Chapter 3

AN ACCOUNT OF THE BRAHMAPUTRA DRAINAGES
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Etymologically, 'Brahmaputra' means the son of Brahma, the creator, and has the unique distinction of being called in the masculine gender when all the other rivers of the country are referred to in their feminine forms. The mighty fury and turbulent behaviour perhaps justify such a discriminatory privilege. The Brahmaputra is one of the largest rivers of the world, traversing a total distance of 2,880 km through China, India and Bangladesh. It has a total catchment area of ca 9,35,000 km$^2$ and an estimated high flood discharge of ca 56,000 cusec. The Brahmaputra has the highest specific yield amongst the major rivers of the world at 4.24 cusec per square km of catchment area.
The river originates from a great glacier-mass of the northernmost chain of the Himalayas near lake Mansarovar in south-west Tibet in the Kailash range (30° 31' N and 82° 10' E) at an elevation of ca 5,150 m which is just south of lake 'Konggya Tsho'. In the Himalayan sector, the river traverses eastwards for its first 1,600 km through the Tibetean plateau where it is known as the Isangpo. Thence it course westwards in a dramatic change of direction and enters the Siang district of Arunachal Pradesh in the name of the Siang and then the Dihong. The river then enters Assam on the north-west of the old Sadiya town where it meets two other trans-Himalayan rivers-the Luhit and the Dibang - and flows down from west to east forming a central axis through the Assam valley as the Brahmaputra (ancient name 'Louhitya') for a distance of ca 725 km upto South Salmara in the Dhubri district. Beyond Dhubri in Assam, the river takes a southward direction and flows through Bangladesh for the last 480 km of its journey before joining the Ganges at Goalunda. After the confluence, the combined river then known as Padma subsequently discharges its content into the Bay of Bengal through the great Meghna estuary.

Physiography:

The river Brahmaputra traverses through a series of gradients exhibiting a total fall of 5,150 m along its ca 2,900
km course. Between Dibrugarh and Neemati, the gradient is 0.17 m.km⁻¹ course; 0.13 m.km⁻¹ course between Neemati and Guwahati and the gradient is only 0.094 m.km⁻¹ course between Guwahati and Dhubri. In Tibet, the Tsangpo from Lhatse Dzong has a wide navigable channel for ca 640 km at an altitude of 3,600 m (msl) which represents a remarkable high waterway of the world.

From the topographical viewpoint, the Assam valley appears to be quite low and along the two banks of the Brahmaputra, the land is interspersed with numerous old abandoned river beds (oxbow lakes) which are subjected to annual inundation. These water bodies known locally as 'beels' are 1,392 in number (Dey, 1981) and are found mainly in Lakhimpur, Nowgong, Kamrup and Goalpara districts of Assam.

The river Brahmaputra along its meander course in Assam is joined by ca 40 tributaries on its north and 20 on its south bank. The principal northern tributaries are the Jiodhal, Subansiri, Ranganadi and Dihrong in the Lakhimpur district; the Burai, Bargang, Jia-Bhareli and Dihansiri in the Darrang district; the Puthimari, Pagladya and Manas in the Kamrup district; and the Aie, Champawati, Sankosh and Gangadhar in the Goalpara district. The main south bank tributaries are the Dibru and Dihang in the Lakhimpur district; the Disang, Dikhow, Jhanji and Dihansiri in the Sibsagar district; the Kolong and Kopili in the Nowgong district; the Digaru and Kulsi in the
Kamrup district; and the Dudhnoi, Krishnai and Jinari in the Goalpara district (Figure 1). The north bank tributaries of the Brahmaputra draining the southern face of the Himalayas are comparatively larger with steep, shallow braided channels of coarse sandy beds and carry heavy silt charge. All the north bank tributaries originate in the sub-Himalayan range except the Subansiri, the Jia-Bhareli and the Manas which are trans-Himalayan.

The river Brahmaputra is very broad in Assam with an average width of ca 5.46 km and at places exceeds ca 9.6 km. The river is abnormally large in the braided portion of the valley forming many permanent islands by constant silt deposition including the Majuli sub-division (Figure-1) said to be the biggest river island in the world (924.6 km$^2$). The average width of the river between Jorhat and Tezpur is 5.06 km, between Tezpur to Guwahati is 6.1 km, Guwahati to Manas is 3.78 km and between Manas upto Dhubri is 7.1 km. It is presumed that in the great earthquake of Assam in 1950, the river bed in the upper reaches had risen by more than 3.0 m which has rendered the drainages shallow and wide. The depth of the Brahmaputra also varies considerably. In the Tibetean plateau, the river cuts very deep channels with recorded depths upto 4,524.4 m at Tradom (Goswami, 1978) while in the Assam valley, the Brahmaputra is shallow and ranges from only 4.0 to 6.0 m in
the well defined channels around Dibrugarh and upto 18.0 to 20.0 m deep in the lower reaches. The discharge hydrograph of the river depicts two or more prominent flood peaks when the water flow accelerates from ca 9,000 cusec upto 45,000 cusec. The first peak occurs around mid-June and the next during the latter part of July to early September. The description of the drainages will remain incomplete without mention of the stupendous possibilities of hydro-electric generation inherent in its majestic flow which is calculated at 13,267 MW at 60% Load Factor according to a conservative estimate by the Central Water & Power Commission.

Fish and Fisheries:

The river Brahmaputra with its large number of perennial tributaries, innumerable hill-streams and connecting beels, afford lucrative fisheries of various types of freshwater species of fishes in Assam. A general classified list of the finfish is given below and includes mainly the species encountered by the author from the river Brahmaputra during the course of investigation along the drainages.

I. Fin Fish group

1. Major carps
   - Catla catla, Cirrhina mrigala,
   - Labeo calbasu, L. gonius, L.rohita,

Ichthyospecies recorded
<table>
<thead>
<tr>
<th>Category</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Sisorids</td>
<td>Bagarius bagarius, Gaqata cenia, Hara hara, Nangra viridescens, Sisor rhabdophorus.</td>
</tr>
<tr>
<td>8. Other cat fishes</td>
<td>Clarias batrachus, Heteropneustes fossilis, Pangusius panquisia.</td>
</tr>
</tbody>
</table>
11. Indian gourami  Colisa sota, C. fasciata, C. lalia.
13. Indian shad  Hilsa ilisha.
14. Eels  Anguilla bengalensis, Monopterus cuchia, Mastocembalus armatus, M. pascalus, Macrognathus aculeatus, Fisodonophis boro.
15. Perch  Anabas testudineus, Nandus nandus.
17. Mullets  Rhinomuqil corsula, Sicamugil cascasia.
18. Gobiids  Glossogobius giuris.

Among the shellfish, shrimps known locally as 'Misamas' and crabs called as 'Kekora' also contribute a sizeable landing from the river system. The identified species, observed during the course of investigation are tabulated below.

II. Shell Fish group  Species recorded
2. Crabs  Caridina weberi, Paratelphusa spp.
Apart from the aquatic piscine faunae, the Gangetic dolphin, *Platanista gangetica*, the common porpoise locally known as 'Sihu' is also found to occur in the river along its entire course. Besides, otters (*Lutra vulgaris*) are also recorded in the river system under study.