

Asian Information Marketing and Social Research Private Limited

Environment Profile of Thiruvannamalai District

- Final Report

Submitted to:

**The Director of Environment,
Government of Tamil Nadu, Chennai - 600 083.**

AIMS Research

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- Final Report

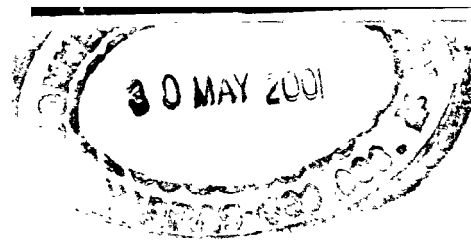


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The context



The **Department of Environment (DoE)** is the nodal department for dealing with environmental management of the State. The State has been endowed with multitude of natural resources and their judicious management is essential for sustainable development in all sectors. Effective resources management calls for an in-depth assessment of their existing conditions and trends. A cursory evaluation of the present status of our environment and natural resources including land, soil, water, air and the life support systems like forests, rivers, coastal areas indicate that the health of such systems are threatened by serious levels of degradation. Though different government departments / agencies are responsible for management of resources under their jurisdiction, information relating to the individual sector lie fragmented.

To manage the environment in a holistic manner and to develop an environment friendly sustainable development perspective, it becomes necessary to identify the gaps in the present management of resource bases. Such intervention would be realistic only if there is a strong database with data collected from the primary / secondary sources, compiled and presented in the form of district environment profiles. Thus the AIMS Research (A Joint Venture of TCW/ICICI, IDBI and ICICI) – a leading consultancy and research organisation, has been engaged for the preparation of such a report. This report will form the basis for developing District level Environmental Management Plans that will spell out specific action programs to be implemented by local / state institutions. This report provides a brief account of the manner in which the District Environment Profile for Thiruvannamalai District has been prepared and presented.

To achieve certain degree of uniformity in the presentation of environmental data in the districts, it is considered necessary that certain standardised formats are adopted for collection and presentation of the relevant data besides interpretations of the data thus collected. Accordingly the data compiled in the prescribed formats have been synthesised and presented in the following chapters.

Background

Background

Thiruvannamalai district has been carved out as a separate district in the year 1989 as a result of bifurcation of Vellore district of Tamilnadu State vide State Government notification, G.O. Ms. No. 1619 dated 27.9.89. According to the said notification, six taluks viz. Cheyyar, Vandavasi, Arani, Polur, Thiruvannamalai and Chengam were separated so as to form a new district. At present the district is comprised of six taluks namely Cheyyar, Vandavasi, Arani, Polur, Thiruvannamalai and Chengam, and eighteen community Development Blocks. As regards to the earlier history of the district, it may be stated that the territory lying north of the Palar river and forming part of the subah of Arcot was given over to the East India Company in 1801 along with other areas of the Carnatic and this was known as North Arcot. The portion lying south of the river formed the southern division of Arcot. The district underwent a number of alterations in the last century. During 1901-11, Vellore was bifurcated and the new Chittoor district was formed. In the subsequent changes, Thiruvannamalai and Thiruppathur taluks of the neighbouring district were included in Vellore. After the Pataskar award of 1959, when boundaries were altered between Andhra Pradesh and Tamilnadu, 32 villages were added to North Arcot district. There were three revenue divisions in the district and 11 taluks in 1951. A new revenue division was formed in 1959 and thus there were four revenue divisions in 1961. Two additional taluks were formed during 1961-71 viz. Vaniyambadi and Arcot. There were 13 taluks during 1971 census. The number of taluks continues to be 13 as per 1981 census also, and there was no jurisdictional change in the district during 1971-81.

2.1 Geographical location of the district

Vellore district in the north, Dharmapuri district and Vellore district in the west and Villupuram in the south and Kancheepuram district in the east bound Thiruvannamalai district. The district lies between $12^{\circ} 00'$ and $12^{\circ} 84'$ north latitude and $78^{\circ} 61'$ and $79^{\circ} 73'$ east longitude. The general geographical formation of the district is of small hills and flatted area. Ponnaiyar River and Vellar are flowing in the district and they will be dry during the summer season. Thiruvannamalai district consists of Six taluks, namely 1.Thiruvannamalai, 2.Chengam, 3.Polur, 4.Cheyar, 5.Vandavasi and 6.Arni. The total geographical area of the district is 6312.05 sq.km divided into 18 Blocks and 6 taluks.

2.2 Administrative arrangement in the district

Thiruvannamalai District comprises 6 Taluks, 18 Blocks and 1067 Villages. As regards the hierarchy of administrative arrangement, there are 4 Municipalities, 10 town panchayats and 865 village panchayats in the district. The details regarding the number of blocks, villages, village panchayats, town panchayats and municipalities with regard to each taluk are given in Table No:1.

2.3 Meteorological Information

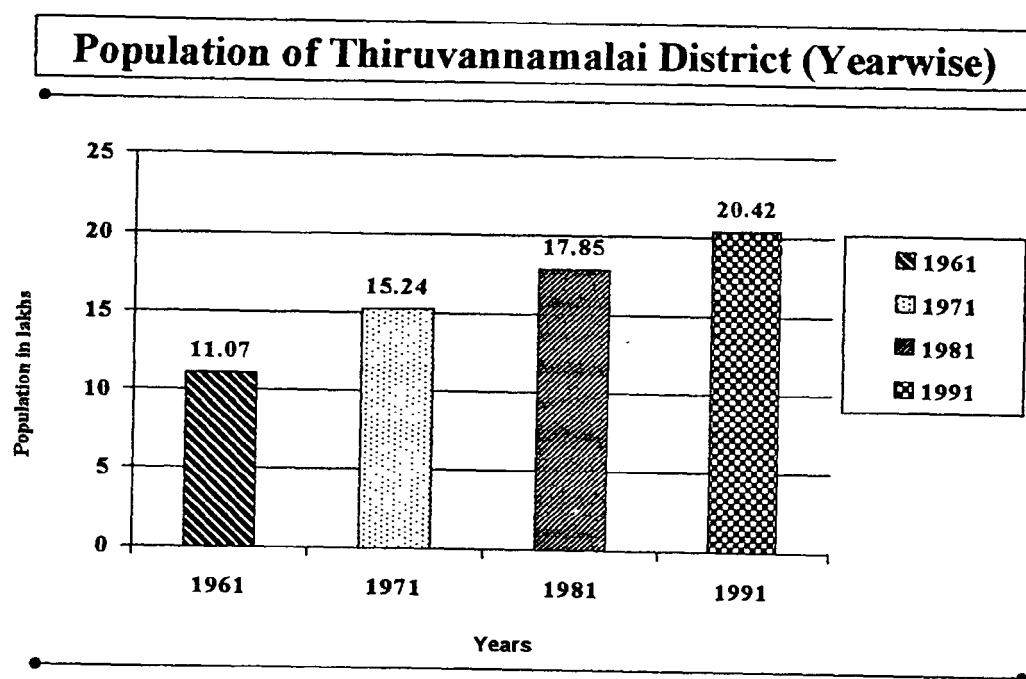
The monthly average rainfall in the district is worked out to be 89.81 mm. The months of August, September, October, November and December receive a rainfall that is more than the annual average rainfall. The average number of rainy days, mean maximum temperature, mean minimum temperature and mean relative humidity for the period of 1991-96 are not currently available. Refer Table No:2.

2.4 Demographic Details

The Growth of population over the past five decades and the essential characteristics of the population for the past four decades in terms of birth rate, death rate, infant mortality rate and literacy level are given in Table Nos:3,4 and 5.

2.4.1 Population

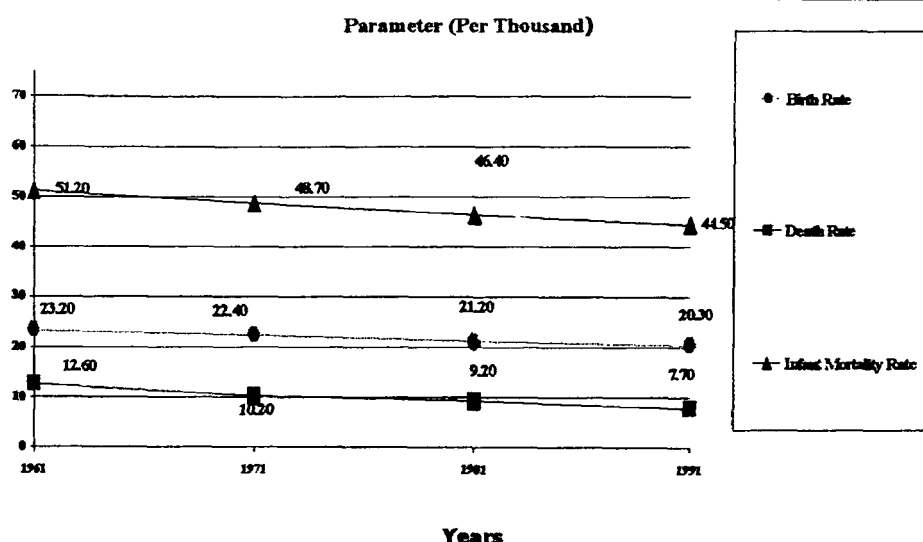
The population of Thiruvannamalai district has grown from 11,07,062 in 1961 to 2042979 in 1991. The growth rate indicates that there has been a significant increase during 1981-91 decade with the average growth rate being 1.25 % per annum during this decade. According to the 1991 census, Thiruvannamalai taluk is the most thickly populated and Kamuthi taluk is the least populated in the district. The details of population growth along with the Growth Rate-taluk wise are given in Table No:3.



2.4.2 Trend in Birth/Death rate and Infant mortality rate

Birth rate, Death rate and Infant mortality rate have decreased significantly from 23.2 in 1961 to 20.3 in 1991, 12.6 in 1961 to 7.7 in 1991 and 51.2 in 1961 to 44.5 in 1991 respectively. The details regarding these are given in Table No.4.

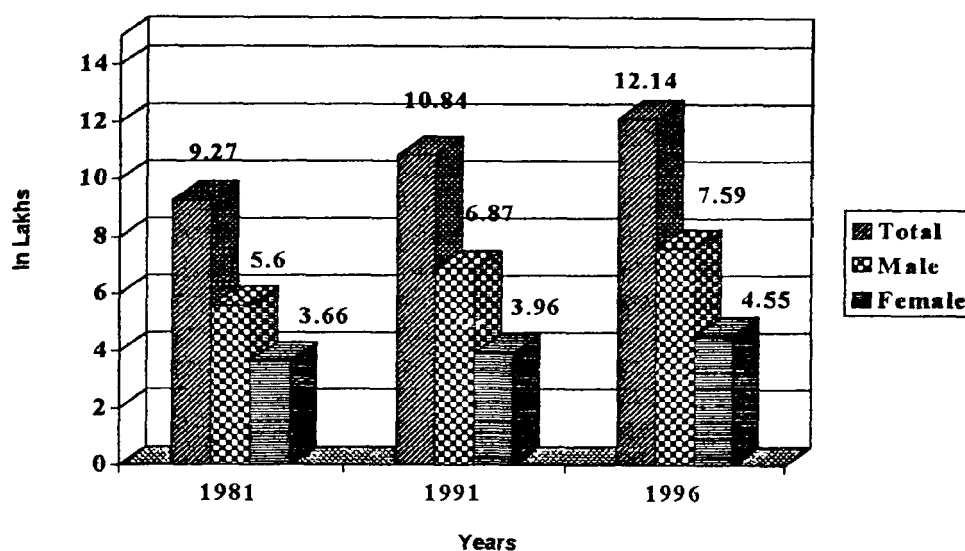
District birth / Death rate and Infant mortality rate



2.4.3 Literacy level among the population

The literacy level in Thiruvannamalai district according to figures available for the year 1996 is 56.70% with male literacy level being more than the female literacy level. It is also observed while the male literacy level has grown steadily from 62.14% in 1981 to 70.34% in 1996, there has also been a

Literate Population of Thiruvannamalai District



significant increase of female literacy level from 41.53% in 1981 to 42.86% in 1996. The information on literacy level of the district is given in Table No: 5.

Education

There are as many as 995 villages accounting for 93.87 per cent of the total number of inhabited villages in the district where educational facility of one type or other is found. Primary and middle schools are available in all towns. As regards other educational institutions, the following table gives details on various types of these institutions available in the towns of this district including the number of Stadia and Public Libraries, if any:

Name of the Towns	Educational Institutions
Arani	Higher Secondary/Intermediate Schools (3)
	Secondary/Matriculation Schools (3)
	Junior Secondary and
	Middle Schools (3)
Polur	Higher secondary/Intermediate Schools (1)
	Secondary/Matriculation Schools (4)
	Junior Secondary and
	Middle Schools (4)
Thiruvannamalai	Arts College (1)
	Higher Secondary/Intermediate Schools (4)
	Secondary/Matriculation Schools (5)
	Junior Secondary and
Tiruvettpuram (Cheyyar)	Middle Schools (5)
	Arts, Science and Commerce College (1)
	Higher Secondary/Intermediate Schools (2)
	Secondary/Matriculation Schools (3)
Vandavasi	Junior Secondary and
	Middle Schools (3)
	Higher Secondary/Intermediate Schools (2)
	Secondary/Matriculation Schools (3)
	Junior Secondary and
	Middle Schools (4)

Resources-availability, use and environmental status

Resources – Availability, Use and Environmental Status

Geography and physical features

The important mountain range in this district is Javadis, which cover the north western portion of Chengam taluk and western part of Polur taluk. The general height of these hills is 2500 feet with peaks raising upto 4200 feet. As a whole, the land in the eastern part of the district is flat and level, and the soil is fertile, mostly well utilised for cultivation. However, the central and southern parts are mostly, hilly in nature. On flora, no distinguishing variety is observed in this district. The hilly areas belong to the 'dry, deciduous' type, generally observed in the projections of the Eastern Ghat ranges. In the low country, the ordinary plants of the Coromandel regions are found. Tamarind trees, teakwood, some sandalwood, Venn teak, casurina, bamboo etc. form the chief trees of the district.

3.1 Land Resources

Resources of the district, their availability, use and environmental status is discussed in the following chapters.

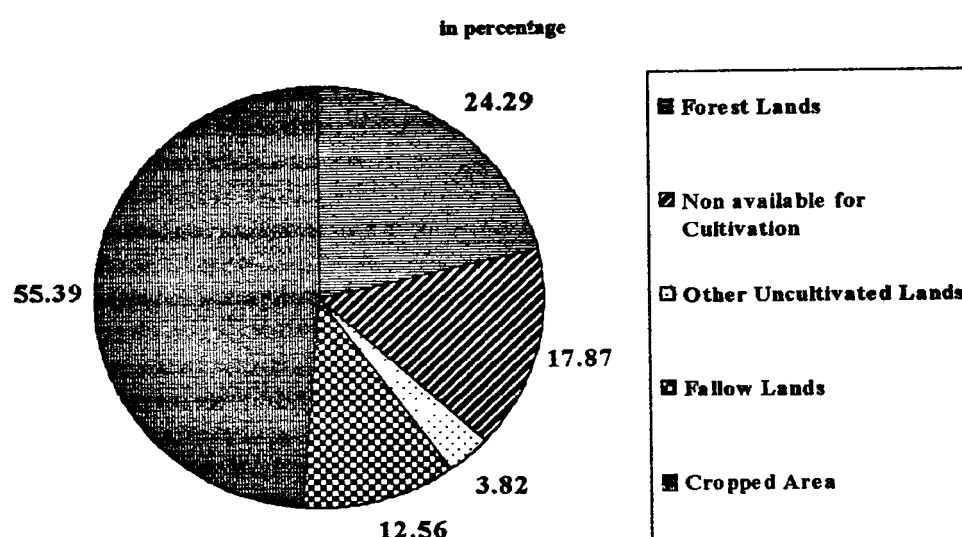
3.1.1 Agriculture and Horticulture

Cultivation is the mainstay of the people of this district and the rural economy centres round agriculture. The taluks, in particular, which enjoy irrigation facilities such as Thiruvannamalai, Cheyyar, Polur and Vandavasi, are known for their substantial contribution to the agricultural production of the district. Tanks and wells are the chief source of irrigation and these are enough supplies in them when monsoons occur normally, while paddy is the main food grain produced in the district, groundnut is the important commercial crop. The three agricultural seasons are 'Swarnavari' (May to September), Samba (August to February), and Navarai (December to May) and all are suited for paddy cultivation.

i. Land utilisation

This forest division is, for the most part, a flat plain slopping gently from north to south and from west to east towards the sea. The hills in this forest division are mainly in and around Gingee. Then there is the Mount Capper Plateau, west Cuddalore, which forms a part of bed of red laterite ground running from a point about sixteen kilometers from Pondichery Southwards across Villupuram and Chidambaram taluks.

