CHAPTER II

GEOMORPHOLOGY OF THE STUDY AREA
CHAPTER II

GEOMORPHOLOGY OF THE STUDY AREA

2.1 INTRODUCTION

The geomorphological characteristics of the study area are presented in this chapter in order to bring out the bearing of geological and geomorphic features of the terrain.

2.2 PHYSIOGRAPHIC FEATURES

The landforms of today are essentially all products of different geomorphic processes such as erosion, deposition, crustal movement and climatic changes. The terrain is the result of a combination of different land forms which evolved due to prolonged geological and geomorphic processes. The area in and around Konganapuram has been subjected to prolonged sub-aerial denudation.

The study area consists of hill rocks ranging in heights from approximately 100 mts to 500 mts. The important hillock present in the study area are

1. Orika malai 509 mts.
2. Karatukadu 420 mts.
3. Manjakkalpatti malai Δ 446 mts.

In addition to the above hillocks, the study area is comprised of a number of small rocky knobs, and boulders marked as outcrops. The geomorphic map of the study area is shown in the Fig.3.
The terrain around Konganapuram can be classified physiographically into two divisions.

1. Northern Division
2. Southern Division.

2.2.1 Northern Division

The Northern Division is comprised of almost plains. A small boulder is present near Kavadikkaranur (Plate I, Fig.1). The following villages Rakkiyampatti (Latitude 11°34'30", Longitude 77°53'30"'), Reddipatti (Latitude 11°34'28", Longitude 77°53'43"'), Annamalaipalayam (Latitude 11°34'13", Longitude 77°51'42"), Vellandivalasu (Latitude 11°34'45", Longitude 77°50'45") forms part of the division. Plate I, Fig.2 shows the Northern view of Konganapuram plain area. There are number of small lakes distributed in the study area, Konganapuram Pallateru En, Tondipalayam En, Achampalli En, Reddipatti En, Annamalaipalayam En, Kavalanpatti En and Periya En. The lakes form a major source for irrigation of the surrounding area. Paddy, banana and sugarcane are raised by irrigation from these lakes. The major litho-units found in these divisions are charnockite, granitic gneiss and biotite gneiss. A small portion of this division is comprised of the granitic rocks of white colour, commercially called as 'Tippu White' is present in near Annamalaipalayam.

2.2.2 Southern Division

The Southern Division consists mostly of the pink granite, granitic gneiss, biotite gneiss, and hornblende-biotite gneiss. The major prominent hill present in
Fig 1  A view of Northern Division area

Fig 2  A view of Konganapuram plain area
this division are Orika malai (A509mts.), Manjakkalpatti malai (A446mts.), Parayakatanurkaradu (.400) and Thangaiyurkaradu (A331 mts.).

Plate II Fig.1 shows the panoramic view of Orika malai and Plate II Fig.2 shows the Eastern side view of Orika malai.

Plate III Fig.1 shows the view of Thangaiyur karadu, and Plate III Fig.2 shows the panoramic view of Parayankattur karadu. The hills of this division is fully covered by the babool trees. When compare to the northern division, cultivated lands are very limited in this division.

2.3 DRAINAGE PATTERN

Drainage pattern of the study area is shown in Sarabanga river flows in the North west part of the study area. Plate IV, Fig.1 shows the view of Sarabanga river. A few riverlets join that main river. The drainage pattern is almost aligned parallel to the regional foliation forming consequent valleys. They are several irrigation tanks situated in the study area. The major irrigation tanks are Achchourpalli Eri, Pallateru Eri, Vellakkalpatti Eri, Periya Eri, Rattipatti Eri, Plate IV, Fig.2 shows the Western part of Periya Eri.

The drainage pattern in the study area shows radial pattern. Topographically hilly areas are drained by stream which radiate outward from the central part of flow down the flanks of the hillocks in all directions major lines of drainage appear to align themselves either along the direction of major lineament or parallel to them. Fig.4 shows the drainage map of the study area.
Fig 1  The Panoramic view of Orikamalai.

Fig 2  The Eastern side view of Orikamalai.
Fig 1  The view of Thangaiyur Karadu.

Fig 2  The panoramic view of Parayankattur Karadu.
Fig 1  The view of Sarabanga river.

Fig 2  The view of Periya Eri.
DRAINAGE MAP OF THE STUDY AREA

Legend:
- Road Metalled
- Drainages
- Lakes
2.4 WEATHER AND CLIMATE

Weather is a condition of atmosphere in terms of the heat, humidity, pressure and wind movement at a given time and place. Climate is much broader term then weather climate is an expansion synthesis of day to day changes of metrological elements. Temperature and precipitation forms the general backbone of the climate.

The wind speed velocity shows higher values during Southwest monsoon and lower values during Northeast monsoon. It varies from 0.5 to 20 km/hour. Generally evaporation is high during March, April and May and it is low during the rainy season.

2.5 RAINFALL

The average for fifty years rainfall in the Salem district varies from 600 mm to 1150 mm. The annual rainfall in the study area is about 300 mm. The study area received rainfall both during Southwest monsoon (from Aug. - Oct.) and Northeast monsoon (from Nov. - Dec.). The study area receives more rainfall during Southwest monsoon. The precipitation during Southwest monsoon is 325 mm, whereas during the Northeast monsoon it is 275 mm. In addition, summer showers are present in the month of May and June.

2.6 TEMPERATURE

Generally March, April and May months are hottest in the study area and December, January are the coldest. The maximum temperature ranges from 25° C to 40° C. The minimum temperature ranges from 12° C to 20° C.
The mean sunshine hours ranges from 9.7 hours to 2.5 hours. Generally, evaporation is high during March, April and May and is low during the raining months.

2.7 WEATHERING

It is a process of denudation and degradation of the surface of the earth exposed rock surfaces, undergo mechanical as well as chemical changes under the influence of various physico-chemical condition of the atmosphere. Because of this varying climatic condition broken rock fragments decomposed and altered materials are formed. The important agents of chemical weathering are water, CO₂ and O₂. The following are the major factors which control the depth of weathering:

- High temperature
- Vegetation cover
- Precipitation
- Stability of land surface
- Free drainage
- Geological factors like rock types and their textures.

Owing to prolonged subtropical weathering the hills are weathered up to 2 feet. The uplands are mostly comprised of pink granites owing to their greater resistance to weathering. The other rock types that have survived weathering are the migmatites, pyroxenites and charnockites. The ultimate product of weathering of rock types of the area of investigation is red soil.
2.8 VEGETATION

The jungle on the plains is comprised of perennial cactus shrubs that grows to the height of 5 feet.

The important trees found in the study area are Velvelam, Babool, Karungatan, Bamboo, Coconut, Palm etc.

The important cultivation found in these area are paddy, groundnut etc. The dry crops raised are cholam, cotton, ragi, sugarcane, blackgram, greengram etc.

2.9 HUMIDITY

The relative humidity ranges from 60 to 90%. Highest relative humidity values were during Southwest monsoon period.

2.10 SOIL TYPES

On the basis of parent materials, texture, permeability and alkalinity these soils are further classified into 5 types of soil series.

1. Red Soil
2. Black Soil
3. Brown Soil
4. Alluvial Soil
5. Mixed Soil.

The soil map of the study area is shown in Fig. 5.
SOIL MAP OF THE JOAPPADI TALUK