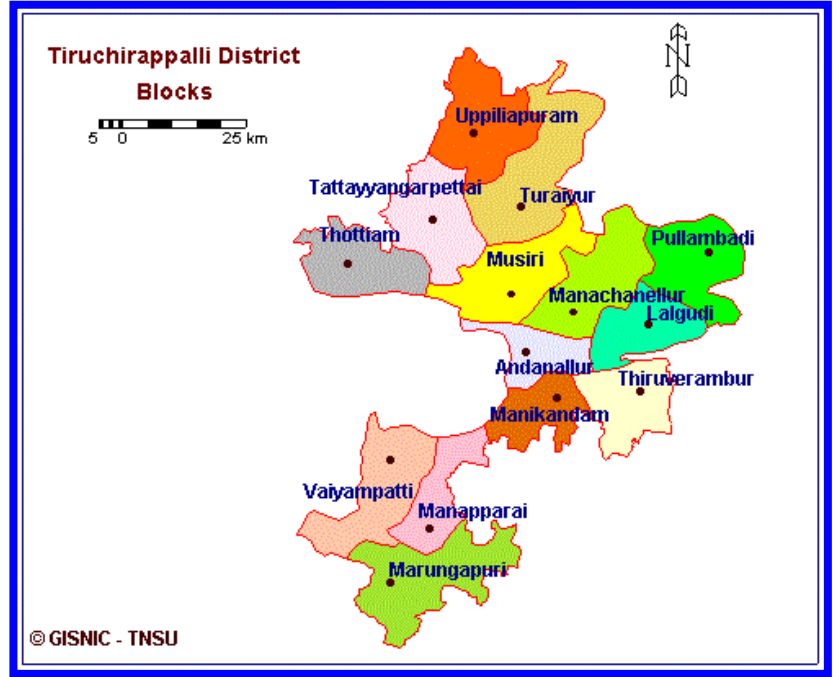
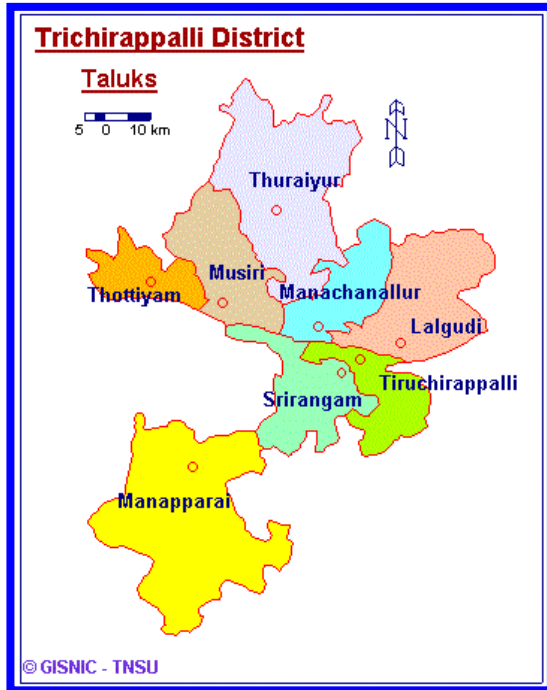


Preparation of District Environment Profile



Tiruchirappalli District

By OPERATIONS RESEARCH GROUP, Chennai.

AN OVERVIEW

Department of Environment (DoE) is the nodal department for dealing with environmental management of the state. The state has been endowed with multiple of natural resources, judicious management, which are essential for sustainable development in all sectors. Effective resources management calls for in-depth assessment of their existing conditions and trends.

Though different Government Departments/Agencies are responsible for management of resources under their jurisdiction, information relating to the individual sectors lies 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 will be realistic only if we have a strong database on the environmental matters of the state. Therefore, it is proposed to collect data from different source, compile them and bring out district environmental profiles.

To achieve certain degree of uniformity in the presentation of environmental data, the DoE prescribed format for collection of relevant data from different departments. This broadly cover the following areas/aspects:

- Background of the district.
- Resources- Agriculture, Forestry, Mineral, Water, Biological, Energy and Heritage aspects.
- Infrastructure, Urbanisation Pattern, Infrastructure service, Transportation, Industrial Development, Environmental status of coastal Eco-system and
- Environmental institutions.

Based on the availability of the above information, the DoE will be initiating preparation of District Environment Management Plans for specific action programme for implementation.

Therefore, to prepare the District environment Profile, the DoE has selected Operations Research Group (ORG), a reputed National Consultancy agency for preparation of District Environment Profile covering Chennai, Vellore and Tiruchirappalli Districts.

DISTRICT ENVIRONMENT PROFILE

TIRUCHIRAPPALLI DISTRICT

1.0 Background

1.1 Introduction

Tiruchirappalli district is an important region in the state and had been a Centre of activities for many historical events from the days of the early Cholas. Rock Fort, Thayumana Swamy, Pillaiyar Temple, Teppakulam, the Nawab's palace, the Nadir Shah Mosque, Sri Rangam Temple, Thiruvanai Koil, Subramanyaswami Temple, Upper Anicut and Grand Anicut are some of the important monuments, and temples reflecting the history, culture and traditions of the district.

Tiruchirappalli district is one of the important districts in Tamil Nadu and had a population of 21.95 lakhs as per 1991 census. In terms of urbanisation level, according to the composition of urban and rural population, Tiruchirappalli district ranks 10th place among the other districts in Tamil Nadu.

1.2 Geographical Location

Tiruchirappalli district is located at the Central part of Tamil Nadu surrounded by Perambalur district in the North, Pudukkottai district in the South, Karur and Dindigul districts in West and Thanjavur district in the East. It lies between 10° 10' and 11° 20' of the northern latitude and 78° 10' and 79° 0' of eastern latitude in the centre part of the Tamil Nadu. The general slope of the district is towards east. It has a number of detached hills, among which Pachamalai Hill is an important one, which has a peak up to 1015m, located at Sengattupatti R.F.