Land utilisation - Thiruvannamalai District



The total geographical area of the district was 6312.05 Sq.km. in 1996-97. Cropped area accounts for about 55.39% of the total area. Forestlands cover about 24.29% of the total land. A significant portion of the land falls under the category of 'non available for cultivation' and 'fallow lands'. About 3.82% fall under the category of uncultivated land. The land utilisation pattern in Thiruvannamalai district (Block-wise) is given in Table No: 6.

ii. Trend in production and productivity of important crops

Cereals, pulses and oil seeds are the important crops of Thiruvannamalai District. In the year 1990-91 under cereals was 79000 Ha. Whereas, the area utilized for raising cereals was 169503 ha. In during the year 1996-97. This

may be due to decrease in the area for raising pulses; in which case the area has decreased from 32400 Ha. (1990-91) To 15677 Ha. (In 1996-97) There is a slow but steady increase in the area utilised for raising oil seeds.

Cereals, pulses and oil seeds are observed to be the three important crops produced in the district. The productivity pattern indicates that the productivity of cereals, pulses and oil seeds have fluctuations over 7 years. The area under production for cereals, pulses and oil seeds have also fluctuations in the years 1992-96. The details on the productivity performance of the district in relation to the above important crops for the past 7 years are given in Table No: 7.

iii. Horticultural and plantation crops

There were fruit crops with a yield of 115830 tonnes and vegetables crops of 5670 tonnes cultivated in 2993 ha. and 945 ha. respectively in the years 1996-97. The details pertaining to the crops are given in Table No: 8.

iv. Consumption of fertilisers and pesticides

About 29000 metric tonnes of chemical fertilisers were used in 1995-96 including 3.57% of chemical fertilisers. There has also been an intensive use of bio-fertilisers in the district, followed by pesticides in 1995-96. Moreover, 26,500 tonnes of urea were used in the district. The details on the total consumption with block wise details of chemical fertilisers, urea, bio-fertilisers and dust and liquid pesticides are given in Table No: 9.

v. Trend in consumption of fertilisers and pesticides

The usage of Chemical Fertilisers, Bio-Fertilisers and Dust and Liquid Pesticides was 29,000 tonnes, 3,21,800 packets/kg and 500 kilos and 2894 litres respectively in the years 1995-96. The decrease in percentage of the pesticides is -13.27% in the years 1993-94. The details with regard to the trends in the consumption of fertilisers and pesticides over the past 6 years are given in Table No: 10.

vi. Soil Types

Thin red soil and deep red soil are the predominant soil types in this district accounting for 86% followed by clayey soil for 8.31% and rest of the soil is gravely soil. The details of types of soils are given in Table No: 11.

vii. Soil Problems

No information was available with regard to the soil problems of the district. Refer Table No: 12.

viii. Status of Soil and Water Conservation Programs

Construction of check dams / stop dams and soil conservation works of cropping area were done in most of the blocks of the district. 133 check dams / stop dams constructed for irrigation purposes of total areas in the district. Soil conservation works for cropping area were undertaken for soil and water conservation programmes in the district. The details are given in Table No: 13.

Animal husbandry

The livestock of this district includes cattle, buffaloes (inclusive of young stock), as also horses, ponies, mules, donkeys, pigs and camels. Though no recognised superior breed of cattle is found in the district, as number of schemes for the improvement of the cattle and poultry wealth have been implemented during the plan periods, and as a consequence, the quality of livestock has vastly improved. There are many veterinary hospitals, veterinary hospital-cum-clinical centre, veterinary dispensaries etc. in this district.

3.1.2 Forest resources

The following forest by has identified in the District.

Tropical dry Deciduous forests.

Tropical Scrub forests.

Tropical dry evergreen forests.

In the tropical dry deciduous forests, must of the fuel timber are situated. Tropical scrub forests are the result of degradation due to over exploration and maltreatment spring climates are common. Must of the soil is usually bare with a thin cover of grass. Tropical dry evergreen forests are scattered with species, which are low in height.

i. Forest area

There are forest areas in Thiruvannamalai District constituting a total area of 42630.41 (426.30 sq.km) hectares. The Reserve Forests extends over an area of 42630.41 hectares, with the sparse forest category spreading over 62748 ha and dense forest with 15429 hectares. Under green cover classification in the district. The details regarding the classification of forest area with their extent are given in Table No:14.

ii. Trend in per capita forest area

About 42630.41 ha. were under the forest areas during the years 1961-96. The per capital forest area has decreased during 1961-96. The details are given in Table No: 15.

iii. Man made forest plantations

The man made forest plantations have been restricted to the existing forest areas in Thiruvannamalai district. About 534.6 hectares of man made forest area are available in the district. Fuel wood, red sanders, cashew, sandal, neem, tamarind and other MFP are the man made forest plantations of the district. Necessary details are given in Table No: 16.

iv. Details of villages abutting forest area

Two taluks (Arani and Polur) are abutting the forest areas of the district. There are also three forest ranges of abutting areas namely, Arni, Polur & Polur Plantation in Thiruvannamalai district. Refer Table No: 17.

v. Tribal villages

There are 56 revenue villages in Thiruvannamalai district. Kovillur had the highest population of 6485 Kiltadipattu village had the lowest population of 46 in 1995-96. The total area of tribal villages/ hamlets in the district is 2405 sq.km. in 1995-96. The details are given in the Table No: 18.

viii. Forestry area diverted for non forestry purposes

There is no forest area diverted for non-forestry purposes in Thiruvannamalai district (Refer Table No:19).

vi. Trends in production of forest produce

About 16,306 sandal wood trees, 3998 tonnes industrial wood and 201 tonnes all minor forest produce in the resource forest and outside reserve forest was available in the trends in production of forest produce in Thiruvannamalai district. (Refer Table No:20).

ix. Conservation of Biological resources, Wild like census, are threatened species of flora and fauna

No Information on conservation of biological resources is available in the district. The wild life census in Thiruvannamalai district reveals that 444 crocodiles are protected in the district. There have been no rare and threatened species of flora and fauna in the district. Necessary information is available in Table Nos: 21,22 & 23.

3.1.3 Mineral resources

Block granite, colour granite, rough stone & sand has the mineral resources produced in the district. The actual production of recoverable resources was 1301.341 M³, 1874.365 M³, 15400 units & 370000 MT in during the year 1995 –96, respectively (Refer Table No:24).

3.1.4 Water resources

Rivers, canals and waterways

Cheyyar is the important river of the district. It rises in Javadi Hills, flows in a southerly direction at first and turns southeastwards near Chengam. After flowing in that direction for some distance, the river takes a northeasterly course and passes through Polur, Arani, Vandavasi and Cheyyar taluks. Another river, South-Pennar after flowing through the southern parts of Chengam taluk, enters Cuddalore district. Similarly, Palar River, which rises near Nandidurg in Karnataka State, enters the Cheyyar taluk before entering Chengalpattu district on the east.

i. Catchment area of river basins

Catchment area of river basin in the district is Ponnaiyar, Palar and

Varahanadhi. The Ponnaiyar river origin of place is Chinnakesava Hills in Mysore State. Area of the basin in the district is Thiruvannamalai. The total within the district river's length has shown in the Table No: 25.

ii. Basin wise status of the ground water availability

Ponnaiyar, Palar & Varahanadhi are the basins in the district. Basin wise status of the ground water availability in the district. (Refer Table No:26).

iii. Availability of water spread area

There have been 278 system tanks and 657 seasonal/rainfed tanks maintained by Public Works Department in Thiruvannamalai district. Cheyyar block is the largest water spread area, which is 1226.33 sq.km. and Jawadhu Hills is the smallest water spread area, which is 17.63 sq.km. The panchayat tanks were not available in the district. Available water spread area in the district with blockwise details is given in Table No: 27.

iv. Details of dams and reservoirs

The Sathanur Dam (Ponnaiyar River) was constructed in 1954. The dam water is using for irrigation in 1822 ha. and designed extent of ayacut is 18222 ha. in Thiruvannamalai district. (Refer Table No:28).

v. Irrigation by different sources

The total cropped area is 742467 hectares and the percentage of irrigated area to cropped area is 22.66. The gross areas irrigated by tanks and wells are 1197, 1791 hectares and 162256 hectares respectively. The details on irrigated area by different sources are given in Table No: 29.

vi. Incidence of drought, flood and cyclone

There are 6 Taluks and 18 Blocks in the years 1985-96 in the district. It has been ascertained from the available information that 3 taluks and 9 blocks were affected by drought in the years 1993-94. There were 6 taluks and 18 blocks affected by flood in the years 1995-96. There were no cyclones during 1985-96. The details are given in Table No: 30.

3.1.5 Fisheries production

The inland fresh water area is 38640 ha. The fish production intense of quantity and value has increased 1991 to 96. 5200 tonnes of fish produced and its value was Rs.5.2 lakhs in 1996. The details are given in Table No: 31.

i. General fish seed production

The fish seed production of standard fry increased during 1991 and 1996 period and the highest production was during 1995-96. The inland fish production has also increased between 1991 and 1996 in the district. The details on fish and fish seed production are given in Table No: 32.

3.1.6 Heritage resources

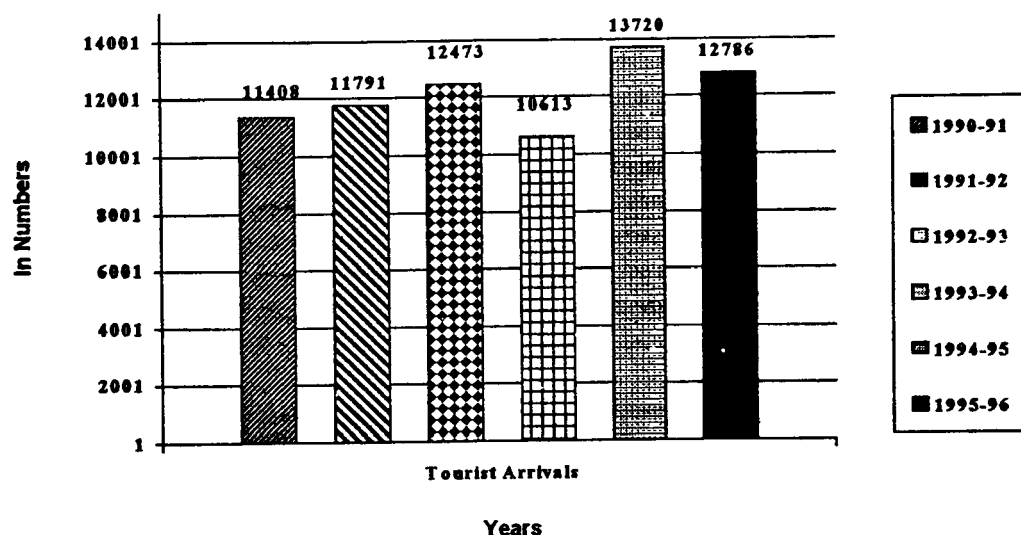
i. Protected and conserved monuments

Kilpudhur village has monuments namely Suyambunatha swami temple and Mamandur village has a monument namely rock-cut cave, sculptures and inscriptions maintained by the department of Archaeology. The details are given in Table No: 33.

ii. Places of tourist attraction

There are important four tourist places located at 3 villages/towns in the historical / cultural / natural heritage area. The special significance of the area is Arunachalaeswara temple, Ramana Maharishi ashram, Sathanur dam and Arani silk sarees. Tourist arrivals in domestic circuit have been steadily increasing during 1990 – 96 period. These tourist spots are visited throughout the year. The Holy Beacon lit during ‘Karthigai’ day in November-December every year, over the hill here, is said to be the symbolic representation of this phenomenon. A great saint Ramana Maharishi had established his ‘Ashram’ here. The Sathanur dam with a well-laid park, beautiful trees, rest houses etc. is an ideal picnic centre and draws huge crowds on sundays and holidays, particularly during seasons. Arani is a taluk headquarters town, famous for its handloom silk sarees. Information available for foreign tourist arrivals in the district (Refer Table No:34 & 35).

Tourist Arrivals in Thiruvannamalai District



3.1.7 Energy resources

i. Installed power projects

There have been no installed Power Projects in the district (Table 36).

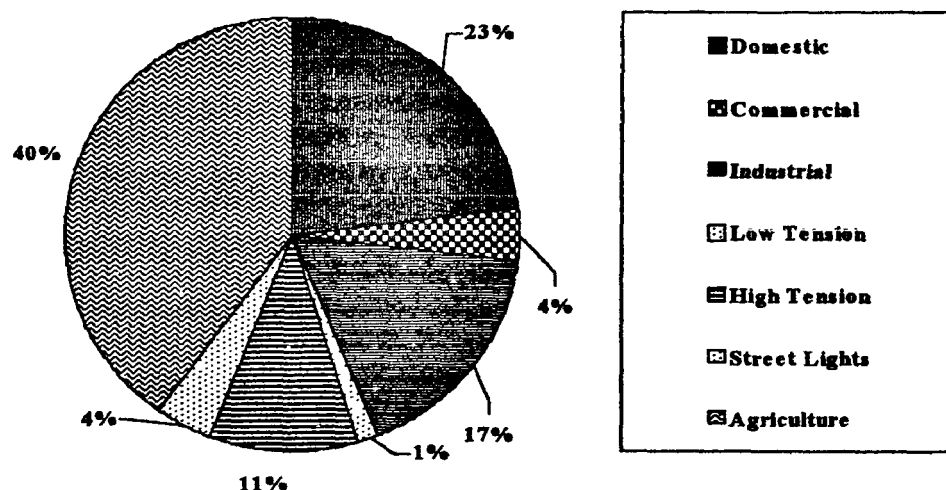
ii. Consumption of electricity

There were 4,23,771 electrical connections with a total consumption of 296.60 MV as on 1995-96. Agriculture consumption category was the maximum accounting for 40.08% of the total consumption followed by domestic consumption (23.03%). The category wise consumption of electricity is given in Table No: 37.

iii. Electrification of Villages

Thiruvannamalai district has achieved 100% electrification in 1995-96. All 1067 villages in the district are electrified. The electrification of the energised pumps was 114668 in the year 1996 (Refer Table No:38).

Category wise Consumption of Electricity



iv. Non conventional & renewable energy sources utilisation

There have been 87% to installed capacity of biogas and improved Chula is 13000 units on non-conventional and renewable energy sources utilisation. (Refer Table No:39).

