

## 7.1. Introduction

Tamil Nadu ranks first in urbanisation among the fifteen major States in the country. Urbanisation has been on the increase since 1961<sup>1</sup>. According to the 2001 Census, Tamil Nadu has emerged as the State with the highest level of urbanisation (43.86 per cent) in the country. 2.72 out of 6.21 crore of the total population of Tamil Nadu live in urban areas. The advance to first place is mainly due to a change in definition. Following the Nagar Palika Act of 1994 all the 611 town *panchayats* were brought under the category of statutory towns, irrespective of whether they satisfy the demographic criteria of “urban”<sup>2</sup>.

As evident from the Table 7.1, the inclusion of all the town *panchayats* resulted in an increase from 1991-2001 of 57.94 lakh in that category alone. The increase in the town *panchayat* population accounted for about 70 per cent of the total increase of 81.64 lakh from 1991-2001. As shown in the Table 7.2, the rate of urbanization had slowed down from 1971-1991 and would have slowed down further by 2001, if it had not been for the change in definition<sup>2</sup>. The 2.7 crore urban population of Tamil Nadu require a wide range of urban services including water supply, sewerage, solid waste management and streets as well as social infrastructure like schools, hospitals, markets and so on.

**Table 7.1. Urban Population of Tamil Nadu 1991-2001<sup>2</sup>**

Category	Number		Population		Decadal Growth Rate (%)
	1991	2001	1991	2001	
Corporation	3	6	71.35	79.12	10.90
Municipalities/ Cantonments	108	104	72.37	82.46	13.95
Town Panchayats	224	611	37.81	95.75	153.23
Census Towns	134	III	N.A.	N.A.	
<b>Total</b>	<b>469</b>	<b>832</b>	<b>190.77</b>	<b>272.41</b>	<b>42.79</b>

**Table 7.2 Urban Population of Tamil Nadu 1901-2001<sup>2</sup>**

Year	No. of Towns	Urbar. Population	Urban Population(%)	Decadal Growth (%)	Annual Growth Rate (%)
1901	133	27.24	14.15	-	-
1911	162	31.49	15.07	15.51	1.45
1921	189	34.28	15.85	8.86	0.85
1931	222	42.30	18.02	23.40	2.10
1941	257	51.73	19.70	22.30	2.01
1951	297	73.33	24.35	41.75	3.49
1961	339	89.90	26.69	22.59	2.04
1971	439	124.64	30.26	38.64	3.27
1981	434	159.5	32.95	27.98	2.47
1991	469	190.77	34.15	19.59	1.79
2001	832	272.42	43.86	42.79	3.56

Source: Census of India, 2001.

## 7.2. Distribution of Urban Units

Tamil Nadu has a very dispersed pattern of urbanisation with municipalities in virtually every district (excluding Ariyalur and Perambalur). The boundaries of Chennai District are contiguous with the Chennai Municipal Corporation. However, the Chennai Metropolitan Area is a larger area which includes several municipalities and town *panchayats* in Tiruvallur and Kancheepuram Districts. The spatial distribution (by district) of the six corporations, 104 municipalities, and 611 town *panchayats*, clearly illustrates that urbanization is not limited to anyone part of the State. However the urban population is concentrated along certain urban corridors.<sup>2</sup>