1.3 Administrative Arrangement in the District

Tiruchirappalli district comprises of 5 taluks viz. Thuraiyur, Lalgudi, Musri, Tiruchirappalli and Manapparai, which includes 14 blocks, 408 Village Panchayats and 1590 Villages. This district consists of 4 municipalities namely Ponmalai, Srirangam, Thuraiyur and Manapparai. Tiruchirappalli is the only Municipal Corporation which is also the Head Quarters of the District (Table 1).

1.4 Meteorological Information

The variation of temperature through out the year exhibits hot and dry climate with high temperature and low degree of humidity.

The region experiences four main seasons:

Cool Months	-	December to February
Hot Months	-	March to May
Windy Months	-	June to August and
Rainy Months	-	September to November

Generally, the region has a long spell of hot climate with a short spell of rainy season and winter. Meteorological information is provided in (Table 2).

Temperature

Temperature is low during the month of January with average mean daily temperature of 28° C. The maximum daily temperature recorded during the hot season in the month of May is 42° C.

Rainfall

The district receives seasonal rainfall from September to December. The average annual rainfall during the period from 1991 to 1996 is 880.2 mm, of which major quantity of rain is received during the Northeast Monsoon period i.e. from October to December. Southwest monsoon generally sets in at the beginning of June and blows with great force till the end of August.

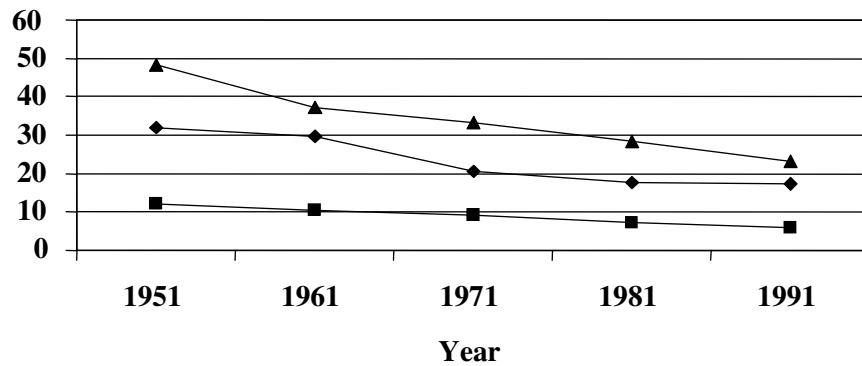
1.5 Demographic Details

The population of Tiruchirappalli district was 10,72,756 in 1951, which increased to 21,95,973 persons in 1991. The average decadal growth rate of population is 21.0% between 1951 and 1991. Among the taluk, the maximum population is concentrated in the Tiruchirappalli taluk, which accounts for 45% to the total population of the district (Table 3).

The trend in death rate and infant mortality rate in the district was recorded as 12.09 and 48.30 in 1951, this rate has declined to 5.71, and 23.18 respectively in 1991. The birth rate has decreased from 31.82 in 1951 to 17.21 in 1991 (Table 4 and Fig.1), which shows improved medical facilities in the district.



Trend in Birth, Death and Infant Mortality Rate- (per Thousand)



◆ Birth Rate(/ 000's) ■ Death Rate (/ 000's) ▲ Infant Mortality Rate (/ 000's)

Fig . 1

Literacy level in the district was 50.96 % as per 1991 census, which is less than that of state literacy level of 62%. Male literate constitutes 60.39 % and female literate constitutes 41.37 % to the total population in the district is shown in Table 5 and Fig (2), Fig (3) and Fig (4).

Growth of Total Population and Total Literate

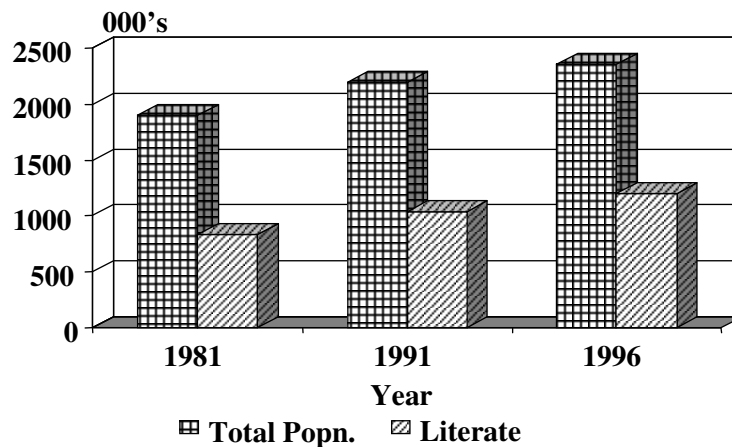


Fig. 2 Popn.

