 2014, totally 7 engineering Colleges and 9 Polytechnic colleges are functioning in the district, out of which one is government engineering college and 4 unaided colleges. Similarly, 3 aided and 5 unaided polytechnics are functioning in the district. These institutions are producing significant number of skilled man power in the society.

Figure 5.3: Engineering and Polytechnics Colleges



Source: Directorate of Technical Education, Government of Nadu, 2014.

Still there is a scope in strengthening the physical infrastructure as well as to appoint highly qualified teachers for delivering educational services on par with advanced institutions functioning in the country.

Conclusion

With this backdrop, it could be concluded that the literacy rate increased significantly during the last one decade in the district. Even though the Government has given equal importance to all the blocks of the district, the performances are varied significantly. In the context of primary and upper primary education, the government has achieved the targets. However, the quality of education is still questionable one in the district. Still there is a rich scope in enhancing the quality of education at all levels. The dropout rate has marginally increased from primary to upper primary and upper primary to secondary education. However, the numbers are insignificant and the department of education is tracking each and every case and brings them to mainstream. The government has created infrastructure through the schemes of SSA and RMSA. However, there is a scope in enhancing the quality of school infrastructure at all levels. The freebies offered in the schools is encouraging students as well as parents to take part in all endeavours generated by both public and private. The perception of the stakeholders differs and they expect the same in high quality and durability. In general, the gender discrimination still prevails in the district in providing education, which needs further analysis. In the context of higher education, a significant number of arts and science colleges, engineering and polytechnic colleges are functioning in this district. However the placement is not upto the mark and it reveals the skills of graduates produced by these colleges. This has been addressed in the following chapter.

CHAPTER 6

GENDER

Chapter
6
Gender

Introduction

This chapter highlights the issues of Gender and Development. Gender equality is a key factor in contributing to the economic growth of a nation. The discrimination against women remains a common occurrence in today's society and serves to hinder economic prosperity. The empowerment of women through such things as the promotion of women's rights and an increase in the access of women to resources and education proves to be a key to the advancement of economic development.

The 2011 Census in India revealed that there are 919 girls for every 1000 boys in the 0-6 age group in India, highlighting the imbalance in child-sex ratios. Ideally, this ratio should be above 950. This imbalance is a result of the practice of gender biased sex selection a manifestation of deep seated patriarchal mind sets leading to the preference for sons over daughters, aided by technological misuse. Some of the consequences of an imbalanced child sex ratio are an increase in violence against women and girls, trafficking for marriage, and restrictions on mobility and choices of young girls.

Status of Women Population

Table 6.1 shows the status of women population of the Nagapattinam district. According to the 2011 Census, the percentage of women population in the Nagapattinam district is 50.6, which is marginally high compared to the state (49.9). The district's MMR (88) is high as compared to state (68) during 2014.

Table 6.1: Comparative Status of Women during 2011

S. No	Status - (2011)	District	State
1	Female Population (million)	8.18	360
2	Percentage in Total population	50.6	49.9
3	Sex-ratio	1025	995
4	Female literacy rate	77.58	73.86
5	MMR (2013-14)	88	68
6	% of women worker in agriculture sector	70.18	41.61
7	% of women in non-agri. Sector	24.20	45.15

Source: Census of India, 2011.

This could be seen in the form of sex ratios at two levels. The district sex ratio is very high (1025) compared to State (995). A similar trend could be seen in the Literacy Rate, wherein the district reached 77.58 per cent of literacy. Compared to state level literacy rate is 73.86, the district literacy rate is very high in 4 percentiles respectively. Overall, the status of women of the district is high compared to the state. However, there is a rich scope for achieving development among women in various spheres.

Box 6.1: Status of Self Help Groups

Table brings the access over resource and credit by SHG members in Nagapattinam district during 2014. This movement is taking place at the grass root level in organizing the poor and forms as a collective institution for availing credit without any collateral security. Overall, 7,926 groups were formed, and they availed the credit of Rs.11508.36 lakh. Through this movement, all the group members availed the credit both for productive as well as to meet urgent social expenses. Across the blocks, the numbers of groups that form at a higher level are in the blocks of Mayiladuthurai (1900), Nagapattinam (1548), Kuthalam (1412), and Kollidam (836). The question is how many of them involve themselves in the economic activities and avail the economic assistance and subsidy through banks. In this district, both Mahalir Thittam, and Puthu Vazhvu projects are going on, which play a major role in empowering the rural and urban women and in making them self-sufficient. Table brings the access over resource and credit by SHG members in Nagapattinam district during 2014. This movement is taking place at the grass root level in organizing the rural poor and forms as a collective institution for availing credit without any collateral security.

Table: Access over Resource and Credit during 2014 (Rs.in lakh)

S. No	Block /District	No. of SHGs	Credit availed
1	Keelaiyur	330	420.68
2	Kilvelur	150	230.33
3	Kollidam	836	1082.90
4	Kuthalam	1412	2397.19
5	Mayiladuthurai	1900	3165.20
6	Nagapattinam	1548	1979.98
7	Sembanarkoil	390	415.92
8	Sirkali	431	569.56
9	Thalainayar	106	123.25
10	Thirumarugal	343	528.36
11	Vedaranyam	480	595.38
	District	7,926	11508.75

Source: Project Director, DMMU, Nagapattinam, 2014.

Through this movement, all the group members availed the credit both for productive as well as to meet urgent social expenses. The question is how many of them involve themselves in the economic activities and avail of the economic assistance and subsidy through banks. In this district, both Mahalir Thittam, and Puthu Vazhvu projects are going on, which play a major role in empowering the rural and urban women and in making them self-sufficient.

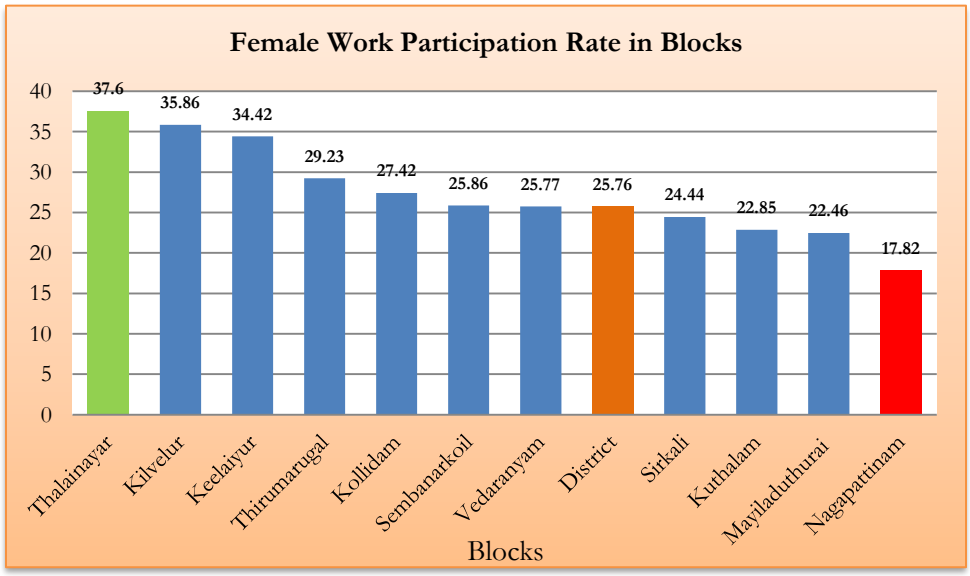
Access over Resource and Credit

The central and state governments have earmarked sizeable fund for the development of women and specifically providing access to financial resources. The question is how many of them involve themselves in the economic activities and avail the economic assistance and subsidy through banks. In this district, both Mahalir Thittam, and Puthu Vazhvu projects are going on, which play a major role in empowering the rural and urban women and in making them self-sufficient.

Employment

One of the most striking phenomena of recent times has been the extent to which females share in the labour force has increased and the participation of females in paid work has been driving employment trends, and the gender gaps in labour force participation rates have been shrinking. Figure 6.1 gives the female work participation rate during 2011 (Appendix : Table: 9.16). Of the total female population in the district, 26% are female workers. The female work participation rate is very poor in Nagapattinam (17.82), Mayiladuthurai (22.46), and Kuthalam (22.85). Only two blocks, mainly Thalainayar (37.60), and Kilvelur (35.86), have registered high female work participation rate. It could be concluded that the female work participation rate is directly related to the level and intensity of SHG activities in the region.

Figure 6.1: Female Work Participation Rate



Source: Census of India 2011.

Women Workers in Non- Agricultural Sector

In the non-agricultural sector, a larger proportion of the workers had regular salaried jobs, that is, they are in a relatively stable employment. However, only one fourth of the women had regular jobs; hence in the non-agricultural sector, women were more likely to be in the informal sector as self-employed or casual workers. Overall, majority of the workers were engaged in unstable activities with no regular contracts and social security benefits. Table 6.2 reveals women workers participation in non-agricultural sector in Nagapattinam district.

Table 6.2: Women Worker in Non- Agricultural Sector during 2011

S. No	Block / District	Total Women workers	Women Workers in Non- Agricultural Sector	Percentage
1	Keelaiyur	15,198	2,461	16.19
2	Kilvelur	14,344	1,495	10.42
3	Kollidam	19,209	3,881	20.20
4	Kuthalam	17,817	3,295	18.49
5	Mayiladuthurai	29,497	10,810	36.65
6	Nagapattinam	16,740	8,689	51.91
7	Sembanarkoil	25,665	5,859	22.83
8	Sirkali	21,333	5,595	26.23
9	Thalainayar	14,028	1,598	11.39
10	Thirumarugal	14,238	2703	18.98
11	Vedaranyam	22,751	4,626	20.33
	District	2,10,820	51,012	24.20

Source: Census of India 2011.

According to 2011 Census, the total number of women workers in this sector is reported as 2,10,820. Among the eleven blocks in Nagapattinam district, the largest number of women workers was noticed in Mayiladuthurai (29,497). It is inferred that the availability and accessibility of non-agricultural activities such as fishing and allied sectors absorb more number of workers. But Kilvelur block has the least number of workers in non-agricultural sectors (1,495). The level of participation in non-agricultural sector was not uniform among the blocks of the district. It varies significantly from 52% to 10%. It shows the level of diversified economic activities in the district.

Box 6.2: Success Story of Women's Federation

The objective of the case study is to bring focus on the capacity needed for organizing various training programmes meant for women development. This case has been identified from the awards received from the government of Tamil Nadu. The Chettipulam Women's Federation of Vedaranyam in Nagapattinam district bagged the Manimekalai Award, instituted by the Tamil Nadu Women's Welfare Management Corporation, in recognition of the work done by women's organization in the State in 2011.

Profile of S.Chitra, Master Trainer

S. Chitra	MASTER TRAINER
	Village: Keelamoovarkarai, Nagapattinam, Tamil Nadu
	Age: 38
	Personal : Married, three children
Outreach	20 villages in Nagapattinam district
Initiatives	Initiatives in accessing government schemes and programmes
	Assisting widows for pension
	Bringing drinking water supply to her village
	Linking Primary Health Centres with community closely
	Working with PHC in the time of epidemics
	Forced an NGO to build individual toilets in her village instead of community one
Strength	Organizational capacity
	Dealing with people equally
	Capacity to meet higher officials and get the needs for the Villagers
	Articulating the initiatives
	Dedicated and committed to community issues
	Good knowledge about government schemes
	Organizational capacity and dedicated to work
Achievement	Widows pension for 40 widows
	Water supply to her village
	Toilet construction for entire households in her village
	Training and moulding community leaders
Scale up	Already scaled up her initiatives in all 20 villages where SSP
	Work. Apart from this, she is also invited by many NGOs and
	CBOs to help in various initiatives.

Each year, awards are conferred on five best performing women's federations and 10 SHGs in recognition of their welfare activities. This is a success story of the women's Federation from Nagapattinam that shows us grassroots women can make significant contribution in creating safe villages. They address sustainable livelihoods, disaster preparedness, climatic risk, and local development. Women's Federation for Community Development and Disaster Management (WFCDDM, was registered in 2008 at Nagapattinam. The Federation facilitates risk reduction activities in more than 20 villages. The Federation mobilises SHGs at cluster to taluk and district level, negotiates with local government on various schemes and programmes, assists SHGs to link with banks and financial institutions, conducts learning exchanges, develops new women leaders as resource persons for District Risk Reduction. Federation facilitates vulnerability and hazard mapping in Nagapattinam district. Women's Federation supports SHGs to build resilience of their communities.

They monitor the related activities of women's groups, guide, and support them in creating safe villages. They also organize learning exchanges to see and learn from other villages new practices in agriculture, sustainable livelihoods, and income generating activities that benefit the whole community and environment. The Federation has developed a system for monitoring the fund flow and activities of women's groups. They visit the village to monitor the activities and train SHGs in maintaining registers and accounts. The Federation organizes dialogues with government officials, NGOs, and other stakeholders in development at village, cluster, and district levels to highlight women's initiatives in creating safe village as well as to point out the problem faced by the community. During the mapping and focus group discussion they identify good leaders who have potential to become trainers and resource persons in DRR. Training and learning is an important capacity building measure for women members. Federation takes up this activity as a priority. Learning exchanges produce more leaders, new initiatives, and innovations that grassroots communities can practice and scale up.

Female in Assembly and Local Bodies 2011

The history of political participation of women in India has been a long struggle. The 73rd and 74th Constitutional Amendment in 1992-93 paved the way for the grass root women's participation in the local bodies. The legislation to reserve 33% seats in Parliament and State Legislature for women introduced in 1996 is yet to be passed. The proposed bill offers reservation for women at each level of legislative decision making, starting with the Lok Sabha, down to the State and Local Legislatures. If the bill is passed, one-third of the total available seats would be reserved for women in National and State Legislatures. Table 6.3 gives the details of gender wise participation of the people of Nagapattinam district in democratic institutions namely Assembly and Local bodies. On an average, 38.3% of women are partaking in political activities as representatives of the people of the district.

Table 6.3: Political Participation during 2011

S.No	Block / District	No. of Male in Assembly and Local Bodies	No. of Women in Assembly and Local Bodies	% of Women Participation
1	Keelaiyur	169	78	31.6
2	Kilvelur	188	124	39.7
3	Kollidam	224	188	45.6
4	Kuthalam	290	176	37.8
5	Mayiladuthurai	299	220	42.4
6	Nagapattinam	165	101	38.0
7	Sembanarkoil	358	181	33.6
8	Sirkali	220	149	40.4
9	Thalainayar	126	98	43.8
10	Thirumarugal	196	95	32.6
11	Vedaranyam	214	107	33.3
	District	2,449	1,517	38.3

Source: Local bodies/PAPD section in Collectorate, Nagapattinam, 2011.

The highest level of participation is recorded in Kollidam block (45.6%) wherein the concentration of SC population and the role of Marxism are high. This shows that the growing democratic institutions are encouraging the women to take part in all the events in public life. Further, it reveals that the formal institutions like SHG empower the local women in partaking political activities.

Box 6.3: SHGs and Micro Credit

Micro credit is one of the tools for enhancing the livelihood of the people and removing them from the clutches of moneylenders. The present case has been chosen on the basis of the individual activity and generated sustainable income. Mrs. Vembarasi, about 39 years old, along with her husband, is engaged in vegetable cultivation in Kameshwaram village, Nagapattinam District. Both are diligent and striving for a good and sustainable income. Mrs. Vembarasi joined the "Sindhu" SHG in the year 2006. Since, its inception, her savings with the SHG is Rs.2,700/-, and she has taken Rs.6,000/- as internal credit from her SHG. The loan has helped her to carry the cultivation smoothly. But still, she needs some concrete investment to upgrade her livelihood and to purchase seeds and engine for pumping water.