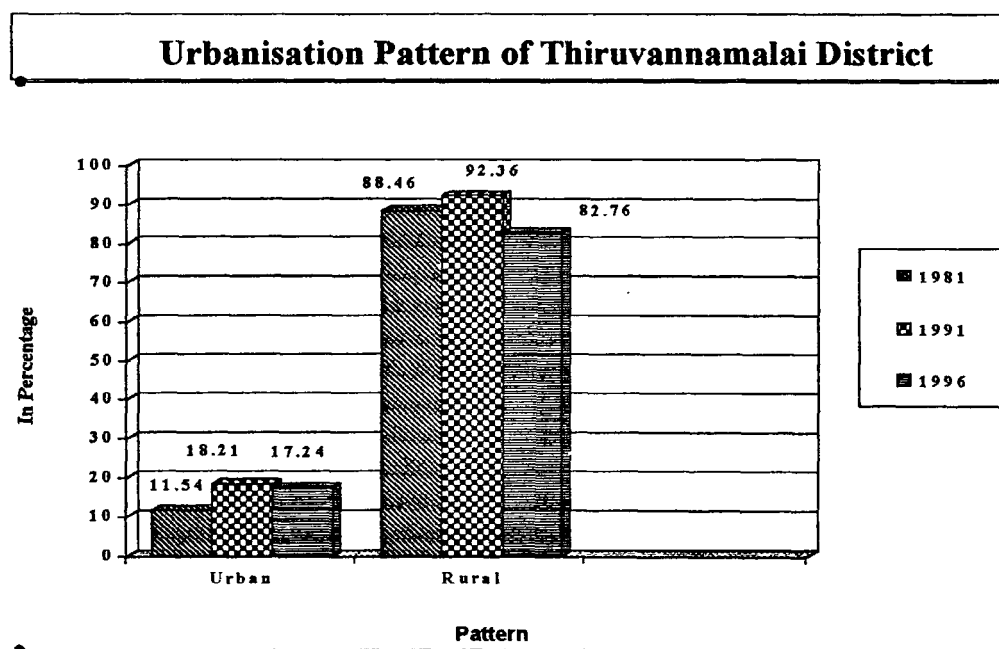
Infrastructure



4.1 Urbanisation

4.1.1 Urbanization pattern

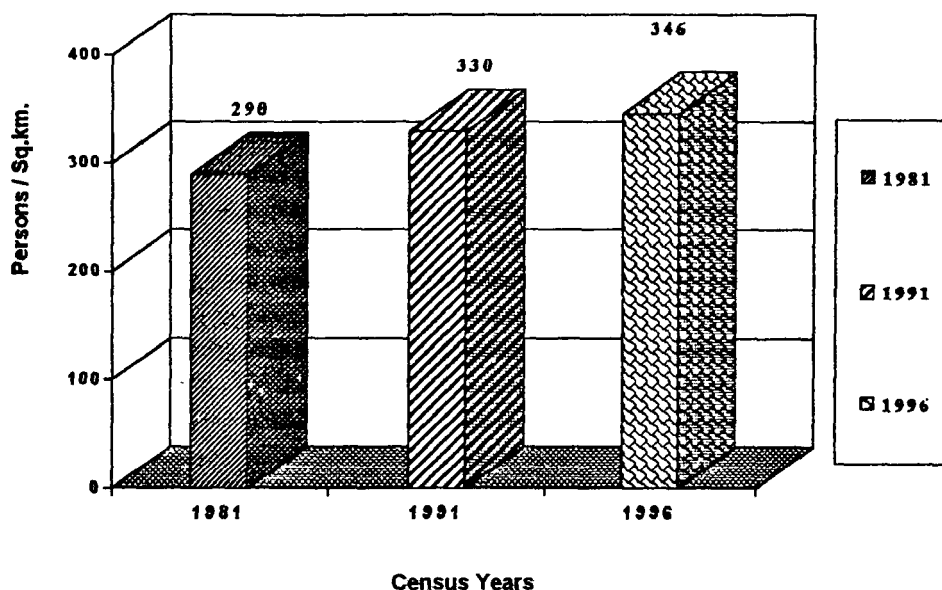
The proportion of urban population to total population is increased during the years 1981-96 from 11.54% to 17.58% and has increased at about 12% during 1991-96. Among the urban areas, Thiruvannamalai municipal town accounts for a greater share of urban population when compared to the other urban areas. The proportion of rural population to total population has decreased from 88.46% to 82.76% during the years 1981-1996. The urbanisation pattern of the district is given in Table No: 40.



4.1.2 Density of Population

The overall density of population has increased from 290 persons / sq.km. in 1981 to 346 persons / sq.km. in 1996. The density in urban areas has increased from 3546 persons/sq.km. in 1981 to 6420 persons/sq.km. in 1996 and the density of rural area has increased from 259 persons/sq.km. in 1981 to

Population Density in Thiruvannamalai District



289 persons/sq./km. in 1996. The details on density are given in Table No: 41.

4.1.3 Decadal Growth rate in urban centers

The decadal growth rates in four municipalities have increased in the years 1961 to 1996. The population of the district has grown from 11.07 lakhs in 1961 to 18.47 lakhs during the same period. The decadal growth rate indicates that there is a considerable decline in growth over the previous decade among the Municipalities of the district. Vandavasi municipality has registered the maximum growth rate. The details of decadal growth rate are given in Table No:42. The decennial growth rate for both urban and rural population over the past one decade, 1981-91 has increased (Refer Table No:43).

4.1.4 Urban slum population

The proportion of slum population has increased in 3 municipalities and 3 town panchayats. Thiruvannamalai municipality accounts for a greater share of slum population when compared with the other slum areas from 1991-96. Information was available for slum population in the district. (Refer Table No:44).

4.1.5 Trend in urbanisation and slums

The urban population has increased from 11.54% in 1981 to 16.01% in 1996 period. The identified slum population of Thiruvannamalai district has decreased from 1.01 in 1981 to 0.96 in 1996. The details are given in Table No: 45.

4.2 Infrastructure Services and Environmental Status

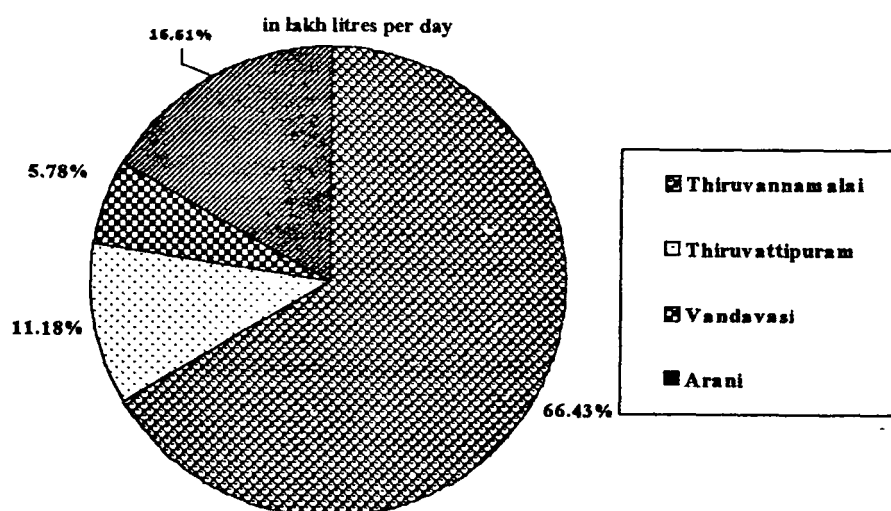
4.2.1 Occupied housing units

The total occupied housing units of urban and rural were 45250 and 386025 respectively in the year 1991. Piped water supply in inside and outside of houses in urban areas was 21910 and 23340, respectively and in rural areas were 15240 and 370785 respectively in the year 1991. Nearly 21170 of the 24080 urban household and 35320 of the 350705 rural households lack toilet of any type within the houses, there by learning the majority of the population to depend on public conveniences or open air defecation (Refer Table No. 46).

4.2.2 Urban services

Surface water and ground water are the major sources for protected water supply system in municipalities and town panchayats respectively. The percapita water supply for municipalities and town panchayats is 63 LPCD and 51 LPCD respectively. The average water supply is around 57 LPCD for the district. The municipality of Thiruvannamalai has the highest consumption of 120 lakh litres. 30.00 and 20.20 lakh litres followed the municipality of Arani and Thiruvathipuram respectively. Vettavalam, Chetput and Desur have less than 15% each at the maximum of percentages of population uncovered for water supply. Details on water supply services are given in Table No: 47.

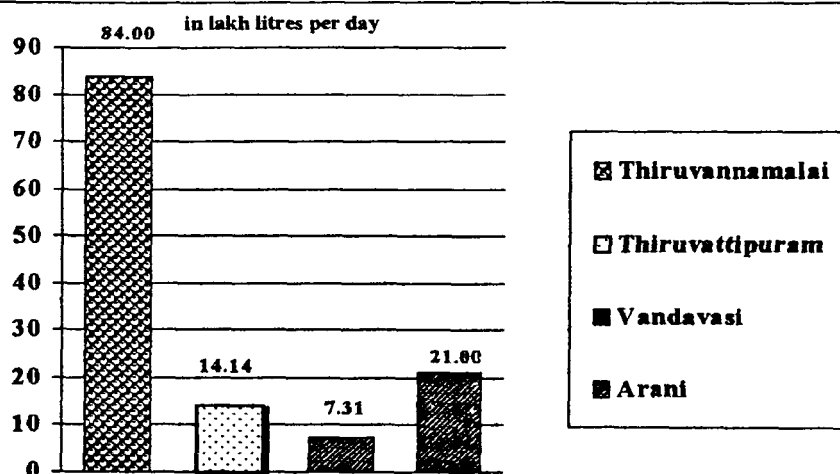
Water supply in Thiruvannamalai district - major towns



4.2.3 Domestic waste water generation and treatment

The estimated sewage generation is 126.45 LLD among municipalities and 47.81 LLD among town panchayats. The district does not have any organised disposal of sewage. Nature of disposal and quantity through river and land is 29.40 LLD and 144.85 LLD respectively. The Town panchayats have only open drainage system and the municipalities have partial under ground pipe systems. The details on domestic wastewater generation and treatment in the district are given in Table No: 48.

Sewerage generation in Thiruvannamalai district - major towns

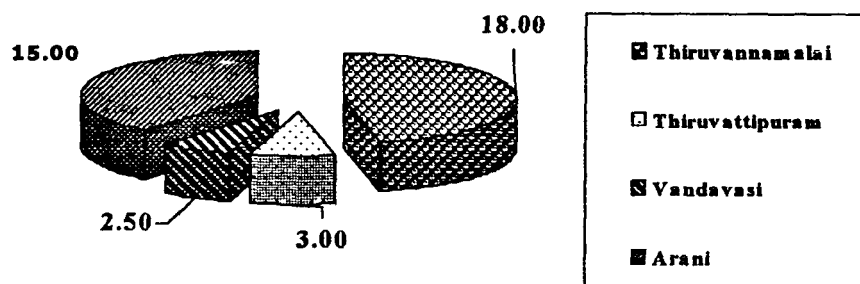


4.2.4 Municipal solid waste generation

The solid waste generation of municipalities and town panchayats are 38.5 tonnes and 17.5 tonnes respectively. The solid waste collection in municipalities and town panchayats is 34.5 tonnes and 16 tonnes respectively as on 1995-96. Overall the solid waste generated adds up to 56 tonnes with a collection efficiency of 99% with a manpower of 177 on Solid waste management. (Refer Table No:49).

Solid waste generation in Thiruvannamalai district - major towns

in tonnes per day



4.2.5 Composition of solid waste

The compostable matter is 70%, rags is 29% and the others are less than 1% of composition of municipal solid waste in Thiruvannamalai district. (Refer Table No:50).

4.2.6 Coverage of problem villages

It has been identified that about 1952 settlements out of the total 3238 settlements in the district have problems with regard to supply of Drinking Water 1058 settlements less than ten litres problem villages have been covered during the Year 1995-96. Necessary details are given in Table No: 51.

4.2.7 Reported cases of water borne diseases

Gastro-enteritis and Dysentery cases were reported from the year 1990 to 1998 and the deaths of gastro-enteritis cases and Cholera were also reported from the year 1990 to 1998. (Refer Table No:52).

4.2.8 Facilities under Indian system of medicines

Allopathic, Sidda and Homeopathy are the most commonly practised systems of medicine in the district. In addition one Sidda and one Homeopathy

hospital is available and other systems of medicines are totally absent. The details on the facilities under Indian system of medicines are given in Table No.53.

Medical facility of one type or other is available in 387 villages, which constitute 36.51 percent of the total inhabited villages. The following table provides town-wise break-up of medical institutions available in the towns along with bed facility, if available:

Name of the Towns	Medical Institutions	With number of beds
Arani	Hospitals (2)	43
	Dispensary (7)	-
Polur	Hospitals (1)	44
	Nursing Home (1)	-
	Dispensary (3)	-
	Family Planning Centre (1)	-
Thiruvannamalai	Hospitals (1)	132
	Dispensary (2)	-
	Others (2)	-
Tiruvettipuram (Cheyyar)	Hospitals (2)	64
Vandavasi	Hospitals (1)	48

4.2.9 Population below poverty line

Number of families below poverty line was 138094 as on 1996 in Thiruvannamalai district. The details are given in Table No: 54.

4.3 Transportation

4.3.1 Development of Roads, Bridges

The district has 2436 km. of State highways, 3320 km. of major district roads and 111 km. of other district roads in 1996. Over and above, there are 19 major bridges and 647 minor bridges and culverts in the district in 1996. Relevant information is provided in Table No: 55.

4.3.2 Growth of Vehicle population

Two, three and four wheeler vehicles in the year 1996 were 18299, 16050 and 1981 respectively.(Refer Table No:56).

4.4 Industrial Development and Environmental Status

Thiruvannamalai is not considered very important from the industrial point of view and it is well known only for agriculture and weaving. Arani is the well-known silk-weaving centre in the district. Silk- weaving is done as a household industry also. A unit located at Polur is engaged in producing acids. Handlooms are important in Arani and certain other areas. Some traditional workers do stone carving in Polur taluk and horn and bone works are carried on in some places in Cheyyar taluk.

4.4.1 Number of Industries

There have been 39 large Red Category and 67 Orange Category Industries in 1995-96 which are classified, based on the nature of hazardness by TNPCB. Red category industries are mostly chemicals, textiles and pharmaceutical industries. The details on the number of industries are given in Table No:57.

4.4.2 Emission Inventory of Major Industries

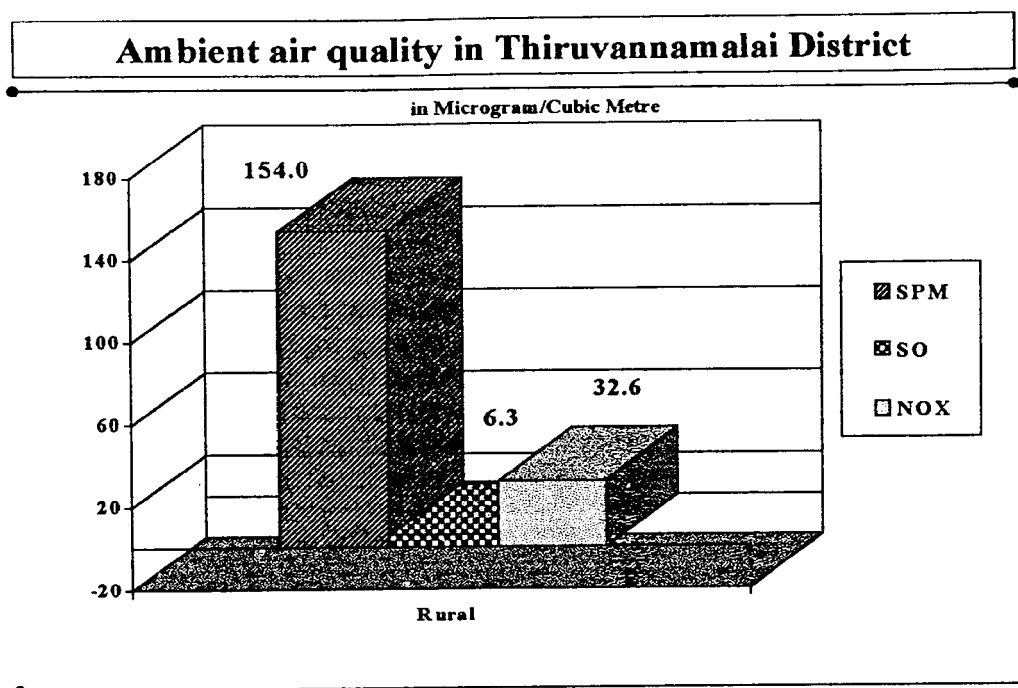
Dharani sugar & Chemicals & Cheyyar Co-operative Sugar mills has been identified with the highest emission rate in terms of SPM ($1.87\mu\text{g}/\text{m}^3$), SO (0.75), and NO $1.3\mu\text{g}/\text{d}$ and CO $37.4\mu\text{g}/\text{d}$ while the emission rates of HC are not available from the authorities. However all the 1544 industries of the district are found to be having the emission rates well under the set standards. (Refer Table No.58.)