Growth of Male Population and Male Literate

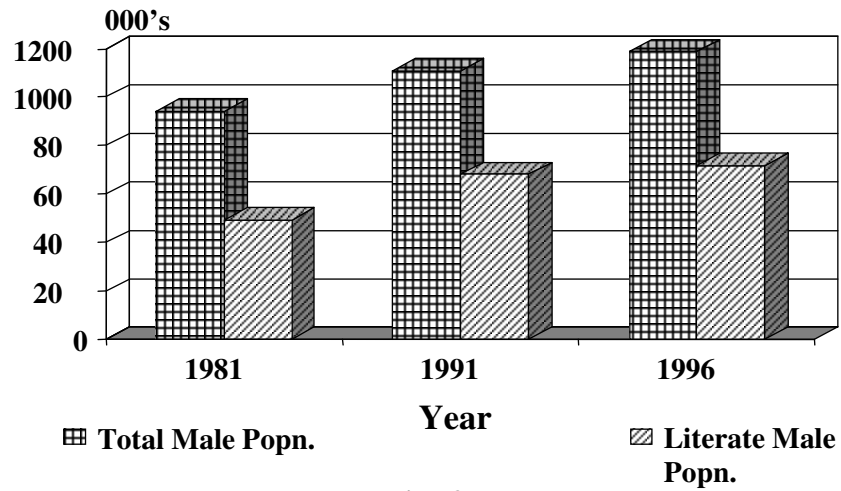


Fig . 3

Growth of Female Population and Female Literate

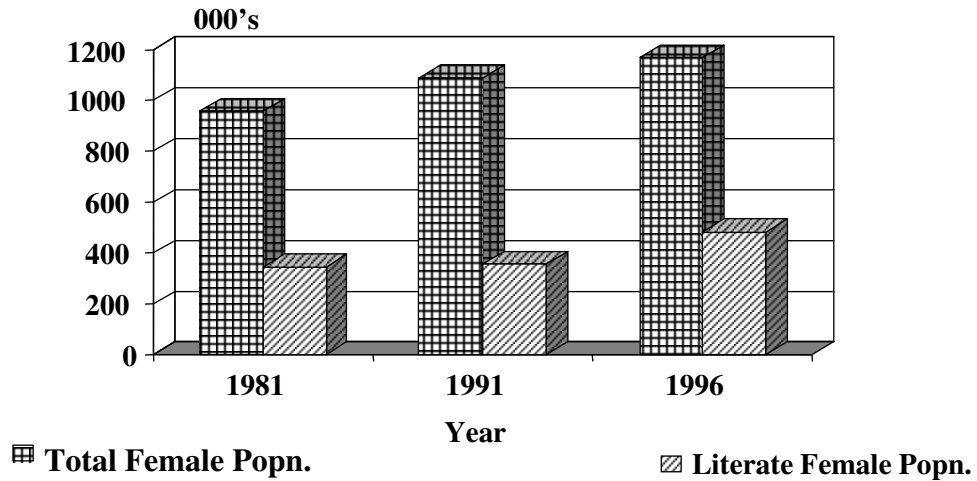


Fig . 4

2.0 Resources

2.1 Land Resources

Land Utilisation

The total geographical area of Tiruchirappalli district is 4,40,383 hectares, of which net sown area occupy 1,78,076 hectares and this account for

40% of the total area in the district. Area under not available for cultivation accounts for 21% of the total land in the district, i.e. 93,492 hectares. Nearly 26% of the area are classified under fallow lands and 6% of the lands are under forest coverage. The remaining lands are classified under groves and orchards category (Table 6).

Agriculture and Horticulture

Basically, Tiruchirappalli district is agriculturally rich due to the availability of fertile lands and presence of perennial rivers. Cauvery with numerous tributaries forms the basis of sustained paddy cultivation on an extensive scale throughout the year.

Cereals, Pulses and Oil Seeds are the Major crops cultivated in the district and majority of the area is used for the production of Cereals and Pulse. In terms of productivity, paddy has increased from 1887 kg/hect in 1981 to 4133 kg/hect in 1996, due to better Utilisation of seeds, improved methods of cultivation, intensive use of fertilizer and pesticides. Similarly the production of paddy was also increased from 2,70,907 tonnes in 1981 to 4,82,338 tonnes in 1996 (Table 7).

Among the Oil Seeds, coconut is the most important crop followed by groundnut and contributions of pulses are also marked at significant level in the district. The consumption of chemical fertilizers are high (i.e. 68400 tonnes) when compared to Bio-fertilizers for agriculture production in the district (Table 8).

An analysis of the trend utilisation of fertilizers, pesticides and bio fertilizers suggest that the consumption of fertilizers had shown fluctuations, though not significant, between 1981 and 1996. However,

use of chemical pesticides registered a continuously declining trend, while that of bio fertilizers is showing an upward trend (Table 9).

Banana is the major fruit crop and the cultivation of land under plantation extends an area of 10136 hectares. Tapioca and onion covers more than 60% of the total area under vegetable crops. Chilies and coriander are the predominant crops under the spices. Nearly, 2358 hectares of lands are used for cultivation of spices in the district (Table 10).

Soil

In Tiruchirappalli district, majority of the area is under Red Sandy soil and this soil type covers 18% of the total area in the district. Black soil is distributed along the rivers of Cauvery and Ayacuts near big tanks, this soil type cover 14% of the total area in the district. The other soil types like Clay, Red Ferruginous, etc., are occupying the remaining extent of land cover the district (Table 11).

Out of the total area nearly 93678 hect. of lands are identified as soil problem area with Salinity and Alkalinity, which is 29% to total area of the district. More over, nearly 1,31,785 hect of lands are identified to be prone to soil erosion in the district (Table 12).

The district has been provided with 463 percolation ponds in order to safeguard the agricultural practices in the region. Soil conservation practices have been undertaken in about 13934 hectares (Table 13).

Forest Resources

Tiruchirappalli district has a forest coverage area of 27254 hect. which is 6% to the total area of the district and the forest areas are classified under

Reserve Forest Category. However, the Green cover classification, for the composite Tiruchirappalli district comprising the undivided Tiruchirappalli and Pudukkottai districts indicate that only 25.505 of the forest area are either under dense or sparse forest cover and nearly 35% of the recorded forests are under plantations (Table 14).

Forest Type

The following types of forest are predominantly identified in the Tiruchirappalli district

1. Tropical Dry Deciduous forest,
2. Tropical Thorn forest

The tropical dry deciduous forests extend an area of 14,190 hectares and occupy the forest blocks starting from the altitudes of 350 m. above MSL, especially in the Reserve Forests of Thuraiyur and Manapparai Taluks, and also in the Slopes of Veeramalai area.

The Tropical Thorn forest extending over an area of 13055 hect. are basically seen in the forest areas of Manapparai and Thuraiyur Taluks (Table 15).

Percapita forest Area

The percapita forest area in the district has declined from 0.022238 hect. in the year 1951 to 0.011561 hect. in 1996, due to the increase of population in the district (Table 16 and Fig. 5).