When Development Programme Group (DPG) an NGO, arranged for a DRI loan through the local Indian Overseas Bank Branch, she heard of the news through the SHG and applied for a loan of Rs.5,000/-. She did not have to wait even for a week to obtain the loan. But, when she went to the bank, she was told that she would get a loan of Rs.10,000/-. In addition, she also took a loan of Rs.5,000/- from the SHG. As soon as she received the loans she purchased seeds, such as snake guard, brinjal, tomato, ladies finger, and green leaves. She also purchased a new engine for pumping out water from a pond. She extended the cultivation to the land which had not been utilized due to financial problems. This purchase of the water pump helped her to get enough water for her vegetable cultivation and now she receives more income.

She has three children of them two are girls and the other a boy. All her children are in school. Her husband takes the vegetables to the nearby "Uzhavar Market" daily. She is repaying the loan amount from the profit she receives by selling the vegetables. Seeing her prompt repayment and her fruitful cultivation, the bank manager is very impressed and has offered to provide the subsequent loan to her. Mrs. Vembarasi says, "From the income I allocate Rs.50/- per day for loan repayment and Rs.50 for my family expenses and Rs.50 for savings". This discipline makes her to repay the amount promptly and she is always happy. She thanks DPG and IOB who have guided, supported, and facilitated her in getting this vital loan for her. And she is prompt in everything, and finds success on her part and also satisfies the bankers.

Conclusion

The analysis of the chapter accounts gender development of the district. There is not much difference between the State and district in the proportion of female population and female literacy rate. The district has unique feature of high concentration of SC population and high proportion of women work force in agricultural sector. The gender inequality index reveals that there is no significant difference in terms of health, empowerment, and labour market. Further, the State and district administration have introduced various women centred development programmes for promoting women to participate in socio-economic and political life. Besides, both central and State governments have introduced various social security schemes aiming to avoid risks in their life. A detailed analysis of social security of the district is presented in the next chapter.

CHAPTER 7

SOCIAL SECURITY

Chapter
7
Social Security

Introduction

Social security is the protection that a society provides to individuals and households to ensure access to health care and to guarantee income security, particularly in cases of old age, unemployment, sickness, invalidity, work injury, maternity or loss of a breadwinner. Traditionally, the family has been the informal social security system in India. Joint families often live together, with members taking responsibility for those who are in need. Social security is available only to those who are employed in the organized sector (less than 10 per cent of India's workforce). However, with increasing migration, urbanization, and demographic changes, there has been a decrease in large family units. This is where the formal system of social security gains importance.

Demographic profile of the Aged

Many households in rural areas at the bottom of the income distribution in India are too poor to save for their old age. Available resources are used to meet daily consumption needs. Even at slightly higher income levels, there is likely to be little demand for savings and pension instruments that require a commitment of several decades. The absolute poor cannot be expected to participate in long term savings schemes for old age and they do not. Poverty in rural areas for older persons is increasing and needs attention. Hence, rural poor would need social security in large measure.

Majority of people with disabilities find their situation as affecting their chances of going to school, working for a living, enjoying family life, and participating as equals in social life. This in turn leads to increased economic and social vulnerability and exclusion. This exclusion affects not only the individual, but the entire family as well. Children with disabilities who receive good care and developmental opportunities during early childhood are more likely to become healthy and productive adults. This can potentially reduce the future costs of education, medical care, and other social spending. The problems of women are exacerbated by a lifetime of gender based discrimination. It is compounded by other forms of discrimination based on class, caste, disability, illiteracy, unemployment, and marital status. Women experience proportionately higher rates of chronic illness

and disability in later life than men. Women suffer from greater non-communicable diseases and experience lower social and mental health status, especially if they are single or widowed.

Table 7.1: Demographic Profile of Aged during 2011

Age-group	Population in Age - Groups			Proportion of Population in Age – Group		
	Person	Male	Female	Person	Male	Female
60-64	62,446	31,240	31,206	3.86	1.97	1.89
65-69	41,539	20,203	21,336	2.57	1.31	1.26
70-74	31,951	15,838	16,113	1.98	1.01	0.97
75-79	16,075	8,187	7,888	0.99	0.51	0.49
80+	17,685	8,512	9,173	1.09	0.56	0.53
Above 60	1,69,696	83,980	85,716	10.49	5.36	5.14
All ages	16,16,450	7,98,127	8,18,323	100	51.1	48.9

Source: Census of India 2011.

Elderly women and their problems need special attention as their numbers are likely to increase in future, and given the multiple disadvantages they face in life, they are likely to be grossly unprepared to tackle these issues. Nagapattinam district administration is taking strenuous efforts to provide social security to the destitute widows, aged people, and disabled persons of the district. Table 7.1 shows that out of the total population of the district, 10.49 percentage of the people are aged above 60.

Financial and Social Security of Aged

Table 7.2 gives information on the coverage of the OAP, destitute widows, and disabled people by the various social security schemes. Around 64% of this population has been covered by these schemes. Often, women are in less secure employment, such as casual labour, homework, and certain types of self-employment lacking social security coverage. The most vulnerable groups outside the labour force are people with disabilities and old people who cannot count on family support, and who have not been able to make provisions for their own pensions.

Table 7.2: Financial Assistance to Old Age Pension during 2014

S. No	Category	Target Population	Coverage	Percentage
1	OAP	79,040	48,264	61
2	Destitute Widows	43,849	29,379	67
3	Disabled Persons	8,521	6,162	72
	Total	1,31,410	83,805	64

Source: PA to Collector, Nagapattinam, 2014.

It is expected that the district administration should take adequate measures to extend this scheme to cover the remaining 36% and achieve 100% coverage. Further, an in-depth probe is needed to assess the benefits of the ongoing schemes and make sure to see that the intended targets are achieved by way of earmarking additional financial assistance.

Box 7.1: Milch Cow Scheme: Transforming lives of the Beneficiaries

The objective of the case study is to highlight the on-going hybrid milch house scheme in the blocks of Mayiladuthurai and Sembanarkoil. It is expected that these good practices will be emulated to other regions of the district for transforming lives of poverty stricken groups, specifically women folk. Animal husbandry is an integral component of agriculture supporting livelihood of more than two-thirds of the rural population. It is one of the rapidly expanding sectors in the State, playing a significant role in the rural economy by providing gainful employment to a large number of small, marginal farmers and landless agricultural labourers and raising their economic status. Livestock forms an important resource next to family labour for the landless agricultural labourers and is the only major asset for them.

Table: Details of Free Distribution of Milk Cows Scheme (From 01-01-2013) To 31-03-2013

S.No	Name of the Block	Breed Name	Total No. of Milk Cows Supplied	No. of Beneficiaries			Occupation of Beneficiaries				Increase in income range (in Rs per family)
				other	SC/ST	Total	Agrl. & Related	Wage Labour	Rearing of cattles	other	
1	Mayiladuthurai	Cross breed Jersey	100	32	68	100	52	48	--	--	600-1000 /month
2	Sembanarkoil	Cross breed Jersey	50	31	19	50	33		--	--	600-1000 /month

The free milch cow scheme is silently transforming the lives of several beneficiaries in the rural areas of the district. Women headed households are given priority under this scheme. Further, backward class widows, destitute, disabled women and transgender are given priority. The state government has sanctioned a total of Rs. 232 crores for free distribution of milch cows, to the rural poor. The scheme is prioritized in 21 Districts that are milk deficient and where the number of Milk Cooperative Societies is less. In Nagapattinam district, the distribution of milch cows taken up in the blocks of Sembanarkoil and Mayiladuthurai is shown in the Table above. Veterinary officials reveal that they have been continuously monitoring and have noticed the good response among the beneficiaries.

Differently Abled Persons

Tamil Nadu has always been a pioneer in the implementation of welfare schemes for all sections of socially disadvantaged groups. In order to provide effective rehabilitation services, a comprehensive

State policy for the welfare of the Differently Abled Persons has been formulated. Awareness is being created among the public to accept them as natural partners of growth and provide them access to various services and equal participation in social life to create an inclusive society. Various policies and initiatives have been extended to give full support to the Differently Abled Persons in their pursuit of full and equal involvement in every aspect of society. Scheme wise achievements are given in Table 7.3.

Table 7.3: Assistance to Differently Abled during 2014 (Rs.in lakh)

S. No	Name of the Scheme	Achievement	
		Physical	Financial
1	Early Intervention centre for Hearing impaired	30	2.74
2	Early Intervention centre for Visually impaired	20	3.14
3	Muscular Dystrophy Monthly Maintenance Grant	40	4.80
4	Self-Employment Subsidy (Bank Loan)	50	5.00
5	Feeding Grant(Special school for ortho handicapped)	90	5.85
6	Feeding Grant(Special school for hearing impaired)	98	6.37
7	Leprosy Cured Monthly Maintenance Grant	72	8.64
8	Free Bus pass	773	10.60
9	Scholarship for Students	449	11.82
10	Severely Disabled-Monthly Maintenance Grant	394	47.28
11	Early Intervention centre for Mentally Retarded	50	68.40
12	Mentally Retarded-Monthly maintenance grant	2132	245.28
13	Other schemes	213	6.73
	Total	4,411	427.00

Source: District Rehabilitation Office, Nagapattinam, 2014.

Assistances for differently abled persons of 4,411 received the quantum of benefits of Rs.427 lakh during 2014 in Nagapattinam district. The number of beneficiaries is very high in mentally retarded cases and they received the benefits of Rs.245 lakh. At the next level, benefits were provided to the mentally retarded intervention centres and the expenditure is Rs.68.4 lakh. It shows that the cases of mental retardation are very high in the district. Since the district has afflicted with mental illnesses, the district administration may concentrate on both preventive as well as curative aspects to control the same.

Box 7.2: Marriage and Maternity Assistance Programme

Poor parents find it very difficult to meet the marriage expenses of their daughters; particularly, they are unable to purchase the gold for "Thirumangalyam", due to the increase in its cost every day. Hence, in order to help the daughters of poor parents, daughters of poor widows, orphan girls, and inter-caste married couples and widows, who re-marry, the five Marriage Assistance Schemes are implemented by the Social Welfare Department. The Moovalur Ramamirtham Ammaiyar Ninaivu Marriage Assistance Scheme aims at providing marriage assistance to the poor girls who have attained the age of 18 years and studied up to X Standard. In the case of Scheduled Tribes, they should have attained the age of 18 years and studied up to V standard and cash assistance of Rs.25,000 and 4 grams (22 carat) of gold coin for making Thirmangalyam are provided under this scheme. The beneficiaries of this scheme are the girls and parents from poor families. In order to encourage poor parents to provide higher education to their girl children, the financial assistance has been enhanced from Rs.25,000 to Rs.50,000 for degree/ diploma holders along with 4 grams (22 carat) of gold coin for making "Thirumangalyam". Through this scheme, girls belonging to poor families pursue higher studies thereby eliminating the social difference between the rich and the poor, and encouraging them to possess higher education equally. During 2014-15, Rs.15.05 crores was disbursed under this scheme in Nagapattinam district.

S.No	Category	Amount in (Rs.) (2014-15)
1	Moovalur Ramamirtham Ammaiyar Ninaivu	14,58,75,000
2	Dharmmbal Ammaiyar Nenaivu Widow Re-marriage	75,000
3	EVR Maniammai Ninaivu Daughter of Poor Widows	20,75,000
4	Annai Thersa Ninaivu for Orphan Girls	4,50,000
5	Dr.Muthulakshmi Reddy Inter Caste Marriage Assistance	20,75,000
	Total	15,05,50,000

The Government of Tamil Nadu has given special attention to the welfare of widows through various welfare schemes. In order to help the poor widows to get their daughters married, the E.V.R. Maniammai Ninaivu Marriage Assistance Scheme for daughters of poor widows is implemented by the Government. This scheme helps the poor widows to secure a good future for their daughters by providing a financial assistance of Rs.25,000, along with 4 grams (22 carat) of gold coin for making Thirumangalyam. In the case of degree / diploma holders, Rs.50,000 is given along with 4 grams (22 carat) of gold coin for making "Thirumangalyam". Under this scheme, during 2014-15, Rs.20.75 lakh were disbursed in Nagapptinam district. This scheme may be scaled up for the development of the society, specifically women.

The greatest evil practice of caste discrimination is a major barrier to the development of the society. In order to abolish the caste discrimination and to promote social equity, Government of Tamil Nadu is implementing the Dr.Muthulakshmi Reddy Ninaivu Inter-Caste Marriage Assistance Scheme. Under this scheme, the Inter-caste marriage couple is given Rs.15,000 in the form of cheque and Rs.10,000 in the form of National Saving Certificate along with 4 grams (22 carat) of gold coin for making "Thirumangalyam". The girls with degree/diploma receive Rs.30,000 in the form of Cheque and Rs.20,000 as National Saving Certificate along with 4 grams (22 carat) gold coin for making "Thirumangalyam". Under this scheme Rs.20.75 lakh were disbursed in Nagapattinam district during 2014-15. This scheme may the scaled up to control the caste discrimination in society.

Crime against Women

In order to control crimes against women, All Women Police Stations were set up during 1992 in the state as well in the district. These police stations deal with crimes against women and marital disputes. The number of these police stations has gradually increased over the years, and today, Tamil Nadu can boast of the largest number of All Women Police Stations in the country. There are 198 all women police stations in the state fully administered by women. In the case of Nagapattinam district, there are two women police stations functioning at Nagapattinam and Mayiladuthurai opened during 1994 and 1995 respectively. Since, these stations have been functioning for more than a decade in the district; it has significantly controlled the crimes and settled various disputes. There is no gainsaying the fact that instances of crime against women such as demand for dowry and dowry related deaths and cases of sexual harassment had come down, due to the establishment and effective functioning of all women police stations. Besides, State government is taking all necessary steps to reduce crimes against women by intensifying mobile patrolling and through the Women Helpline and Counseling Centres established in the All Women Police Stations. The Government of Tamil Nadu finalized a 13 point set of measures to be implemented in the State to ensure the safety of women and prevent crimes against them in an effective manner.

Table 7.4: Crime against Women during 2014

S.No	Category	Number of Cases	
		(Pending Trial) PT	(Under Investigation) UI
1	Rape	26	0
2	Molestation	3	0
3	Kidnapping & Abduction	3	0
4	Dowry Death	0	0
5	Cruelty by Husband and Relatives	17	1
6	DP ACT	0	0
7	Women Harassment Act 2002	16	0
8	Importation of girls	0	0
9	Sexual Harassment	0	0
10	Eve-Teasing	0	0
Total		65	01

Source: Superintendent of Police, Nagapattinam, 2014.

Table 7.4 shows the crimes recorded in the district during 2014. In total, there were 65 crimes registered in the district during 2014. Among the ten major categories of crimes for women, the number of rape crimes are large in number (26), followed by Cruelty by Husband and Relatives PT – (17), Women Harassment (16), and Molestation and Kidnapping & Abduction (3). Specifically only one case on Cruelty by Husband and Relatives was reported and the same falls in the category of under investigation. Earlier, the maximum number of crimes were not reported or recorded. Due to awareness and functioning of various civil societies and SHGs, affected people have come forward to utilize the service of the police. Still, there is rich scope for controlling the crimes against women in the district.

