CHAPTER – 3

GENERAL DESCRIPTION OF THE STUDY AREA
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Geography

Assam is a miniature replica of the Indian Sub-continent. As per bio-geographical classification of India (Rodgers and Panwar, 1988), Assam lies in zone 8, the North-East zone. The state of Assam lies between 24°8'N - 25°8' N latitudes and 92°15'E - 93°15'E longitudes. To the south of the Shillong Plateau lies the relatively small river valley, the Barak Valley or the Cachar plain. Like the Brahmaputra plain, this valley is an alluvial plain in the districts of Karimganj, Hailakandi and Cachar. It is about 190 km long from east to west and 70 km wide from north to south, covering an area of 6962 sq km and bounded by hills on the three sides. It represents a vast deltaic alluvial expansion, liable to inundation during high rains. This suggests that the process of delta formation had proceeded in fits and starts. Barak is the major river system in this area (Gopalkrishnan, 2000). Assam is rich in wide range of flora and fauna.

The Barak, originating in Nagaland; flows through Manipur before it enters the Cachar district at Lakhipur. Its major tributaries are Madhura, Chiri, Jatinga (From North Cachar Hills), Jiri (from Manipur), Kalaincherra (from Jaintia hills), Sonai, Rukni, Ghagra, Dhaleswari, Singla and Longai (from Mizoram). All these rivers, especially Barak, while adopting a meandering path through the alluvial plains, shift their courses, often forming ox-bow lakes. Large numbers of wetlands, natural depressions that lie close to the rivers, are also present in the valley. These ecosystems, locally called 'bil' and 'haor', serve to hold the excess water when the rivers overflow after heavy rain.
Climate

In the present study three principal seasons have been recognized, viz., pre-monsoon (February-May); Monsoon (June–September) and post-monsoon (October-January). The months of March and April witnesses severe storms with hails. Temperature and relative humidity are high and vary over a very narrow range. During the present study period of November, 2003-March, 2006, the average annual rainfall was 2066.2mm. The maximum temperature in the study area ranged between 23°C-34.4°C; the minimum temperature ranged between 11.4°C-26°C; and the relative humidity between 60.4%-96%.

Figures 1(a), (b) and (c) show the annual variation in temperature, humidity and rainfall. Figures 2 (a), (b) and (c) show the variation in temperature, humidity and rainfall of Pre-Monsoon, Monsoon and Post-Monsoon seasons, respectively, during the period November 2003-March 2006.

Study Sites

The present study was conducted in the following common landscape elements encountered in Cachar district, Assam. Figure 3 shows the map of the study area.

1. Tea Estate (LSE 1)
2. Scrub/Secondary growth (LSE 2)
3. Degraded forest (LSE 3)
4. Wet land (LSE 4)
Figure 1 (a): Variation in Temperature (Maximum and Minimum), Humidity and Rainfall recorded during November 2003 – October 2004.
Figure 1 (b): Variation in Temperature (Maximum and Minimum), Humidity and Rainfall during November 2004 – October 2005.
Figure 1 (c): Variation in Temperature (Maximum and Minimum), Humidity and Rainfall during November 2005 – October 2006.
Figure 2 (a): Variation in Temperature (Maximum and Minimum), Humidity and Rainfall of Pre-Monsoon season during the period November 2003-March 2006.
Figure 2 (b): Variation in Temperature (Maximum and Minimum), Humidity and Rainfall of Monsoon season during the period November 2003-March 2006.
Figure 2 (c): Variation in Temperature (Maximum and Minimum), Humidity and Rainfall of Post-Monsoon season during the period November 2003-March 2006.
Figure 3: Site Map showing position of different LSEs
Figure 4 (a): Google Earth Image of LSE 1, 2 and 3

Figure 4 (b): Google Earth Image of LSE 4
Tea Estate (Silcoori Tea Estate, Dargakona):- It is about 21 km south from Silchar. This LSE has few small hillocks. There are many water canals for irrigation which pass through the plantation areas. These canals are used by many birds including Kingfishers and Egrets. The LSE has a profusion of shade trees, mainly *Albezia lebbak, Albezia sp.* etc. The tree canopies are used by birds. Pesticides are sprayed often on the tea plantations.

Secondary Growth (AUS campus):- It is about 22 km south from Silchar and near the tea garden. The LSE is dominated mainly by tree species: *Acacia nilotica, Acacia auriculoformis, and Albezia lebbak.* Shrubs and under shrubs include *Clerodendron viscosum, Cassia alata, Lantana camara, Combretum species, Crotolaria juncea* etc.

Degraded Forest (AUS Campus):- A large portion of this Landscape Element has been cleared for the expansion of the university. The dominant tree species in this LSE is *Artocarpus chaplasha.* *Artocarpus heterophyllus, Tetrameles nudiflora,* etc. were also found in this LSE.

The Google Earth image of these three LSEs is shown in Figure 4 (a). Severe deforestation has taken place in LSE 2 and 3. LSE 1 is a tea garden with scattered shade trees and forest patches.

Wetland (National Institute of Technology Campus):- Twelve (12) km south from Silchar, this LSE comprises a series of ponds and marshy areas interspersed among an undulating landscape strewn with small hillocks. This LSE is on the fringes of built up areas of the NIT campus. Water levels in the ponds go down drastically in the dry season.
The major tree species found in this LSE include *Acacia auriculoformis, Acacia nilotica, Shorea robusta* etc. Mono-cultures like Bamboo and Arecanut were also present in some parts of this LSE. Paddy crops are grown in the southern part of the LSE. *Mangifera indica* and *Ficus religiosa* were among the other tree species found in this LSE.

The Google Earth image of LSE 4 is shown in Figure 4 (b). A mosaic of habitats including ponds, marshes, paddy fields, streams and grassy meadows characterize this LSE. Rural housing along with concrete buildings of National Institute of Technology (NIT), Silchar, jutting into this LSE.