Growth of Percapita Forest Area

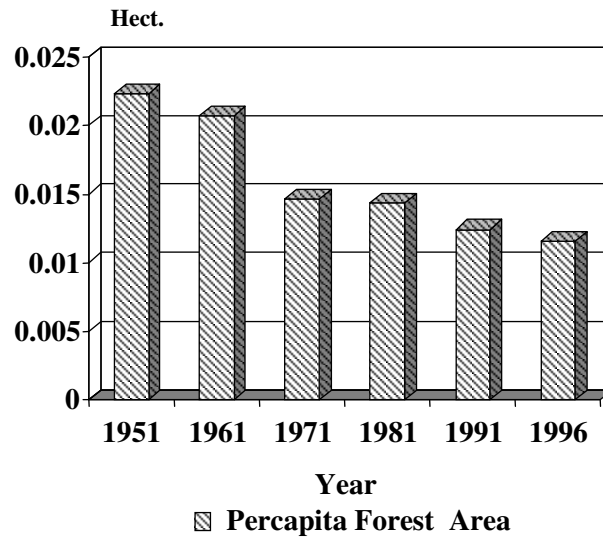


Fig . 5

Flora and Fauna

No area of reserve forests has been declared as sanctuary or National Park in the district (Table 17). Hence data regarding the wildlife census is not available (Table 18).

The common varieties of animals identified in the district are Indian Cobra and Vipers, which are mainly found in the forest area of Veeramalai and Semmalai R.F in Manapparai area. The species are classified under rare - animals (Reptiles) and vulnerable category. Indian civet and Pangolin are identified in all the R.F in Thuraiyur and Manapparai Taluk. Indian Gaur (Bison), Panther, Slender Lories are categorised under endangered animals and mostly found in all the R.F area of Tiruchirappalli district.

With regard to flora, there is no prominent varieties are observed in the district. One species under rare category and one under Endangered category have been identified in the district (Table 19). Tamarind and

bamboo are the chief trees of the district and found in all reserve forest areas of the district.

Trend in Production of forest Produce

During the year 1995-96, fuel wood plantations and MFP plantations have been raised in majority of the area (Table 20). Industrial wood is the Major forest produce in the district. The production of Industrial wood in the district increased from 449 M.T in 1992 to 1233 M.T in 1995. The production of industrial wood is high during the year 1994 i.e. 1510 MT. The production of minor forest produce in the district has increased from 1.50 MT in 1991 to 15.03 MT in 1996 (Table 21).

Details of villages abutting forest area in Tiruchirappalli

Tiruchirappalli district is not endowed with much forest resource when compared to others district in Tamil Nadu. Sengattur R.F, Valaiyur R.F, Manalodai R.F, Palamalai R.F and Pinnathur R.F are the important forest areas in the district and nearly 24 villages are abutting these forest areas with total population of 5500 (Table 22). Pachamalai is the only Tribal village abutting forest area of Palamalai R.F in the district. Thenparanadu, Kombal, Vannadu are the Tribal hamlets in the region with the total population of 9717 as per 1991 Census (Table 23).

Forest area Converted for non-forestry usage

In Tiruchirappalli district more than 2717 hect. of forest area has been Converted for non forestry usage and other purpose .Nearly 2717.41 hectare are converted and used for Indian Army as shooting range in Veeramalai (Table 24). The details of forest area which are converted to different purposes are given below:

Irrigation

Nearly 0.89 hectare of forest land are converted for

- Formation of tank by Public Works Department (PWD) in Sembianatham RF in Tiruchirappalli Division.
- Laying of pipeline and construction of shed for the water supply project in Mayanur RF by Tamil Nadu Water Supply and Drainage Board (TWAD), Namakal.
- Laying of pipeline in Evur RF by Tamil Nadu Water Supply and Drainage Board (TWAD), Musiri.

Railways

Conversion of 2.10 hect of land by the Southern Railway for the formation of Broad gauge line in Minnalkadu RF area.

Others

Conversion of 2717.41 hect of forest land by Indian Army for shooting range in Veeramalai R.F.

Mineral

Tiruchirappalli district is not endowed with any remarkable mineral wealth except multi colour granites, which is found in Togamalai and Naganoor area. Moreover, after trifurcation this area fall under Karur District, therefore these areas are no more part of Tiruchirappalli district. (Table. 25)

2.2 Water resource

The Cauvery river is the most important river in the district and the tributaries of Cauvery, i.e. Coleroon river, Koraiyar river, Ariyar, Malattar channel, Uyyakondan channel also drain in this district.

The Cauvery and Coleroon River

Cauvery is one of the major rivers in South India and Tamil Nadu, which flows towards east. The Cauvery Basin extends over an area of 81155 Sq.km, which spread across the states of Kerala, Karnataka and Tamil Nadu.

In Tiruchirappalli district, the river splits into two branches, the northern branch being called the Coleroon (Kolidam) and the southern branch is called river Cauvery. The total length of the river in this district is about 125 Kms, and the area of river basin extends about 17,200 hectares of land. Ponnaniar, Uppamodai and Siddhayalli reservoir are mainly used for irrigation purpose.

Koraiyar River

Koraiyar River rises from Karuppur Reddiyarpatti hill R.F at an elevation of about 500m. The river carries water from catchment areas of Puttanattam, Viralimalai, Malaikudippatti, Tennai, Illupur, Kalluppatti, Arur, Kulakkattai gudi, Keeranur and Thubarankurichi. The catchment area of river is 632 sq.km and the length of 75 km. The entire catchment of the river is covered by a large number of tanks.

Ariyar River

Ariyar River rises in Manapparai area from Pallivelli Mukku at an elevation of about 700m. The river carries water from Kadavur, and Semmalai reserved forests, Vairampattai, Kulattur and Manapparai areas. The catchment area of the river is about 832 Sq.km Table 26. Basin wise status of TH ground water availability in the district is not available Table27.