Box 7.3: Impact of Crop Insurance on Rice Farming in Tamil Nadu

This case is one of the activities of Apex Insurance Consultant Limited functioning in the district. The objective of the case is to demonstrate how cost and returns differ between insured and noninsured farmers of rice cultivation. Within a short period of its existence, the AICL has performed credibly in promulgating a massive and complex developmental programme. Crop insurance has been found to absorb the production risk effectively, encouraging the farmers to concentrate on a fewer number of profitable crops instead of spreading their resources and energy across many crops.

In this way, it has acted as an incentive for specialization in agriculture. The crop insurance scheme has led to the use of high-value inputs like seed, fertilizer, and plant protection chemicals. The insured farmers have realized more returns than their non-insured counterparts. It has been revealed that factors like access to loan, education, off-farm income, and region (based on nature of irrigation) in which a farmer is located have significantly influenced the adoption of crop insurance. Farmers face constraints like tedious and time consuming procedure, non-availability of crop loan, lack of motivation, and non-information from officials, etc. On the other hand, the agencies implementing crop insurance expressed the view that lack of staff, lack of coordination among them, and hindrance to their routine functions were the major constraints they faced.

Conclusion

In view of the issues discussed above, it could be concluded that a significant proportion of aged population live in the district. It is observed that the family system has been changed from joint family to nuclear family and tries to exclude the aged population in the process of disintegration n the family system. In realizing the importance, the governments have introduced various financial security schemes for the aged. These schemes help the aged people to live independently and meet their immediate needs. The role of destitute widows and destitute deserted widows' financial assistance scheme benefits is remarkable in the district and all the targeted groups have benefitted. In the process of wiping out caste and communal discrimination, marriage schemes have been introduced and significant number of people benefitted on this scheme. Similarly, maternity assistance provided to the targeted population. However, the crimes against women are still high in the district. In the course of development, crimes have also occurred in the district. This can be controlled with better institutional infrastructure and awareness. Overall infrastructural development is essential for enhancing the status of human development in the district. The district's infrastructure is analyzed in the next chapter.

CHAPTER 8

INFRASTRUCTURE

Chapter
8
Infrastructure

Introduction

This chapter portrays the infrastructural facilities created in the district of Nagapattinam and examines their contribution to human development. Economic development and prosperity of an economy depends on the availability of infrastructural facilities which have the power to increase productivity. The structure of an economy can be changed only by the infrastructure. The infrastructure facilitates all the sectors of the economy to speed up their growth rate. They lubricate and strengthen the engine of economic development.

To achieve an accelerated development process, growth in development has to be preceded, accompanied, and followed by progress in infrastructure. Infrastructure development is thus clearly a critical element in the process of economic development and cannot be ignored. Recognizing the critical importance of infrastructure development, the Government of India has accorded high priority for its right from the First Five Year Plan itself. Though remarkable progress has been made during the last sixty four years, the developmental impact was, however, only marginal. Overall, the services of water supply have been increased in terms of within the premises and near the premises between 2001 and 2011.

India has now targeted to achieve an annual economic growth of 10% with a view to become a developed nation by the next two decades. Acceleration to higher growth will generate a massive demand for infrastructure services such as power, roads, ports, railways, and telecommunications. Furthermore, with globalization, if India has to be competitive in global market, the quantity and quality of infrastructure services will have to improve by international standards. The adequate supply of infrastructure helps to determine a country's success and failure. Infrastructure promotes development by diversifying production, expanding trade, coping with population growth, reducing poverty or improving environmental conditions. Good infrastructure raises productivity and lower production costs, but it has to expand enough to accommodate growth. The crucial role played by infrastructure development in creating better conditions of life and it has been highlighted again and again. Transport and communication infrastructure is important in terms of providing access to basic

health services, thereby improving conditions of health and life, particularly of women and girl children. Basic infrastructure such as electrification plays a similar role, apart from changing the quality of life in general. It is now well known that basic road connectivity to a school, minimum facilities like separate toilets for boys and girls in school buildings are crucial determinants for the enrolment and attendance of girl children, and so on. Depending on the nature of services, infrastructure can be broadly divided into two types physical and social. The physical infrastructure consists of power, transport (roads, railways, aviation, waterways, and ports), telecommunications, irrigation, and water supply. They are also known as economic infrastructure as they directly or indirectly contribute to productivity.

Roads

A good, safe and sustainable transport system is fundamental to the well-being of every citizen. It is essential for the economic growth and in general human development. Road is the major means of transport for the people of the district of Nagapattinam. Road transport services are being used by the people for going to work, school, and move essential commodities.

Table 8.1: Distribution of Roads Types and Road Length (In Kms)

S. No	Block / District	Mud	WBM	BT	CC	Total Road
1	Keelaiyur	34.87	18.90	92.43	0.50	146.70
2	Kilvelur	0.00	24.00	194.92	27.50	246.42
3	Kollidam	1.00	1.30	106.17	121.12	229.59
4	Kuthalam	34.00	146.50	249.64	54.46	484.60
5	Mayiladuthurai	38.26	45.30	78.10	4.15	168.35
6	Nagapattinam	42.42	38.50	78.25	4.29	163.46
7	Sembanarkoil	88.17	109.31	485.47	34.55	717.51
8	Sirkali	55.93	34.94	294.27	31.21	416.35
9	Thalainayar	6.24	47.77	201.95	1.23	257.19
10	Thirumarugal	60.42	48.48	269.44	0.6	378.35
11	Vedaranyam	582.59	167.90	429.50	20.11	1200.10
	District	943.90	682.90	2480.14	299.12	4408.62

Source: Executive Engineer (RD) (DRDA), Nagapattinam, 2014.

In Nagapattinam district, there are four types of roads, such as Mud, WBM, BT, and CC as shown in Table 8.1. The quality of roads has been strengthened by the government, over the years through various central and state government programmes. Among the eleven blocks of the district, the blocks Vedaranyam (1200 kms) and Sembanarkoil (717 kms) have more number of roads compared to other blocks. These two blocks are coastal blocks, and the area coverage is also high. In the case of mud

roads Kilvelur (0 kms), Kollidam (1 kms), and Thalainayar (6.24 kms) have less number of mud roads. These blocks have gradually converted the mud roads in the form of other types. But the same trend could not be seen in the rest of the blocks. The mud road length is very high in Vedaranyam (582.59 kms) coastal block. The length of CC road is very less in number in the blocks of Keelaiyur (0.5 kms), Mayiladuthurai (4.15 kms), Nagapattinam (4.29 kms), Thalainayar (1.23 kms), and Thirumarugal (0.6 kms). It reveals that the area coverage, density of population, and business activities determine the type and density of roads. Further, it could be said that the type of road and upgradation of roads take place with the involvement of the ruling political parties and allocation of funds and their works for their constituencies.

Electricity

The role of Tamil Nadu Electricity Board in improving the economy of the state of Tamil Nadu by extensive electrification of the villages, extension of electricity services to poor/backward and downtrodden sections of the society, in addition to the extension of supply to large number of industries has been well recognized.

Table 8.2: Status of Electrification during 2014

District	Revenue Village	Hamlets	Towns	No. of street lights
Nagapattinam	523	2,053	11	99,331

Source: Department of Statistics, Nagapattinam, 2014.

Table 8.2 gives status of electrification in the district. It is interesting to note that the Tamil Nadu Electricity board has achieved hundred per cent results in providing electricity supply to the households. Further, it is observed that the government has extended free supply of electricity to the huts. In view of the increasing demand and increasing loads, the government can find alternative source of energy and take appropriate steps to control power theft and transmission loss. In total, the provision of electricity has been covered in 523 revenue villages with 2,053 hamlets and 11 towns. The entire district has been provided with 99,331 street lights. These additional services will facilitate all the households to perform their day to day activities and control the crimes too.

Box 8.1: Solar powered Green House Scheme

Provision of solar powered greenhouses is one of the novel programme introduced by the government of Tamil Nadu by way of making convergence. This scheme facilitates to conserve energy and also to safeguard the environment. This case study highlights the completion of works carried out by the department of rural development. Under the Government of Tamil Nadu Solar powered Green House Scheme, 3 lakh houses will be constructed with solar powered lighting systems, over a period of 5 years from 2011-12 to 2015-16 for the benefit of the poor in rural areas.

Table: Solar Powered Green Houses completed during 2011-12

S.No	Block / District	Sanctioned	Completed	Occupied & Electricity Connection obtained	Solar Light Installed
1	Keelaiyur	106	106	106	30
2	Kilvelur	109	109	109	23
3	Kollidam	200	200	200	50
4	Kuthalam	225	225	225	35
5	Mayiladuthurai	240	240	240	46
6	Nagapattinam	142	142	142	44
7	Sembanarkoil	254	254	254	60
8	Sirkali	211	211	211	40
9	Thalainayar	122	122	122	85
10	Thirumarugal	172	172	172	57
11	Vedaranyam	266	266	266	38
	District	2047	2047	2047	508

In Nagapattinam district, 2,047 solar powered green houses have been completed during 2011-12, as shown in the table below. For the year 2012-13, 2037 houses have been sanctioned out of which 535 houses have been completed so far. The unit cost had been increased from Rs.1.80 lakh to Rs.2.10 lakh following hike in the prices of construction material. Of this, Rs.1.80 lakh would go towards the construction of the house and the balance on setting up solar power systems. By using solar light, it is calculated that nearly 2.5 units per day is saved in electricity charges. According to TANGEDCO, online tariff Calculator, the cost of 2.5 unit of electricity is Rs.23/.

The solar lighting system consists of 5 nos CFLs/ **LEDs** one each in living room, bed room, kitchen, toilet & verandah. These CFLs/ **LEDs** can be operated for 5 hours a day. The solar home lighting system is with grid backup and has the following innovative features: Smart power conditioning unit to charge the battery from grid only in rainy or cloudy days when solar power is insufficient. Direct EB supply to lights in case of failure of Battery/Inverter, Comprehensive maintenance of the systems by the supplier for 5 years, Call Centre is established for addressing the grievance of beneficiaries.

Mode of Communication

Table 8.3 depicts the percentage of households having computer/laptop and telephone. Nowadays, these are the essential instruments in creating additional opportunities for availing employment and income. Further, the mobile phone users in the country have increased manifold over the years. The positive externalities in use of telephone and/or mobile are very high, and it has been realized by the users. Both the households of rural and urban areas have given top priority to acquiring mobile. This has been witnessed in all the regions of the country inclusive of Nagapattinam district. In total, 68 per cent of the households of the district are using telephone and /or mobile. These households spend sizeable money for the purpose. It is interesting to note that irrespective of men and women or high income and low income group population have possessed mobile phones for getting better opportunities. It is noticed that the rate of utilization and the cost of mobile alone differs. Keeping advance mobiles are showing their economic status. These facilities have facilitated them to perform their activities and complete the same very quickly. Table 8.3 gives details of number of telephone exchange and number of mobile phone towers functioning during 2014. Of the 44 telephone exchanges functioning in the district, 27 exchanges are in the division of Mayiladuthurai. Similarly, number of mobile phone towers is also high in Mayiladuthurai division (80). It is understood that these facilities are created as demand driven.

Table 8.3: Telecommunication System during 2014

S.No	Division / District	No. of Telephone Exchange	Number of Mobile Phone Towers
1	Nagapattinam	11	29
2	Mayiladuthurai	27	80
3	Sirkali	6	3
	District	44	112

Source: DE, BSNL, Nagapattinam and Mayiladuthurai, 2014.

Social Infrastructure: Co-operative Institutions

Social infrastructure includes banking and other financial facilities. Table 8.4 shows the cooperatives present in the district. In total, there are 163 cooperative institutions functioning in the district and offering critical inputs to the targeted households. A significant proportion of the financial institutions are functioning in the rural areas. Accordingly, the number of members also could be seen. The effects of investments made on infrastructure needs to be assessed in terms of how the additional

infrastructure changes the lives of people in any given area and what changes would make it more effective and useful. The gender and class dimensions of the linkage effects also need to be examined not just in terms of direct effects but also in terms of the secondary employment and opportunities created by such infrastructure building: for example shops and new services that emerge with the construction of a new road etc.

Table 8.4: Financial Institutions during 2014

S. No	Block / District	No. of Cooperatives	No. of Members	Commercial Bank
1	Keelaiyur	6	30,177	4
2	Kilvelur	8	27,754	4
3	Kollidam	14	32,828	4
4	Kuthalam	15	36,887	7
5	Mayiladuthurai	29	73,142	12
6	Nagapattinam	9	19,699	16
7	Sembanarkoil	16	41,706	11
8	Sirkali	17	54,687	4
9	Thalainayar	10	20,158	4
10	Thirumarugal	13	35,579	6
11	Vedaranyam	26	51,033	7
	District	163	4,23,650	79

Source: Joint Registrar of Cooperative Societies, Nagapattinam 2014.

Table 8.4 depicts the number of cooperative and commercial banks functioning in the district. These institutions deliver services not only to the core business group and also offer services to the farmers and other disadvantaged population through the process of financial inclusion. In total, there are 163 cooperative institutions with 4,23,650 members. Among the blocks, there is no proportional relationship between number of institutions and number of members. It shows the business and agricultural activities of the block. Besides, there are 79 commercial banks functioning in the district. These banks are inclusive of both public sector and private banks. In the case of commercial banks, the concentration is high in Nagapattinam (16) and Mayiladuthurai (12).

Box 8.2: Insuring Lives and Livelihoods

The role of NGOs in promoting livelihood of the people is significant in the district, where specifically disasters use to occur and vulnerability is very high. This case study highlights the role played by the CARE non-governmental organization functioning in the district. In the district, majority of the population employed in the informal economy has no formal social protection measures. In the absence of these, poor households remain exposed to both fatal and non-fatal shocks causing severe setbacks in their efforts to overcome poverty. Recognizing these vulnerable groups post 2004 Tsunami, CARE launched ***Insure Lives and Livelihood***, a post disaster risk reduction initiative set up with the support of Allianz SE. The programme aims to transform poor households' attitude towards risks, by helping them recognize insurance services as an effective risk management tool, thus preparing them to anticipate and cope with a variety of risk events.

Diverse risk needs of the poor, affordability of premiums, and expensive distribution points keep insurers away from reaching out to the poor. On the other hand, insufficient product related information, complex product conditions, and elongated claim settlement periods make insurance unattractive to the poor. ILAL bridges this gap. It helps the insurer set up effective, low value, and dependable distribution points for the poor. Simultaneously, it promotes acceptance of insurance services among them by increasing their understanding of basic insurance principles and practices.

Challenging conventional insurance practices has been the hallmark of CARE's engagement in micro insurance space. CARE tested three ideas to make insurance services available: a life insurance scheme for persons living with HIV and AIDS, a health cover for pre-existing illness, and index based weather insurance solution for salt pans. Products distributed through CARE's NGO partners address eight basic risks including death, total and partial disability, accident related treatment, accidental death, wage loss, funeral expenses, educational grant support for school going children, out of pocket expenses arising out of inpatient treatment, and cover for household property against natural disaster. In 2008, when cyclone Nisha caused wide spread damages to the dwelling units of poor people in Nagapattinam and Cuddalore districts, a participative damage assessment process was established to settle claims worth Rs.4.3 crore to over 14,300 households. This was one of the largest single claim events in the history of micro insurance industry. CARE has been widely acknowledged for its efforts to make insurance practices more inclusive. The myth that insurance is only for the rich has now been broken.