Table 7.3. Distribution of Urban Units by District<sup>2</sup>

District	Municipal Corporation	Municipalities	Town Panchayats	Urban Units	Level of Urbanisation
Thiruvallur		6	10	32	54.48
Chennai	1	7	-	1	100.00
Kancheepuram		-	28	56	53.48
Vellore		9	27	49	37.85
Dharmapuri		3	17	21	15.77
Thiruvannamalai		4	0	16	18.36
Villupuram		2	16	18	14.49
Salem	1	3	34	45	46.35
Namakkal		4	20	28	36.75
Erode		5	59	67	46.20
Nilgiris		3	13	18	59.51
Coimbatore	1	4	59	79	66.03
Dindigul		3	24	29	35.02
Karur	1	2	13	15	33.19
Tiruchirappally		2	18	25	46.65
Perambalur		-	5	5	14.54
Ariyalur		-	4	4	11.38
Cuddalore		5	16	23	33.00
Nagapaninam		3	9	12	22.15
Thiruvarur		4	19	11	20.24
Thanjavur		3	22	29	33.92
Pudukottai		2	8	12	16.93
Sivagangai		3	12	15	28.18
Madurai	1	3	15	25	55.94
Theni		5	23	28	54.10
Virudhunagar		6	10	27	44.38
Ramanathapuram		2	9	11	25.34
Thoothukudi		2	20	26	42.28
Tirunelveli	I	5	38	45	46.48
Kanyakumarai		4	56	60	65.10
<b>Total</b>	<b>6</b>	<b>104</b>	<b>611</b>	<b>832</b>	<b>43.86</b>

Source: Census of India. 2001.

According to a study by the Centre for Policy Research (2001), there appear to be 3 to 4 major urban corridors, namely

Chennai - Salem-Erode - Coimbatore

Tiruchi - Madurai - Tirunelveli

Chennai - Cuddalore Thanjavur and to a lesser extent Tuticorin - Nagercoil

Urbanisation is closely linked to the economic activities in a particular area. The definition of "urban" apart from size (population > 5000) and density (population density > 400 persons per sq. km.) specifies that 75 per cent of the male workforce should be engaged in non-agricultural pursuits. Hence infrastructure has to be planned not only for the population *per se* but also according to the requirements of the economic sectors in terms of water supply, waste disposal, power, telecommunications, etc. The higher density of urban areas is an advantage because it may provide economies of scale in the provision of these and other urban services. In contrast, providing the same level of service in a rural area is far more expensive because the average cost is much higher.<sup>2</sup>

### 7.3. Urban Poverty

Poverty is defined as people's inability to secure the minimum level of subsistence with a person not having adequate income to buy food with a total caloric norms 2150 in urban areas. As of 1999-2000, the proportion of people living below the poverty line estimated for all India stood at 26.10 per cent (27.09 in rural areas and 23.62 in urban areas). The proportion of people living below poverty line in urban Tamil Nadu had been steadily on the decrease from 42.40 in 1973-74 to 39.77 in 1993-94 and further to 22.11 per cent in 1999-2000. The number of poor persons during 1999-2000 is estimated at 49.97 lakh in the urban areas.<sup>2</sup>

**Table 7.4 Percentage of population below Poverty Line - Urban Tamil Nadu**

Year	Urban
1973-74	49.40
1977-78	48.69
1983-84	46.96
1987-88	38.64
1993-94	39.77
1999-2000	22.11

The factors that have contributed to rapid decline in poverty in the State include effective implementation of several Poverty alleviation schemes. These schemes are providing wage employment or self employment. The Public distribution system also provides a safety net for the poor. Since 1993-94, the percentage of people below poverty line was higher in urban areas than in rural areas. The increasing incidence of urban poverty is reflected in the accelerated growth of slums in cities and towns<sup>2</sup>.

## 7.4. Environmental Concerns

### 7.4.1 Urban Population Density

The density of population in urban areas not only reveals the concentration of people in urban areas but also highlights the structural condition of the town/city. Although density is essentially the quotient obtained by division of the population of an area by the extent of the area, the resultant figure enables the following trend analyses while expressing the average population density of the area, it also reveals size and class distribution of the population.

Difference in the density of population from the central area to the settlement fringes.

The growth and distribution of new and satellite townships.

The distribution of need, and thereby pressure on natural resources within the area.

The gross densities of population in major urban centres of Tamil Nadu over the years 1991-2001.

## 7.4.2 Growth of slum

A rapid increase in urban population results in the problems of straining or breaking-down of sanitary facilities and other infrastructure in cities and towns. The local bodies are faced with the responsibility of providing amenities with limited or often scant resources. The net result of this incongruity between the resources and responsibilities not only leads to formation of new slums but also gives new dimensions to the problem of slums.