Upper Anicut

A dam known as upper Anicut was constructed in 1836 at a place where the Cauvery branches off into two at the West End of Srirangam, to regulate the flow of water in the Cauvery and Coleroon rivers. In its original form, the upper Anicut consisted of a simple masonry dam 230 meters in length divided into three parts.

Below the Grand Anicut, the Cauvery further split into two, one being called the Cauvery and the other, the Vennar River. These channels are utilised as the Main Canals for irrigation.

Grand Anicut

Karikala Cholan, an early Chola King, constructed the grand Anicut. It is situated on the northern bank of Cauvery about 16 km east of Tiruchirappalli town and mainly used for irrigation purpose. Details of other dams and reservoirs are furnished in Table 28. With regard to water spread area, an about 75 system tanks and 99 seasonal/ rainfed tanks are exist which cover 5751.14 hect and 9164.16 hect respectively in the district. Table 29

In Tiruchirappalli District 1,86,778 ha. (42.41 % to the total geographical area) of land are under irrigated area .The major source of irrigation is through wells and Canals. The presence of canal irrigation is found in all blocks of Tiruchirappalli except Thuraiyur, Marungapuri, and Thathaiyangarenpet (Table30). There is no incidence of Drought and cyclone registered in district except flood, registered in the year 1989 – 90 to 1992-93 and in 1996. (Table. 31)

2.3 Biological Resources

Tiruchirappalli district is located in the inland area of Tamil Nadu, therefore the significance of marine fisheries are completely absent in the district. The scope for fish production in this district fully depends on inland fisheries and extends to an area of 117.35 hectares. The total quantity of fish production is 7088 tonnes in the year 1993, which has decreased to 3190 tonnes in the year 1996, mainly due to exhaustion of resources in inland water bodies (Table 32). It is seen that inland fish production and fish fingerlings production has shown considerable fluctuations. (Table 33)

2.4 Heritage Resources

The protected and conserved movements in the Tiruchirappalli district consists of

- | | | |
|--------------------------|---|-----------------|
| 1. Government Museum | - | Tiruchirappalli |
| 2. Rock Fort Temple | - | Tiruchirappalli |
| 3. Srirangam Temple | - | Srirangam |
| 4. Grand Anicut | - | Tiruchirappalli |
| 5.The Nawab's Palace | - | Tiruchirappalli |
| 6. The Nadir Shah Mosque | - | Tiruchirappalli |

The Government of Tamil Nadu maintains the above monuments of Historical, Religious and Archeological importance. (Table 34)

The important tourist attractive places and major tourist area includes in the district are Museum, Rock Fort, Ranganatha Swamy Temple, Thiruvanaikovil, Grand Anicut, Kumaravayalur, Manapparai and Samayapuram are the important tourist places in the district.

Rock Fort Vinayaka temple at the top can be reached by climbing 437 steps, which is cut in a tunnel in the rock. Sri Thayumansawamy Temple dedicated to Lord Siva is also located within the Rock Fort temple, which has a 100-pillar hall and a Vimana covered in gold leaf.

Ranganathaswamy temple is located in Srirangam Town, 10 Km away from Tiruchirappalli town. The town and temple covers an area of 250 hectare, in the island area, which is connected to mainland by a bridge.
Srirangam

Temple was build in 13th Century and has 21 Gopurams, surrounded by seven concentric walls within which the town is located. The temple complex is very well preserved and has beautiful carvings, painted walls and ceilings.

Thiruvanaikkaval is situated at a distance of 7km north east of Tiruchirappalli Town. The temple here has a Sivalingam at most submerged in water, which flows from a subterranean spring.

Grand Anicut, an irrigation dam built across the river Cauvery by Karikala Cholan in the Second Century AD has a picnic spot located at 24 km away from Tiruchirappalli.

Jambukeswarar temple, Vayalur Murugan temple, Vekkaiammam temple, and Samayapuram Mariamman temple are the other important religious places in the district.(Table 35)

The number of tourists arrival in the districts shows an increasing trend, (both domestic and foreign visitors) as it has increased to 2.3 lakhs from 1.8 lakhs between 1991 and 1996. Table 36 and Fig 6.

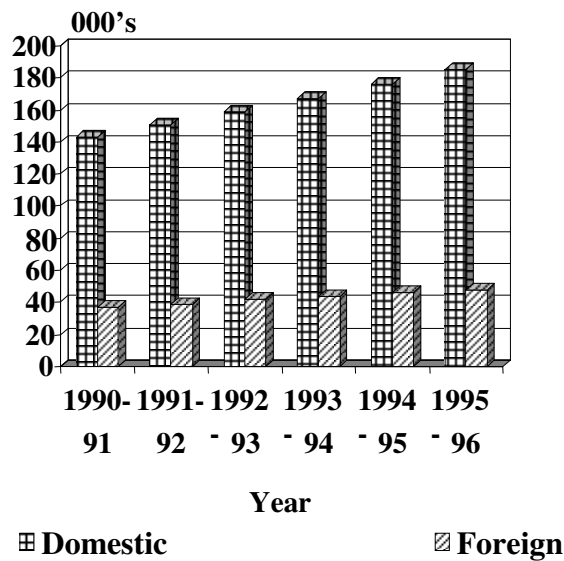


Fig 6

2.5 Energy Resources

No power plant is located in Tiruchirappalli district (Table 37). The Mettur Hydro Electric power meets the electricity needs of the district. The power distribution in the district is made through the electricity sub-stations at Tiruchirappalli.