Insurance

Growing insurance companies in the district make the stakeholders risk free. Insurance companies assume the risk that a loss or catastrophic event will occur. Policy-holders pay an insurance premium to their company in exchange for the security of knowing that if they were to experience an illness, loss of life or loss of property, the insurance company will investigate the situation and compensate them for the loss. If an insured vehicle is met with an accident, the insurance company is responsible for making sure the policy-holder receives the compensation necessary to purchase a car comparable to the vehicle lost in the accident.

Table 8.5: Insurance and other agencies during 2014

S.No	Name of the company	No. of Branches	Policy Issued
1	Reliance	1	260
2	State Bank Life Insurance	1	365
3	LIC	3	18,032
	Total	5	18,657

Source: Branch Managers, Nagapattinam, 2014.

Insurance companies recover monetary damages from parties responsible for causing a loss. This act of recovery is known as subrogation. Insurance companies subrogate after they have paid for a claim and determined that their insured was not responsible for the incident. Table 8.5 shows the major insurance companies functioning in the district and they issued the policies of 18,657. There are number of other private insurance companies functioning in the district and the details are not available. The awareness on insurance among the rural communities is very poor and these activities may be scaled to cover all the risks, which are related to natural and business risks.

Transport Facilities

The district consists of two parts, separated in the middle by a small enclave of Karaikkal which is a Union Territory. In most cases, one has to pass through this territory to go from one part to another. The present North South Highway from Chennai – Thoothukudi has been classified as a National Highway. This stretch is also known as East Coast Road. Even earlier, it was not of very good standard, and it has been damaged further by the Tsunami. However, this road is being developed to international standards with the assistance from international financial institutions. When completed, this should provide faster connectivity through the district. The proposed Villupuram - Pondicherry -

Nagapattinam National Highway [NH-45A], connects Nagapattinam with Cuddalore and Villupuram districts of Tamil Nadu and the Union territory of Pondicherry. The total length of this highway is 190 kms, of which 147 Kms. is in Tamil Nadu and 43 kms, is in Puducherry UT. Earlier, NH-45A was between Villupuram and Puducherry. Now the route NH-45A has been extended linking Villuppuram, Valavanur, Pondichherry, Cuddalore, Alappakkam, Puduchchattram, Chidambaram, Sirkazhi, Tarangambadi, Kariakal, and Nagore with Nagappattinam.

The present road infrastructures consist of 193.100 kms of National highways, 283.420 kms of state highways, and 741.835 kms of other district roads. Urgent steps are necessary to improve the surface, shoulders, and junctions of these roads, so as to minimize accidents and enable faster transport. However, the present structure is enough to connect all the important towns in this district and the neighboring districts. There are no canals suitable for inland transport in this district. Because of the rough seas and low passenger potential, coastal passenger boat service is also not possible.

Important Tourist Places and Heritages

This section highlights various important tourist places and heritage exist in the district. They are:

- Nagore - Nagore is at a distance of 5 km north of Nagapattinam. Irrespective of caste, creed, and religion, people offer their worship at this Islamic Shrine. Kandhuri festival during October and November is very popular.
- Velanganni - Velanganni is situated on the coastal line of Bay of Bengal at a distance of 14 km south of Nagapattinam. Sacred Arokkiya Madha Church here is a holy place for the Christians. People of all religions offer their worship at this Church. The festival during August and September is very famous.
- Sikkal - Sikkal is on the bus route from Nagapattinam to Thiruvarur. This place has an age - old Shiva Temple where Lord Muruga is worshipped in his popular form of Singaravelan.
- Kodiyakkarai - Kodiyakkarai is 68 km from Nagapattinam. This place is noted for the bird's sanctuary. Its nearby place is Muthuppettai with its backwater which attracts tourists.
- Vedaranyam (Thirumaraikkadu) - Vedaranyam lies at a distance of 58 km from Nagapattinam. Vedaranyeswarar temple here is worth mentioning. It is one of the "Saptha Vidanga Thalams". This place was the centre stage of Salt Sathyagraha during the freedom struggle.
- Ettukkudi - The distance between Nagapattinam and Ettukkudi is 28 kms Murugan temple at Ettukkudi is considered a holy place of Muruga. This temple finds a place in the hymns of saint Arunagirinathar.
- Thirukkuvalai – Tirukkuvalai, lying at a distance of 27 km from Nagapattinam, is one of the "Sapthavidanga Thalams". Thiyagaraj Swamy temple and Angalamman temple are well known.

- Koothanur -Koothanur at a distance of 45 km from Nagapattinam is associated with the life of the great poet Ottakkoothar. There is a separate temple for Goddess Saraswathi, goddess of Knowledge.
- Mannarkudi –Mannarkudi, situated at a distance of 56 km from Nagapattinam, is famous for its Vaishnava temple Rajagopalaswamy temple.
- Tranquebar - (Tharangambadi) - It is 35 km north of Nagapattinam on the east coastal line of Bay of Bengal. Danish Architecture is the attraction of Tranquebar.

Box 8.3: Point Calimere Sanctuary on Vedaranyam Coast: Tourism Potential

The objective of the case is to highlight the tourism potential prevails in the remote location of the district. This potential has not been tapped fully by the local as well as international tourists. Since tourism is another important source of income for the local people, this calimere sanctuary has been chosen for the analysis. The lagoons at the Point Calimere sanctuary on Vedaranyam coast with their rich fish population attract thousands of migratory birds from countries as far as Siberia and other West Asian countries. The variety of birds include blue jay, egret, myna, drongo, brahmini kite, curlew, brown headed gull, flamingo, teal, black-tailed godwit, whiskered tern, blue tailed bee eater, red shank, little stint, and painted stork. Last year, the decline was particularly very sharp in the number of flamingos. The sanctuary, situated in a sprawling 20 sqkm area of dry evergreen forests, serves as an abode for a good population of black bucks, antilopes, chitals, feral horses, wild boars, and about 250 species of colorful birds. The forest area was declared a wildlife sanctuary in 1967. The birds visit the sanctuary during the latter part of November and stay up to February or March every year.

The authorities are taking extensive measures to ensure their protection following a steady decline in the number of winged visitors. As a precautionary measure, the wildlife department arranges for veterinary screening camps in nearby villages to vaccinate cattle, goats, and poultry to prevent any possible outbreak of diseases to migratory birds and vice-versa. They have also tightened patrolling in the sanctuary area to prevent poaching. As point Calimere has eco-tourism potential, tourism infrastructure such as approach road to the sanctuary, public sign boards etc., have to be put in place to attract more tourists.

Ports

Nagapattinam port is an ancient port situated in Nagapattinam district. In olden days it was the chief port under the control of Portuguese. The port was first opened at the Portuguese region in India. The town was captured by the Dutch people in 1660 and remained in their hands till 1781. After wards the port went under the control of British in 1782. The port was attracted by calling of

passenger steamers and cargo vessels. The port of Nagapattinam is located at the mouth of the river Kaduvayar in the Bay of Bengal. The hinterland for this port consists of Thanjavur, Thiruvarur, Pudukottai, Trichy, Salem, Namakkal, Erode, Dindigul, Madurai, Karur, Perambalur, Ariyalur districts. The anchorage position of Nagapattinam port is an open road stead. The vessel anchor according to her draught, with the Light House bearing between 281° and 285° 8 to 10mts depth available at the distance of 1.5 Mile from Light House.

Nagapattinam is an open roadstead port, vessels anchor according to her draught at mid-stream and cargo transported through Lighters/Barges. Private self-propelled and dumb barges each to a carrying capacity of 200–300 M.Tons are available for cargo operation. Landing and shipping agents are free to engage their own stevedore labourers. Port works during day light hours i.e. 0600-1800 hours and also permitted to work during night hours on special request in the permissible weather condition.

The port facilities provided at the port are as follows: Wharves, Stacking area, Cargo sheds, Passenger Terminal Station, Weigh Bridge, and Slipway. Light house and VHF are functioning at the port for Navigational Aids. M/s. Foods Fats and Fertilizers Ltd. have set up Edible oil storage terminal at the port. Edible oil vessels are regularly calling at the port. Two other companies are also importing edible oil through this port.

M/s. Chennai Petroleum Corporation Ltd. have constructed a RCC jetty with an approach trestle within Nagapattinam port limits so as to handle Crude oil required for their Refinery at Panangudi. M/s. South India Edibles are importing Copra cake through this port. Tamil Nadu Maritime Board has proposed to develop this port with the financial assistance of Asian Development Bank and ASIDE.

The coastline has a number of harbours of which mention may be made of Nagapattinam, Pazhaiyar, Nagore, and Point Calimere. The significant small ports are Thirumullaivasal, Velankanni, and Thopputhurai. Nagapattinam port is classified as a minor port, and as such, maintained by Tamil Nadu Maritime Board of the State government. This port was severely damaged by the Tsunami in the year 2003. It is being restored and modernized with assistance from the Asian Development Bank. It handles mainly Crude Oil, Edible Oil, (Imports) and Naphtha (Exports). It handled 42,142 tonnes of import and 12,896 tonnes of exports. The Private Sector power plant has got a small captive port at Thirukadaiyur for handling their imports. The CPCL refinery has also got a captive oil jetty.

The existing Nagapattinam Minor Port, located at the mouth of the Kaduvaiyaru river, is a lighterage port handling general cargo. Historically this port was serving the passenger trade between Nagapattinam and Singapore/Malaysia. The port was also used for import of wheat and fertilizers. Subsequent to a passenger ship meeting with a fire accident and reduction of import of wheat and fertilizers due to the change in Import Policy, the activities at the port have come to a standstill. With the Nagapattinam town situated around the Nagapattinam Minor Port, expansion of the existing port became difficult. As such, it was proposed to prepare a Techno Economic Feasibility Report by engaging I.I.T., Madras to develop an All Weather, Deep Water, Direct Berthing, Greenfield Port, adjacent to the existing Nagapattinam Minor Port. The I.I.T., Madras, in their report, has recommended developing this port as an All Weather, Deep Water, Direct Berthing Port at an estimate of Rs.380 Crore. The primary and secondary hinterland of the proposed port at Nagapattinam comprises of Nagapattinam, Perambalur, Villupuram, Salem, Namakkal, Karur, Thanjavur, Thiruvarur and Erode districts.

Major Irrigation Channel

Irrigation is done mostly through the canals, and the total length of canals is about 550 kms. There are not many irrigation tanks in the district. However a variety of water bodies which include ooranis, village ponds, irrigation tanks, farm ponds, traditional dug-wells, skimming wells, and tube/bore wells are used for irrigation purposes. Though 14 out of 17 river systems in Tamil Nadu flow through the plains of Nagapattinam and drain into the Bay of Bengal, the irrigation needs of the district is mostly drawn from Cauvery, Vennar, and Vettar rivers. Although the river systems are divided into irrigation canals supporting agriculture, for the past few years, this system has not been adequate for the three seasons of agriculture normally practiced in Nagapattinam. Totally, dependent on the Mettur dam for their base flow of water, these canals have water only from July to early February. Thus the patterns of cultivation have changed to adapt to the period when water is available, either in the canals or during the monsoons. Agricultural activity has reduced from three seasons of cultivation to just one season which is mainly during the north-east monsoon, generally after September.

Box 8.4: Sanitation - Need for Solid Waste Disposal at Nambiar Nagar

The objective of the case study is to portray the sanitation condition of Nambiar nagar in Nagapattinam municipal region. The study team had a discussion with the stakeholders and highlights the situation for taking immediate steps and enhancing the living environment. Nambiar nagar, a fishing hamlet was severely affected by the 2004 Tsunami. The Government, as part of Tsunami rehabilitation, has created A cluster namely New Nambiar Nagar for the affected people. Since the Government could not provide adequate services in the cluster, the people hesitate to shift completely to the new Nambiar Nagar.

Mr. S. Chitravel, Councillor of the 14th ward, recently interacted with the residents of the ward and made the following observations. There are around 130 houses in Nambiar Nagar old colony. The people reported that the Municipal authorities have not placed dust bins anywhere in Nambiar Nagar to collect the solid waste. Hence, they have been forced to dump the solid waste in the nearby Karuvelakadu, and the people themselves, once in a while, haphazardly burn and destroy the waste. This results in bad odour aggravating air pollution, and as a consequence, the people living here are vulnerable to various air borne diseases. During windy days, the waste gets scattered across the streets, and the households resulting in unclean shabby environment. Also there are no drainage facilities for the rain water to drain. The people of this Nagar face difficulty in commuting and also get affected by various communicable diseases. As a priority, the residents feel that dust bins should be placed in several places in the Nagar to dump the waste. Further, Municipality should periodically collect and transport the waste to the nearby dumping yard.

Dams, channels bring drinking water to the district

The district is drained by Kollidam and Cauvery in the north, Virasolanar, Uppanar in the central part and Arasalar, TirumalairajanAr, Vettar, Kedurai Ar, Pandavai Ar, Vedaranyam canal and Harichandra Nadi in the southern part of the district. The mushrooming growth of aquaculture has led to the pollution of ground water in the coastal part of the district. The quality of ground water in eastern and south-eastern parts is poor. The natural hydrodynamic conditions, is being disturbed every year due to

natural or some man made causes, results the lowering of water levels below mean sea level. The chloride bicarbonate ratio indicates that the flushing is insufficient.

In Nagapattinam district, the bulk of rural water supply is from ground water by means of dug wells, hand pumps (filter point) and tube wells owned by individuals. The TWAD Board, an apex body for the rural and urban water supply in Tamil Nadu has provided water supply in rural and urban sectors from the ground water sources through the implementation of various schemes with the assistance of Government of India and with funds of State Government Drinking water is being supplied to Nagapattinam Municipality from a bore well at Odachcheri village, situated 15 km away from the town. The Kollidam integrated drinking water project also provides water to the population of the district. The district receives rainfall under the influence of both southwest and northeast monsoon. A good part of the rainfall occurs as very intensive storms resulting mainly from cyclones generated in the Bay of Bengal especially during northeast monsoon. The district receives rainfall almost throughout the year. Rainfall data analyzed (period 1901-70) shows the normal annual rainfall of the district is 1230 mm. The rainfall pattern in the district shows interesting features. Annual rainfall, which is 1500 mm at Vedaranyam, the southeast corner of the district, rapidly decreases to about 1100 mm towards west of the district. The district enjoys humid and tropical climate with hot summers, significant to mild winters and moderate to heavy rainfall.

As the development of ground water has already reached an alarming stage in many blocks of the district, further development of ground water for creation of additional irrigation potential has to be carried out with extreme caution. In the eastern part of the district near the coast ground water is saline. The fresh water pocket in the sand dune areas are used for drinking purposes. However, caution has to be taken while discharging the untreated wastewater of agriculture farms and chemicals used in the prawn culture. For recharging deeper aquifers and to prevent seawater intrusion, recharge wells are recommended in the favourable tanks and ponds. Engineering measures (hydraulic) to improve the flow of flood water into the sea, maintain water quality levels in coastal lakes, revival of traditional water harvesting to meet drinking water requirements are recommended.