Slums are a formidable problem merely because the gap between resources and demand for shelter tends to exist perpetually. The urban poor by themselves can neither afford to build pucca house or spare the hard earned money for stay in rented houses with basic amenities. Such people encroach Government and private lands kept vacant. Many slums are situated in vulnerable locations like river margins, water logged areas, road margins, etc. The slum population prefers to live in unhygienic conditions and in areas prone to floods and accidents.

Slum population accounts for 20 percent of the total population in the State. It is well known that the slum huts lack proper basic amenities such as living space, drainage, toilet and other facilities. Ultimately this aggregates the degree of morbidity and mortality among slum population. It is now widely recognized that the Government should only play a role of 'facilitator' and creator of 'enabling' climate for housing activities instead of being a direct provider of housing units. The Government of Tamil Nadu evolved its Housing Policy (1988) on the lines of the National Housing Policy<sup>2</sup>.

The Tamil Nadu Slum Clearance Board (TNSCB) was constituted during 1970 for the clearance and improvement of slum areas in Tamil Nadu. The activities of the board were initially confined to Chennai city. Subsequently, the activity expanded to other municipalities and town panchayats and currently, TNSCB almost covers all urban centres of the State. It is estimated that more than 35 per cent of the population of Chennai and more than 25 per cent of the urban population of the State live in slums. The Tamil Nadu Slum Clearance Board and Public Works Department have jointly identified 33,313 families living on river margins and 8164 slum families squatting on the river beds in Chennai.

## 7.4.3 Water supply

An increasing urban population has been creating a huge gap between demand and supply of water every year. The last Census estimated that approximately only 70 per cent of urban towns have access to safe drinking water. The minimum per capita supply of water required in urban areas varies from 70 lit/day to 130 lit/day, and this requirement of water supply varies according to the land use classification of the towns. The sources of water supply, purification,

**Table 7.5 : Rural Water Supply Performance**

Year	Habitations Benefited	Expenditure (Rs. in Crores)
1993-94	3751	70.36
1994-95	3808	99.49
1995-96	2954	69.93
1996-97	2696	86.62
1997-98	4531	220.55
1998-99	7974	324.12
1999-00	6300	372.50
2000-01	6617	545.76
2001-02	6865	422.79
2002-03	6628	552.11
2003-04	6510	471.28

pumping of water, storage and distribution varies from place to place. In Tamil Nadu, out of 744 towns (including corporations and municipalities), 145 towns are not fully provided with water supply. The status of water supply until 2003-04 is provided in tables 7.5 and 7.6.

**Table 7.6: Urban Water Supply Performance**

Year	No. of Urban Schemes / Towns Completed	Expenditure (Rs. in Crores)
1993-94	32	43.34
1994-95	28	29.12
1995-96	18	36.00
1996-97	26	40.65
1997-98	30	78.63
1998-99	42	83.72
1999-00	42	102.01
2000-01	55	149.21
2001-02	63	165.79
2002-03	72	161.45
2003-04	60	141.69

Source: Managing Director, TWAD, Chennai -5.

The problem of drinking water is more acute in rural and urban town panchayats. 45 out of 370 urban town panchayats and 97 of the 241 rural town panchayats are not fully provided with water supply. About 15 per cent of the urban population is yet to be provided access to drinking water, highlighting the fact that the urban water supply in Tamil Nadu is far below the national average. For instance, 86 out of 104 municipalities, all corporations, and 412 out of 611 town panchayats have water supply below the national average of 90 lpcd.

### 7.4.4 Drainage

In Tamil Nadu underground drainage system has been provided only in major urban centres, like Salem, the municipal corporations of Chennai, Coimbatore, Tiruchirappalli, Tirunelveli and Madurai. In addition,

underground drainage systems have also been constructed in 12 municipalities accounting only for 10 per cent of the total municipalities of the State.

