CHAPTER III

STUDY AREA

PHYSIOGRAPHY

Sacred groves are scattered throughout the State of Kerala - extending from 8°18' N to 12°48' N Latitude and from 74°52' E to 77 22' E Longitude in the South-Western corner of India. The State is bordered by Arabian Sea in the West, Karnataka State in the North and North-East and Tamilnadu State in the East and South (Fig 1). It is a narrow strip of land covering a distance of 560 Kms. along the western slope of the Western Ghats with a varying width of 15 to 120 Kms. For administrative convenience it is divided into fourteen districts.

From the lowlands adjoining the sea, the landscape ascends steadily towards east, on to the highlands sloping down from the Western Ghats. The mountain ranges which form a natural wall separating Kerala from the adjoining states, have an average elevation of about 1000m with certain peaks rising over 2000m above MSL - the highest of these peaks is Anaimudy (2695m) in Anamalai Hills in Devicolam Taluk of Idukki district. Western slopes of the hills and mountains of the eastern border of Kerala form the watershed for 44 rivers. On their way to the Arabian Sea, 41 of them together with their numerous tributaries traverse the state dividing it into different sections. Other three are east-flowing rivers (Kabani, Bhavani, and Pambar) and they flow to the neighbouring states from the mountain ranges itself. The rivers get flooded during monsoon season and shrunk to the minimum dimensions (some of them even get dried up) in summer.

CLIMATE

Mountains in the east provide orographic lifting for the South-west monsoon current, resulting in heavy precipitation over their western slopes and copious rainfall over midlands and lowlands. North-east monsoon also brings rains to the state. A study on the meteorology of Kerala by Ananthakrishnan et al. (1979) gives the following details. Unlike any other parts of India, rainfall of Kerala is characterised by great stability. Average annual rainfall for India is 1200 mm, whereas the mean annual rainfall for the State is 3000 mm and is higher than any other state in the country. Annual rainfall of Kerala shows a steady increase from about 1500 mm in the extreme south to over 3500 mm in the extreme north. Fig 2 shows the annual rainfall distribution over Kerala. The coastal belt from near about Cochin to south of Calicut receives an annual rainfall around 3000 mm. There is a
Fig 2: ANNUAL RAINFALL OF KERALA
sharp increase to the north of Calicut and a decrease to the South of Cochin along the coastal belt. The decrease is more rapid from the south of Alleppey. There is a steep decrease in rainfall from west to east and is more pronounced in the districts of Idukki and Calicut.

The normal date of onset of south-west monsoon over Kerala is first June, but there are variations from 11th May to 18th June. Rainfall of this season (June to September) increases progressively from 700 mm at the extreme south, to over 2500 mm in the extreme north (Fig 3). This monsoon contributes 40 to 50% of the annual rainfall over South Kerala and over 80% in the north. The second rainy season is from October to December characterised by the decrease in rainfall from south to north Kerala (Fig 4). This seasonal rainfall is about 30% of the annual over the extreme south and decreases progressively to less than 10% over the extreme north.

Mean annual temperature is 27°C. Because of its tropical location, and proximity to sea, the diurnal variation of surface temperature is much less than any other states in India. The variation of monthly mean maximum temperature throughout the year is only 3.7°C, while that for minimum temperature is 2.4°C. Annual range of temperature is 8°C (Indian Meteorology Department, 1967). Length of the dry season varies between north and south of the State. The south-north gradient of the length of the dry season is in relation to dates of arrival and withdrawal of monsoon. There are 3-4 dry months at low altitudes in South Kerala up to Palghat gap and it is 2-3 at high altitudes. Beyond the north of Palghat gap length of dry season varies from 4-5 months (except near the coast where it exceeds 5 months (Ramesh and Pascal, 1991).

SOIL

Along the coastal belt the soil is sandy loam. In the interior areas, there is alluvial soil along the sides of rivers and streams. Major portion of the state has laterite soil. There is clayey loam in some portions of Alleppey and Trichur districts and black cotton soil in Chittur Taluk of Palghat district (Kerala State Landuse Board, 1989).

DEMOGRAPHY

Though a very small state with little more than 1% of the country in its area, it supports nearly 4% of the country’s population and hence this is the state with highest density of population in India. Area of the state is 38863 Km² and the total
population is 2.99 crores. Density is 769 persons/Km\(^2\) and annual growth rate is 14.3\%. Density is above 1000/Km\(^2\) in coastal districts like Alleppey, Calicut, Ernakulam and Trivandrum (Anonymous, 1991). Due to its unique geographical position, Kerala has all the potentials to support a luxuriant Tropical Evergreen Forest. Entire State was once covered by such potential vegetation (Krishnamoorthy, 1960), but demographic pressure had pushed the forests up to the highlands. At present 26% of the area is under Reserved Forests, but these forests are situated mainly on Western Ghats and its slopes. Save for the forests of sacred groves, the lower portions had already been cleared for agriculture and other developmental activities.
Fig 4 DISTRIBUTION OF NORTH-EAST MONSOON