Major Power Projects

Nagapattinam district receives power through TNEB. Apart a number of private companies have come forward and started power companies in the district. A few projects are discussed here. Chettinad Power Corporation Private Limited (CPCPL) is listed as Indian Power Venture and a Mega Power Project development company in India started a unit in Nagapattinam. It is a Greenfield Thermal Power Plant (TPP) of 1320 MW (2x660 MW) capacity with Captive coal jetty. This mega power project is one of the largest Industrial Power Supply Company in the Country. The CPCPL was established in Financial year 2008-2009 capitalize on the emerging opportunities in the Indian power sector and focus on developing, operating and maintaining power projects. CPCPL is currently involved in developing 2x660MW capable of generating 1320 MW of power. The power from these plants will be sold under a combination of long-term, medium-term and short-term power purchase agreements ("PPAs/PGL") primarily to industrial and state-owned distribution agencies. The power plant has a configuration of 2 x 660 MW coal based Super-critical technology. The power project shall operate on imported coal from Indonesia and blended coal in ratio of 70:30 of imported coal and indigenous coal. Coal transported through a captive jetty is proposed near the power plant site and is designed for handling 5 Million Tonnes per Annum (MTPA) of coal via sea route.

Nagapattinam power and infratech pvt Ltd developed a green field 2X660 MW coal based thermal power plant near Talanchankadu village (Thalaiudaiyarar koil Pathy), Tharangambadi Taluk, Nagapattinam district, Tamil Nadu. The project provides direct employment to a large number of personal. This project generates indirect employment to a considerable number of families, who will render their services for the project. This is located in the east coast, near Marudam Pallam, Sirkali town, in Tharangambadi taluk of Nagapattinam district, Tamil Nadu. Coal required for running the Plant is to be received by via Sea. Coal linkage application process Fuel Supply Agreement with M/s. PT Equity Commodities, Indonesia. Evacuation of Power through 400 KV Transmission line to be laid by TNEB/PGCIL, ICB for BTG and BOP in packages is in process.

Private Power Projects in the District

- ✓ Pillaiperumanallur Power Project - 330 MW
- ✓ Kuttalam Gas Turbine Power -101 MW

- ✓ MMS Power Plant - 21.7 MW
- ✓ Cauvery Power Plant - 6.79 MW
- ✓ OPG Power Plant -17.5 MW
- ✓ Shakeli Power Plant - 8.81 MW
- ✓ B&G Solar Power Plant - 1.00MW

Conclusion

In the light of the above analyses it could be said that the district has been equipped parallel to the state infrastructural development in terms of road, railways, sea port, electricity, communication facilities, and financial institutions. However, the quality of infrastructure may be scaled up for achieving durability and easing out discomforts and controlling deterioration of vehicles. Since the infrastructure has certain uniqueness, which has to be analysed in detail. Since the project costs are very high, all long term infrastructure projects may be introduced in the channel of PPP model for ensuring quality and durability. Further for achieving faster human development, infrastructure would be the complementary input for development.

CHAPTER 9

SUMMARY AND WAY FORWARD

Chapter
9
Summary and Way Forward

Introduction

This chapter summarizes the various achievements and drawbacks registered in the district and suggest ways and means to achieve sustainable human development. It is learnt from the preceding chapters that it is essential to develop generic as well as block specific measures and schemes in terms of suitable methods, techniques, structures, and community based institutions. "One size fits all" approach is not suitable, and also the participatory process mode shall be adopted to ensure joint monitoring and output based planning and management. This chapter suggests some measures that could be adopted by the district administration to overcome some of the identified challenges in the district.

Status of Human Development

- HDI and other indices of the district were worked out. Other related human development indices such as GII, CDI, and MDPI that focus on specific issues of gender development, child development and poverty have also been comprehensively dealt with (Table 2.5). Each index reflects the development of specific sector and reveals the pros and cons of each block. This analysis would help the policy makers for evolving policies and achieving overall development of the block both at the household and regional levels. There is a rich scope for execution of the various ongoing developmental programmes in an effective way with the inclusion of all stakeholders.

Employment, Income and Poverty

- Per Capita income of the district is low when compared to that of the State average. Majority of the people of the district are dependent on agriculture and fishing for their living. Further, the district is vulnerable to devastations by natural calamities such as cyclones and storms which hamper growth.
- Over the years, the district has been recording decreasing trend in agricultural yield even in the absence of disasters. This could be attributed to the salinity and lower fertility of the soil.

- As farm ponds are the main source of irrigation followed by canal irrigation in the district, during droughts, water scarcity emerges as a major problem adding to the woes of the farmers. As a result, food security has taken a back seat, in some cases even starvation, forced labour work or migration, and increased debts, and the marginal farmers are the most affected. This warrants alternative farming methods.
- Today, sprinkler and drip irrigation has been touted as one of the ways of addressing severe water shortage. The sprinkler irrigation method envisages just one-third water use against the conventional method.
- Strengthening the integrated drainage/irrigation system at the community level through desilting of all drainage/irrigation canals to prevent the possible inundation and crop damage and loss is an urgent need. In this context, the ongoing MGNREGS may be used for strengthening the basic infrastructure for enhancing agricultural productivity inclusive of private farm lands. Also, foliar feeding of chemicals/bio-fertilizer for improving drought resistance in crops could be promoted in the district.
- Another alternative farming method to the conventional farming practice is Integrated Farming. It offers scope of getting income throughout the year, and at the same time, reduces risk due to vagaries of nature. Instead of growing monocrop, agriculture allied enterprises like dairy, goat rearing, bio-gas, mushroom, fish, poultry, apiculture, agro-forestry etc., may be promoted with possible backward and forward linkages for effective resource utilization and to generate employment opportunities.
- During monsoons, the heavy inflow of water in both the Cauvery and the Coleroon bring relief to the farmers and the common people. However, a substantial portion of the released water gets drained into the sea. So the district administration, with the involvement of the stakeholders, should identify places where barrages and checkdams could be constructed and steps may be initiated to implement the same.
- In some coastal villages of the Keelaiyur and Sirkali blocks of the district, the groundwater is saline within a depth of five feet, and there is lack of fresh water in the village. A pond is the current need of the villagers to collect rainwater from the existing ditches dug around the field. Also, a bund around the pond should be constructed to protect it from saline floods and fencing should be done to protect from other forms of contamination.

- Linking the new pond with canals surrounding the field and capturing the rainwater will extend the growing season for the community. In addition, the piped water supply could be used for its actual purpose of providing reliable water supply to the villagers for domestic purpose such as drinking, washing, and bathing.
- Fishing is one of the main economic activities of the district. The role of middlemen in fish marketing system continues unabated due to the absence of institutional involvement. The involvement of several middlemen in the marketing chain is detrimental to the interest of both the producers and the consumers. There is a need to strengthen the fishermen cooperative societies to make the stakeholders realize the scale of economy in operations, reduce marketing intermediaries and empowerment of the society. Most of the existing malpractices in fish marketing can be avoided by introducing regulated marketing system, in the lines of the agricultural produce.
- Due to lack of proper cold storage, the fishermen are not able to sell their catch on the same day of fishing, and it leads to large scale perishing of fish and other marine products.
- Further, uncontrolled expansion of aqua farms and conversion of agricultural lands as aqua farms generate lot of negative externalities in the district; specifically the sea water intrusion is being extended more than 20 kms from the sea, for instance, up to Thalainayar Town Panchayat area through the Arichandra Nadhi.
- The ongoing welfare measures like housing, modernization of existing fishing harbours/fish landing centers and training programmes for better fish catch and fish processing may be strengthened further on issue base to help the fishermen of the district to live a decent living. Also, development of adequate support infrastructure for modern fishing and, adequate processing and pack houses will help the fishing sector of the district.
- The role of non-governmental organizations in fishing communities is usually limited to micro-credit and livelihood related interventions. NGOs may be encouraged to enter the area of marketing or food processing technologies, both regarded as crucial lacunae in the district's fishing sector. Modern fishing markets, sea food processing centers, and poultry feed industries with dry fish as raw material could be set up in coastal blocks.
- Continuity in micro credit at an enhanced level, and more focus on capacity building to empower each and every fisherwoman would certainly pave better avenues for development. Further, physical facilities for diverse occupations are also needed for fisherwomen in view

of their access to new skills, and institutional support from NGOs is also quite worthy in this regard.

- Effective strategies to mitigate future disasters have been taken up during post Tsunami period by the district administration. Collective action supported by a variety of institutions such as government departments, banks, and financial institutions and facilitating agencies such as NGOs should continue their efforts to ensure sustainable livelihoods of the vulnerable coastal agricultural communities. The approach needs to be people centric with communities empowered to assess, plan, execute, and maintain structures and systems to manage future disasters.
- The district administration should periodically review disaster management activities at various levels to improve the disaster preparedness strategies. As coastal vegetation helps in mitigating disasters like Tsunami, cyclone etc., planting tree crops, saline, and flood tolerant crop varieties could be continued along the coastal belt to cope up with disasters like long drought season and heavy flood as well.
- Further, in consultation with local communities, suitable multi-layered plantations could be identified for planting along the coastal regions, which would help in sand dune stabilization.
- Though the government has implemented various schemes for the benefit of the farmers/fisherman, they are not fully aware of all the Government schemes. To promote horizontal transfer of knowledge, the participating farmers/fishermen could be mobilized in to groups or associations in their respective blocks. All such associations in the district may be linked with the line departments and financial institutions/credit societies. This would enable to gain access to existing government development programmes. The advantage of this participatory approach facilitates continuous need based skill building for men and women farmers/fishermen, promotes an enabling environment, and supports the sustainability of the activity.
- Salt workers and marginal salt producers working in different clusters along the seacoast in Vedaranyam are one of the most disadvantaged groups in the district. Further, the salt industry is also highly disaster-prone, as these are located along the coastal areas. Though a number of schemes are being implemented by the Department of Salt to provide good health, drinking water, rest sheds for salt workers etc., they still live in an extremely poor working and living conditions, leaving them in a cycle of poverty and vulnerability.

- It is important that issues related to salt workers are effectively and immediately addressed to save the subsequent generations from falling in to this poverty and vulnerability trap. The awareness of Government schemes and level of access of these are extremely low among salt workers, and there is scope for organizing Network of NGOs to work on salt pan workers issues.

Health and Nutrition

- Though the sex ratio of Nagapattinam is 1025, the child sex ratio is only 959. It is also noted that the percentage of 0-6 male population is greater in all the eleven blocks of the district. The reasons are to be critically examined.
- To fulfill its role of coordinating health care, the district health department needs to be well integrated internally and with other health related services. Primary health-care interventions provide a means of dealing with the main health problems faced by communities in the district. Infant mortality and maternal mortality have come down over a period of last 10 years in the district due to the efforts taken by the district administration.
- To improve the overall health index of the district, emphasis should be put on preventive measures; PHCs should be created/upgraded, to provide improved medical care using appropriate and scientifically sound technology.
- Unreliable or insufficient power supply and inadequate power quality are some of the factors that combine to inhibit the ability of the PHCs to conduct critical procedures and ensure quality health care delivery. Providing reliable and sustainable energy can help mitigate some of the challenges inherent in operating a health facility in the rural areas.
- Further, the health department of the district should sport a dynamic vision of the health system facilitating a multi-sectoral approach to health (diet, nutrition, water, and environmental hygiene, preventive, and curative care). An integrated approach should be adopted to link health with other services that are not strictly speaking health services but are essential for maintaining health. These services deal with areas such as nutrition, water supply, environmental hygiene, and living conditions.
- Illiteracy and lack of awareness of potential health threats is a major problem. Illiterates are unaware about symptoms, modes of transmission, prevention, and treatment of diseases or have poor information about the disease and its causative factors.

- Gender disparities also play a major role in the development of diseases. Women are still socially, politically, culturally, and economically lagging. This preference also shows in the health seeking behaviour. Boys are more likely to be taken early for medical care compared to girls.
- To ensure the implementation of a consistent and effective health strategy, health staff and the target community must be included at all levels of the decision-making process. To create awareness, disseminate, and sensitize, steps should be taken with the help of VHNs. Collective Action Institution may be created involving BMO, SHG members, and PRI leaders for monitoring and conducting social audit of the primary health care services.
- The effective role of midwives (VHNs and CHNs) could influence the community's perceptions of health care and facilitate behaviour changes, and thereby promote health. VHNs and CHNs should be provided with minimum transport facilities, trained to use ICT technologies and their incentives shall be increased to motivate them to continue their services with more involvement and vigor.
- The urban poor face greater health risks due to poor sanitation, lack of safe drinking water, poor drainage, high density of population etc. Thus the district administration must focus on strengthening preventive action for improved health and nutrition and prevention of diseases in urban slum areas.

Literacy and Education

- The pass out rate at the level of 10^{th} and +2 levels is relatively low among the districts of the State. As a policy of the State Government, students get promoted up to ninth standard compulsorily. This has created a moral hazard among the stakeholders, and they have not taken seriously the school education, specifically those who enroll in government schools. This could be seen in the lower pass percentage of 10^{th} and 12^{th} standard. As the child gets promoted without any qualitative and quantitative assessment, the teachers' responsibility is at stake. The teacher is not going to be questioned if a child is not doing well, and there will be many teachers who may not spend that extra time required on a child to bring him/her up the learning curve and leave it to the parents to do this. This has to be checked without the child being subjected to insults and punishments.

- Rural schools face many challenges that do not exist in urban or suburban areas, such as geographic isolation, and a lack of resources, teachers, community involvement, and digital divide. Schools lacking basic amenities should be identified and infrastructure to schools, in the form of additional class rooms, drinking water facilities, toilets, separate toilets for girls, kitchen sheds, and compound walls, must be given top priority on par with private schools functioning in urban areas.
- Teachers are central to educational development. The effort to attract and retain quality teachers continues to be a major concern in rural areas. Schools located in what are considered to be "hard to staff" areas experience the most difficulties. A variety of factors contribute to the problems of recruiting and retaining teachers in small and rural schools. Offering productivity linked incentives such as increments and bonuses to teachers would be a successful strategy for hiring and retaining new teachers in schools as well as to improve the quality of education in the rural areas of the district. It is also absolutely mandatory to evaluate the success of the schools and students at each and every level. Timely assessment will throw light on present problems and achievements.
- Telecommunication and power infrastructure policies should focus on schools as starting points for rural transformation. Given the situation of power shortages in rural areas, and the effect of power shortage on the usage of computers and other technologies in schools, the Governments should actively promote the usage of alternate sources of power. This ecologically friendly solution will also ensure a steady power supply to schools in rural areas.
- Introducing computers and the internet into learning environments in rural schools can have a significant impact on teaching and learning. It is not possible to provide schools with a fully stacked library; however, Internet has made information available at the door steps. As a result, those with access to ICTs have been greatly empowered, and the digital divide between the rural and urban children in their access to ICT have narrowed down.
- Communication skills are very much essential for one's professional growth. The knowledge of English is an important employability skill to be employed as well as to move higher in one's professional life. The education department must ensure that English as a language in education is fully realized in terms of the basic conditions for learning the language and those educated through Tamil medium schools need to attain the proficiency that would not hamper them to move forward to higher education and employment. Steps should be

initiated to bridge the gap of digital divide by way of providing unlimited online access to E-Resources and also provide online training in English, which will enable students to take up their college education with confidence and dignity and also make them job ready.