### 7.4.5 Sewerage

In Tamil Nadu out of the 151 Municipalities and 5 Corporations, only 15 Municipalities and 4 Corporations have partial under ground sewerage system. Sewage schemes are under implementation in the municipal towns of Erode, Pallipalayam, Bhavani and Komarapalayam and Tiruchirappalli corporation located along river Cauvery under the National River Action Plan. Further, new sewerage schemes under the National River Conservation Programme (NRCP) have been taken up in Tiruchirappalli, Madurai, Tirunelveli Corporations and Karur and Inam Karur, Kumbakonam, Thanjavur and Mayiladuthurai Municipalities.

During the year 2004-05 a policy decision was taken to provide under ground sewerage scheme in the remaining 22 district head quarters towns. Apart from this, underground sewage schemes will also be taken up for the municipal towns in the Chennai metropolitan area. With a view to help people of all categories, especially economically weaker sections and low income groups, a new system called low cost sanitation scheme has been introduced in urban areas. So far 1,57,336 latrines all over the State have been taken up for conversion of dry latrine to flush latrines. Surface drainage is another aspect generally neglected in urban areas.

### 7.4.6 Solid Waste Disposal

Solid waste is generated in almost all parts of the urban areas and solid waste management becomes complicated in bigger cities. Collection, transportation and disposal of solid waste are the major operations involved in solid waste management. In most cities/towns, the refuse is dumped in an unsatisfactory and haphazard manner without sanitary land fill.

The present generation of garbage in Urban local bodies ranges between 9000-10000 M.T. per day. Collection and segregation of garbage at source is practiced in 70 per cent of wards in municipalities in the State. The goal is to achieve 100 per cent source segregation, disposal of garbage in a scientific manner and thereby making the habitation areas garbage free and also avoid contamination of natural resources. Privatization of Solid Waste Management has been encouraged in all municipalities and corporations. Self Help Groups are also being involved in Solid Waste Management. A detailed exercise has been undertaken to prepare Action Plans for Solid Waste Management in all Municipalities and Corporations.

### 7.4.7 Urban Industrial Pollution

In urban areas of Tamil Nadu there are five main industrial complexes, they are Manali/Ennore, Ranipet, Cuddalore, Mettur and Tuticorin which have chemical, petrochemical and other industries. These complexes have also become environmental hotspots<sup>2</sup>.

The high influx of population to urban areas, increase in consumption patterns and unplanned urban and industrial development have led to the problem of air pollution. The larger industries have a very high aggregate pollution potential. Also, in many urban centres, industrial units are located in densely populated areas, thereby affecting a large number of people<sup>3</sup>.

### 7.4.8 Vehicular emissions and congestion

The density of motor vehicles per sq.km has increased from 22 in 1996 to 52 in 2004. This has led to traffic congestion and release of many toxic air pollutants into the atmosphere. Particularly, the growth of two wheelers is increasing in a steep manner, contributing to about 50.6 per cent of the pollution load. Poor maintenance of vehicles results in the spewing out of noxious fumes into the

atmosphere. Adulterated fuel adds another dimension to the problem of pollution.

Apart from the concentration of vehicles in urban areas, other reasons for increasing vehicular pollution are the types of engines used, age of vehicles, congested traffic, poor road conditions, and outdated automotive technologies and traffic management systems. Vehicles are a major source of pollutants in major cities.

## 7.5. Response of the State Government.

### 7.5.1. Access to Water Supply and Sanitation

In urban areas the Urban Accelerated Water Supply Programme is being implemented in order to augment the drinking water supply. Of the total 611 Town Panchayats with the population of 95.97 lakhs, only 124 Town Panchayats get above 75 litres of water per day which constitutes 20 per cent of the total panchayats. The State had been experiencing shortage because of occurrence of droughts for third year in succession. The authorities of Corporations and Municipalities took concrete measures to meet the drinking water requirements, albeit costly.