The consumption of electricity is highest in the case of Domestic sector, which accounts for 55% to the total consumption (Table 38) and Agriculture is the next important category registered with 16% of power

consumption and 17% of the electricity are utilised by industrial and commercial purposes. Streetlights and other purposes consume 12% of electricity in the district. Fig (7)

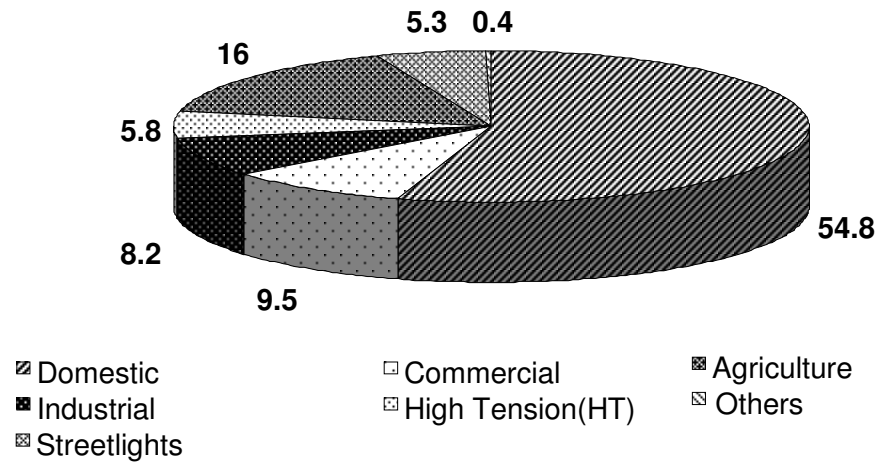


Fig . 7

According to the electricity department sources, all the villages in the district are electrified (Table 39). Data on non-conventional energy sources are not available. (Table 40)

3.0 Infrastructure

3.1 Urbanisation

Urbanisation in Tiruchirappalli district registered an increasing trend. As per 1991 census, the district had an urban population of 7.3 lakhs, which is 38.64% to total population and distributed in Tiruchirappalli Corporation, 4 municipalities and 14 Town panchayats in the district (Table. 41). The growth of urban population has gradually increased from 38.64% in 1981 to 40.38% in 1996. Tiruchirappalli Corporation is largest urban centre with

the population of 4.0 lakhs and Srirangam, next largest town with 73370 persons as on 1996.

The density of population in Tiruchirappalli district has increased in both rural and urban areas. The over all density of population in the district has increased from 432 persons /sq.km in 1981 to 535 persons/sq.km in 1996. Similarly the density of urban population has also increased from 2779 persons/sq.km in 1981 to 3601 persons/sq.km in 1996. The rural population density also increased from 432 persons/sq.km in 1981 to 535 persons/sq.km in 1996. This shows the widespread population distribution in both rural and urban areas. (Table 42)

The total population of Tiruchirappalli district was 10,72,756 persons in 1951 and this has increased to 21,95,973 persons in 1991, there by registering an average annual growth of 21% for last four decades (Table 43,44). The growth of population in the district has been very gradual and no remarkable increases has shown for the period between 1951 and 1991, except during 1961-71 the growth rate shown high rate of growth of 43%, over the last five decades is shown in Fig (8).

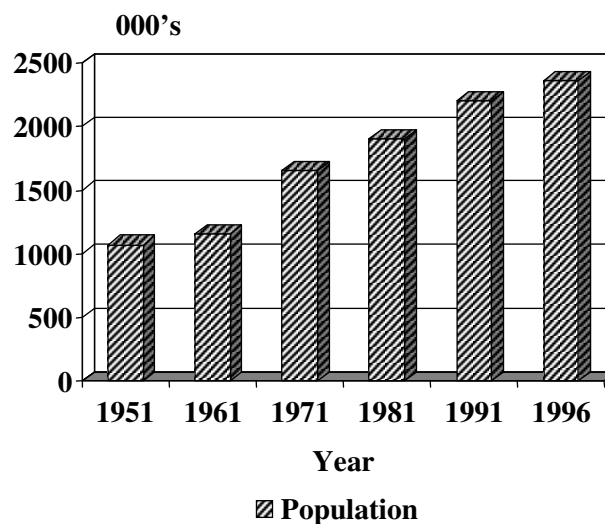


Fig .8

In Tiruchirappalli District the percentage of slum population to total population was 6.46 percent in the year 1981, which increased to 9.55 percent in 1996 (Table 45,46). Most of the slums are located in the urban Centres like Tiruchirappalli Corporation, Srirangam, Ponmalai, Manapparai and Thuraiyur Municipalities .The highest slum Population registered in Tiruchirappalli Corporation and Srirangam municipality i.e. 11.42% and 18.6 5 respectively to the total population of the town.

3.2 Infrastructure Services and Environmental status

The protected water supply system from ground water covers 75% of the population in the urban areas. The present supply system is 100 LPCD in Tiruchirappalli Corporation, 70 LPCD in Municipalities and 65 LPCD in Town Panchayats. There is no problem identified with supply of drinking water in the district. (Table 47)

The Estimated sewerage generation is around 75 MLD and it is being disposed into the water body and land without any treatment., though part of Tiruchirappalli corporation is provided with under ground sewerage and a open treatment facility in oxidation ponds , such systems are lacking in other Municipal town and other Town Panchayats(Table 48). Solid waste generation in the district is 660 tonnes/day of which nearly 80% of the waste is being collected and nearly 1961 workers are engaged in the existing solid waste collection system either directly or indirectly. Existing garbage collection workers ratio is estimated around 2.8-persons/1000 population in corporation and 2.2-persons/1000 population in municipalities and 1.1 persons/1000 population in town panchayats (Table 49). Municipal solid waste constitute predominantly by compostable matter (Table 50)

Water pollution is a major public health hazard in the Tiruchirappalli district. A major portion of the trade effluents and sewage are discharged into open drains leading to Cauvery river through several irrigation channels are polluting the groundwater in the urban areas. Apart from this, a large number of commercial establishments, multistoried shopping complexes, Cinema theatres, hotels and hospitals, discharge the effluents without any treatment into nearby water bodies, open land areas creating unhealthy situation.