4.4.3 Air pollution stressed area

Air pollution stressed areas in the Karaipundi village of Polur taluk – Dharani Sugar & Chemicals Limited and Anakkavoor village of Cheyyar taluk – Sugar Mills Limited. Major air pollution sources were water and air in the district. (Refer Table No:59).

4.4.4 Ambient air quality status

As far as the rural air quality status is concerned, the average SPM values, SO, Nox values of industrial categories seem to be with in the standards. $154\mu\text{g}/\text{d}$, $6.3\mu\text{g}/\text{d}$ and $32.6\mu\text{g}/\text{d}$ respectively. (Refer Table No:60).



4.4.5 Water quality

Information was not available for Water Quality in Thiruvannamalai District (Refer Table No: 61).

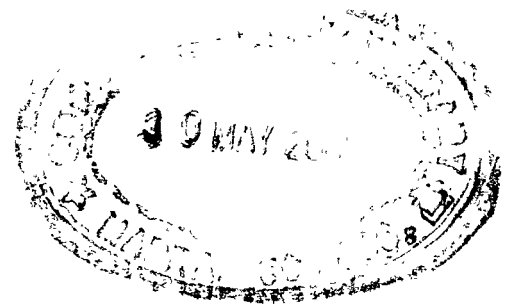
4.4.6 Discharge of Industrial effluents

The co-operative milk producers orange union limited is discharge of industrial effluents in to the Cheyyar river in Thiruvannamalai district. Effluent recipient water of 600 KLD in NADT – co-operative Mills and 500 KLD in Cheyyar co-operative sugar mills.(Refer Table No:62).

4.4.7 Noise levels

Karaipoondi village has recorded a noise level of 55 dBA during the day while it was 45 dBA during the night, not exceeding the permissible levels of 55 dBA. (Refer Table No:63).

Environmental Institutions



Environmental Institutions

5.1 Environmental Education and Research Institutions

There has been no environmental education and research institution in the district. (Refer Table No:64).

5.2 Environmental NGOs

There are 7 NGOs dealing with environmental related issues in the district. They are mainly concentrating on creating knowledge about environment through school teachers, water resources, empowerment, waste land cultivation and tree planting, environmental awareness, environmental education, tank cleaning, water shed development and environmental awareness to school teachers. (Refer Table No:65).

Summary of observations

Summary of Observations

On the basis of identified key environmental problems in the district, environmental improvement measures are to be suitably suggested. The key observations of the Environmental Profile of Thiruvannamalai District are briefed below:

1. During the period of 1981-91, there has been an increase in the growth rate of population at about 0.34% per annum.
2. It is interesting and encouraging to note that the percentage of male literacy level has significantly increased during the past 7 years.
3. It is encouraging to note that the death rate has decreased during 1961 to 1991..
4. 55.39% of the land area in Thiruvannamalai district is utilised for cultivation.
5. The utilisation of chemical fertilisers and bio-fertilisers in the district is high.
6. District welfare activities like new constructions of check dams and conservation works for cropping area for each block are undertaken.
7. The district has good type of red soil and clayey soil
8. The forest area in Thiruvannamalai district is about only 24.29%. Apart from reserve forests, reserve lands and unclassified forests, there are 8 scrub forests under green cover classification. The man made forest plantations have been restricted to the existing forest area in the district.
9. Conservation of biological resources is to be strengthened by the district administration.
10. The main sources of irrigation of the district happen to be canals, tanks and wells. Only 22.26% of the total cropped areas are irrigated by these sources.

11. There have been 4 major tourist places in the district. Domestic tourist arrivals have had fluctuations.
12. The fish production both in quantity and value has increased during the past 6 years. The inland fish production has steadily increased and seed production had fluctuations during 1991-96 period.
13. There has been a marginal improvement in the power generation sector. The demand for electricity could not be met, owing to the steady population growth and higher rate of consumption.
14. Urbanisation process in Thiruvannamalai district has been taking place at a higher rate.
15. Urban services like drinking water and solid waste management in the district.
16. There has been an increase in the use of two, three and four wheeler vehicles in the district.
17. Red and orange categories of hazardous industries are identified by TNPCB. Most of the red category industries are very hazardous in nature.
18. There has been no environmental research institute in the district of Thiruvannamalai.
19. The existing 7 NGOs may be involved more in protecting the environment of the district.
20. Participative planning for environment management, creation of a management information System, environment management training to officers of the stake-holding government departments would go a long way in the environment planning efforts of the Directorate of Environment, Government of Tamil Nadu in fulfilling its corporate objectives.

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Tables



Table 1 : Details of Administrative Units in Tiruvannamalai District as on 1995 - 96.

Name of Taluk	Name of Block	No. of Village	No. of Village Panchayats	Name of Town Panchayat	Name of Municipality
1. Tiruvannamalai	1. Tiruvannamalai	89	69	1. Kilpennathur	1. Tiruvannamalai
	2. Kilpenathur	63	45	2. Vettavalam	
	3. Turinjapuram	60	47		
2. Chengam	4. Chengam	61	44	3. Chengam	
	5. Pudupalayam	43	37	4. Pudupalayam	
	6. Thandrampattu	62	47		
3. Polur	7. Polur	56	40	5. Polur	
	8. Kalasapakkam	49	45	6. Chetpet	
	9. Chetpet	63	49	7. Kalampur	
	10. Jawadhu Hill	38	11		
4. Cheyar	11. Cheyar	70	54		2. Tiruvathipuram
	12. Annakkavoor	61	57		
	13. Vembakkam	91	64		
5. Vandavasi	14. Vandavasi	71	61	8. Desur	3. Vandavasi
	15. Thellar	69	63	9. Pernamullur	
	16. Peranamallur	67	57		
6. Arani	17. Arani	28	38	10. Kannamangalam	4. Arani
	18. West Arani	26	37		
6 Taluks	18 Blocks	1067	865	10 Town Panchayats	4 Municipalities

Source : District Collector, Collectorate - Tiruvannamalai.

Table 2 : Meteorological Information of Tiruvannamalai District (Average of All Meteorological Stations and of Period 1995-96.)*

Climatic Factors		January	February	March	April	May	June	July	August	September	October	November	December	Total	Average
Monthly Average Rain Fall (mm)		23.8	6.3	15.1	24.7	51.7	52.6	85.5	124.3	118	267	308.7	139.1	1077.7	89.81
Average No. of Rainy Days (No.)		1.4	0.6	0.7	1.2	1.5	4	6.5	8.4	7.3	10	9.8	5.1	56.5	4.71
Mean Maximum Temp. (C)		28.6	30.6	33.1	35.2	37.6	37	35	34.2	33.8	31.7	29.3	28.1	394.2	32.85
Mean Minimum Temp. (C)		20.4	21.3	23.3	26.1	27.7	27.2	26	25.4	25.3	24.3	22.6	21.2	290.8	24.23
Mean Relative Humidity (%)		79	79	77	74	66	62	70	74	76	82	82	81	902	75.17
Mean Wind Velocity (M/Sec)		9	9.2	10.2	10.5	13	16.4	14.6	13.6	11.1	9.2	11.7	12.6	141.1	11.76
% of Wind Occurrence from Directions	North	18	7	3	1	2	0	0	1	1	8	24	29		7.83
	North East	16	5	2	1	2	0	0	0	0	2	16	18		5.17
	East	8	9	4	2	1	0	0	0	0	3	8	5		3.33
	South East	2	6	6	10	6	1	1	1	1	1	3	1		3.25
	South	0	4	18	36	34	5	5	6	6	5	1	0		10.00
	South West	2	12	29	35	33	35	36	37	37	21	2	0		23.26
	West	12	26	25	9	18	53	52	49	46	31	11	5		28.08
	North West	40	28	11	4	3	5	5	5	8	25	34	42		17.50
	Calm	2	3	2	2	1	1	1	1	1	4	1	0		1.58

Note : Data for composite South Arcot District. ***Source : Director, Regional Metreological Centre - Chennai.**

Table 3 : Taluk wise Population of Tiruvannamalai District.

SL. No.	Name of the Taluk				
		1961	1971	1981	1991
1	Tiruvannamalai	258872	314245	383377	453049
2	Chengam	222703	265004	310332	350998
3	Polur	245792	292954	332462	385699
4	Cheyar	209856	230279	268055	303680
5	Vandavasi	-	239620	275998	305237
6	Arani	169839	182247	215573	244316
	TOTAL	1,107,062	1,524,349	1,785,797	2042979

Source : Census of India 1961 to 1991. Joint Director, Department of Statistics - Tiruvannamalai District.

Table 4 : Trend in Birth/Death Rate and Infant Mortality Rate in Tiruvannamalai District.

Parameter	Census Year			
	1961	1971	1981	1991
Birth Rate (Per Thousand)	23.2	22.4	21.2	20.3
Death Rate (Per Thousand)	12.6	10.2	9.2	7.7
Infant Mortality Rate (Per Thousand)	51.2	48.7	46.4	44.5

Source : Joint Director, Department of Statistics - Tiruvannamalai District.

Table 5 : Literacy Level among Population in Triuvannamalai District.

Year	Population			Literate Population			Percentage(%) of Literacy		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1981	902599	883198	1785797	560916	366806	927722	62.14	41.53	51.95
1991	1030052	1012927	2042979	687277	396931	1084208	66.72	39.19	53.07
1996	1079166	1063574	2142740	759089	455854	1214943	70.34	42.86	56.70

Source : Census of India 1981 to 1991. Joint Director, Department of Statistics - Tiruvannamalai District.

Table 6 : Land Utilisation Details for Tiruvannamalai District as on 1996 - 97.

Classification	District Total	% to Total Geographical areas
A. Total Geographical Area	631205	✓ 100.00
B. 1. Forest Lands	153318	24.29
2. Non available for cultivation (a+b)	112789	17.87
a) Barren & Uncultivable Land	21039	3.33
b) Land put to non-agri uses	91750	14.54
3. Other Uncultivated Land (a+b+c)	24093	3.82
a) Permanent pastures and other grazing lands	3818	0.60
b) Misc. tree crops and groves not in the net area sown	8722	1.38
c) Cultivable Waste Land	11553	1.83
C. Fallow Lands (a+b)	79304	12.56
a) Current Fallow	60549	9.59
b) Other Fallow Lands	18755	2.97
D. Total Cropped Area (1+2)	349599	55.39
1) Net Area Sown	261701	41.46
2) Area sown more than once	87898	13.93

Source : Season and Crop Report of Tamilnadu for the Agricultural year 1996-97. Directorate of Economics and Statistics- Chennai.

Table 7 : Trend in production and productivity of important crops in Tiruvannamalai District (Time Series Data).

Year	Total Cereals				Total Pulses				Total Oil Seeds			
	Area/ Ha.	Production (Tonnes)	Productivity (kg / Ha.)	% change in Productivity	Area/ Ha.	Production	Productivity (kg / Ha.)	% change in Productivity	Area/ Ha.	Production	Productivity (kg / Ha.)	% change in Productivity
1990-91	79000	197000	2493.67	-	32400	14800	456.79	-	128000	138000	1078.13	-
1991-92	137000	359000	2620.44	5.08	37400	20800	556.15	21.75	138000	149000	1079.71	0.15
1992-93	120000	233000	1941.67	-25.90	32000	15000	468.75	-15.72	169000	186000	1100.59	1.93
1993-94	129000	282000	2186.05	12.59	43000	16000	372.09	-20.62	163000	208000	1276.07	15.94
1994-95	131000	378000	2885.50	32.00	45000	29000	644.44	73.19	167000	221900	1328.74	4.13
1995-96	138000	302000	2188.41	0.11	52000	30000	576.92	55.05	186300	231200	1241.01	-2.75
1996-97	169503	403430	2380.08	-17.52	15677	5640	359.76	-44.17	132893	171720	1292.17	-2.75

Note : Percentage increase or decrease in the year have been calculated by taking the previous year as 100.

[(Percentage increase or decrease = ((current year - base year)/base year X 100)]

Source : Joint Director, Department of Agriculture - Tiruvannamalai District.

Table 8 : Horticultural and Plantation Crops in Tiruvannamalai District as on 1996 - 97.

Name of the Crops		Area Coverage (Ha)	Annual Production	
			Product	Quantity (Tonnes)
A.	Fruit Crops	2993	Banana,Lime,Orange,Mango,,jack,Pineapple,Guava,Grapes	115830
B.	Vegetable Crops	945	Sweet Potato,Brinjal,Lady's finger,Cabbage,Tomato,Potato	5,670
C.	Plantation Crops	30	Coriander	10

Source: Season and Crop Report of Tamilnadu for the Agricultural year 1996-97.Directorates of Economics and Statistics- Chennai.

Table 9 : Consumption of Fertilizers and Pesticides in Tiruvannamalai District as on 1995 - 96.

Fertilizers and Pesticides	Consumption in Metric Tonnes
Chemical Fertilizers	
1. Nitrogenous (N)	17000
2. Phosphatic (P ₂ O ₅)	6000
3. Pottasic (K ₂ O)	6000
Total (N + P + K)	29000
Urea (MT)	26500
Bio Fertilizers (No.of Pockets)	321800
Pesticides	
1. Dust (Kilos)	500
2. Liquid (Litres)	2894

Note: Block wise details not available.

Source : Joint Director, Department of Agriculture - Tiruvannamalai District.

Table 10 : Trend in consumption of Fertilizers and Pesticides in Tiruvannamalai District.

Year	All Chemical Fertilizers (Tonnes)	Bio-Fertilizers (Pockets)	Pesticides		Percentage (Increase or Decrease)		
			Dust (Kilos)	Liquid (Litres)	Chemical Fertilizers	Bio Fertilizers	Pesticides
1990-91	23007	221800	134000	17569	-	-	-
1991-92	30330	240600	156000	18529	31.83	8.48	16.42
1992-93	27000	212400	113000	10648	-10.98	-11.72	-27.56
1993-94	28000	260850	98000	15013	3.70	22.81	-13.27
1995-96	29000	321800	500	2894	3.57	23.37	-99.49

Note : Percentage increase or decrease in the year have been calculated by taking the previous year as 100.

[(Percentage increase or decrease = ((current year - base year)/base year X 100)]

Source : Joint Director, Department of Agriculture - Tiruvannamalai District.

Table 11 : Soil types in Tiruvannamalai District as on 1995 - 96.

SL. No.	Type of Soil	Area Covered (Ha)	Percentage of Occurrence
1	Deep Red Soil	367581.30	35.05
2	Thin Red Soil	535475.50	51.05
3	Clayey Soil	87205.69	8.31
4	Gravelly Soil	58611.51	5.59
	TOTAL	1048874.00	100.00

Note : Data for Composite Thiruvannamalai & Vellore Districts.

