CHAPTER-II

GEOGRAPHICAL ACCOUNT OF THE STUDY AREA

2.1 Physiography:

The old Goalpara district constitutes the western most part of Brahmaputra valley, Assam. It is surrounded on the north and south by the hills of the lower Himalayas and the Meghalaya plateau respectively. The old (undivided) Goalpara district is intersected by the mighty river Brahmaputra which flows from east to west throughout its entire length, however, in the western part it takes a turn towards south. Many alluvial fans are created by a number of hill streams in its northern part, which flow down from the Bhutan Himalayas to the plains of the area. Thus the study area is partly erosional and partly depositional in nature along the foothills while it is depositional in the central part. In the old Goalpara district the hills of the north form long ridges and rise to a height of 350 m. above sea level. These are formed by sedimentary rocks and covered with shrubs or heavy forest. On the other hand the hills of the Meghalaya plateau in the south is of archean origin, the rocks are mostly granite and granitic gneiss and highly metamorphosed and crystalline. These southern hills rise to a height of 240 m. along the foothills of Meghalaya plateau. From the southern side some hillocks are also projecting towards the river Brahmaputra, which rise up here and there from the flat alluvial plain as isolated hillocks on both the banks. Their heights vary from 50 m. to 89 m. above mean
sea level (Das, 1970). Besides this, there are innumerable river islands locally called “charland” found in the district occupied mostly by immigrant muslims. The Brahmaputra valley is comparatively wider (85 km.) in the western part in undivided Goalpara district than in its eastern part (80 km.).

The general gradient of the valley is from east to west recording the height of 47 m. above mean sea level at Simlitola in the extreme east, 45 m. at Goalpara town in the middle and 36 m. at Dhubri in the west. But within the district in the northern bank of the Brahmaputra the gradient is from north to south while in the southern bank it is from south to north. It is further important to note that the gradient of the middle plain is which facilitates formation of the charlands by deposition of sediments. This part of the valley is formed by new alluvium carried by the river Brahmaputra and its tributaries which come down from the Bhutan Himalayas in the area and the Meghalaya plateau in the south. The area below 50 m. contour line on either banks thus forms the new alluvial zone. From the new alluvial zone upto the foothills on either bank of the river Brahmaputra there are another zones of old alluvium which are comparatively narrower than the new alluvial zone.

Physiographically the old Goalpara district can be divided into the following divisions (Figure No. 2).

i) Bhabar Zone : The bhabar zone is along the foothills of the northern boundary of the undivided district having wide variations in water tables, gravel etc. It is about 15-18 km. in width and the altitude ranges from 135 m. to 270 m. above mean sea level. Alluvial fan is common in this part of the area. Most of the area is covered with forests of valuable trees. Some forest villages are
located here. The inhabitants of this area are generally tribals viz, Bodo-Bodo Kachari and Santhal.

ii) Tarai Zone: The tarai zone is next to Bhabar zone a damp ground forming a belt where the water percolated in the Bhabar zone reappears here. It is about 18-20 km. in width and general altitude of the area is from 85 m. to 135 m above mean sea level. There are large numbers of swamps and marshes are located and many seasonal streams are flowing from this part roll down towards the south. This area is covered by dense forest. Inhabitants of the area are mainly tribals.