In Tiruchirappalli District, there is no villages identified under coverage of problem with respect to drinking Water supply due to presence of ground water availability (Table. 51). With regard to occupied residential houses an about 7,79,543 houses are registered in the year 1981, which has increase to 9,62,076 in the year 1991, data pertaining to the Water supply system and toilet installation are not available (Table. 52) and 1,15,443 families are identified under below the poverty line. (Table 53)

Reported cases of water borne diseases

Gastroenteritis and dysentery are the most commonly reported water borne diseases in the district. The number of gastroenteritis reported cases increased from 354 cases in 1990 to 923 cases in 1996 and there is no case of Jaundice, Meningitis are registered in the district. The death caused by Gastroenteritis and dysentery was highest during the year 1992 (due to flood) i.e. 79 persons due to the above diseases and there is no death cases are registered on other diseases except one-person death by cholera in 1990 (Table 54). Allopathy and Homeopathy are the commonly practiced system of medicine in Tiruchirappalli district. (Table 55)

3.3 Transportation

Tiruchirappalli district is well connected with major cities in Tamil Nadu by rail and road network. By virtue of very central location, Tiruchirappalli City has become the meeting place of Transportation lines (both road and rail) from north to south and east to west while travelling across the state.

Tiruchirappalli, Srirangam and Goldenrock are part of Tiruchirappalli urban agglomeration and also developing as regional metropolis, extending its influence over the entire Tiruchirappalli and Thanjavur districts. The influence of Tiruchirappalli extends upto Cuddalore, Villupuram, Vellore, Salem, Erode, Dindigul Anna, Pasumpon Muthuramalingam Thevar and Pudukottai Districts.

Tiruchirappalli City is one of the progressive industrial areas of the state. Tiruchirappalli, Manapparai, Srirangam (part of Tiruchirappalli), Thuraiyur and Ponmalai (part of Tiruchirappalli) are the important urban centre in the district and are well connected by roads. The important roads traversing in the region are as follows.

- The National Highway No.5 (Chennai – Dindigul N.H.)
- The Madurai road (S.H)
- The Pudukottai road (S.H)
- The Thanjavur road (S.H)
- The Salem road (S.H)

- The Chennai road (S.H)
- The Karur road and
- The Dindigul road.

The other important roads are the bye-pass roads, which connect Chennai and Madurai road along the eastern side of the city boundary and Kumbakonam road along the banks of the river Cauvery.

Tiruchirappalli district has a well-developed system of communication network, nearly 105.4Kms of National Highways and 172.03Kms of state highways are being maintained by highways department. The Local bodies maintain 2816.92Kms. of roads under the classification of major and other district roads. There are 100 major bridges, 336 minor bridges and 4310 culverts as on 1996 in this district.(Table 56)

The vehicle population growth in the district indicates that the number of vehicle has increased from 23,276 in 1981 to 28,533 in 1996. Among the vehicles, two wheeler alone registered 63% to the total number of vehicles in the district. (Table. 57)

Railways

Tiruchirappalli is an important railway junction and is also a divisional head quarters of the Southern Railways. There are four metre gauge lines radiating from Tiruchirappalli junction Via Main line, a broad gauge line to Chennai, Madurai and Rameswaram and a broad gauge line linking Erode, Coimbatore and Bangalore. Tiruchirappalli junction is the main station for passenger as well as goods movement.

Airways

Tiruchirappalli has airport facility and located on the Pudukottai road at a distance of 6 km from Tiruchirappalli railway junction. Airline services are being operated to Chennai, Madurai, Thiruvananthapuram and Sri Lanka sectors.

3.4 Industrial Development and Environmental Status

Sugar Factory, Distillery, Tannery, Engineering Units, Cement Industries and Automobile Service units are the predominant industries in the district.

SIDCO has established three industrial estates and SIPCOT has established one industrial complex in the district. The industries in all these industrial complexes are mostly non-polluting in nature.

Moreover, most of the Industries in Tiruchirappalli district are provided with effluent treatment plant and Cement industries are provided with air pollution control measures, to monitor the pollution level.

As on 1996, there are 707 industries are registered in the district of which 43% of them are identified as red category, 47% are identified as orange category and 10% are identified under green category.(Table 58)

In terms of discharge of Industrial effluents by the industries, Tamil Nadu Pollution Control Board has identified three major industries in red category, which are listed below

1. Tiruchirappalli Distilleries and Chemicals.
2. Cauvery sugars and Chemicals.
3. M/s.Adams Chennai manufacturing company.

These industries are disposing the sewage, trade effluent and wastewater in to the Cauvery and Koraiyar.

The quantity of effluent discharged varies by industries from a minimum of 1.8 Kld to a maximum of 720 Kld. Regarding the quality of the effluent, the

parameters like BOD, TDS etc exceed the tolerance limits and mainly discharge into inland waters.(Table 59). Water quality of Grand Anicut, upstream and down stream in Tiruchirappalli district are presented in the Table 60.

In order to check the air pollution Tamil Nadu Pollution Control Board has identified 3 major industries (i.e. Tiruchirappalli distilleries & Chemicals, Cauvery Sugars and Ms/Adamas) under emission control and their emission level is presented in the Table 61.

Air Pollution

In Tiruchirappalli district, high concentration of SPM in atmosphere were observed in west Bouliward road, a high traffic zone, recorded 294.9 microgram / M³ is mainly due to the large number of automobiles in the region. In Vayalur road, which is a residential area the SPM levels recorded was 291.6, exceeded the ambient standard level and SPM level in Ramalinganagar was 141.23, below the standard level of 200 Microgram / M³ . The presence of lead, Zinc and iron are also found in the air samples mainly released from automobiles.(Table 62)

Tamil Nadu Pollution Control Board has identified the air pollution areas in the district, Accordingly, Thiruverumbur and Lalgudi are highly polluted areas in the district and the major air polluting industries are listed below:

- Tiruchirappalli Distilleries and Chemicals
- Kothari Sugars and Chemicals
- Cauvery Sugars and Chemicals
- Bharat Heavy Electrical Limited
- Dalmia Cement
- Ms. Adams Chemicals.
- Sri Annam Chemicals.

