3. STUDY AREA

3.1. Topography:

The study was carried out in Pondicherry which lies between 11.45°N latitude and 79.35° to 80.00°E longitude on the coromandel coast of Peninsular India (Fig. 3.1). The total area is 59.38 km² and the average elevation is about 15 m. above sea level. It is bounded by Bay of Bengal on its east and South Aroor district of Tamil Nadu on the rest of its sides. This region is a flat terrain, intersected by deltaic channels of river Gingi and Pennaiyar and other streams forming the two main drainage basins. The main soil types are red ferralitic, black clayey and coastal alluvium. The red ferralitic soil is prevalent in the northern part and coastal alluvium in the coastal area. Water table is very high in the most part of this region (Francis 1982).

Situated well within the tropics near 12°N latitude on the east coast of India, Pondicherry experiences a hot and tropical type of climate characterized by small daily range of temperature, humid weather and moderate rainfall. Three seasons were the summer followed by the period of South-West monsoon which lasts upto September. The month of October and November constitutes the main North East monsoon season. The winter starts in December and extends upto February (Francis 1982).

3.2. Climate:

3.2.1. Temperature:

According to the past record of 11 years climatological data available with Meteorological Department, Madras (1980-1990), the period from the end of February to mid June is a period of continuous
Fig 3.1: Study area.
increase in temperature when the mean daily temperature rises from about 25°C to 32°C. May and early part of the June constitute the hottest period of the year with mean daily maximum temperature of about 37°C and mean daily minimum temperature of about 27°C. December and January form the coolest part of the year with mean daily maximum temperature of about 28°C and the mean daily minimum temperature of about 21°C (Fig. 3.2a).

3.2.2. **Rainfall:**

The average annual rainfall is of the order of 127 cm. Of this 50% is recorded during North-East monsoon (October–November) and about 25% during South-West monsoon (July–September). November alone records 30% of the total annual rainfall. During the North-East monsoon depressions and storms from the south of Bay of Bengal move across or in the neighborhood of the region, causing heavy rain and thunderstorms and winds. In a year there are on an average, about 50 rainy days i.e., days with rainfall of 2.5 mm or more. There was quite large variation in rainfall from year to year. The highest rainfall recorded was in 1943 which was as high as 204 % of the normal and the lowest was in 1952 when it was only 49 % of the normal. Drought conditions, when the annual rainfall is less than 75 % of normal, may be expected to prevail over the region in four years interval on an average (Fig. 3.3).

3.2.3. **Humidity:**

As the study area is situated in eastern coast of Indian peninsula, the mean relative humidity is found to be generally high, being above 75% during July and April (Fig. 3.2b). May and June
Fig. 3-2. Average (a) temperature and (b) relative humidity for different months of 1980-1990
Fig. 33. Average rainfall during different months of 1980-1990.
record the minimum humidity of about 70%. Prevalence of high humidity makes the summer oppressive.

Conditions supporting *Ae. aegypti* breeding prevail in the study area. Discarded tins, earthen pots, grinding stones and other structures found in the backyard of houses were found to breed *Ae. aegypti, Cx. quinquefasciatus* and *Ammigenus subalbatus* during monsoon season. At present *Ae. aegypti*, vector of Dengue virus is rather a major nuisance species not involved in any disease transmission in the study area.