iii) Northern Built-up Zone: The northern built-up zone lies parallel to the Brahmaputra river in between the Tarai zone in the north and flood plain in the south. This zone is wider in the western part than in the eastern part of the study area. The breadth of the zone ranges from 20 to 25 km. The plain character of the area is again interrupted by the presence of scattered isolated groups of hills or hillocks. They are found upto a altitude of 515 m. above mean sea level. The important hills of the area are the Malad hill (233 m.), the Phagkhati (300m.), the Bamoni (95 m.), Luthuri hill (130 m.), Chakrachila (222 m.), Bhairabchura (501m.), Nakkati (515m.), Bhumeswar (350m.), Bhakuamarichura (455 m.), Nandagiri (380 m.) and Rajasula hill (325 m.). The general altitude of this area is 55 m. to 89 m. above mean sea level. The plain part of the area is densely populated by mixed population of indigenous tribals and non-tribals. Generally tribal villages are found in specific pockets. This area is full of paddy fields.
iv) Brahmaputra Flood Plain and Charlands Zone: The Brahmaputra flood plain and charlands zone is located in the middle part of the district. The river Brahmaputra has divided the district into two parts. In the north bank the width of this zone is from 5 to 10 km. This part of the district is mostly covered by marshy land. The jaleswar (a former beel) of South Salmara sub-division in the southern flood plain at present is completely a marshy tract. There are innumerable temporary or permanent charlands or river islands found in the area. The total number of charlands of Matia, Balijana and Lakhipur Community Development Blocks (CDB) are 45, while in Mankachar, South Salmara, Dhubri, Bilasipara C.D. blocks their numbers are even more. These charlands are flooded annually and thus they suitable for rice and jute cultivation. The charland of flood plain area are mainly inhabited by immigrant muslims.

In this zone there are some isolated hillocks scattered here and there on both sides of the river Brahmaputra. In the north bank the Jogighopa (97 m.) is located in the extreme eastern side on the north bank of river Brahmaputra. Besides the Chandar Dinga hill (245 m.), Sonamukhi hill (203 m.), Tokrabandha hill (274 m.) and Mahamaya hill (in the western part near Bagribari) are important. In the south bank the main hills are the Phophonga (230 m.), Jajong Khadoran (330 m.), Sri Surjya (Satali) hill (240 m.), Rokha (177 m.), Matia (118 m.), Rendu (125 m.), Andharmua (344 m.), Pancharatna (208 m.) and the Paglatek hill (218 m.).

v) Southern Built-up Zone: Southern built-up zone is on the southern bank of river Brahmaputra and it extends from the active flood plain in the
north to the foothills of the Meghalaya plateau in the south upto Jaleswar marshy land in the west (Figure No. 3).

The breadth of the area is about 10 km. The general height of the area approximately ranges from 35 m. to 43 m. above mean sea level. There are numerous isolated hillocks scattered in this part interspersed with erosional plains. Valleys are suitable for rice and jute cultivation while the hills are covered with forest of valuable trees. Among the hills the important are the Tukreswari (170 m.), and the Deoli (219 m.).

In the foot hill area of this zone the villages are mainly inhabited by scheduled tribes population while indigenous non-scheduled tribes villages are common in the plain areas.

vi) Southern Foothill Zone: The southern foothill zone is along the southern boundary of the district which is the part of the foothills of the Meghalaya plateau. The general height of this area is ranges from 55 m. to 289 m. above mean sea level. It is a narrow area having width ranging from 3 to 5 km. The important hills are the Ajagarh hill (564 m.), Sompong hill (161 m.) and Dondapal hill (250 m.) etc. This part is mostly occupied by scheduled tribes people (fig-2 and 3).

2.2 Soil:

Broadly speaking the soil of the foot hill region of old (undivided) Goalpara district is acidic in reaction with sufficient content of nitrogen and other organic matters. However, the alluvial soil of the plain is less acidic than those of the hills. PH. value ranges from 3.5 in hills to 4.5 in the plain. In the extreme northern part i.e., in the soils of the Bhabar belt comprise unasorated
Figure No. 3

OLD GOALPARA DISTRICT
RELIEF FEATURES

BOUNDARIES
- - - - INTERNATIONAL
- - - - STATE
- - - - DISTRICT
CONTOUR IN METERS

Bhutan
West Bengal
Barpeta District
Kamarup District
Meghalaya
Bangladesh

Figure No. 3
coarse boulders, pebbles, sands and gravels. This area is mostly covered with thick forests that supports a scanty number of scheduled tribes people. The soil of the tarai area is sandy loam, rich in humus but saturated with water and thus poorly aerated. On either bank of the Brahmaputra in the built-up area the soil is alluvial made up of clayey to sandy loam, medium fine textured and slightly acidic in reaction. In the active flood plain zone the soil is made-up of new alluvium, generally sandy loamy and neutral to slightly acidic in reaction. This area receives annual replenishment of silt during the time of flood. Besides, older alluvium is also found as an elongated narrow patch along the northern margin of younger alluvial area in north bank only which is more clayey and dark in colour with kankary composition. A red loamy tract is lying from the bank of river Brahmaputra upto the eastern part of Srijangram and Boitamari CDB. Again along the boundary line of Bhutan in the north eastern corner a brown red and yellow soil in between river Manah and Ai.

