CHAPTER II

2.1 Location

Nagapattinam District was carved out of erstwhile Thanjavur District on October 18, 1991. Subsequently it was bifurcated in 1997 as Nagapattinam and Tiruvarur Districts. Nagapattinam district is one of the coastal districts in the Tamil Nadu. It is located at 10°10’ to 11°20’N Latitude and 79°15’ to 79°50’E Longitude. It is bordered on the east by the Bay of Bengal, west by the Tiruvarur district, north by river Kollidam and Cuddalore district and on the south by the Palk Strait. The coastline runs in the North-South direction from Kollidam to Kodiakkarai and it runs east to west direction from Kodiakkarai to Athirampattinam. On the coast between Tarangambadi and Nagapattinam lies the small district of Karaikal, an enclave belonging to the Pondicherry Union Territory. The total area of the district is 2569 square kilometers with MSL 9mts above the sea.

The study area lies between Velanganni (10°40’39” N and 79°51’ 17” E) and Kodiakarai (10°16’31” N and 79°49’30” E) in Nagapattinam district along the East coast of Tamil Nadu (Map No. 2.1). Study area along the coastal stretch extends about 55km. The study area falls under the Survey of India toposheets 58N/14 and 15.
MAP NO. 2.1 SHOWING THE STUDY AREA MAP
2.2 Physiography

Nagapattinam is a coastal District on the East Coast of India in the State of Tamil Nadu with a long coastline of 187 km. The marine or coastal land has plain lands except for a few sand dunes and tilts from coastline to the inland area. The Vedharanyam salt swamp, south of Nagapattinam town is the largest swamp in Tamilnadu, running 7-8 km wide and 48 km along the coast from Point Calimere. It is one of the richest regions of biodiversity in the country. This stretch consisting of a narrow region of sandy beach along the coast in the delta region of Cauvery river. Salt pans near Thirumullaivasal and Tharangampadi could be observed. In the south there is the permanent Vedharanyam swamp region with mangrove forest. The southern boundary of this stretch is marked by the change in the coastline from the east to west direction, from Point Calimere to Rajamatam.

2.3 Climate and rainfall

Nagapattinam region receives rain under the influence of both southwest and northeast monsoons. Most of the precipitation occurs in the form of cyclonic storms caused due to the depressions in Bay of Bengal chiefly during Northeast monsoon period. Nagapattinam received an average annual rainfall of 156.73 mm (2014) of which the northeast monsoon contributes a greater percentage than the southwest monsoon. The area receives maximum rainfall during the month of October (599.6mm). The
region enjoys a humid and tropical climate. The average temperature of the district in 2014 was about 32ºC and the minimum temperature is 24.6ºC. Dust storms whirl winds and dusty winds blow from various quarters towards the end of May. The Southwest winds sets during April, it is strongest in June and continues till September. Northeast monsoon starts during the month of October and extends till January. Cyclonic storm with varying wind velocity affects once in 3 or 4 years during the month of November-December. During Southwest monsoon the air is calm and undisturbed.

2.4 Soil

The soil types commonly found in this area are Alfi soils (Al and Fe), ENTI soils (unconsolidated sedimentary rocks), Incepti soils (Quickly alteration of parent material) alluvial, Verti soils (Clay riched soils). In this soil map (Map No.2.2) Alfi soils presented in lower portion of the study area whereas verti soils presented as major portion of the study area. Enti soils area found in middle portion near the coast and incepti soils are deposited in north western side of the study area. Small batches of swampy soils are found in lower part of the study area. Agriculture is the main occupation in this area. Irrigation is mainly through river canals. Besides paddy, sugarcane and banana are raised in the irrigated lands. Broadly the soils in the delta area are characterised by very high clay content, low nitrogen and phosphorous
MAP NO.2.2 SOIL MAP OF THE STUDY AREA
and high potassium and lime content. Along the east coast for a width of 3-5Kms, the soils are predominantly sandy loam in texture on the surface grading to sandy clay loam below. They are generally high in sodium and poorly drained. The nutrient status of the soil is low. In the extreme SE corner of the region is an area of about 50,000 ha of low lying swamp subjected to inundation by the sea at high tide with poor natural surface. The soil is typically stratified with heavy alluvial clay overlaid by fine sand which may be from few centimetres to several meters in depth.

In Nagapattinam district, 15 soil series excluding sand (2.03%), swamp (1.28%) and reserve forest (2.00%) have been identified. The major soil series are Kolathur, Adhanur, Kilvelur and Meelkadu. Kilvenur soil series consist of dark yellow-brown, very deep, heavy textured, slightly saline alluvial soil. Melkadu soil series are dark brown, very deep, sandy, calcareous coastal alluvial soils. Sandy coastal alluvium and black soil types cover 88.71% and 6.58% respectively in this district. The other soils in the district comprise 4.71% about 7.09% of the lands are affected by waterlogging and marshy land and 56.21% are prone to floods. About 3.49% of the lands available for cultivation suffer from salinity/alkalinity and 17.69% of the lands are coastal sand. Thus the land affected by soil problems constitutes about 84.48% of the total geographical area excluding forest area not usable for cultivation.
2.5 Drainage

The study area is very gentle slope towards east and south direction. The study area drainage type is predominantly trellis and dendritic pattern (Map No.2.3), stream orders classified on the basis of origin. Generally, as the stream order increases, the numbers and the mean gradient of streams decreases in an inverse geometric ratio and the mean length of stream and the mean area of drainage increase. The hydraulic head available for gravity flow into the fields from the irrigation channels that take off from the rivers is often negligible and in many cases, it is negative. Therefore irrigation is done under such situations by blocking the channel flow and building up a “Head”. Under these conditions the same channels play a twin role serving for irrigation as well as drainage.

2.6 Human settlement

Nagapattinam District was formerly a part of Thanjavur District. The district boundary is shared by Tiruvarur, Karaikal, Tanjore and Cuddalore districts. Its population in 2001 census was nearly 1.5 million. It is divided into eleven blocks. From North to South, they are Kolliam, Sirkazhi, Sembankoil, Kuttalam, Mayiladuthurai, Thalanayar, Nagapattinam, Kilvelur, Thirumarugal, Keelaiyur and Vedharanyam. District also further divided into four municipalities namely Nagapattinam, Mayiladuthurai, Sirkazhi and Vedharanyam. Total population of this district is 16,16,450 (2011)
MAP. NO. 2.3 DRAINAGE MAP OF THE STUDY AREA
which is 2.24% of the State population and the growth rate is 8.57% from 2011. The district has 7, 98,127 males and 8,18,323 females indicating a sex ratio of 1025. The important occupation is fishering and cultivation. The midyear (2011) estimate of the District Population is 78.74% in rural and 22.55% in urban. The population density is 629.

2.7. Accessibility

Nagapattinam district has a good network of roads and railways. The district head quarter (Nagapattinam) is well connected to capital city Chennai of Tamil Nadu as well as other neighboring districts by road. Most of the coastal areas are well connected by roads and some regions being marshy and swampy in nature is accessible by ferry and the roads are jeepable during the summer season. The good old 57km long Vedharanyam canal which was established in 1867 is a good means of water transport system. The important railway lines of Southern railway namely Chennai–Villupuram – Chidambaram – Mailaduthurai – Thiruvarur - Mannarkudi passes through this region. Nagappattinam is connected by the ancient sea port Poompuhar and to various parts of the country and abroad via marine transport system also. The nearby airport is at Tiruchirapalli.