Source : Joint Director, Department of Agriculture - Tiruvannamalai District.

Table 12 : Problem Soil in Tiruvannamalai District as on 1995 - 96.

SL. No.	Type of Problem	Extent (Ha)	% to Total Lands (Excluding Forest lands and lands not available for cultivation)
A.	Salinity / Alkalinity	NA	NA
B.	Water Logging & Marshy Land	NA	NA
C.	Prone to Floods	NA	NA
D.	Prone to Soil Gullied, Ravenous Land	NA	NA
E.	Degraded non Forest Land	NA	NA
F.	Sand, desertic / coastal	NA	NA

Source : Joint Director, Department of Agriculture - Tiruvannamalai District.

Table 13 : Status of Soil and Water Conservation Programmes in Tiruvannamalai District upto 1995-96.

Block	Construction of New Wells for Irrigations (No.)	Construction of Check Dams / Stop Dams (No.)	Cropping Area where soil conservation works are undertaken (Ha.)
Thiruvannamalai	-	133	-

Source : Asst. Director of Agricultural Engineering - Tiruvannamalai District.

Table 14a : Forest Area in Tiruvannamalai District as on 1995 - 96.

Classification	No. of Areas	Extent in (Ha.)	Percentage to total Forest Area
A. Total Forest Area	Na	42630.41	100.00
B. Legal Classification			
1. Reserve Forests	Na	42630.41	100.00
2. Reserve Lands	-	-	-
3. Unclassed Forests	-	-	-

Table 14b : Green cover classification of forest area in Tiruvannamalai district.

C.	Green Cover Classification	Extent in * (Ha.)	Percentage to total Forest Area
1	Tree bearing area Natural forests		
	a.Dense forests	15429	8.38
	b.sparse forests	62748	34.08
2	Area covered by plantations	19112	10.38
3	Non tree bearing areas		
	a.Sheet and rock sites	74	0.04
	b.stoney and rocky scrub	4032	2.19
	c.Scrub area	69635	37.82
4	Grass land	644	0.35
5	Degraded forest area	12446	6.76
	Total forest area of the division	184120	100.00

Note : Data for Composite Vellore and Thiruvannamalai District.*

Source: The Forest Cover Report of Tamilnadu - Forest Department -1990

Table 15 : Trend in Percapita Forest Area in Tiruvannamalai District.

Year	Population	Forest Area (Ha.)	Percapita Forest Area (Ha.)
1961	1107062	42630.41	0.0385
1971	1524349	42630.41	0.0280
1981	1785797	42630.41	0.0239
1991	1847675	42630.41	0.0231
1996	2142740	42630.41	0.0199

Source : District Forest Officer, Forests Department - Tiruvannamalai District.

Table 16 : Man made Forest Plantation in Tiruvannamalai District upto 1995 - 96.

Name of Species	Area in Ha.
In Forest Area	
1. Fuelwood	230.0
2. Red Sanders	35.6
3. Cashew	20.0
4. Sandal	40.0
5. Neem, Tamarind, Other MFP	209.0
Total	534.6

Source : District Forest Officer, Forests Department - Tiruvannamalai District.

Table 17 : Details of Villages abutting Forest areas in Tiruvannamalai District as on 1995 - 96.

Taluk	Name of the RF/RL/UCF	Area (Ha.)	Name of the Revenue Village abutting Forest Area	Population as per 1991 Census
Arani	Arani	4954.60	Na	Na
Polur	Polur	28040.82	Na	Na
Polur Plantation	Polur	9635.53	Na	Na

Note : Na - Not available.

Source : District Forest Officer, Forests Department - Tiruvannamalai District.

Table 18 : Tribal Villages / Hamlets in Tiruvannamalai District as on 1995 - 96.

Sl. No.	Taluk	Name of the RF/RL/UCF	Area (sq.km.)	Name of the Revenue Village	Name of the Tribal Hamlet	Population as per 1991 Census	Live Stock Population		
							Cattle (Ox, Cow, Buffaloes)	Sheep	Goats
1	Jawadhu Hills	Jawadhu Hills	2405	Naickanoor	Naickanoor	2260	280	320	101
2				Bheemakulam	Bheemakulam	3104	301	355	82
3				Pungambattu nadu	Pungambattu nadu	4668	265	262	92
4				Pudur nadu	Pudur nadu	4627	327	296	106
5				Nellivasal Nadu	Nellivasal Nadu	4125	291	315	120
6				Naickkaneri	Naickkaneri	2541	225	181	120
7				Pananketteri	Pananketteri	-	150	140	127
8				Kamanoorthattu	Kamanoorthattu	1127	201	186	182
9				Jardhankollai	Jardhankollai	2130	252	192	52
10				Peenjamandai	Peenjamandai	125	240	120	114
11				Periapanaparai	Periapanaparai	486	181	92	60
12				Alleri	Alleri	115	152	121	50
13				Pudukuppam	Pudukuppam	54	196	103	92
14				Yellyparai	Yellyparai	481	215	115	102
15				Mulluvadi	Mulluvadi	1058	162	120	92
16				Palambattu	Palambattu	3006	169	180	96
17				Kanamalai	Kanamalai	383	269	174	108
18				Amirthi	Amirthi	301	172	34	37
19				Kilkanavavur	Kilkanavavur	669	179	86	44
20				Seengadu	Seengadu	698	122	84	43
21				Pulliyankuppam	Pulliyankuppam	394	163	92	68
22				Shenbagathoppu	Shenbagathoppu	304	151	70	52
23				Neeplambattu	Neeplambattu	1751	215	147	50
24				Thellai	Thellai	369	156	126	81
25				Thellai RF	Thellai RF	-	216	130	-
26				Veerappanur	Veerappanur	1701	138	80	111
27				Pudupattu	Pudupattu	570	168	64	84
28				Oodamangalam	Oodamangalam	369	210	51	57
29				Mandaparai	Mandaparai	560	159	38	36
30				Kuttakarai	Kuttakarai	761	184	50	81
Sub-Total A			2405			38737	6109	4324	2440

Note : 1. The details have to be collected for individual forest areas in the revenue district.

2. Revenue Village and the tribal hamlet may be taken as the data unit.

Source : District Forest Officer, Department of Forests, Tiruvannamalai.

(Contd....)

Table 18 : Tribal Villages / Hamlets in Tiruvannamalai District as on 1995 - 96 (Contd.....)

Sl. No.	Taluk	Name of the RF/RL/UCF	Area (Ha.)	Name of the Revenue Village	Name of the Tribal Hamlet	Population as per 1991 Census	Live Stock Population		
							Cattle (Ox, Cow, Buffaloes)	Sheep	Goats
	Sub-Total A					38737	6109	4324	2440
31				Pattaraikadu	Pattaraikadu	397	184	81	52
32				Melsipli	Melsipli	252	168	80	190
33				Thumbakadu	Thumbakadu	583	160	85	180
34				Nammiyambattu	Nammiyambattu	3893	189	76	160
35				Eriyur	Eriyur	108	290	40	180
36				Kovillur	Kovillur	6485	295	251	-
37				Erumaiyanur	Erumaiyanur	219	634	297	121
38				Kildhadipattu	Kildhadipattu	46	831	341	578
39				Palamarathur	Palamarathur	2219	592	331	428
40				Melsilambadi	Melsilambadi	1432	614	348	267
41				Padapanjamarathur	Padapanjamarathur	650	579	274	229
42				Vannanguttai	Vannanguttai	156	735	311	235
43				Athipattu	Athipattu	118	1108	476	848
44				Chinnakilpattu	Chinnakilpattu	143	928	408	371
45				Melpattu	Melpattu	254	1081	785	516
46				Kilpattu	Kilpattu	242	824	447	286
47				Puliyur	Puliyur	461	746	468	278
48				Meldhadipattu	Meldhadipattu	136	370	185	203
49				Kildhadipattu	Kildhadipattu	105	365	188	179
50				Erugampattu	Erugampattu	126	426	442	170
51				Nellivai	Nellivai	197	222	159	96
52				Perumuttam	Perumuttam	146	259	212	82
53				Oorgoundanur	Oorgoundanur	844	140	117	67
54				Bandirav	Bandirav	576	133	102	59
55				Kallathur	Kallathur	789	274	69	51
56				Kilaiyur	Kilaiyur	608	220	128	97
						59922	18476	11025	8363

Note : 1. The details have to be collected for individual forest areas in the revenue district.

2. Revenue Village and the tribal hamlet may be taken as the data unit.

Source : District Forest Officer, Department of Forests, Tiruvannamalai.

Table 19 : Forestry area diverted for non forestry purposes in Tiruvannamalai under Forest (Conservation) Act, 1980 upto 1995 - 96.

Purpose	No. of Cases Cleared	Area involved (Ha.)	No. of Cases in Process	Area Involved (Ha.)
Irrigation projects	Nil	Nil	Nil	Nil
Hydro Electric Projects	Nil	Nil	Nil	Nil
Mining	Nil	Nil	Nil	Nil
Roads	Nil	Nil	Nil	Nil
Railways	Nil	Nil	Nil	Nil
Electric Transmission	Nil	Nil	Nil	Nil
Department of Space	Nil	Nil	Nil	Nil
Others	Nil	Nil	Nil	Nil
Total	-	-	-	-

Source : District Forest Officer, Forests Department - Tiruvannamalai District.

Table 20 : Trends in Production of Forest Produce in Tiruvannamalai District.

Year	Timber		Sandal Wood		Industrial Wood		Fuel Wood		Bamboo		All Minor Forest Produce	
	Reserve Forest	Outside Reserve Forest	Reserve Forest (No. of Trees)	Outside Reserve Forest	Reserve Forest (Tonnes)	Outside Reserve Forest	Reserve Forest	Outside Reserve Forest	Reserve Forest	Outside Reserve Forest	Reserve Forest (Tonnes)	Outside Reserve Forest
1993	-	-	16485	-	-	-	-	-	-	-	255.0	-
1994	-	-	36317	-	-	-	-	-	-	-	240.5	-
1995	-	-	9797	-	228.971	-	-	-	-	-	161.0	-
1996	-	-	16306	-	3997.635	-	-	-	-	-	201.0	-
1997	-	-	91	-	2776.981	-	-	-	-	-	182.0	-

Source : District Forest Officer, Forests Department - Tiruvannamalai District.

Table 21 : Conservation of Biological Resources in Tiruvannamalai District as on 1995 - 96.

Name of Protected Area	Location		Legal Status of Land RF/ RL/UCF/Others	Year of Formation	Area in (Ha.)	% to total Forest Area in the District	Prominent Species Protected
	Taluk	Village					
IN SITU							
A. Biosphere Reserve	Nil	Nil	Nil	Nil	Nil	Nil	Nil
B. National Park	Nil	Nil	Nil	Nil	Nil	Nil	Nil
C. Sanctuary including Bird Sanctuary	Nil	Nil	Nil	Nil	Nil	Nil	Nil
EX SITU							
D. Zoological Park	Nil	Nil	Nil	Nil	Nil	Nil	Nil
E. Botanical Garden	Nil	Nil	Nil	Nil	Nil	Nil	Nil
F. Gene Park/Gene Pool/Garden/Gene Bank	Nil	Nil	Nil	Nil	Nil	Nil	Nil
G. Others	Nil	Nil	Nil	Nil	Nil	Nil	Nil

Source : District Forest Officer, Forests Department - Tiruvannamalai District.

Table 22 : Wildlife Census in Crocodile Farm of Tiruvannamalai District as on 30.9.1998.

Name of Animals	Numbers
Crocodile	444

Source : District Forest Officer, Forests Department - Tiruvannamalai District.

Table 23 : Rare and Threatened Species of Flora and Fauna in Tiruvannamalai District.

Category	Name of the Species	Location where occurring / occurred
Vascular Plants		
Rare	Indigoferabarberi	
Vulnerable	Nil	-
Endangered	Nil	-
Possibly Extinct	Neuracanthus neesianus	
Extinct	Nil	Nil
Animals	Nil	Nil
Rare	Nil	-
Vulnerable	Nil	-
Endangered	Nil	-
Possibly Extinct	Nil	-
Extinct	Nil	-

Source : District Forest Officer, Forests Department - Tiruvannamalai District.

Table 24 : Reserve of Important minerals in Tiruvannamalai District as on 1995 - 96.

Mineral	Recoverable Resources (in Tonnes) Actual Production	Mineral Concessions (as on 1.1.96)	
		Number	Area (Ha.)
Black Granites	1301.341 m3	34	105.80.3
Colour Granites	1874.365 m3	8	9.65.2
Rough Stone	15,400 Units	57	74.76.0
Sand	370000 MT	13	16.19.4

Source : 1. Asst. Director, Department of Geology & Mining - Tiruvannamalai District.

2. Director, Department of Geology Mining - Chennai.

Table 25 : Catchment Area of River Basins in Tiruvannamalai District.

Name of the River Basin	Place of Origin	Total		Within the District	
		Length (km)	Area of the Basin(Sq.km)	Length (km)	Area of the Basin(Sq.km)
1. Ponnaiyar	Chennakesava Hills in Mysore State	407.153	285.46	77.98	41.85
2. Palar	Na	540	18300	194	4013
3. Varahanadhi	Pakkamalai	215	4357	145	306

Note: Na - Not available.

Source : Superndenting Engineer, Public Works Department - Tiruvannamalai.

Table 26 : Basin wise status of the Ground Water Availability in Tiruvannamalai District.

Name of the River Basin	Geographical Area (hectares)	Range of Average Annual Rainfall(mm)	Gross recharge of the basin (Ha.M)	Net Water Utilised annual (Ha.M)	Balance Water available for exploitation (Ha.M)	Net Water recoverable (Ha.M)
1. Ponnaiyar	176106.20	932.0	25314	21517	9745	11772
2. Palar	426189.60	1038.9	131163	111539	52453	59036
3. Varahanadhi	28909.20	1158.0	43875	37294	15906	21388

Source : Superndenting Engineer, Public Works Department - Tiruvannamalai.

Table 27 : Available Water Spread Area in Tiruvannamalai District as on 1995 - 96.

Name of Block	Public Works Department				Panchayat Tanks		Total No. of Tanks	
	System Tanks		Seasonal / Rainfed Tanks					
	No.	Water Area (Ha.)	No.	Water Area (Ha.)	No.	Water Area (Ha.)	No.	Water Area (Ha.)
1.Tiruvannamalai	21	528.03	29	22875.00	Na	Na	50	23403.03
2. Kilpennathur	Nil	Nil	17	11905.00	Na	Na	17	11905.00
3. Turinjapuram	Nil	Nil	29	18075.00	Na	Na	29	18075.00
4. Polur	Nil	Nil	20	32555.00	Na	Na	20	32555.00
5. Kalasapakkam	Nil	Nil	21	19200.00	Na	Na	21	19200.00
6. Chetpet	Nil	Nil	42	57900.00	Na	Na	42	57900.00
7. Cehngam	14	677.23	20	34770.00	Na	Na	34	35447.23
8. Pudupalayam	Nil	Nil	28	40600.00	Na	Na	28	40600.00
9. Thandrampet	Nil	Nil	21	11567.00	Na	Na	21	11567.00
10. Jawadhu hills	Nil	Nil	1	1763.00	Na	Na	1	1763.00
11. Cheyyar	191	11574.05	116	111058.60	Na	Na	307	122632.65
12. Annakkavur	Nil	Nil	56	65208.50	Na	Na	56	65208.50
13. Vembakkam	Nil	Nil	63	107500.00	Na	Na	63	107500.00
14. Vandavasi	52	3089.91	60	75832.20	Na	Na	112	78922.11
15. Thellar	Nil	Nil	37	87779.20	Na	Na	37	87779.20
16. Peranamallur	Nil	Nil	44	18958.15	Na	Na	44	18958.15
17. Arani	Nil	Nil	27	38569.14	Na	Na	27	38569.14
18. West Arani	Nil	Nil	26	17791.00	Na	Na	26	17791.00
Total	278.00	15869.22	657.00	773906.79	-	-	935.00	789776.01

Source : Superndenting Engineer, Public Works Department - Tiruvannamalai.