In the southern foothills region the soil is red sandy, which is deficient in nitrogen and comparatively less fertile mainly in area between river Dudhnoi and Krishnoi. In addition to this, there are isolated hills or ridges scattered in either bank of the Brahmaputra. These are outlying parts of Meghalaya plateau and rocky in character and thus the soil is red lateritic. Both the northern and southern foothill regions support majority of the scheduled tribes population of the valley (Figure No. 4).

2.3 Drainage System:

The Brahmaputra is the main river that flows through the middle and along the western boundary for about 136 km. Both the northern and the
OLD GOALPARA DISTRICT
SOIL ZONES

INDEX
- YOUNGER ALLUVIAL
- OLDER ALLUVIAL
- TARAI
- BHABAR
- RED SANDY
- RED LOAMY
- BROWN RED & YELLOW

BOUNDARIES
- INTERNATIONAL
- STATE
- DISTRICT


Figure No. 4
southern sides of the study area are bounded by lower Himalaya and Meghalaya plateau respectively and therefore, the rivers that originated in the northern and southern hills ultimately finds their way in to the mighty Brahmaputra river.

The important north bank rivers of the district from east to west are the Manah, Ai, Champawati, Saral bhanga, Tarang, Hel, Godadhar and Sankosh. The Manah river originates in the greater Himalaya forms the natural boundary between old (undivided) Goalpara and old (undivided) Kamrup districts in the past. However, due to frequently changing course of the river in the upper and lower parts the river at present it flows completely through the old (undivided) Goalpara district. The river Manah flows for a distance of 52 km. to the south with the meandering channel and meets the river Brahmaputra east of Malegarh. The main western bank tributaries of Manah are Bandarsali, Makia, Dulani, Ai, Kujia, Haripani and the east bank tributaries are Kakila and Chaulkhowa.

The Champawati and Saralbhaga a rise from the Bhutan Himalaya. The river Champawati flows for about 201 km. through the district. The principal tributaries are Bhoor and Lopani. The Saralbhanga is 130 km. in length, the lower part of which is known as Gauranga. The Tarang is a small river between the Saralbhanga and Champawati. The river Hel originates from Bhutan and in the middle it is known as river Gangia and after that it is renamed as Sonkosh and meets the Brahmaputra near Bagribari. However, the main Sonkosh originates in Bhutan Himalaya near Jamduar and it passes along the boundary between West Bengal and Assam (Figure No. 5).

Among the south bank tributaries of the Brahmapura the important are Phulnai, Karnai, Kalpani, Dudhnoi and Krishnai. The Krishnai and Dudhnoi
OLD GOALPARA DISTRICT
DRAINAGE AND WATER BODIES

Figure No. 5
meet each other near Nepali Basti (Mornai) and ultimately meet the river Brahmaputra after flowing only 1 km. down their confluence. The Jinari river originates in the Garo hills of Meghalaya plateau and flows for a long distance and meets the Brahmaputra near Dubapara. The river Jinjiram (193 km. in length) and river Ajagarh both originate in the Meghalaya plateau and after meeting each other ultimately find their way into the Urpad beel near Agia. Both Jinari and Jinjiram are famous as fish sources and also used as trade route from the past (Hunter, 1975) (figure No. 5).

2.4 Water Bodies:

The old (undivided) Goalpara district has a large number of water bodies and most of them are locally known as “beels” or lagoons. The origin of these water bodies is the result of shifting of the course of the river Brahmaputra and its tributaries. Thus they are abandoned courses of these rivers. Many local depressions were also created during the great earthquakes of 1897 and 1950 and at present these depressions are converted to beels.

