CHAPTER - II
Guwahati is one of the largest cities of North-Eastern India. It is the district headquarters of Kamrup district (urban), where the permanent capital of Assam, Dispur, is situated. Guwahati is the gateway to the northeast of India, having direct road, rail and air connection with the rest of the country. It stretches over an area of 336 sq km., including a small area of about 23 sq km, to the north of the river Brahmaputra and is located approximately between the latitudes 24° 45’ N to 26° 25’ N and longitude 91° 10’ E to 92° E.

The city is located in a crescent basin surrounded by lofty hills. The festoon of hills is Nilachal (Kamakhya) and Fatasil to the West, Kalapahar and Narakashur to the South and Navagraha and Japorigog to the East. The Brahmaputra River divides the city into north and south banks. The famous rocky river island ‘Umananda’ is located centrally between the two banks, adjacent to ‘Kachari’. Two other islands located in the river are ‘Karmananda’ and ‘Urvashi’. (Fig: II.1).
Fig. II.
RAILWAYS

MAP OF GREATER GUWAHATI

INDEX
BOUNDARY
ROAD
RAILWAYS

INDIA
GUWAHATI

N
0 1 2 3 4 5
KM

BRAHMAPUTRA

NORTH GUWAHATI

SOUTH GUWAHATI

AIRPORT

NAGAON

MEGHALAYA

REFINERY

360
Geologically, the city is situated on the fringe of hard rock formations, which are extensions of the Meghalaya Plateau belonging to the Precambrian age. The average height of the hills and hillocks is about 600 ft. above sea level. The soil is characteristically red-soil with stretches of alluvial and marshy soils.

(1) SEASONS:

The climate is characterized by hot, humid, rainy summers and cold, foggy winters. The spring season is comfortably cool. Climatically the whole year is divided into four seasons, viz.-

a) Winter season (December to February)

b) Pre-Monsoon season (March to May)

c) Summer season (June to September)

d) Post-Monsoon season (October to November)

(a) Winter season (December to February)

It generally starts in mid December and continues to the end of February. The mornings are foggy, nights clear and the noon sunny. January is the coldest month with the average temperature fluctuating between 10°C to 12°C. Temperatures may fall as low as 5°C, but generally stays within 9°C. Occasional rains may occur.
(b) **Pre-Monsoon (March to May)**

Extending between the months of March to May, the season experiences a transitional period between a warm summer and a wet monsoon. The temperature increases gradually from March to May, occasionally going above 30°C. The end of February to mid-March, Guwahati experiences dust storms of local origin. During late March to April-May, high velocity winds associated with hail and thunder storms, blow from the southwest to the northeast direction. This is locally known as “Bordoichilla”.

(c) **Summer season (June to September)**

It is also the season for the monsoons, characterized by heavy rainfall and sweltering heat. The average annual rainfall ranges between 300mm to 400mm. August is the hottest month, with the average maximum temperatures being 30°C to 37°C.

(d) **Post-Monsoon season (October to November)**

Monsoon retreats from Guwahati approximately in the last week of September or the first week of October. The temperatures gradually start falling, with the winter season just round the corner.
(2) TEMPERATURE:

The range of mean maximum temperature during June 1998 to May 1999, varied from $25.69^\circ C$ to $34.82^\circ C$ and the mean minimum temperature, during that period varied from $11.57^\circ C$ to $26.66^\circ C$.

January was the coldest month with a mean minimum temperature of $11.57^\circ C$ and April was the hottest month with a mean maximum temperature of $34.82^\circ C$.

During, June 1999 to May 2000, the mean maximum temperature varied between $26.75^\circ C$ to $34.8^\circ C$. August was the hottest month with a mean maximum temperature of $34.8^\circ C$ and January the coldest month with a mean minimum temperature of $9.21^\circ C$. (Fig: II.2).

(3) RAINFALL:

Guwahati receives rainfall mainly due to the South-West monsoon winds. During June 1998 to May 1999, maximum rainfall occurred in the months of June, July, August and May. Similar observations were recorded during the period June 1999 to May 2000. The months of November to March were comparatively dry. (Fig: II.3).
Fig 11.2: Average Monthly Temperature for two consecutive years (Jun'98-May'99 & Jun'99-May 2000)

Average Temperatures (°C)

<table>
<thead>
<tr>
<th></th>
<th>JUN</th>
<th>JUL</th>
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<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. temp. (Jun'98-May'99)</td>
<td>31.97</td>
<td>31.97</td>
<td>32.25</td>
<td>31.42</td>
<td>31.3</td>
<td>28.58</td>
<td>26.21</td>
<td>25.69</td>
<td>30.29</td>
<td>33.33</td>
<td>34.82</td>
<td>31.54</td>
</tr>
<tr>
<td>Max. temp. (Jun'99-May 2000)</td>
<td>33.49</td>
<td>31.31</td>
<td>32.32</td>
<td>32.63</td>
<td>30.78</td>
<td>28.77</td>
<td>26.99</td>
<td>26.1</td>
<td>30.1</td>
<td>32.9</td>
<td>34.88</td>
<td>33.6</td>
</tr>
</tbody>
</table>
Fig 11.3: Total Monthly Rainfall for two consecutive years (Jun'98-May'99 & Jun'99-May 2000)

<table>
<thead>
<tr>
<th></th>
<th>JUN</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Rainfall (Jun'98-May'99)</td>
<td>160.7</td>
<td>260.8</td>
<td>275.4</td>
<td>212.9</td>
<td>85.58</td>
<td>7.1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>13.2</td>
<td>29.33</td>
<td>246.1</td>
</tr>
<tr>
<td>Rainfall (Jun'99-May 2000)</td>
<td>231.3</td>
<td>246</td>
<td>383.2</td>
<td>189</td>
<td>124.7</td>
<td>12.7</td>
<td>1.7</td>
<td>0.5</td>
<td>0</td>
<td>10.1</td>
<td>21.3</td>
<td>215</td>
</tr>
</tbody>
</table>
Fig 11.4: Average Monthly variation in Relative Humidity and Wind Velocity for two consecutive years (Jun'98-May'99 & Jun'99-May 2000)
(4) RELATIVE HUMIDITY:

Guwahati experiences high relative humidity during the whole year. The highest humidity was recorded in the month of December - 1998 (86.76 % in the morning) and December - 1999 (91.54 % in the morning). (Fig: II.4).

(5) WIND VELOCITY:

Mild winds blow from northeast to southwest during the winter months. Then this wind is gradually replaced by the monsoon winds. The monsoon winds blows from the southwest in a northeasterly direction. (Fig: II.4).