Gender equality

- In the district, while agriculture still accounts for the largest chunk of women workers in rural and urban areas, tertiary sector accounts for more than half of the women workers. In the informal sector, where most women are employed and where little effective monitoring and control exist; women are being paid lower wages than men.
- Work participation rate is much lower for women, whereas the labour force participation rate is higher for women in the district. Proportion of marginal women workers is far higher than men, and more women are engaged in agricultural labour than men.
- Female literacy is also lower than male. The generally low levels of education and skill formation among the female casual workers confine them mostly to low paid, unskilled jobs and increases their "vulnerability".
- Gender disparity in terms of education, health, and survival is gradually narrowing down due to the various government women welfare schemes, however as women are significant stakeholders in the process of economic growth and development, there is much more to be done in bridging the gender gap.
- Women's empowerment must be both quantitative (for example increasing job opportunities, providing skills and training), and qualitative (for example improving working conditions, wages, social status). Along with existing financial support, an increase in the income generating activities such as expansion of training facilities and coverage of the microcredit program will help in empowering women.
- Being a coastal district, the women entrepreneurs could be engaged in the following activities: Marine fishery--fish vending, processing, shell industries, net making etc., fresh water fishery--cultivation, vending, processing, catching, hatchery, ornamental fishery--hatchery aquariums etc.
- Women as farm entrepreneurs, members of SHGs or as Micro entrepreneurs have scope in the areas of Agro based enterprises/livelihoods, food processing/products, floriculture/fishery, value addition of agricultural products, food production

(vegetables/rice/fruits etc), marketing outlets/ door to door delivery of food products etc. But women as entrepreneurs face constraints such as lack of capital, lack of market, lack of land ownership, lack of confidence/risk bearing capacity, lack of managerial ability, lack of technological knowledge etc.

- Support to women entrepreneurs should be strengthened, as they are mostly self-motivated and can be effective agents of change. Financial opportunities for women, such as credit facilities, need to be created.
- Information on market opportunities need to be made more easily available to women to enable them to get a better deal (price) for their production. Building of trade-related infrastructure - including rural areas and rural markets - to encourage more women participation in trade must be put in place.
- Training women in non-traditional skills breaks stereotypes and can enhance women's self-esteem. It helps them earn better wages, and over time, helps them achieve positions of leadership. Social structure must be tuned in a way so that it helps woman to exploit her full potential as a human being.
- The challenge ahead is to improve awareness on women's overall participation and contribution to the economy.

Social Security

- SHGs help in the creation of a strong social network and increase the confidence that the rural womenfolk have such as going to the bank on their own to obtain loans. These have definitely resulted in the rural villagers deciding their own method and pace of their development, and not having to wait for the intervention of government schemes. However, regular monitoring of the groups is essential to realize substantial benefits and ensure that self-help groups remain successful.
- Financial Institutions and banks, in addition, must continue to play a crucial role in the rural outreach and must promote rural friendly banking plans while extending basic services to all villagers. Fears of rural folk related to bank usage must be wiped out so that the people are more comfortable asking the bank officers for assistance in accessing funding. It can be said that there is no group more affected by the sin of omission viz., old aged people, destitute women, and widows. Irrespective of their economic status, they are subjected to social exclusion in society.

- The district administration has been implementing various social security programs of the Government of Tamil Nadu for the benefit of the aged people, destitute women, widows, and differently abled persons in the district. However, the growing concern on the protection and promotion of the rights of the marginally excluded people also require an assessment of the present interventions, which may give valuable inputs for the future, particularly in policies and programs.

Infrastructure/Environment Sustainability

- Existing Nagapattinam port should be elevated as a commercial port to boost trade-oriented economic activity. Impetus to tourism should be created through necessary investments in tourism infrastructure and improvements in road and rail connectivity.
- Nagapattinam is a cyclone-prone district in view of its location and its vast coastal line. This warrants continued focus on disaster management and mitigation by the district administration. There is a need to equip the coastal regions in terms of adequate preparedness to handle cyclones and other natural disasters. This includes investing on shelters, advance warning systems, creating and strengthening of water bodies and interlinking networks of storm water drains.
- Solid waste management with focus on scientific disposal and mechanized handling of waste should be an urgent priority in the Nagapattinam municipal region. Nagapattinam being the capital of the district and also the economic and tourist hub, measures should be taken to make it slum free.
- Slum rehabilitation programs need to be accompanied by livelihood development strategies and income generation measures for minimizing and progressively eliminating slum proliferation in a sustainable manner. The district economic progress has also been limited by its location and poor connectivity to the other parts of the State. There is a need to widen and strengthen the arterial road networks from Nagapattinam.

Summary

The HDI, GII CDI and MDPI not only reveal the level of human development in the district but also serve as a measuring scale to compare the performance of the blocks and to identify intra-block disparities. The education, health, and income disparities across the blocks of the district are distinctly captured by the indices. Even though certain blocks fared well in terms of certain indices, they failed to fare well in other indices. For example, the Mayiladuthurai block fared well in the Education index of HDI, but the same block performed very poorly with respect to Health index of HDI. This has pulled down the overall human development index of Keelaiyur.

On juxtaposing, the three sectoral index values viz., standard of living index, education index, and health index, it could be concluded that there is no one to one relationship among the indicators. After assessing the ground realities of each and every block, it could be concluded that the priority and needs of the people significantly vary among the blocks and specific policy prescriptions are needed in achieving holistic balanced development in the district. Mere planning and allocation of funds would not be adequate. An effective delivery mechanism with people's participation has to be ensured at various stages of the formulation and implementation of the welfare programmes.

Transparency in the operation of the schemes and adequate monitoring of the use of resources at various levels are needed to check to achieve the intended targets. Overall, co-ordination among health, education, revenue, rural development departments and also local bodies is needed to realize the intended targets.

ANNEXURES

Human Development Index

Table 9.1: Block-wise HDI Indicators

S.No	Block / District	Standard of Living					Health			Education		
		Cooking Fuel	Toilet Facilities	Drinking Water (Habitation)	Electricity	Pucca Houses	IMR	MMR	U5MR	Literacy Rate	GER Primary	GER Secondary
		Census	DRDA	DRDA	Census	DRDA	Health Department - Nagapattinam			Census 2011	Education Department	
		2011	2013-14	2013-14	2011	2013-14	2013-14			2011	2013-14	
1	Keelaiyur	24.98	55.48	100	86.8	43.67	12.50	84	17.50	83.06	99.42	107.7
2	Kilvelur	24.99	70.11	100	84.5	55.84	8.70	347	11.50	83.09	99.82	104.1
3	Kollidam	46.25	40.68	100	100	29.53	11.80	94	12.80	79.21	99.41	108.5
4	Kuthalam	38.17	43.87	100	100	55.18	10.80	135	13.70	83.58	99.81	104.9
5	Mayiladuthurai	58.53	63.11	100	100	52.84	12.97	121	9.10	86.01	99.76	116.8
6	Nagapattinam	55.74	81.73	100	100	56.70	9.54	83	15.40	86.69	99.25	108.3
7	Sembanarkoil	40.18	52.97	100	100	50.23	17.40	72	19.40	83.43	99.52	108.1
8	Sirkali	45.10	55.70	100	100	40.99	16.13	90	11.50	82.38	99.34	109.9
9	Thalainayar	22.49	51.74	100	85.7	57.78	17.10	101	22.70	80.02	99.60	102.2
10	Thirumarugal	36.92	53.73	100	100	52.69	7.70	0	16.60	83.66	99.65	101.1
11	Vedaranyam	26.13	51.38	100	100	56.99	21.43	0	22.00	83.46	99.49	117.6
	District	42.87	56.98	100	97.78	49.60	14.00	88	15.10	83.59	99.55	108.1

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

Table 9.2: Block-wise Human Development Index

S.No	Block/ District	Standard of Living Indices					Health Indices			Education Indices			Sectoral Index			Overall Index	Rank
		Cooking Fuel	Toilet Facilities	Drinking Water	Electricity	Pucca Houses	IMR	MMR	U5MR	Literacy Rate	GER Primary	GER Secondary	Standard of Living	Health	Education		
1	Keelaiyur	0.124	0.418	1.000	0.448	0.548	0.698	0.780	0.471	0.764	0.962	0.626	0.418	0.635	0.772	0.589	7
2	Kilvelur	0.124	0.742	1.000	0.353	0.938	0.937	0.091	0.849	0.766	1.000	0.491	0.497	0.417	0.722	0.531	9
3	Kollidam	0.679	0.090	1.000	1.000	0.095	0.742	0.754	0.767	0.514	0.961	0.658	0.357	0.754	0.688	0.570	8
4	Kuthalam	0.468	0.161	1.000	1.000	0.917	0.805	0.646	0.710	0.798	0.999	0.522	0.586	0.717	0.747	0.680	5
5	Mayiladuthurai	1.000	0.587	1.000	1.000	0.842	0.668	0.683	1.000	0.956	0.994	0.969	0.869	0.770	0.973	0.866	1
6	Nagapattinam	0.927	1.000	1.000	1.000	0.965	0.884	0.783	0.603	1.000	0.946	0.649	0.978	0.747	0.850	0.853	2
7	Sembanarkoil	0.521	0.363	1.000	1.000	0.758	0.389	0.811	0.351	0.788	0.971	0.641	0.678	0.480	0.789	0.636	6
8	Sirkali	0.649	0.423	1.000	1.000	0.462	0.469	0.764	0.849	0.720	0.954	0.709	0.662	0.673	0.787	0.705	4
9	Thalainayar	0.059	0.335	1.000	0.405	1.000	0.408	0.735	0.143	0.567	0.979	0.422	0.380	0.350	0.617	0.435	11
10	Thirumarugal	0.436	0.379	1.000	1.000	0.837	1.000	1.000	0.527	0.803	0.984	0.380	0.673	0.808	0.669	0.714	3
11	Vedaranyam	0.154	0.327	1.000	1.000	0.975	0.135	1.000	0.187	0.790	0.969	1.000	0.547	0.293	0.915	0.528	10

Source: Computed.

Gender Inequality Index

Table 9.3: Block-wise GII Indicators

S.No	Block/District	MMR	Institutional Deliveries	Ante Natal Coverage	Female Literacy	Male Literacy	Girls (0-6) years	Boys (0-6) years	Elected Representatives –		Female WPR	,Male WPR	Female WPR Non-Agri	Male WPR Non-Agri	Female Agri. Wage rate	Male Agri. Wage rate
									Female	Male						
		2013-14			2011	2011	2011	2011	2011	2011	2011	2011	2011	2011	2013-14	2013-14
		Health Department			Census of India				(Local bodies/PAPD)		Census of India				Statistic Department	
		Rate	%	%	%	%	%	%	%	%	%	%	%	%	Rs.	Rs.
1	Keelaiyur	84	100	93	76.5	89.9	48.6	51.4	31.6	68.4	34.4	58.1	16.2	33.6	110	350
2	Kilvelur	347	100	95	76.7	89.7	48.9	51.1	39.0	61.0	35.9	58.4	10.4	29.7	110	350
3	Kollidam	94	100	98	73.0	85.7	48.6	51.4	45.6	54.4	27.4	57.6	20.2	41.0	130	350
4	Kuthalam	135	100	100	77.6	89.8	49.4	50.6	37.8	62.2	22.9	58.2	18.5	34.9	130	350
5	Mayiladuthurai	121	100	96	81.0	91.1	49.4	50.6	42.4	57.6	22.5	57.4	36.6	56.2	130	350
6	Nagapattinam	83	100	93	81.3	92.3	48.8	51.2	38.0	62.0	17.8	55.5	51.9	76.3	110	350
7	Sembanarkoil	72	100	96	77.7	89.5	49.4	50.6	33.6	66.4	25.9	58.4	22.8	46.8	130	350
8	Sirkali	90	100	87	76.4	88.5	48.6	51.4	40.4	59.6	24.4	56.8	26.2	48.1	130	350
9	Thalainayar	101	100	93	72.9	87.3	49.4	50.6	43.8	56.3	37.6	59.9	11.4	24.8	110	350
10	Thirumarugal	10	100	95	77.5	90.0	48.9	51.1	32.6	67.4	29.2	58.0	19.0	35.3	110	350
11	Vedaranyam	10	100	98	76.2	90.9	48.2	51.8	33.3	66.7	25.8	59.3	20.3	32.6	110	350
	District	88	100	95	77.6	89.8	49.0	51.0	40.9	59.1	25.8	57.8	24.20	45.2	120	350

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

Cont.…

Table 9.4: Block-wise GII Index

S.No	Block/District	Health Indices			Empowerment Indices						Labour Indices					
		MMR	Institutional Deliveries	Ante Natal Coverage	Female Literacy	Male Literacy	female Children (0-6) years	male Children (0-6) years	Female Elected Representatives	Elected Representatives	Female WPR	Male WPR	Female WPR in Non-Agri Sector	Male WPR in Non-Agri Sector	Female Agri. Wage rate	Male Agri. Wage rate
1	Keelaiyur	0.119	1.000	0.927	0.765	0.899	0.486	0.514	0.316	0.684	0.344	0.581	0.162	0.336	0.355	1.000
2	Kilvelur	0.029	1.000	0.950	0.767	0.897	0.489	0.511	0.390	0.610	0.359	0.584	0.104	0.297	0.355	1.000
3	Kollidam	0.106	1.000	0.975	0.730	0.857	0.486	0.514	0.456	0.544	0.274	0.576	0.202	0.410	1.000	1.000
4	Kuthalam	0.074	1.000	1.000	0.776	0.898	0.494	0.506	0.378	0.622	0.229	0.582	0.185	0.349	1.000	1.000
5	Mayiladuthurai	0.083	1.000	0.964	0.810	0.911	0.494	0.506	0.424	0.576	0.225	0.574	0.366	0.562	1.000	1.000
6	Nagapattinam	0.120	1.000	0.925	0.813	0.923	0.488	0.512	0.380	0.620	0.178	0.555	0.519	0.763	0.355	1.000
7	Sembanarkoil	0.139	1.000	0.962	0.777	0.895	0.494	0.506	0.336	0.664	0.259	0.584	0.228	0.468	1.000	1.000
8	Sirkali	0.111	1.000	0.868	0.764	0.885	0.486	0.514	0.404	0.596	0.244	0.568	0.262	0.481	1.000	1.000
9	Thalainayar	0.099	1.000	0.926	0.729	0.873	0.494	0.506	0.438	0.563	0.376	0.599	0.114	0.248	0.355	1.000
10	Thirumarugal	1.000	1.000	0.949	0.775	0.900	0.489	0.511	0.326	0.674	0.292	0.580	0.190	0.353	0.355	1.000
11	Vedaranyam	1.000	1.000	0.984	0.762	0.909	0.482	0.518	0.333	0.667	0.258	0.593	0.203	0.326	0.355	1.000

Source: Computed.