Table 28 : Details of Dams and Reservoirs in Tiruvannamalai District as on 1995 - 96.

Name of River	Name of Dam / Reservoir	Year of Construction	Uses	Water Spread Area (Ha.)	Designated Capacity (mcft.)	Designed Extent of Ayacut (Ha.)
Ponnaiyar	Sathanur Dam	1954-55	Irrigation	1821.86	8100	18222.00

Source : Superndenting Engineer, Public Works Department - Tiruvannamalai District.

Table 29 : Irrigated area by different sources in Tiruvannamalai District as on 1995 - 96.

District	Gross Are Irrigated ('000 Ha.)					Total Cropped Area (Ha.)	% of Irrigated area to Cropped area
	Canals	Tanks	Wells	Other Sources	Total		
Tiruvannamalai	1197	1791	162256	-	165244	742467	22.26

Source : Joint Director, Department of Agriculture, Tiruvannamalai District.

Table 30 : Incidence of Drought, Flood and Cyclone in Tiruvannamalai District.

Year	Total in the District		Drought		Flood		Cyclone	
			No. of affected Taluks	No. of affected Blocks	No. of affected Taluks	No. of affected Blocks	No. of affected Taluks	No. of affected Blocks
	Taluks	Blocks						
1985-86	6	18	Nil	Nil	6	18	Nil	Nil
1986-87	6	18	Nil	Nil	Nil	Nil	Nil	Nil
1987-88	6	18	Nil	Nil	Nil	Nil	Nil	Nil
1988-89	6	18	Nil	Nil	Nil	Nil	Nil	Nil
1989-90	6	18	3	9	Nil	Nil	Nil	Nil
1990-91	6	18	Nil	Nil	Nil	Nil	Nil	Nil
1991-92	6	18	Nil	Nil	Nil	Nil	Nil	Nil
1992-93	6	18	3	9	Nil	Nil	Nil	Nil
1993-94	6	18	3	9	Nil	Nil	Nil	Nil
1994-95	6	18	Nil	Nil	Nil	Nil	Nil	Nil
1995-96	6	18	Nil	Nil	6	18	Nil	Nil

Source : District Collector, Collectorate - Tiruvannamalai.

Table 31 : Statement showing the Fisheries production in Tiruvannamalai District as on 1995-96.

District	Length of Coastal Line (km)	Area (Ha.)		Marine Fishing Villages (No.)	Fish Production (Qty = Tonnes; Value = Rs. Lakhs)											
		Total Inland	Estuaries & brackish		1901-91		1991-92		1992-93		1993-94		1994-95		1995-96	
		Fresh water	Water Area		Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
		Spread Area														
Tiruvannamalai	Nil	38640	Nil	Nil	3000	3.0	3500	3.5	4625	4.6	4625	4.6	4990	4.9	5200	5.2

Source : Asst. Director of Fisheries, Tiruvannamalai District.

Table 32 : Trends in Fish and Fish Seed Production in Tiruvannamalai District.

Year	Fish Production (Tonnes)		Seed Production Thousands Standard Fry
	Inland	Coastal	
1991-92	3000	Nil	6400
1992-93	3500	Nil	5200
1993-94	4625	Nil	7800
1994-95	4625	Nil	6200
1995-96	5200	Nil	10600

Source : Asst. Director of Fisheries - Tiruvannamalai District.

Table 33 : List of Protected and Conserved Monuments by the ASI, State Archaeology Department and Museums in Tiruvannamalai District as on 1995-96.

Locality		Name of the Monument maintained by ASI	Name of the Monument maintained by Dept. of Archaeology	Museum maintained by			
Taluk	Village			Govt.	Universities	Local Bodies	Others
Vandavasi	Kilputhur	Suyambunatha Swami Temple	No	Yes	-	-	-
NA	Kuranganilurtlam	Rock-cut shrine	No	Yes	-	-	-
Arani	Mamandur	Rock-cut cave, Sculptures			-	-	-
		& Inscriptions	No	Yes	-	-	-
Cheyar	Narasamangalam	Rock-cut cave	No	Yes	-	-	-
Polur	Siyamangalam	Rock-cut Temple			-	-	-
		& Inscriptions	No	Yes	-	-	-
Vandavasi	Vandavasi	-	Vandavasi Fort	Yes	-	-	-
Chengam	Chinnyampettai	-	Chinnyakulam	Yes			
Arani	Erumpedu	-	Poondi Arugar Temple	Yes			
Cheyar	Koolampandal	-	Gangaikondacholeeswarar Temple				
NA	Chettavarai	-	Rock Paintings				
Vandavasi	Tellur	Megaliltric Site	No	Yes	-	-	-
NA	Tellurai	Megaliltric Site	No	Yes	-	-	-
NA	Timmalai	Jain Temple	No	Yes	-	-	-
Polur	Mothur	Megaliltric Site	No	Yes	-	-	-

Source : Conservation Assistant. Archaeological Survey of India -Vellore District.

Table 34 : Statement showing the places of Tourist Attraction in Tiruvannamalai District as on 1995-96.

Block	Name of Tourist Place	Town / Viilage in which located	Historical / Cultural / Natural Heritage area	Special Significane of area	Best Season for visit
Tiruvannamalai	Tiruvannamalai	Tiruvannamalai	Historical / Cultural	Arunachala Eswara temple	Throughout the year

Source : D.D.O., Tamilnadu Tourism Development Corporation (TTDC),Hogenekkal Dharmapuri.

Table 35 : Statement showing the Tourist Arrivals in Tiruvannamalai District as on 1995-96.

Year	Tourist Visited		
	Domestic	Foreign	Total
1990-91	11380	28	11408
1991-92	11728	63	11791
1992-93	12430	43	12473
1993-94	10575	38	10613
1994-95	13648	72	13720
1995-96	12737	49	12786

Source : D.D.O., Tamilnadu Tourism Development Corporation (TTDC),Hogenekkal Dharmapuri.

Table 36 : Installed Power Projects above 3 MW capacity in Tiruvannamalai District as on 1995 - 96.

Category	Number of Projects			Installed Capacity (MW)			Actual Power Generation (MW)		
	1986	1992	1996	1986	1992	1996	1986	1992	1996
Thermal	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Hydel Power	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Atomic Power	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Total	-	-	-	-	-	-	-	-	-

Source : SuperIntending Engineer,Tamilnadu Electricity Board (TNEB).Tiruvannamalai District.

Table 37 : Category wise consumption of electricity in Tiruvannamalai District as on 1995 - 96.

Particulars	Number of Connection	Electricity Consumption (MV)	% to Total
Domestic	202834	68.32	23.03
Commercial	25516	11.95	4.03
Industrial	4487	49.71	16.76
Low Tension (LT)	66654	4.37	1.47
High Tension (HT)	11	31.43	10.60
Agriculture	119281	118.87	40.08
Street Lights	4988	11.95	4.03
Total	423771	296.60	100.00

Source : SuperIntending Engineer,Tamilnadu Electricity Board (TNEB).Tiruvannamalai District.

Table 38 : Status of Electrification of Villages and Energised Pumps as on 31-3-96 upto 1995 - 96.

Block	Total No. of No. of Villages	Villages Electrified as on						Pumpset Energised		
		1986		1991		1996		as on		
		Number	% to Total	Number	% to Total	Number	% to Total	1986	1991	1996
1. Tiruvannamalai	89	89	100	89	100	89	100	7544	8354	9517
2. Kilpenathur	63	63	100	63	100	63	100	5450	6230	7021
3. Turinjapuram	60	60	100	60	100	60	100	6497	7301	8361
4. Chengam	61	61	100	61	100	61	100	9726	10619	11533
5. Pudupalayam	43	43	100	43	100	43	100	3500	4037	4686
6. Thandrapattu	62	62	100	62	100	62	100	6226	6786	7507
7. Polur	56	56	100	56	100	56	100	2776	3461	4028
8. Kalasapakkam	49	49	100	49	100	49	100	6270	7074	7644
9. Chetpet	63	63	100	63	100	63	100	4523	5106	5585
10. Jawadhu Hill	38	38	100	38	100	38	100	6250	6552	6897
11. Cheyar	70	70	100	70	100	70	100	3402	3661	4170
12. Annakkavoor	61	61	100	61	100	61	100	5281	5873	6686
13. Vembakkam	91	91	100	91	100	91	100	2281	2452	3509
14. Vandavasi	71	71	100	71	100	71	100	3781	4292	8910
15. Thellar	69	69	100	69	100	69	100	7600	8540	9344
16. Peranamallur	67	67	100	67	100	67	100	7523	8440	9270
17. Arani	28	28	100	28	100	28	100	Na	Na	Na
18. West Arani	26	26	100	26	100	26	100	Na	Na	Na
Total	1067	1067	100	1067	100	1067	100	88630	98778	114668

Note : Na - Not Available.

Source : Superintending Engineer, Tamilnadu Electricity Board (TNEB), Tiruvannamalai District.

Table 39 : Non Conventional & Renewable Energy Sources Utilisation in Tiruvannamalai District as on 1995 - 96.

Category		Number of Units	Installed Capacity (kw)	Actual Generation (95-96) (kw)	% to installed Capacity
I.	Solar Energy	Nil	Nil	Nil	Nil
	1. Solar Water Heating System	-	-	-	-
	2. Domestic Solar Cooker	-	-	-	-
	3. Solar Photo Voltaic System	-	-	-	-
	a. Lighting	-	-	-	-
	b. Television	-	-	-	-
	c. Power Plant	-	-	-	-
II.	Biogas	162	1676.70	1458.56	86.99
III.	Wind Energy	Nil	Nil	Nil	Nil
	Wind Mills	-	-	-	-
IV.	Ocean Energy	Nil	Nil	Nil	Nil
V.	Improved Chullah	13000	-	-	-

Source : District Collector, Collectorate - Tiruvannamalai.

Table 40a : Urbanisation Pattern in Tiruvannamalai District.

Urban Local Body		1981		1991		1996	
		Population	% to Total Population	Population	% to Total Population	Population	% to Total Population
I.	Urban Areas						
A.	Corporations	-	-	-	-	-	-
B.	Municipalities	184348	10.32	219882	11.90	240934	11.46
C.	Town Panchayats (Urban)	21656	1.21	116602	6.31	128561	6.12
	Urban - Total (A + B + C)	206004	11.54	336484	18.21	369495	17.58
II.	Rural Areas	1579793	88.46	1604747	86.852	1773245	84.37

Source : Census of India 1981 to 1991. Commissioner of Municipalities, Executive of Town Panchayats - Tiruvannamalai District.

Table 40b : Urbanisation Pattern in Tiruvannamalai District.

Urban Local Body		1981		1991		1996	
		Population	% to Total Population	Population	% to Total Population	Population	% to Total Population
I.	Urban Areas						
A.	Corporations	-	-	-	-	-	-
B.	Municipalities						
1	Tiruvannamalai	89462	5.01	109196	5.91	119200	5.56
2	Tiruvathipuram	25074	1.40	31210	1.69	34174	1.59
3	Vandavasi	20447	1.14	24578	1.33	27282	1.27
4	Arani	49365	2.76	54898	2.97	60278	2.81
	Sub-Total	184348	10.32	219882	11.90	240934	11.24
C.	Town Panchayats (Urban)						
1	Kilpennathur	-	-	11341	0.61	12475	0.58
2	Vettavalam	-	-	13068	0.71	14440	0.67
3	Chengam	-	-	17629	0.95	19357	0.90
4	Pudupalayam	-	-	5966	0.32	6592	0.31
5	Polur	21656	1.21	23046	1.25	25350	1.18
6	Chetpet	-	-	16840	0.91	18625	0.87
7	Kalampur	-	-	12125	0.66	13338	0.62
8	Desur	-	-	4650	0.25	5156	0.24
9	Pernamullur	-	-	5452	0.30	6030	0.28
10	Kannamangalam	-	-	6485	0.35	7198	0.34
	Sub-Total	21656	1.21	116602	5.71	128561	6.00
I.	Urban - Total (A + B + C)	206004	11.54	336484	18.21	369495	17.24
II.	Rural Areas	1579793	88.46	1706495	92.36	1773245	82.76
	Total Population (I + II)	1785797	100.00	2042979	110.57	2142740	100.00

Source : Census of India 1981 to 1991. Commissioner of Municipalities, Executive of Town Panchayats - Tiruvannamalai District.

Table 41 : Density of Population in Urban & Rural Areas in Tiruvannamalai District.

Year	Urban			Rural			Slum			Total		
	Population	Area	Density	Population	Area	Density	Population	Area	Density	Population	Area	Density
1981	206004	58.10	3546	1579793	6103.4	259	Na	Na	Na	1785797	6161.5	290
1991	336484	57.55	5847	1604747	6133.45	262	18671	Na	Na	2042979	6191.0	330
1996	369495	57.55	6420	1773245	6133.45	289	20090	Na	Na	2142740	6191.0	346

Note : (1) 1. Population :- Number; 2. Area :- Sq.km.; 3. Density :-No./Sq.km.

(2).Slum Population has been included in urban and rural Population.

Source : Census of India 1981 to 1991. Commissioner of Municipalities, Executive of Town Panchayats - Tiruvannamalai District.

Table 42 : Decadal Growth Rates in Urban Centres in Tiruvannamalai District.

Sl. No.	Name of the Corporation / Municipality / Town Panchayat	Population as on					% increase over previous decade				
		1961	1971	1981	1991	1996	1961	1971	1981	1991	1996
A.	Corporation	-	-	-	-	-	-	-	-	-	-
B.	Municipalities										
	Tiruvannamalai	46441	61370	89462	109196	119200	-	24.33	31.40	18.07	8.39
	Tiruvathipuram	15386	19274	25074	31210	34174	-	20.17	23.13	19.66	8.67
	Vandavasi	12546	16083	20447	24578	27282	-	21.99	21.34	16.81	9.91
	Arani	31351	38664	49365	54898	60278	-	18.91	21.68	10.08	8.93
	Sub-Total	105724	135391	184348	219882	240934	-	21.91	26.56	16.16	8.74
C.	Town Panchayats										
	Kilpennathur	-	-	-	11341	12475	-	-	-	-	9.09
	Vettavalam	-	-	-	13068	14440	-	-	-	-	9.50
	Chengam	-	-	-	17629	19357	-	-	-	-	8.93
	Pudupalayam	-	-	-	5966	6592	-	-	-	-	9.50
	Polur	14764	18073	21656	23046	25350	-	18.31	16.55	6.03	9.09
	Chetpet	-	-	-	16840	18625	-	-	-	-	9.58
	Kalampur	-	-	-	12125	13338	-	-	-	-	9.09
	Desur	-	-	-	4650	5156	-	-	-	-	9.81
	Pernamallur	-	-	-	5452	6030	-	-	-	-	9.59
	Kannamangalam	-	-	-	6485	7198	-	-	-	-	9.91
	Sub-Total	14764	18073	21656	116602	128561	-	18.31	16.55	81.43	9.30
	Urban - Total (A+B+C)	120488	153464	206004	336484	369495	-	21.49	25.50	38.78	8.93

Note : Percentage increase or decrease in the year have been calculated by taking the previous year as 100.

$$[(\text{Percentage Increase or decrease} = ((\text{current year} - \text{base year}) / \text{base year} \times 100)]$$

Source : Census of India 1961 to 1991. Commissioner of Municipalities, Executive of Town Panchayats - Tiruvannamalai District.