**Table 7.7. Status of Water Supply in Town Panchayats**

Per Capita availability per day (in litres)	No. of Town Panchayat	% Share
Below 20 litres	32	5.2
20-39 litres	166	27.2
40 - 60 litres	389	47.3
70 litres and above	124	20.3
<b>Total</b>	<b>611</b>	<b>100.0</b>

Source : Policy Note on Administration of Urban Local Bodies, Corporation. Municipalities and Water Supply - 2003-04.



Urbanisation at Chennai

## 7.5.2. Housing for all

There is acute shortage of housing stock in urban areas because of mushrooming growth of urban slums. Because of this, there is a constant need to augment urban housing stock. Creation of housing stock has been an important aspect of urban development. The TNHB created the highest number of housing units (3.94 lakhs), followed by the Cooperative Housing Society (2.98 lakhs) and Tamil Nadu Central Cooperative Bank (0.69 lakhs).

**Table 7.9. Creation of Housing Stock, 2003-04**

Sl. No.	Agency	No. of Housing Stock Created (Cumulative)
1.	Tamil Nadu Housing Board	393684
2.	Tamil Nadu State Central Cooperative Bank	69126
3.	DRDA - Valmiki Ambedkar Housing Programme	7250
4.	Co-operative Housing Society	297596

Source : Policy Note on Housing and Urban Development 2004-05.

## 7.5.3. Policy on Ground Water Recharge and Rainwater Harvesting<sup>3</sup>

Ground water is the major source for most of the drinking water supply schemes. As much as 90 per cent of the rural population and 70 per cent of urban population get their drinking water supplies from the ground water sources. In Tamil Nadu, as many as 52 blocks have been classified as overexploited blocks where the ground water extraction has exceeded the recharge level, 37 blocks have been classified as dark area blocks where the ground water extraction is more than 85 per cent of the estimated recharge and 86 blocks have been classified as grey areas where the exploitation is between 65 per cent to 85 per cent.

In Tamil Nadu where 73 % of the geographical area is covered with hard crystalline formation and where the annual rainfall occurs during a short spell of few days. Rainfall is the only source of recharge for replenishing the ground water sources. The declining levels of ground water indicates that many of the rain water catchments are in degraded state and their holding capacities have been reduced considerably due to factors like siltation, encroachments, conversion of rain water holding structures for other uses, etc. It is therefore necessary that this dangerous trend of degeneration is halted and immediate remedial measures are undertaken. The Government considers this as a major thrust area and proposes to initiate a massive programme for rainwater harvesting and groundwater recharge.

The Government proposes to enlist the participation of the Public and Non-Governmental Organisations (NGOs) in propagating and installing rainwater-harvesting structures. Every single household can construct and benefit from rainwater harvesting. Every rooftop and any open space is a potential catchment area for rainwater harvesting<sup>2</sup>. Almost all the Government buildings and the private buildings have installed rain water harvesting

structures in order to replenish the water table by storing rain water. So far, 23.66 lakh structures had been built.

**Table 7.10. Achievements in Water Harvesting**

Sl. No.	Items	Number of Structures
1.	Private Buildings Institutions/ Commercial buildings	2315520
2.	Streets	2335
3.	Government - Buildings	7647
4.	Temple tanks	36977
5.	Road Margins	2546
6.	Corporation and Municipal tanks	409
7.	Bridges and Culverts	365
	<b>Total</b>	<b>23,65,894</b>

Source : Policy Note on Administration of Urban Local Bodies, Corporation, Municipalities and Water Supply - 2004-05.

### 7.5.4. A pilot research project - Eco City

To propagate the environmental friendly concept Department of Environment has prepared an "eco-city plan" for Kancheepuram Town through National Environment Engineering Research Institute (NEERI), Chennai. The overall objective of the programme is to incorporate environment considerations into urban planning and prepare an Environmental Management plan for improving the environment quality the specific objectives are:

To map the environment profile of study area and to identify the environmental pollution hotspots.