Beels are generally important from economic point of view. Mostly these are used for pisciculture in the district. Now the low lying areas near the beels are used for cultivation of “Boro” paddy. In the northern bank the largest beels are the Dalani and Tamranga beels, which lie at the foothills of Bhairabchura. Kanara is another important beel along with Dhir beel, which is about 13 km, away from Dipor beel, located at the foothills of Bhakumar. Besides these, there are twenty three other small beels found in Boitamari and Srijangram C.D. blocks. In Kachugaon, Dotoma, Gosaigaon, Kokrajhar, Sidli-Chirang part-I, Sidli-Chirang part-II, Manikpur C.D. blocks, there are large number of
small beels with sufficient water space in them. The Tarparjhora, Ramfall, Bher Beel, Champa Beel are the important beels in Kokrajhar district. The Govt. of Assam has encouraged pisciculture by providing loans and subsidies to all section people including scheduled castes and scheduled tribes. As a result it is observed that there has been considerable increase in the fish production in the study area.

In Mankachar, South Salmara, Dhubri, Golokganj, Agomani, Bilasipara and Chapar-Salkocha C.D. blocks the important beels are Dhir, Dhalani, Chatla, Deplai, Dokra, Dakha and Jaleswar. Besides these, a major part of this area is covered by swamps and marshes in the northern bank.

In the southern bank of the Brahmaputra in Balijana C.D. block, the Urped beel is the largest one covering 31.8 sq km. area, located 7 km. south of Goalpara town. The other big beels are Jaligaur (5.18 sq km.), Kumari (2.59 sq km.) Bakdul (2.59 sq km.), Dighalidubi (1.9 sq km.) and Kisgia (3.23 sq km.). Besides, there are many other beels in the area viz. Sidli, Bherveri, Panikhaiti, Toplakhowa and Sukrasak.

2.5 Climate:

The climate of old (undivided) Goalpara district is broadly humid monsoon type, which is characterized by heavy summer rainfall and dry winter. The average annual rainfall in the newly formed Goalpara, Dhubri, Kokrajhar and Bongaigaon districts are 1977.1, 3017.1, 3748.8 and 1807.0 mm respectively (2000) and the mean annual temperature is 24.4°C with mean relative humidity is 82 per cent.
Like any other part of Assam, temperature in the study area begins to rise from the end of February. The mean daily maximum temperature remains between 30°C-31°C from April to September. However, from October onwards temperature begins to fall and reaches the minimum in the month of January (11°C). The annual mean daily maximum temperature of the district is 30.3°C, while the mean daily minimum temperature is 19.3°C.

The average temperature recorded in newly formed Goalpara, Dhubri, Kokrajhar and Bongaigaon districts may be considered as representative of the whole study area as there is no such other station in the study area. Moreover, within the district there is no such spatial variation in the temperature distribution (Table No. 2.1).

Rainfall distribution is also not uniform round the year. About 70 per cent of the total annual rainfalls are concentrated in the month of June, July and August which occurs due to south west monsoon. The rainfall increases from south to north, the recording an average annual rainfall 2,357.55 mm. at Damra in the southern boundary and 4,123.1 mm in Kachugaon in the northern side.

The Table 2.1 reveals that heavy rainfall occurs from the month of June to August, recording the highest in the month of June/2000 in newly formed Kokrajhar district (1,187.3 mm.) while lowest in Dec/99 and January/2000 (0.01 mm. and 1.4 mm.).

Further the table 2.1 reveals that newly formed Kokrajhar district received the highest amount of monthly rainfall (1,187.3 mm.) and highest annual rainfall (3,748.8 mm.). Again the lowest amount of monthly rainfall
TABLE – 2.1

DISTRICT WISE AVERAGE MONTHLY AND ANNUAL RAINFALL OF OLD (UNDIVIDED) GOALPARA DISTRICT
(FROM DEC’ 99 TO NOV’2000) Rainfall in mm.