Table 43 : Decennial Growth Rate of Population in Tiruvannamalai District.

Census Year	Population			Growth Rate (%)		
	Rural	Urban	Total	Rural	Urban	Total
1961	986574	120488	1107062	-	-	-
1971	1370885	153464	1524349	38.95	27.37	37.69
1981	1579793	206004	1785797	15.24	34.24	17.15
1991	1706495	336484	2042979	8.02	63.34	14.40
1996	1773245	369495	2142740	3.91	9.81	4.88

Source : Census of India 1961 to 1991. Commissioner of Municipalities, Executive of Town Panchayats - Tiruvannamalai District.

Table 44 : Urban Slum Population in Tiruvannamalai District.

Urban Local Body		1981			1991			1996		
		Town Population	Slum Population	% to Total Population of the Town	Town Population	Slum Population	% to Total Population of the Town	Town Population	Slum Population	% to Total Population of the Town
A.	Corporation	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
B.	Municipalities									
1	Tiruvannamalai	89462	Na	-	109196	13126	3.90	119200	14000	3.79
2	Tiruvathipuram	25074	Na	-	31210	Na	-	34174	Na	-
3	Vandavasi	20447	Na	-	24578	818	0.24	27282	900	0.24
4	Arani	49365	Na	-	54898	3100	0.92	60278	3400	0.92
	Sub-Total	184348	-	-	219882	17044	5.07	240934	18300	4.95
C.	Town Panchayats									
1	Kilpennathur	-	-	-	11341	Na	-	12475	Na	-
2	Vettavalam	-	-	-	13068	Na	-	14440	Na	-
3	Chengam	-	-	-	17629	Na	-	19357	Na	-
4	Pudupalayam	-	-	-	5966	Na	-	6592	Na	-
5	Polur	21656	Na	-	23046	Na	-	25350	Na	-
6	Chetpet	-	-	-	16840	Na	-	18625	Na	-
7	Kalampur	-	-	-	12125	Na	-	13338	Na	-
8	Desur	-	-	-	4650	500	0.15	5156	550	0.15
9	Pernamullur	-	-	-	5452	627	0.19	6030	700	0.19
10	Kannamangalam	-	-	-	6485	500	0.15	7198	540	0.15
	Sub-Total	21656	-	-	116602	1627	0.48	128561	1790	0.48
	Urban - Total (A+B+C)	206004	-	-	336484	18671	5.55	369495	20090	5.44

Source : Census of India 1961 to 1991. Commissioner of Municipalities, Executive of Town Panchayats - Tiruvannamalai District.

Table 45 : Trend in Urbanisation and Slums in Tiruvannamalai District.

Year	Total Population Population of District	Urban Population of District	Identified Slum Population of District	% of Urban Population to Total Population	% of Slum Population to Total Population	% of Slum Population to Urban Population
1981	1785797	206004	Na	11.54	-	-
1991	2042979	336484	18671	16.47	0.91	5.55
1996	2142740	369495	20090	17.24	0.94	5.44

Note : NA - Not Available.

Source : Census of India 1981 to 1991. Commissioner of Municipalities, Executive of Town Panchayats - Tiruvannamalai District.

Table 46 : Occupied Housing Units by Water Supply system and toilet installation by Rural and Urban in Tiruvannamalai District (as on 1991).

Year	Total Occupied Housing Unit	Water Supply System			Toilet Installation	
		with Piped Water			With Toilet of any type	Without Toilet of any type
		Total	Inside	Outside		
1991						
Urban	45250	45250	21910	23340	21170	24080
Rural	386025	386025	15240	370785	35320	350705
Total	431275	431275	37150	394125	56490	374785

Source : Census of India -1991, Tables on Houses and Household amenities in Tamilnadu.

Table 47a : Urban Services in Tiruvannamalai District as on 1995 - 96.

Name of Urban Local Body		Designed Capacity of Protected Water Supply (Lakh Litres)	Per Capita Water Supply	Town Population	Percentage Population Covered (%)	Percentage Population Uncovered	Total Estimated Consumption (Lakh Litres)	Estimated sewage generation (Lakh Litres)
A.	Corporations	-	-	-	-	-	-	-
B.	Municipalities	180.64	63.0	240934	87.5	50	180.64	126.45
C.	Town Panchayats (Urban)	68.16	51.1	128561	945.0	55	68.15	47.81
Urban Total (A+B+C)		248.8	57.0	369495	1032.5	105	248.79	174.25

Source : Commissioner of Municipalities, Executive of Town Panchayats - Tiruvannamalai District.

Table 47b : Urban Services in Tiruvannamalai District as on 1995 - 96.

Name of Urban Local Body		Designed Capacity of Protected Water Supply (Lakh Litres)	Per Capita Water Supply	Town Population	Percentage Population Covered (%)	Percentage Population Uncovered	Total Estimated Consumption (Lakh Litres)	Estimated sewage generation (Lakh Litres)
A.	Corporations	-	-	-	-	-	-	-
B.	Municipalities							
1	Tiruvannamalai	120.00	100	119200	100	-	120.00	84.00
2	Tiruvathipuram	20.20	64	34174	75	25	20.20	14.14
3	Vandavasi	10.44	34	27282	75	25	10.44	7.31
4	Arani	30.00	54	60278	100	-	30.00	21.00
Sub-Total		180.64	63	240934	87.5	50	180.64	126.45
C.	Town Panchayats (Urban)							
1	Kilpennathur	7.01	56.22	12475	100	-	7.00	5.00
2	Vettavalam	3.00	22.44	14440	75	25	3.00	2.10
3	Chengam	12.00	68.00	19357	100	-	12.00	8.40
4	Pudupalayam	10.00	100.00	6592	100	-	10.00	7.00
5	Polur	16.00	66.54	25350	95	5	16.00	11.20
6	Chetpet	6.00	31.58	18625	90	10	6.00	4.20
7	Kalampur	6.00	45.68	13338	100	-	6.00	4.20
8	Desur	2.65	41.09	5156	90	10	2.65	1.86
9	Pernamullur	2.50	39.23	6030	95	5	2.50	1.75
10	Kannamangalam	3.00	40.00	7198	100	-	3.00	2.10
Sub-Total		68.16	51.08	128561	945	55	68.15	47.81

Source : Commissioner of Municipalities, Executive of Town Panchayats - Tiruvannamalai District.

Table 48a : Domestic Waste Water generation and treatment in urban areas of Tiruvannamalai District as on 1995 - 96.

Name of Urban Local Body		Population 1996	Estimated Sewage Generation (Lakh Litres)	Existence of Sewage		No Treatment	Nature of Disposal and Quantity		
				Under Ground (C/P)	Open (C/P)		Water Body		Land
							River	Reservoir	
A.	Corporations	Nil	Nil	Nil	Nil	Nil	Nil	Nil	
B.	Municipalities	240934	126.45	Nil	P	Nil	21.0	Nil	105.448
C.	Town Panchayats (Urban)	369495	47.81	-	-	-	8.4	-	39.405
Urban Total (A+B+C)		610429	174.25	-	C	-	29.4	-	144.853

Source : Commissioner of Municipalities, Executive of Town Panchayats - Tiruvannamalai District.

Table 48b : Domestic Waste Water generation and treatment in urban areas of Tiruvannamalai District as on 1995 - 96.

Name of Urban Local Body		Population 1996	Estimated Sewage Generation (Lakh Litres)	Existence of Sewage		No Treatment	Nature of Disposal and Quantity		
				Under Ground (C/P)	Open (C/P)		Water Body		Land
							River	Reservoir	
A.	Corporations	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
B. Municipalities									
1	Tiruvannamalai	119200	84.00	Nil	P	Nil		Nil	84.00
2	Tiruvathipuram	34174	14.14	Nil	P	Nil		Nil	14.14
3	Vandavasi	27282	7.31	Nil	P	Nil		Nil	7.31
4	Arani	60278	21.00	Nil	P	Nil	21	Nil	Nil
	Sub -Total	240934	126.45	Nil	P	Nil	21	Nil	105.45
C. Town Panchayats (Urban)									
1	Kilpennathur	12475	5.00	Nil	C	Nil	Nil	Nil	5.00
2	Vettavalam	14440	2.10	Nil	C	Nil	Nil	Nil	2.10
3	Chengam	19357	8.40	Nil	C	Nil	8.40	Nil	-
4	Pudupalayam	6592	7.00	Nil	C	Nil	Nil	Nil	7.00
5	Polur	25350	11.20	Nil	C	Nil	Nil	Nil	11.20
6	Chetpet	18625	4.20	Nil	C	Nil	Nil	Nil	4.20
7	Kalampur	13338	4.20	Nil	C	Nil	Nil	Nil	4.20
8	Desur	5156	1.86	Nil	C	Nil	Nil	Nil	1.86
9	Pernamullur	6030	1.75	Nil	C	Nil	Nil	Nil	1.75
10	Kannamangalam	7198	2.10	Nil	C	Nil	Nil	Nil	2.10
	Sub -Total	128561	47.81	-	-	-	8.40	-	39.41
	Urban total (A+B+C)	369495	174.25	-	C	-	16.8	-	144.85

Source : Commissioner of Municipalities, Executive of Town Panchayats - Tiruvannamalai District.

Table 49a : Municipal Solid Waste Generation and Collection Efficiency in Urban Areas of Tiruvannamalai District as on 1995 - 96.

Name of Urban Local Body		Population	Solid Waste/day (Tonnes)		Collection Efficiency %	Workers for Solid Waste Management		Availability of Compost Yard	Recycling as Manure Yes / No	If Yes, Quantity of annual Production (Ton.)
			Generation	Collection		Total No.	No./1000 Popn.			
A.	Corporations	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
B.	Municipalities	240934.004	38.5	34.5	97.5	57	0.24	Yes	No	-
C.	Town Panchayats (Urban)	128561	17.5	16.0	99.0	120	0.93	No	No	-
Urban total (A+B+C)		369495	56.0	50.5	196.5	177	0.48	No	No	-

Source : Commissioner of Municipalities, Executive of Town Panchayats - Tiruvannamalai District.

Table 49b : Municipal Solid Waste Generation and Collection Efficiency in Urban Areas of Tiruvannamalai District as on 1995 - 96.

Name of Urban Local Body		Population	Solid Waste/day (Tonnes)		Collection Efficiency %	Workers for Solid Waste Management		Availability of Compost Yard	Recycling as Manure Yes / No	If Yes, Quantity of annual Production (Ton.)
			Generation	Collection		Total No.	No./1000 Popn.			
A.	Corporations	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
B. Municipalities										
1	Tiruvannamalai	119200	18.0	15.0	100	4	0.03	Yes	No	-
2	Tiruvathipuram	34174	3.0	3.0	100	14	0.41	Yes	No	-
3	Vandavasi	27282	2.5	2.5	100	35	1.28	Yes	No	-
4	Arani	60278	15.0	14.0	90	4	0.07	Yes	No	-
Sub -Total		240934	38.5	34.5	97.5	57	0.24	Yes	No	-
C. Town Panchayats (Urban)										
1	Kilpennathur	12475	1.00	1.00	100	7	0.56	Yes	No	-
2	Vettavalam	14440	0.50	0.50	100	11	0.76	No	No	-
3	Chengam	19357	5.00	5.00	100	25	1.29	Yes	No	-
4	Pudupalayam	6592	1.00	1.00	100	11	1.67	Yes	No	-
5	Polur	25350	4.00	2.50	90	21	0.83	No	No	-
6	Chetpet	18625	2.00	2.00	100	17	0.91	Yes	No	-
7	Kalampur	13338	2.00	2.00	100	14	1.05	No	No	-
8	Desur	5156	0.50	0.50	100	8	1.55	No	No	-
9	Pernamullur	6030	0.50	0.50	100	5	0.83	No	No	-
10	Kannamangalam	7198	1.00	1.00	100	1	0.14	No	No	-
Sub -Total		128561	17.50	16.00	99	120	0.93	No	No	-
Urban total (A+B+C)		369495	56.00	50.50	197	177	0.48	No	No	-

Source : Commissioner of Municipalities, Executive of Town Panchayats - Tiruvannamalai District.

Table 50 : Composition of Municipal Solid Waste in Tiruvannamalai Town of Tiruvannamalai District.

Composition	% (on Wet Basis)
1. Compostable Matter	70.26
2. Rags	29.66
3. Wooden Matter	-
4. Rubber and Leather	-
5. Plastics	-
6. Metal	-
7. Glasses	-
8. Bones	0.04
9. Bricks and Stones	0.02
10. Ash and Fine earth	0.02
Total	100.00

Source : Tiruvannamalai Municipality, Tiruvannamalai District.

Table 51 : Progress in the Coverage of Problem Villages with Supply of Drinking Water in Tiruvannamalai District.

Taluks	Number of Settlements	Problem Villages as on 1986	Problem villages		1997 working Settlements
			Less than 10 Litres	11 to 39 Litres	
1.Tiruvannamalai	204	110	50	60	18
2.Thandrapattu	332	210	106	104	63
3.Polur	340	228	80	148	33
4.Chengam	366	183	97	86	41
5.Kalasapakkam	451	220	89	131	27
6.Arani	274	218	71	147	5
7.Pernamallur	423	234	150	84	39
8.Vandavasi	481	304	239	65	46
9.Cheyar	367	245	176	69	30
Total	3238	1952	1058	894	302

Source : Executive Engineer,Tamilnadu Water Supply & Drainage Board - Tiruvannamalai District.

Table 52 : Trend in Reported Cases of Water borne Diseases in Tiruvannamalai District.

Year	Reported Cases					Deaths				
	Gastroenteritis	Dysentery	Cholera	Jaundice	Meningitis	Gastroenteritis	Dysenter	Cholera	Jaundice	Meningiti
1990	910	Na	3	Nil	Nil	4	Nil	Nil	Nil	Nil
1991	1436	Na	20	Nil	Nil	16	Nil	1	Nil	Nil
1992	855	Na	2	Nil	Nil	9	Nil	Nil	Nil	Nil
1993	1623	Na	15	Nil	Nil	66	Nil	Nil	Nil	Nil
1994	824	9297	11	Nil	Nil	27	Nil	Nil	Nil	Nil
1995	1417	7867	24	Nil	Nil	15	Nil	Nil	Nil	Nil
1996	1123	7653	20	Nil	Nil	10	Nil	Nil	Nil	Nil
1997	5145	8821	55	Nil	Nil	7	Nil	Nil	Nil	Nil
1998	3948	9717	15	Nil	Nil	Nil	Nil	Nil	Nil	Nil

Source : Deputy Director of Health Services - Tiruvannamalai.

Table 53 : Facilities under the Indian Systems of Medicines (as on 1995-96) in Tiruvannamalai District.

Facilities	Allopathy	Ayurved	Unani Medicine	Sidda	Homeopathy	Total
1. Hospitals	7	Nil	Nil	1	1	9
2. Beds	331	Nil	Nil	15	5	351
3. Dispensaries	12	Nil	Nil	Nil	Nil	Nil
4. Registered Practitioners	25	Nil	Nil	1	1	27
5. Colleges	Nil	Nil	Nil	Nil	Nil	Nil
6. Admission Capacity	Nil	Nil	Nil	Nil	Nil	Nil
7. P.G. Institutions	Nil	Nil	Nil	Nil	Nil	Nil
8. Admission Capacity	Nil	Nil	Nil	Nil	Nil	Nil

Source : Deputy Director of Health Services - Tiruvannamalai.

Table 54 : Progress of Population below the poverty line in Tiruvannamalai District.

District	Number of Families		
	1981	1991	1996
Tiruvannamalai	NA	NA	138094

Source : Environmental Statistics Tamilnadu of Compendium 1996.