- S.Cube Lime products Pvt. Ltd.

Senthaneerpuram, Kattur, Pettaivaithalai, Thiruverambur, Dalmiapuram, Edamalaipattiputhur, Musiri, Suriyur and Pulivalam are the major areas identified with air pollution.(Table 63)

Noise level

Noise Level has become a serious problem in recent year and the quality of urban environment has deteriorated seriously, mainly because of noise, air and visual pollutants. In order to evaluate the existing noise level in Tiruchirappalli, noise level studies has been conducted in commercial, residential and silence zone areas.

Noise level has been recorded in the 6 different places of commercial area, 8 areas of residential zone and 14 areas of silence zone. It was found that the noise level in all zones exceeds the limit of 50 dB(A) in Tiruchirappalli district. In some of the important commercial areas noise level reached 109 dB(A) during peak hours, due to the increasing population, urbanisation, industrialisation, technological change and also increasing number of motor vehicles.

In Tiruchirappalli district 94.9% of residential areas exceeded the permissible limit of 55 dB (A) during day time and also silence zone exceeded the limit 50 dB (A) during day time. (Table 64)

Tiruchirappalli district being located inland in area, the data related to aquaculture activities, wetland habitats and potential hot spots along the coast are not applicable.

4.0 Environmental Institutions

The Environment Institutions and NGO organisations in Tiruchirappalli district are listed below (Table 65, 66).

1. Santhana Human welfare and Education Trust
2. United Community Development And Education Trust
3. Orungkinaintha Pazhangudi Makkal Valarchi Kazhagam(Light Trust)
4. Voice Trust
5. Action Group for Rural Enlightenment Education and Development Society
6. Village People For Rural Development Association
7. Sathyothaya
8. Karunya Voluntary Organaisation
9. Village Integrated Service Unit
10. Socio Cultural Awakening Movement
11. Pudu Vazhvu Maiyam Trust
12. Centre for Action and Research for Social and Environmental Affairs
13. Society for Rural Improvement and Action
14. Village Development Centre
15. Don Public Welfare Association
16. Association for Rural Investment and Social Education (ARISE)
17. Alliance for Awareness Advancement and Research
18. Shepherd Development Department
19. Community Organaisation and Rural Education(CORE)
20. Development of Economic and Education for the People(DEEP)
21. Andiyothaya

22. Tamil Nadu Weaker Section Women's Development Centre
23. New Life Sheva Samastha
24. The Association for Rural Development
25. Leek for Education and Development
26. S. Kannanur Nagara Magalir Mandram
27. Govt. High School
28. Society for Community Organisation and People's Education
29. Health Education and Development Society
30. Grama Samuga Kalvi Niruvanam

The above NGO Organisations/Environmental Research Institutions are mainly dealing with Environmental issues like Environmental Impact Studies, Environmental Education etc, to the public and also organising training programme for rural people. In addition, regular campaigns, seminars, tree planting are also conducted regularly to disseminate the environmental awareness in Tiruchirappalli district.

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5.0 SUMMARY OF OBSERVATION

1. Tiruchirappalli district comprises of 5 Taluks, 14 Blocks, 408 Village Panchayats and 1590 Villages.
2. The population of district was 10,72,756 in 1951, which has increased to 21,95,973 persons in 1991. The average decadal growth rate of population is 21.0 % over the last four decades.
3. Literacy rate in the district was 51% as per 1991 census, among the literate, Male literacy constitutes 60% and female literate constitutes 41% in the district during the year 1991
4. The total geographical area of the district is 4,40,383 hectares, of which 40 % of the land under net sown area.
5. Cereals, Pulses and oil seeds are the major crops cultivated in the district. Bananas are the major horticulture product. Tapioca and Onion are the important Vegetable Crops, Chillies and Coriander predominant under the spices.
6. Tropical Dry Deciduous and Tropical Thorn Forest are identified in Tiruchirappalli District, which extend an Area of 27,254 Hectares, under forest coverage mainly as Reserve Forest and reserve Land.
7. The percapita forest area in the district has declined from 0.022238 hect to 0.011561 hect between the year 1951 and 1996.

8. The Cauvery River is the most important river in the district and the tributaries of Cauvery, i.e. Coleroon river, Koraiyar river, Ariyar , Malattar Channel , Uyyakondan Channel also drain in this district.
9. The major tourist area in the district are Museum , Rock Fort , Ranganatha Sway Temple , Thiruvanaikal Kovil, Grand Anicut , Kumaravayalur , Manapparai and Samayapuram.
10. No power generating plant is located in Tiruchirappalli district. The Mettur Hydroelectric power station meets the electricity needs of the district and all the villages in the district are electrified.
11. As per 1991 census, the district had an urban population of 8.6 lakhs, which is 39.19% to total population and distributed in Tiruchirappalli Corporation, 4 municipalities and 14 town panchayats in the district. The density of population has increased in both rural and urban areas.
12. The water supply system from surface water and ground water covers 75 % of the population in the urban areas. The present supply system in the district is 100 LPCD in Tiruchirappalli Corporation, 70 LPCD in Municipalities and 65 LCPD in Town Panchayats.
13. Tiruchirappalli district is an important urban centre in the district and well connected by Roads and Railways. The district has 105km of National Highway, 172.03Km length of state highways, 2816.92km length of major and other district roads.

14. The number of industries established in Tiruchirappalli district is 707, of which 43% industries are under red category, 47% industries are orange category and 10 % industries are under green category as on 1996.
15. The NGO orgainsation in Tiruchirappalli district are mainly dealing with Environmental Issues like Environmental awareness, Environmental Education etc, and 30 NGO are identified in the district.