<table>
<thead>
<tr>
<th>New Districts</th>
<th>Dec/99</th>
<th>Jan/00</th>
<th>Feb/00</th>
<th>Mar/00</th>
<th>April/00</th>
<th>May/00</th>
<th>June/00</th>
<th>July/00</th>
<th>Aug/00</th>
<th>Sept/00</th>
<th>Oct/00</th>
<th>Nov/00</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goalpara</td>
<td>0.0</td>
<td>0.0</td>
<td>7.6</td>
<td>10.0</td>
<td>283.1</td>
<td>380.3</td>
<td>490.1</td>
<td>294.4</td>
<td>270.8</td>
<td>170.6</td>
<td>70.2</td>
<td>N.A.</td>
<td>1977.1</td>
</tr>
<tr>
<td>Dhubri</td>
<td>0.0</td>
<td>4.1</td>
<td>26.8</td>
<td>39.9</td>
<td>325.3</td>
<td>480.4</td>
<td>760.8</td>
<td>572.1</td>
<td>368.1</td>
<td>363.8</td>
<td>63.5</td>
<td>8.3</td>
<td>3017.1</td>
</tr>
<tr>
<td>Kokrajhar</td>
<td>0.0</td>
<td>4.1</td>
<td>N.A.</td>
<td>6.4</td>
<td>266.1</td>
<td>510.3</td>
<td>1187.3</td>
<td>661.8</td>
<td>740.8</td>
<td>276.3</td>
<td>64.4</td>
<td>26.0</td>
<td>3748.8</td>
</tr>
<tr>
<td>Bongaigaon</td>
<td>5.0</td>
<td>5.3</td>
<td>7.6</td>
<td>12.5</td>
<td>168.1</td>
<td>493.7</td>
<td>137.8</td>
<td>43.8</td>
<td>592.6</td>
<td>284.8</td>
<td>29.8</td>
<td>26.0</td>
<td>1807.0</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>1.35</td>
<td>2.7</td>
<td>10.5</td>
<td>68.8</td>
<td>260.6</td>
<td>466.2</td>
<td>645.0</td>
<td>393.1</td>
<td>495.1</td>
<td>273.9</td>
<td>56.9</td>
<td>15.1</td>
<td>2637.6</td>
</tr>
</tbody>
</table>

received in Goalpara district in Dec/99 and January/2000 (0.0 mm. and 0.0 mm.). On the other hand the average annual rainfall received by newly formed Bongaigaon district is (1,807.0 mm.).

Table 2.1 further reveals the seasonwise rainfall in Dec/99 to Nov/2002 in old (undivided) Goalpara district. The total average rainfall in four new districts is 2,637.6 mm. and total actual highest rainfall is 3,748.8 mm in Kokrajhar district in four seasons (Directorate of Economics and Statistics, 2001).

From the table 2.1 it is clear that the average highest rainfall is found in newly formed Kokrajhar district and minimum is in newly formed Bongaigaon district.

**Seasonal characteristics:**

Like all other parts of Assam this area also experiences four seasons in a year, viz. pre-monsoon, monsoon, retreating monsoon and dry winter.

The pre-monsoon period starts from the early March and continues to the early part of June. Temperature begins to rise in these days from March (22.2°C) to June (26.8°C) in average. Because of cyclonic disturbances, which is accompanied by afternoon showers, thunder storms are common natural phenomena during this spell of the year.

The monsoon starts in the month of June with the arrival of S.W. monsoon and continues upto September. This is a period of high temperature and heavy rainfall. More than 3/5ths of the rainfall (69.44 per cent) occurs during these months. The maximum temperature rises to 35°C, while minimum comes down only to 22°C. Relative humidity is 83 per cent during this season.

The retreating monsoon is a short transitional period which begins in the months of October and continues to November. During this period, south
western monsoon wind is replaced by light unsteady wind, which is fed by north eastern wind. Temperature gradually begins to fall but relative humidity remains high (81 per cent). Morning fog is a normal feature during this period.

The dry winter starts from December and continues to February. Severe cold prevails during this season. Relative humidity tends to be low (February 68 per cent). Rainfall is at its lowest during these months.

2.6 Natural Vegetation:

The natural vegetation of old (undivided) Goalpara district consists of varieties of trees and plants and creepers. It can primarily be divided into three groups, viz, Tropical moist and dry deciduous forest; Tropical semi-evergreen forest and Grassland. (Barooah, 1979).