Table 55 : Progress in development of Roads and Bridges in Tiruvannamalai District.

Category of Road	Length (km) as on	
	1991	1996
Road :		
National Highways	Nil	Nil
State Highways	85.00	2436.00
Major District Roads	539.50	3320.00
Other District Roads*	1811.4	111.00
Ghat Roads	Nil	Nil
Panchayat Roads*	NA	NA
Roads maintained by Urban Local Bodies*	NA	NA
Bridges & Culverts :		
Number of Major Bridges	19	19
Number of Minor Bridges and Culverts.	5322	6647

Note: 1. NA - Not available

2. Combined data for panchayat and Urban local bodies and other district roads.*

Source : Superndenting Engineer, Department of Highways - Tiruvannamalai District.

Table 56 : Growth of Vehicle Population in Tiruvannamalai District.

Vehicles	Number of Registered Vehicles in the District		
	1986	1991	1996 (93-96)
Four Wheelers	427	689	1981
Transport Vehicles (Buses, Vans)	121	196	586
Goods Carriages (Trucks)	213	345	990
Cars	91	148	405
Three Wheelers	61	99	268
Two Wheelers	3670	5920	16050
Total	4158	6708	18299

Source : Regional Transport Officer, Tiruvannamalai District.

Table 57 : Number of Industries established in Tiruvannamalai District. *

Type of Industries	Large			Medium			Small			Total
	Red	Orange	Green	Red	Orange	Green	Red	Orange	Green	
Industries Inventorised	39	10	8	102	33	30	816	431	75	1544
Industries applied for Consent	39	10	8	102	33	30	659	386	104	1371

Note : Data for Composite North Arcot District. *

Source : Dissemination on District Environment profiles - workshop Material.oct 15, 1998.

Table 58 : Emission Inventory from major industries in Tiruvannamalai Districts.

Name of the Industry	Location of Units	Fuel Consumption Tonnes/d	Average No. of Operating Hours	Emission Rate ^{kg} (kg/d)				
				SPM	SO	NO	CO	HC
1. Dharani Sugar & Chemicals Limited, Chetput Road, Karaipondi Village, Polur Taluk.	Karaipoondi	1920 T/day Bagassee	24 (Hrs.)	1.87	0.75	1.3	37.4	NA
2. The Cheyyar Co-operative Sugar Mills Limited, Anakkavoor Village, Cheyyar Taluk	Perumbabai	1636 T/day Bagassee	24 (Hrs.)	1.2	0.5	0.9	24.1	NA

Note : 1. BDL - Below Detectable Limit.

2. Na - Not available.

Source : District Environmental Engineers, Tamilnadu Pollution Control Board - Vellore.

Table 59 : Air Pollution Stressed areas in Tiruvannamalai District.

Area	Location Taluk and Villages	Major Air Pollution Sources
Karaipoondi Village	Polur Taluk -Karaipundi village	Boiler attached to
		Dharani Sugars and Chemicals
Thenthadalam Anakkavoor	Anakkavoor, Perumbalai - Cheyyur Taluk	Boiler attached to
Anakkavoor		Cheyyur co -op. Sugar Mills

Source : District Environmental Engineer, Tamilnadu Pollution Control Board - Vellore.

Table 60 : Ambient Air Quality Status of Tiruvannamalai District (Average of 1995-96.)

Category	Location of Air Quality Monitoring Station	Pollutants (Microgram/Cubic Metre)											
		SPM			SO			NOX			CO		
		Max	Min	Av	Max	Min	Av	Max	Min	Av	Max	Min	Av
A. Rural	Karaipoondi Village	238	70	154	12.67	BDL	6.3	53.89	12.47	32.6	-	-	-
B. Urban	-	-	-	-	-	-	-	-	-	-	-	-	-
1. Residential													
2. Commercial													
3. Industrial													

Source : District Environmental Engineer, Tamilnadu Pollution Control Board - Vellore.

Table 61 : Water Quality of Industries Water in Tiruvannamalai District.

SL. No.	Characteristics	Permissible Limit	Water Quality		
			Min.	Max.	Av.
1	Turbidity	Na	Na	Na	Na
2	Suspended Solids	Na	Na	Na	Na
3	Dissolved Solids	Na	Na	Na	Na
4	PH	Na	Na	Na	Na
5	Temperature C	Na	Na	Na	Na
6	Total Residual Chlorine	Na	Na	Na	Na
7	Ammonical Nitrogen	Na	Na	Na	Na
8	Total Kjeldhal Nitrogen	Na	Na	Na	Na
9	Free Ammonia	Na	Na	Na	Na
10	BOD 5 days 20 C	Na	Na	Na	Na
11	COD	Na	Na	Na	Na
12	Percent Sodium	Na	Na	Na	Na
13	Residual Sodium Carbonate	Na	Na	Na	Na
14	Cyanide	Na	Na	Na	Na
15	Chloride	Na	Na	Na	Na
16	Fluoride	Na	Na	Na	Na
17	Dissolved Phosphates	Na	Na	Na	Na
18	Sulphates	Na	Na	Na	Na
19	Sulphide	Na	Na	Na	Na
20	Pesticides	Na	Na	Na	Na
21	Arsenic	Na	Na	Na	Na
22	Mercury	Na	Na	Na	Na
23	Lead	Na	Na	Na	Na
24	Hexavalent Chromium	Na	Na	Na	Na
25	Total Chromium	Na	Na	Na	Na
26	Cadmium	Na	Na	Na	Na
27	Copper	Na	Na	Na	Na
28	Zinc	Na	Na	Na	Na
29	Nickel	Na	Na	Na	Na
30	Boron	Na	Na	Na	Na
31	Total Coliform	Na	Na	Na	Na
32	Falcal Coliform	Na	Na	Na	Na

Note : Na - Not available.

Source : District Environmental Engineer, Tamilnadu Pollution Control Board - Vellore.

Table 62 : Discharge of Industrial effluents in river basins/other water bodies in Tiruvannamalai District as on 1995-96.

Name and Address of the Industry	Sector	Category	Date of Commence of Industry	Effluent Recipient *	
				Water Body	
				Name	Distance from the Industry
1. NADT - Co-Operative Milk Producers	Large	Sugar	July' 96	600 KLD	-
Orange Union Limited,					
Anakkavoor, Cheyyar Taluk.					
2. The Cheyyar Co-operative	Large	Sugar	Feb' 91	500 KLD	-
Sugar Mills Limited					
Anakkavoor Village, Perumbalai, PO					
Cheyyar Taluk					

Note : Treated Effluent used continuous the primaries for Irrigation *

Table 63 : Noise Levels in Tiruvannamalai District.

Category	Location	dBA		Ambient Noise Standards (dBA)
		Day Time (1)	Night Time (1)	
1. Industrial Area	-	-	-	75
2. Commercial Area	-	-	-	65
3. Residential Area	Kariapoondi Village	55	45	55
4. Silence Zone (2)	-	-	-	50

Source : District Environmental Engineer, Tamilnadu Pollution Control Board - Vellore.

Table 64 : Environmental Education / Research Institutions in Tiruvannamalai District.

Name of the Institutions and Address	Year of Establishment of Environmental Branch	Activities undertaken		
		Education	Research	Awareness
Nil	Nil	Nil	Nil	Nil

Source : 1.Joint Director, Department of Agriculture, Tiruvannamalai.

2.Joint Director ,Department of Statistics.Tiruvannamalai.

Table 65 : Environmental NGOs in Tiruvannamalai District.

Name of NGO	Location & Address for Communication	Year of Establishment	Area of Operation	Activities Undertaken
1. SEVA	Mr. Sudershan Seva, 29A, Paygopuram, 11th Street, Tiruvannamalai.	1992	30, villages of Thandrapet Block	Water set development, waste land improve and tree planting.
2. RDS Kanchi	Mr. Kannappan, Secretary Pillayar Koil Street, Kanchi, Tiruvannamalai.	1994	10 villages of Pudupalayam Block	Environmental awareness to school teachers
3. District Social Worker Forum	Post Box No.19, Sudershan, 5A/39, Polur Road, 8th streets, Tiruvannamalai - 1.	1998	18 villages in entire district	Environmental impact assessment policy adv., field programmes
4. Seva Alaya	Mr.M.Mathavan, Manager Sevalaya, Gudalur, Polur Taluk.	1994	5 villages of Kanchi	Tree Planting
5.Social Service	Mr.M.Vadivelu Social Service Society, Kaveripakkam, Maruthadu, Vandavasi, Tiruvannamalai Dt.	1992	10 villages	Tree Planting awareness
6. Fr.Pathrose(REWS)	Fr.Pathrose (REWS) Post Box 19, Tiruvannamalai.	1985	20 vilalges of Kilpennathur Block	Tree Planting, Water Resources Empowerment
7. Santhikrishnan Warm	Santhikrishnan Warm 14, Chattanayakkan St., Tiruvannamalai.	1990	5 villages in Jawadhu hills	Tree planting
8. Young Girls of India	M. Sumathi, Young Girls of India, Porkunnam Village, Naidu Mangalore (via), Tiruvannamalai	1989	10 villages of Turinjapurm block	Tree plantng, Tank cleaning
9. Shanthi Malai Trust	Mr. Shanmugam Administrative Officer, Shanthi Malai Trust, Athyandal, Tiruvannamalai.	1991	40 villages of Tiruvannamalai Block	Organise forming medicine plant
10. Rural Development Seva Centre (RDSC)	Kalyanapuram, Vandavasi	Na	Na	Na
11. Rural Aid	Mamandoor post, Cheyyar Taluk.	1990	All villages of Cheyyar Block	Tree planting, Nutritive Garden Planting

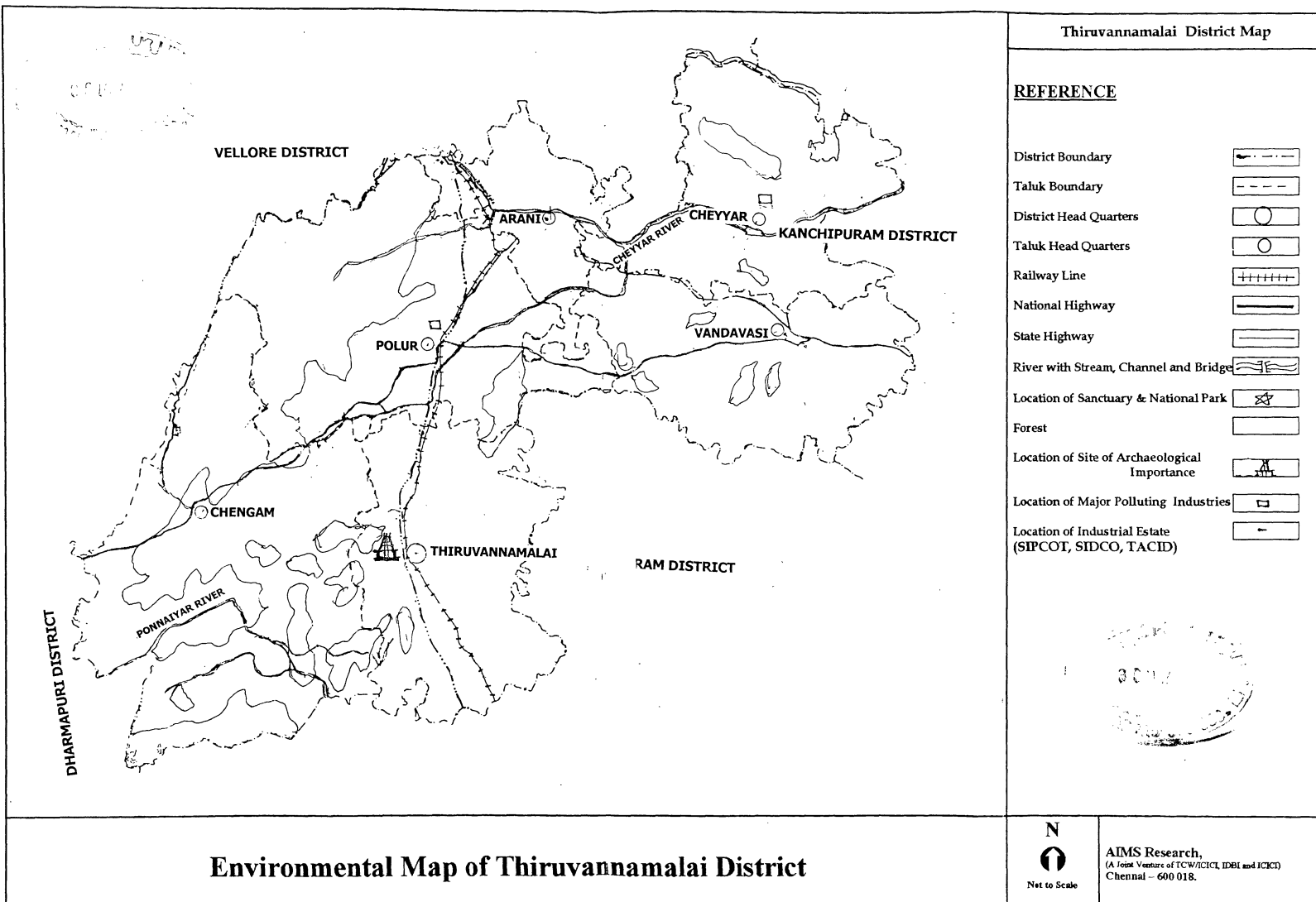
Source : Non Government Organisations (NGO) - (On Environment)

(contd...)

Table 65 : Environmental NGOs in Tiruvannamalai District - (contd...)

Name of NGO	Location & Address for Communication	Year of Establishment	Area of Operation	Activities Undertaken
12. Rural People Development Society	Mr. K.Selvarasu RPDS, Near Old Police Station, Muthenoor Road, Thandrapet.	1987	10 villages of Thandrapet Block	Tree planting, Tank cleaning.
13. WWARD	Mrs. Loganayaki WWARD, Devandal, Adiyar post.	1990	2 Panchayat Villages	Tree planting in waste land
14. WAY	Mr. Ramanujam Kilpadur, Melpadur Post, Chengam Taluk.	1994	2 villages	Tree Planting
15. Annamalai Development Society	Post box No. 5, 60 -P1 R.O.A. Colony, Sriramanashramam, Post Tiruvannamalai - 606 603.	1989	Tiruvannamalai Union	Environmental Awareness
16. Village people Welfare Society	M. Krishtobar,	1993	Tiruvannamalai District	Environmental Awareness, Tree Plantation.
17. Nerhu youth welfare society	36, Vengadachalapathi Street, Palampettai, Sethupattu - 606801.	1995	Tiruvannamalai District	Environmental Awareness, Tree Plantation.
18. Society for Development of Depressed.	15 A, Arokkiyanathar Street, Sethupattu - 606 601	1989	Taluk	Environmental Awareness, Tree Plantation.
19. Rural peoples Welfare Organisation.	18, Rajaji Street, Chengam - 606 701.	1986	Taluk	Environmental Education & Awareness.
20. Rural Peoples Society.	Kashthampadi (post) Chengam - 606 701.	1991	Union	Environmental Education & Awareness.
21. Rural Development Society	Ponnathangal Village, Thenpallipattu post,	1992	Union	Environmental Awareness, Women welfare, Medical Facilities.
22. Rural Development Society.	Pillaiyarkoil chetty Street, Kanchi - 606 702	1995	Tiruvannamalai District	Herbal Plantation, Tree Growth, Environmental Awareness,
23. Green Trust	T.M. Mangalam - 606 908.	-	Tiruvannamalai District	Environmental Education & Awareness.
24. Social Society for Rural Development	5/88 A. Pudu Theru, Kadaladi - 606 908.	1992	Tiruvannamalai District	Environmental Education & Awareness.

Source : Non Government Organisations (NGO) - (On Environment)



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