Cont.…

Table 9.5: Block-wise GII Index

S.No	Block/District	Female Health Indices	Male Health Indices	Female Emp Indices	Male Emp Indices	Female LF Indices	Male LF Indices	GF	GM	GFM	Health Bar	Empowerment Bar	LF Bar	GFM Bar	GII	Rank
1	Keelaiyur	0.480	1.000	0.490	0.681	0.270	0.580	0.399	0.734	0.517	0.740	0.585	0.425	0.569	0.092	10
2	Kilvelur	0.301	1.000	0.547	0.654	0.237	0.558	0.339	0.715	0.460	0.651	0.600	0.397	0.537	0.144	11
3	Kollidam	0.470	1.000	0.577	0.621	0.381	0.618	0.469	0.727	0.570	0.735	0.599	0.500	0.604	0.055	3
4	Kuthalam	0.420	1.000	0.541	0.656	0.348	0.588	0.429	0.728	0.540	0.710	0.599	0.468	0.584	0.075	7
5	Mayiladuthurai	0.430	1.000	0.586	0.643	0.435	0.686	0.479	0.761	0.588	0.715	0.614	0.560	0.627	0.062	6
6	Nagapattinam	0.481	1.000	0.556	0.664	0.320	0.751	0.441	0.793	0.567	0.741	0.610	0.536	0.623	0.091	9
7	Sembanarkoil	0.511	1.000	0.511	0.670	0.389	0.649	0.467	0.758	0.578	0.756	0.590	0.519	0.614	0.059	4
8	Sirkali	0.459	1.000	0.556	0.647	0.400	0.649	0.467	0.749	0.575	0.729	0.601	0.524	0.613	0.061	5
9	Thalainayar	0.451	1.000	0.565	0.629	0.248	0.530	0.398	0.693	0.506	0.725	0.597	0.389	0.552	0.084	8
10	Thirumarugal	0.983	1.000	0.503	0.677	0.270	0.589	0.511	0.736	0.603	0.991	0.590	0.430	0.631	0.044	2
11	Vedaranyam	0.995	1.000	0.504	0.679	0.265	0.578	0.510	0.732	0.601	0.997	0.592	0.421	0.629	0.044	1

Source: Computed.

Cont.…

Child Development Index

Table 9.6: Block-wise Child Development Indicators and Index in Nagapattinam District

S. No	Block/District	Indicator of Child Development							
		Health			Education				
					Enrollment Rate		Children Never Enrolled in School	Transition Rate	
		U5MR	% of Malnourished Children	0-6 Sex ratio	Primary	Secondary		Primary to Upper Primary	Upper Primary to Secondary
		2014	2014	2011	2013-14				
1	Keelaiyur	17.5	17.0	946	99.42	107.7	0.00	99.16	98.98
2	Kilvelur	11.5	23.0	959	99.82	104.1	0.00	98.88	99.50
3	Kollidam	12.8	29.0	946	99.41	108.5	0.00	98.68	98.99
4	Kuthalam	13.7	17.0	977	99.81	104.9	0.00	98.81	98.93
5	Mayiladuthurai	9.1	19.0	977	99.76	116.8	0.00	98.81	98.90
6	Nagapattinam	15.4	14.0	953	99.25	108.3	0.00	99.27	99.00
7	Sembanarkoil	19.4	21.0	977	99.52	108.1	0.00	98.92	98.83
8	Sirkali	11.5	25.0	947	99.34	109.9	0.00	98.85	98.99
9	Thalainayar	22.7	21.0	977	99.60	102.2	0.01	99.02	98.93
10	Thirumarugal	16.6	14.0	956	99.65	101.1	0.00	98.97	98.97
11	Vedaranyam	22.0	20.0	932	99.49	117.6	0.00	99.05	98.94
	District	15.1	20.0	959	99.55	108.1	0.00	98.96	99.00

Source: (i) Health Department, and (ii) Education Department – 2013.14.

Cont.…

Table 9.7: Block-wise Child Development Index in Nagapattinam District

S. No	Block/District	Index Value								CDI Index	Rank
		Health Index			Education Index						
		U5MR	% of Malnourished Children	0-6 Sex ratio	Enrollment Rate		Children Never Enrolled in School	Transition Rate			
					Primary	Secondary		Primary to Upper Primary	Upper Primary to Secondary		
1	Keelaiyur	0.382	0.800	0.318	0.298	0.397	1.000	0.814	0.224	0.529	5
2	Kilvelur	0.824	0.400	0.593	1.000	0.180	1.000	0.339	1.000	0.667	2
3	Kollidam	0.728	0.000	0.302	0.281	0.449	1.000	0.000	0.239	0.375	10
4	Kuthalam	0.662	0.800	0.982	0.982	0.229	1.000	0.220	0.149	0.628	3
5	Mayiladuthurai	1.000	0.667	0.982	0.895	0.950	1.000	0.220	0.104	0.727	1
6	Nagapattinam	0.537	1.000	0.458	0.000	0.434	1.000	1.000	0.254	0.585	4
7	Sembanarkoil	0.243	0.533	1.000	0.474	0.421	1.000	0.407	0.000	0.510	6
8	Sirkali	0.824	0.267	0.342	0.158	0.531	1.000	0.288	0.239	0.456	9
9	Thalainayar	0.000	0.533	0.987	0.614	0.069	0.000	0.576	0.149	0.366	11
10	Thirumarugal	0.449	1.000	0.521	0.702	0.000	0.600	0.492	0.209	0.497	7
11	Vedaranyam	0.051	0.600	0.000	0.421	1.000	1.000	0.627	0.164	0.483	8

Source: Computed.

Multi-Dimensional Poverty index

Table 9.8: Block-wise Multi-Dimensional Poverty Indicators in Nagapattinam District

S. No	Block/District	Health			Education		Living Standards				
		IMR	High Order Birth Rate	Malnourished Children	Drop out in Primary	Drop out in Secondary	cooking fuel	toilet facilities	drinking water	Electricity	Pucca house
		2014	2013-14	2014	2013-14		2011	2013-14		2011	2013-14
1	Keelaiyur	12.5	8.1	17.0	1.20	5.39	24.98	55.48	100	86.78	43.67
2	Kilvelur	8.7	7.6	23.0	1.00	6.46	24.99	70.11	100	84.50	55.84
3	Kollidam	11.8	12.2	29.0	0.90	5.56	46.25	40.68	100	100	29.53
4	Kuthalam	10.8	8.3	17.0	1.00	5.33	38.17	43.87	100	100	55.18
5	Mayiladuthurai	13.0	7.5	19.0	1.20	3.16	58.53	63.11	100	100	52.84
6	Nagapattinam	9.5	5.5	14.0	0.80	6.33	55.74	81.73	100	100	56.70
7	Sembanarkoil	17.4	10.0	21.0	1.00	5.5	40.18	52.97	100	100	50.23
8	Sirkali	16.1	9.6	25.0	0.80	4.12	45.10	55.70	100	100	40.99
9	Thalainayar	17.1	7.0	21.0	1.10	5.51	22.49	51.74	100	85.74	57.78
10	Thirumarugal	7.7	7.7	14.0	0.70	9.91	36.92	53.73	100	100	52.69
11	Vedaranyam	21.4	6.0	20.0	0.90	3.45	26.13	51.38	100	100	56.99
	District	14.0	8.2	20.0	1.00	5.52	42.87	56.98	100	97.78	49.60

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

Cont.…

Table 9.9: Block-wise Multi-Dimensional Poverty Index in Nagapattinam District

S. No	Block/District	Health Indices			Education Indices		Living Standards Indices					MDPI Index value	Rank
							Access to						
		IMR	High Order Birth Rate	Malnourished Children	Drop out in Primary	Drop out in Secondary	Cooking fuel	Toilet facilities	Drinking water	Electricity	Pucca house		
1	Keelaiyur	0.650	0.610	0.800	0.000	0.670	0.069	0.361	1.000	0.147	0.501	0.519	10
2	Kilvelur	0.927	0.687	0.400	0.400	0.511	0.069	0.717	1.000	0.000	0.931	0.436	8
3	Kollidam	0.701	0.000	0.000	0.600	0.644	0.659	0.000	0.000	1.000	0.000	0.639	11
4	Kuthalam	0.774	0.583	0.800	0.400	0.679	0.435	0.078	1.000	1.000	0.908	0.334	4
5	Mayiladuthurai	0.616	0.690	0.667	0.000	1.000	1.000	0.546	1.000	1.000	0.825	0.266	2
6	Nagapattinam	0.866	1.000	1.000	0.800	0.530	0.923	1.000	1.000	1.000	0.962	0.092	1
7	Sembanarkoil	0.294	0.319	0.533	0.400	0.653	0.491	0.299	1.000	1.000	0.733	0.428	7
8	Sirkali	0.386	0.383	0.267	0.800	0.858	0.627	0.366	1.000	1.000	0.406	0.391	6
9	Thalainayar	0.315	0.773	0.533	0.200	0.652	0.000	0.269	1.000	0.080	1.000	0.518	9
10	Thirumarugal	1.000	0.663	1.000	1.000	0.000	0.400	0.318	1.000	1.000	0.820	0.280	3
11	Vedaranyam	0.000	0.923	0.600	0.600	0.957	0.101	0.261	1.000	1.000	0.972	0.359	5

Source: Computed.

Table 9.10: Block wise CBR and CDR in Nagapattinam district

S. No	Block / District	Crude Birth Rate			Crude Death Rate		
		2012	2013	2014	2012	2013	2014
1	Keelaiyur	15.1	13.7	12.4	5.5	6.5	6.6
2	Kilvelur	15.9	14.3	14.3	4.5	6.3	6.1
3	Kollidam	14.8	14.3	14.3	4.7	5.1	4.8
4	Kuthalam	14.5	14.6	14.6	4.6	4.9	4.9
5	Mayiladuthurai (R+U)	14.7	13.0	13.3	4.6	5.1	4.0
6	Nagapattinam (R+U)	13.8	11.6	12.7	3.8	5.5	3.7
7	Sembanarkoil	14.5	13.7	12.9	5.8	6.2	5.5
8	Sirkali(R+U)	15.3	13.3	19.1	5.1	5.5	4.9
9	Thalainayar	13.1	13.0	12.0	5.3	4.9	5.5
10	Thirumarugal	14.1	13.2	12.8	5.1	4.9	5.3
11	Vedaranyam(R+U)	13.7	13.0	15.2	5.8	6.0	4.9
	District	13.7	13.0	13.0	4.7	5.1	5.0

Source: Health Department, Nagapattinam – 2014.

Table 9.11: Block wise Infant Mortality Rate in Nagapattinam district

S.No	Block / District	2013-14		
		Total live Births	Total Infant deaths	Rates
1	Keelaiyur	1196	15	12.50
2	Kilvelur	1153	10	8.70
3	Kollidam	2125	25	11.80
4	Kuthalam	2216	24	10.80
5	Mayiladuthurai	3314	43	12.97
6	Nagapattinam	2409	23	9.54
7	Sembanarkoil	2757	48	17.40
8	Sirkali	2231	36	16.13
9	Thalainayar	993	17	17.10
10	Thirumarugal	1304	10	7.70
11	Vedaranyam	2006	43	21.43
	District	21704	295	14.00

Source: Health Department, Nagapattinam – 2014.

Table 9.12: Block wise Institutional Delivery in Nagapattinam district

S. No	Block / District	Institutional delivery - 2014						Percentage					Total %
		Home	Health Sub Centre	PHC	GH	Private Hospital	Total	Home %	HSC %	PHC %	GH %	Pvt., Hos.%	
1	Keelaiyur	2	0	199	658	355	1214	0.16	0.00	16.39	54.20	29.24	100
2	Kilvelur	0	1	142	826	198	1167	0.00	0.09	12.17	70.78	16.97	100
3	Kollidam	0	0	278	1213	656	2147	0.00	0.00	12.95	56.50	30.55	100
4	Kuthalam	0	0	260	1212	730	2202	0.00	0.00	11.81	55.04	33.15	100
5	Mayiladuthurai	1	0	120	1865	1474	3460	0.03	0.00	3.47	53.90	42.60	100
6	Nagapattinam	2	0	60	1586	750	2398	0.08	0.00	2.50	66.14	31.28	100
7	Sembanarkoil	1	2	350	1505	914	2772	0.04	0.07	12.63	54.29	32.97	100
8	Sirkali	0	0	280	1290	646	2216	0.00	0.00	12.64	58.21	29.15	100
9	Thalainayar	2	0	136	558	293	989	0.20	0.00	13.75	56.42	29.63	100
10	Thirumarugal	0	0	172	825	304	1301	0.00	0.00	13.22	63.41	23.37	100
11	Vedaranyam	2	0	262	673	1312	2249	0.09	0.00	11.65	29.92	58.34	100
	District	10	3	2259	12211	7632	22115	0.05	0.01	10.21	55.22	34.51	100

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

Table 9.13: Block wise Malnourished Children (0-5) in Nagapattinam district - 2014

S. No	Block	No. of AWCs	Weighed Children of 0-5 year	Normal Children		*SUW Children		**MUW Children		% of (MUW+SUW)
				0-5 year	%	0-5 year	%	0-5 year	%	
1	Keelaiyur	84	5855	4840	83.0	29	0.5	986	17	17.00
2	Kilvelur	84	5776	4469	77.0	29	0.5	1278	22	23.00
3	Kollidam	107	12219	8701	71.0	8	0.07	3510	29	29.00
4	Kuthalam	137	9804	8093	83.0	8	0.08	1603	17	17.00
5	Mayiladuthurai	163	14322	11664	81.0	22	0.15	2636	18	19.00
6	Nagapattinam	135	8778	9098	85.0	40	0.37	1486	14	14.00
7	Sembanarkoil	162	13072	10351	79.0	14	0.11	2704	21	21.00
8	Sirkali	123	9907	7388	75.0	2	0.02	2517	25	25.00
9	Thalainayar	80	5133	4075	79.0	2	0.04	1056	21	21.00
10	Thirumarugal	100	6927	5984	86.0	20	0.29	923	13	14.00
11	Vedaranyam	150	9863	7900	80.0	5	0.05	1958	20	20.00
	District	1325	103421	82563	80.0	179	0.17	20657	20	20.00

Source: District Project Officer - (ICDS), Nagapattinam, 2014.

Table 9.14: Block wise Safe Drinking Water in Nagapattinam district

S. No	Block / District	% of Habitation Covered
1	Keelaiyur	100
2	Kilvelur	100
3	Kollidam	100
4	Kuthalam	100
5	Mayiladuthurai	100
6	Nagapattinam	100
7	Sembanarkoil	100
8	Sirkali	100
9	Thalainayar	100
10	Thirumarugal	100
11	Vedaranyam	100
	District	100

Source: MDWS and EO (TP) and Municipal commissioner, Nagapattinam, 2014.

Table 9.15: Literacy Rate during 2001 and 2011 in Nagapattinam District

S.No	Block / District	Literates Rate - 2001			Literates Rate - 2011		
		Male	Female	Persons	Male	Female	Persons
1	Keelaiyur	83.28	64.70	73.75	89.88	76.48	83.06
2	Kilvelur	84.63	66.22	75.28	89.73	76.68	83.09
3	Kollidam	79.37	61.61	70.44	85.73	72.97	79.21
4	Kuthalam	84.90	68.23	76.43	89.81	77.59	83.58
5	Mayiladuthurai	86.96	72.40	79.66	91.15	81.01	86.01
6	Nagapattinam	89.02	73.54	81.20	92.27	81.28	86.69
7	Sembanarkoil	83.62	67.68	75.51	89.47	77.67	83.43
8	Sirkali	81.99	65.72	73.84	88.48	76.43	82.38
9	Thalainayar	86.68	70.06	78.24	87.31	72.90	80.02
10	Thirumarugal	84.23	63.11	73.59	89.99	77.52	83.66
11	Vedaranyam	86.08	65.84	75.82	90.86	76.23	83.46
	District	84.89	67.96	76.34	89.79	77.58	83.59

Source: Census of India during 2001 and 2011.