To prepare an environment management plan that includes rehabilitation and mitigation measures

To recommend guidelines for environmentally compatible land use planning.<sup>4</sup>

### 7.5.5. Carrying capacity evaluation - Thoothukudi City

The unplanned growth of Indian cities has led to host of problems, i.e. increasing slums, water, air and noise pollution, accumulation of solid waste, etc. The existing infrastructure in various urban centres is

under severe strain as population has grown at a pace higher than the growth in infrastructure sector. This has led to serious concerns over our present concept of urban planning and development.

Considering the above facts in mind, the Directorate of Environment, Government of Tamil Nadu had proposed to develop a carrying capacity based developmental planning for Thoothukudi town.

Carrying capacity of the environment refers to the level of environmental load that nature can absorb without showing significant environmental degradation. Any large development project leads to some environmental degradation. As long as these degradation are within the acceptable levels, the project is environmentally viable. Carrying capacity study of the Thoothukkudi town involves multifaced development of the area i.e. exploitation of natural resources, industrial development, population growth, population migration etc.; its impacts on environment, environmental master plan and environmental action plan to mitigate the adverse impact on the environment. The study is a step beyond the EIA and incorporates all the elements of development and environment. The main objectives of the study are to<sup>5</sup>:

Access the various environmental loads and stresses on the various sectors of environment

Comparison of stress or loads on various sectors of environment, vis-avis their carrying capacity.

Identification of sectors that have already been degraded in excess of their carrying capacity

Formulation of suitable management measures for amelioration of adverse impacts.

### 7.5.6. Schemes Under Implementation

#### 7.5.6.1. Master plans for urban towns

A master plan to cover the urban towns with underground sewerage schemes is to be prepared. The



Master Plan will also provide for exploring the possibilities of adopting alternative technology options for the safe disposal and recycling of wastewater. An action plan for providing sewerage schemes for all the municipal towns will be drawn up and implemented in a phased manner<sup>2</sup>.

### 7.5.6.2. Low Cost Sanitation

Low cost sanitation (LCS) is executed in Tamil Nadu with the World Bank loan assistance, 14 Municipalities were included in this project<sup>2</sup>.

### 7.5.6.3. Municipal/Tamil Nadu Urban development fund

One of the major urban problems the government has been addressing is the Municipalities financial and organizational capacity for maintenance, municipal service obligation and investment. Convinced of the merits of strengthening the municipalities, the government set up a new source of municipal funding called Municipal Urban Development Fund (MUDF), under the Tamil Nadu Urban Development Project financed by the World Bank<sup>2</sup>.

### 7.5.6.4. Public-private partnerships

There are two types of public-private partnerships that have emerged in Tamil Nadu with respect to urban infrastructure:

- ❑ Involvement of NGOs in provision of public services like solid waste collection.
- ❑ Private firm or agency enters into an agreement/ contract to provide the service.

### 7.5.6.4.1. Involvement of NGOs

An example of the first kind is the role played by Exnora in Solid Waste Management. Exnora was set up as a citizen's initiation to improve the environment at the neighbourhood level with the participation of the local community<sup>2</sup>.

### 7.5.6.4.2. Involvement of private sector

Tiruppur is often cited as a good example of public-private partnership in respect of urban infrastructure. The New Tiruppur Area Development Corporation was formed as a public-private partnership under the Indian Companies Act to undertake water supply and sewerage projects in Tiruppur<sup>2</sup>.

## 7.6. References

1. Economic Appraisal 2003-04, 2004-05, Evaluation and Applied Research Department, Government of Tamil Nadu.
2. Tamil Nadu Development Report, 2005, Planning Commission, Government of India.
3. State of Environment Report, 2001, Government of India.
4. Eco-City plan for Kancheepuram Town, Directorate of Environment, Government of Tamil Nadu.
5. Carrying Capacity Based Developmental Planning for Thoothukkudi Town. Directorate of Environment, Government of Tamil Nadu.