**Tropical moist and dry deciduous forest:**

The major parts of the district is covered by this type of vegetation. It consists mainly of best quality sal trees (Shorea robusta) that grows mainly in the western part. The other valuable trees found in this area are udal (Sterculid villon), sida (lager stroencia perviflora), Azar (lager-stroencia floveginae), Gamari (Gmelina Arberea), Teak (Tectona grandis), Koroi (Albizzia procera), Moje (Albizzia imrida), Poma (cadrela toona), Simul (Bombax malabaricum) and some varieties of bamboo (Bambusa tolda). Different varieties of herbs and creepers are also found in this belt.

**Tropical Semi-Evergreen Forest:**

Tropical semi-evergreen forests are found mainly in the northern part of the district along the Bhutan boarder. It is a narrow belt and contains a varieties of botanical species. The common species are Bonsum (Pchoche goalparansis).
Azar (Lagerstroemia floreginae), Bhelu (Tetremales undiflora), Titachapa (Michelia champaka), Khokon (Duabanga sneneritiondes), Hollock (Terminalia mysicarpa), Bhomora (Terminalia lellarica). Besides these, large number of climbers and lianas are common in this belt.

Grass Land:

The third belt is the grassland found along the bank of the Brahmaputra in the district. The species in the grasslands are Nal (Phragmites karka), Khagari (Saccharum spontaneum), Ekra (Saccharum arundinaceum) etc. Besides these, Bamboo (bambusa talda) is common in hilly areas as well as in plain areas of the district. Over and above, varieties of medicinal plants are also found in these grasslands.

2.7 Transport and Communication:

The transport and communication system is very poor in the district. The district’s total PWD surfaced road length is 1,192 km. and unsurfaced is 2,824 km. in 1998-99 and the total length of road per one lakh of population is 469 km. as against 147 for Assam as per 1991 census.

The length of the national highway in this area is 376 km. and state highway is 378 km. and other PWD road length has also increased to 3,262 km. in Goalpara district in 1998-99. Interestingly most of the scheduled tribes villages are not even linked up with other places of the district with good motorable roads (Figure No. 6).

So far railway communication is concerned, both broadgauge and metregauge lines pass from west to east in the northern part of the study area,
OLD GOALPARA DISTRICT
TRANSPORT AND COMMUNICATION

INDEX

---

METALLED ROAD
UNMETALLED ROAD
BROADGAUGE RAILWAY
METERGAUGE RAILWAY
NATIONAL HIGHWAY
FERRY SERVICE

BOUNDARIES

INTERNATIONAL
STATE
DISTRICT

Figure No. 6
while in the southern part the broadgauge line passes through Nar-Narayan Setu in between Pancharatna and Jogighopa linking New Bongaigaon with Guwahati. The total length of broadgauge and metregauge railway lines are 283 km. and 167 km. respectively (2001) in the Goalpara district. The conversion of metre gauge line to broad gauge line is going on from Fakiragram junction to Dhubri in the western part of the study area. A survey is going on from New Mayanaguri to Jogighopa for broad gauge railway line.

It is mentioned earlier that there are many rivers in the study area of the district, but at present the rivers do not play very important role for providing water transport necessary for movement of people and goods except in the river Brahmaputra. Jaleswar-Dhubri and Fakirganja-Dhubri are the only places to cross the river by ferry and motor boat. In the “char” area the people generally use the country made boat, which are known as “Bhut-Bhuti” fitted with a small machine for carrying goods and people from one “char” to another “char”. The people of the “char” area use boat to collect the food stuff and other commodities from towns.

Rupshi (Dhubri), the only air station in this area is also not functioning properly. At Mormoi near Goalpara town there was an airfield in the past but now it has been closed down. It may be mentioned here that the transport and communication system is not well developed in the scheduled tribes dominated areas. At present, however, some of the selected places are linked by bus services operated both by the state govt and private transport operator in the study area, the scheduled tribes localities have remained as neglected as before. On the whole, it may be said that the areas attached to the foot hills in the district have remained
unconnected by road links and unserved by any transport vehicles and these are the areas where the scheduled tribes villages are generally located.

Reference:


* Census of India (1961) (1965): Assam, Govt. of Assam, P-II.