Note: Census Towns, Town Panchayats and Township are added in the respective rural blocks.

Figure: 9.16: Female Work Participation Rate

S.No	Block / District	Total Female Population	Total Female Worker	% of Female Worker participation Rate
1	Keelaiyur	44,154	15,198	34.42
2	Kilvelur	40,003	14,344	35.86
3	Kollidam	70,067	19,209	27.42
4	Kuthalam	77,957	17,817	22.85
5	Mayiladuthurai	1,31,350	29,497	22.46
6	Nagapattinam	93,953	16,740	17.82
7	Sembanarkoil	99,230	25,665	25.86
8	Sirkali	87,304	21,333	24.44
9	Thalainayar	37,310	14,028	37.60
10	Thirumarugal	48,711	14,238	29.23
11	Vedaranyam	88,284	22,751	25.77
	District	8,18,323	2,10,820	25.76

Source: Census of India during 2011.

Note: Census Towns, Town Panchayats and Township are added in the respective rural blocks.

Technical Notes

Construction of Indices

Introduction

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

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

Indicators for HDI

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

Indicators for measuring HDI

Dimensions	Indicators
Living standards	Percentage of HHs having access to Cooking fuel
	Percentage of HHs having access to Toilet
	Percentage of habitations having access to Drinking Water
	Percentage of HHs having access to Electricity
	Percentage of HHs having access to Pucca house
Health	Infant Mortality rate
	Maternal Mortality Ratio
	Under 5 Mortality Rate
Education	Literacy Rate

Dimensions	Indicators
	Gross Enrolment Rate (Primary and Gross enrollment in secondary) Schools

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

Method of Estimating HDI

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

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

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

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

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

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

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

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

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

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

4. To compute HDI, aggregate the three sectoral indices using geometric mean with the following formula.
   HDI= $(SI_l \times SI_h \times SI_e)^{(1/3)}$; where SI_l is the sectoral index for living standard, SI_h is the sectoral index for health and SI_e is the sectoral index for education.

Construction of Gender Inequality Index (GII)

Introduction

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

Indicators considered for measuring GII

Dimensions	Indicators
Health	Maternal Mortality Rate (MMR)
	Share of Institutional Deliveries (ID)
	Ante-natal coverage

Empowerment	Share of female and male elected representatives in Urban and Rural Local Bodies (PR_F and PR_M)
	Share of female and male literacy (LIT_F, LIT_M)
	Share of Female and Male Children (0-6) years
Labour Market	Share of female and male Work Participation Rate (WPR_F, WPR_M)
	Share of female and male workers in the non-agricultural sector (NAG_F, NAG_M)
	Female and male Agricultural wage rate ($WAGE_F$, $WAGE_M$)

Method

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

For females

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

For Males

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

2. Aggregating across gender group using a Harmonic mean.

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

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

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

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

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

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

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

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

Construction of Child Development Index (CDI)

Introduction

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

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

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

Indicators for Child Development

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

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

Computation of Child Development Index

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

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

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

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

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

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

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

Multidimensional Poverty Index

Indicators

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

Computation of Multidimensional Poverty Index

- The indicators have been broadly categorised under the 3 parameters that influence the HDI.

- All the above indicators are negative and positive in nature.

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

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

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

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

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

- The index values for each of the indicators would range between 0 and 1 - 0 indicating the lowest ranking for the blocks and 1 indicating highest ranking of the block

- The composite index is the average of the consolidated index values of all sectors and this is to be used to assign the ranks for the blocks within the district.

Abbreviations and Acronyms

1 Billion	One Hundred Crore
1 Crore	One Hundred Lakh
1 Lakh	One Hundred Thousand
1 Million	Ten Lakh
AEEO	Assistant Elementary Educational Officer
AMUL	Anand Milk Federation Union Limited
ART	Anti-Retro Viral Treatment
ATM	Automatic Teller Machine
BMO	Block Medical Officer
BOOT	Build Own Operate and Transfer
BPL	Below Poverty Line
BRTE	Block Resource Teacher Education
BSNL	Bharat Sanchar Nigam Limited
CBR	Crude Birth Rate
CCE	Continuous and Comprehensive Evaluation
CDI	Child Development Index
CDR	Crude Death Rate
CEO	Chief Educational Officer
CHN	Community Health Nurse
CSR	Corporate Social Responsibility
DRDA	District Rural Development Agency
DWP	Destitute Widows Pension
EMIS	Educational Management and Information System
FY	Financial Year (April to March)
GDDP	Gross District Domestic Product
GDP	Gross Domestic Product
GII	Gender Inequality Index
GPS	Government Primary School
GSDP	Gross State Domestic Product
ha	Hectare
HDI	Human Development Index

HDR	Human Development Report
HHs	Households
HOB	High Order Birth Rate
HSC	Health Sub Centre
HUD	Health Unit District
ICDS	Integrated Child development Service Scheme
ICT	Information and Communication Technology
IDU	Injecting Drug User
IDSP	Integrated Disease Surveillance Programme
IEC	Information, Education and Communication
IEC	Information ,Education and Communication
IFA	Iron Folic Acid
IGIDR	Indira Gandhi Institute of Development Research
IHDS	India Human Development Survey
ILAL	Insure Lives and Livelihoods
IMR	Infant Mortality Rate
IRDP	Integrated Rural Development Programme
ITES	Information Technology Enabled Services
Km	Kilometer
LBW	Low Birth Weight
LEB	Life Expectancy at Birth
LIC	Life Insurance Corporation of India
LNG	Liquefied Natural Gas
MDG	Millennium Development Goals
MDPI	Multi-Dimensional Poverty Index
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MMR	Maternal Mortality Rate
MSME	Micro, Small and Medium Enterprises
MUW	Moderately Under Weight
NABARD	National Bank for Agriculture and Rural Development
NCAER	National Council of Applied Economic Research
NDDP	Net District Domestic Product
NGO	Non-Government Organization
NHDR	National Human Development Report

NIDDCP	National Iodine Deficiency Disorders Control Programme
NLC	Neyveli Lignite Corporation
NLEP	National Leprosy Eradication Programme
NMHP	National Mental Health Programme
NMP	Noon Meal Programme
NPCB	National Programme for Control of Blindness
NPPC	National Programme for Palliative Care
NPPCD	National Programme for Prevention and the Control of Deafness
NRLM	National Rural Livelihood Mission
OAP	Old Age Pension
PCI	Per Capita Income
PCO	Public Call Office
PDS	Public Distribution System
PHC	Primary Health Centre
PHP	Physically Handicapped Person
PPP	Public Private Partnership
PPP$	Purchasing Power Parity Dollars
RIDF	Rural Infrastructure Development Fund
RMMCH	Rajah Muthiah Medical College Hospital
RMSA	Rashtriya Madhyamik Shiksha Abhiyan
RNTCP	Revised National TB Control Programme
SBR	Still Birth Rate
SC & ST	Scheduled Caste & Scheduled Tribe
SECC	Socio Economic and Caste Census
SHDRs	State Level Human Development Reports
SHG	Self Help Group
SIDCO	Small Industries Development Corporation
SIPCOT	State Industries Promotion Corporation of Tamil Nadu
SMS	Short Message Service
SRI	System of Rice Intensification
SSA	Sarva Shiksha Abhiyan
SUW	Severely Under Weight
TB	Tuberculosis
THAI	Tamil Nadu Village Habitations Improvement scheme

TNAHCP	Tamil Nadu Area Health Care Project
TNCDW	Tamil Nadu Corporation for Development of Women
TNEB	Tamil Nadu Electricity Board
TRF	Total Fertility Rate
TSC	Total Sanitation Campaign
U5MR	Under 5 Mortality Rate
UN	United Nation
UNDP	United Nations Development Programme
US$	United States Dollar
VES	Vital Event Survey
VHN	Village Health Nurse
VHS	Voluntary Health Service
WPR	Work Participation Rate

Refrences

A Snapshot of NGOs working in Tsunami Relief and Rehabilitation in Nagapattinam, NGO Coordination and Resource Centre (NCRC), Nagapattinam, Tamil Nadu. http://www.ncrc.in/Publications/NCRC/NGOsnapshot.pdf [accessed September 6, 2013].

Approach paper for Twelfth Five Year Plan (2012-17), State Planning Commission, Government of Tamil Nadu. http://www.spc.tn.gov.in/fiveyearplans/approachnew.pdf [accessed February 2, 2014].

Brief Industrial profile of Nagapattinam District, Ministry of MSME, Government of India. http://dcmsme.gov.in/dips/IPS%20Nagapattinam%202012_tn.pdf [accessed September 2, 2013].

Case studies, Development Promotion Group. http://www.dpgsulo.org/index.php/case studies/VEMBARASAI [accessed January 21, 2014].

Case study and success stories from states. http://www.mdws.gov.in/hindi/sites/upload_files/ddwshindi/files/pdf/TSCcase%20studies.pdf [accessed January 10, 2014].

Census Data 2001 / Report on Post Enumeration Survey, Government of India, New Delhi. http://censusindia.gov.in/POST_ENUMERATION/Post_Enumaration.html [accessed August 23, 2013].

Census Report 2011, Government of India, New Delhi. http://www.census2011.co.in/census/district/40-nagapattinam.html [accessed September 10, 2013].

Community trainers profile - SSP, Nagapattinam, Tamil Nadu. www.disasterwatch.net/Profiles/SSPProfile_ngptnm.pdf [accessed April 11, 2014]

D. Sivakumar, D, and S. Vijayan, The Economic and Environmental Impact of Shrimp Farming in Nagapattinam District, Tamil Nadu, Language in India , 12 : 11 November 2012. www.languageinindia.com

Disabilities need assessment and intervention (Pudhu Vazhvu Thittam), Health and rehabilitation project, Disability and development database. http://www.disabilitydatabase.org/health/disabilities-need-assessment-and-intervention-pudhu-vazhvu-thittam [accessed March 14, 2014]

District Rural Development Agency, Nagapattinam District. http://www.nagapattinam.tn.nic.in/drda.html [accessed January 3, 2014].

Eleventh Five Year Plan 2007- 2012, State Planning Commission, Government of Tamil Nadu. http://www.spc.tn.gov.in/fiveyearplans/elventh_fypt.htm [accessed September 10, 2013].

Jayakumara Varadan, R and Pramod Kumar, Impact of Crop Insurance on Rice Farming in Tamil Nadu, Agricultural Economics Research Review, Vol. 25 (No.2) July-December 2012, Division of Agricultural Economics, Indian Agricultural Research Institute, New Delhi,

Mayilvaganan, V, TN fisherman shot dead by Lankan navy in mid-sea firing, Times of India, January 12, 2011. http://timesofindia.indiatimes.com/india/TNN-fisherman-shot-dead-by-Lankan-navy-in-mid-sea-firing/articleshow/7274670.cms [accessed December 22, 2013]

Migratory birds start flocking Point Calimere sanctuary, The Indian Republic, 23 November 2013. http://www.theindianrepublic.com/lifestyle/migratory-birds-start-flocking-point-calimere-sanctuary 100012454.html [accessed February 9, 2014]

Mud Crab Aquaculture, Asian Horizons, Volume 4, Issue No: 5, March 2013.

Nagapattinam District Human Development Report, District Administration – Nagapattinam & State Planning Commission – Tamil Nadu, 2009. http://www.spc.tn.gov.in//reports/NAGAPATTINAM.pdf [accessed August 7, 2013].

Nagapattinam District Official Website: http://www.nagapattinam.tn.nic.in [accessed August 10, 2013].

Physio-Chemical Characterization of Water Quality in Salinity Affected Area, Using GIS Spatial Mapping, Global Research Analysis, Vol. 2 (4), April 2013, ISSN No 2277 – 8160.

Planning Commission, Government of India, http://planningcommission.nic.in/[accessed January 9, 2014].

Prabu, M.J, A practical guide to avoiding losses for small ryots, FARMER'S NOTEBOOK, The Hindu, Thursday, Jan 17, 2008.

Rubbing Salt into their wounds, Dr. SoumyaSwaminathan, Director, National Institute for Research in Tuberculosis, Chennai, The Hindu, October 18, 2013.

Season and Crop Report Tamil Nadu 2009-10, 2010-11, 2011-12, Department of Economics and Statistics, Government of Tamil Nadu, Chennai.

Sen, Amartya (1982). Choice, Welfare and Measurement, Basil Blackwell, Oxford.

Sen, Amartya (1982).Poverty and Famines : An Essay on Entitlements and Deprivation, Clarendon Press.

Shanthi Saravana, B and V.Rajini, Wind Energy Integration with Desalination Industry– Analysis of Wind Power Potential in Chennai, Nagapattinam and Puducherry of South India, International Journal of Current Engineering and Technology.

Shodhganga: a reservoir of Indian Theses, INFLIBNET Centre. http://shodhganga.inflibnet.ac.in/ [accessed January 3, 2014].

Srividya, P.V, Home stay for tourists, The Hindu, Nagapattinam, August 25, 2011.

Statistical Hand Book of Tamil Nadu 2011, 2012, 2013, 2014, Department of Economics and Statistics, Government of Tamil Nadu, Chennai.

Success Stories, Krishi Vigyan Kendra (KVK), Nagapattinam, Tamil Nadu. http://www.agritech.tnau.ac.in/kvk/kvk_nagapattinum_success.html [accessed March 12, 2014]

Success Stories: A Few Case Studies, Planning Commission Reports. http://planningcommission.nic.in/reports/sereport/ser/7vgtn/v3_ch10.pdf [accessed January 20, 2014]

Sustainability and Equity: A Better Future for All, Human Development Report 2011, United Nations Development Programme (UNDP). http://hdr.undp.org/en/content/human-development report-2011 [accessed December 14, 2013].

Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience, Human Development Report 2014, United Nations Development Programme (UNDP). http://hdr.undp.org/en/2014report [accessed June 5, 2014].

Tamil Nadu – An Economic Appraisal 2009-10 & 2010-11, Department of Evaluation and Applied Research, Government of Tamil Nadu. http://www.tn.gov.in/dear/ [accessed December 7, 2013].

The Rise of the South: Human Progress in a Diverse World, Human Development Report 2013, United Nations Development Programme (UNDP). http://hdr.undp.org/en/2013-report [accessed January 8, 2014].

TNAU Agritech Portal Organic farming, Tamil Nadu Agricultural University, Coimbatore. http://agritech.tnau.ac.in/org_farm/orgfarm_success%20stories.html [accessed January 22, 2014]

Training programme organized by the SSA and IGNOU, SSA trains Teachers on educating differently abled Nagapattinam, The Hindu, December 17, 2011.

Tsunami Relief and Rehabilitation, District Administration, Nagapattinam, Tamil Nadu. http://www.nagapattinam.tn.nic.in/relief.html [accessed September 6, 2013].

Two tsunami girls yearn for filial love, Indo-Asia News Service, December 25, 2012. http://www.ummid.com/news/2012/December/25.12.2012/tsunami_grls_filiali.htm [accessed September 9, 2013]

Vimala D.D., Ravisankar T., Fisher Friend Mobile Application – An Innovative and Promising ICT Tool in Fisheries e-Extension, Journal of Fishery Technology, Vol 49, No 2, (2012).

Women wage battle on shrinking farmlands, The Hindu, Nagapattinam March 19, 2012.

Women's Federation in Nagapattinam, Grassroots Network, February 15, 2012. http://www.grassrootsresilience.wordpress.com [accessed December 9, 2013]