CHAPTER – TWO

2.0 Physical Setting Including Relief and Drainage System

On the basis of elevation, morphological features and slopes of the terrain, North Bengal may be divided into four physiographic units :

(A) The northern hills;

(B) The Terai;

(C) The transitional zone between the Terai and the Duars

(D) The plains of Uttar Dinajpur, Dakshin Dinajpur and Malda.

2.01 The Northern Hills

The northern hills are the important physiographic region of North Bengal. This region corresponds with the three northern sub-divisions of Darjeeling district and the hills of the extreme northern region of Jalpaiguri district.

The whole of the mountainous tract is devoid of tableland or plain areas. It consists of the hills of the lower Himalayas, characterized by bold spurs. The hilly portion of the district of Darjeeling consists of complicated relief features with ridges and narrow deep gorges. Most of the ridges stretch from north to south. This zigzag alignments of the ridges give rise to a number of long spurs on either side of the ridges. The river courses also follow the north-south direction. In some cases the spurs also run from east to west.

The Darjeeling Himalaya consists of two important ridges stretching from north to south. The most important is the Singalia range which separates the district from Nepal. It has three highest peaks, Sandakphu(3630 metres) Sabargam(3543 metres) and Phalut(3596 metres). The other is the Darjeeling range rises abruptly from the

terai to the Senchal range. Ghum is a part of Senchal range. In the east a ridge stretches from Manibhanjan upto Ghum and then rises abruptly to the Senchal and Tiger Hills. The ridge then turns and descends southward up to Mahaldiram and Dow hills. A number of spurs branch down from this ridge on either sides, of which the most important are the Takdah and Peshok spurs. Darjeeling spur is situated on the north-stretching spur of the Manibhanjan-Senchal range. Other important spurs are Lebong and Tukvar spur. The highest ridge is Reshila. From here a ridge runs south east and another towards Labha. From here an important spur runs south west ward through Kalimpong and descends steeply into the Tista Valley. Five terraces consisting of gravel have been traced to the east of the river. The hilly portion of Jalpaiguri district comprises the part of the Bhutan hills. The Sinchula range divides the Indian territory from Bhutan. In Buxa Duars lies the highest peak of the area called Chola Sinchula(1699 metres). Some terraces have been found on the eastern side of the river Jaldhaka. This river has made a down cutting through the Nagrakata terrace. At Nagrakata a tableland has been developed, and is known as Nagrakata Plateau.

2.02 The Terai and the Duars

The area extending southward from the foot hills of Darjeeling and Jalpaiguri districts has been divided into Terai and Duars by the Tista river. The area lying west of the Tista river is known as Terai and area lying east of the river is known as the Duars. The Duars is a flat land averaging 30 to 20 kilometer in width and covered almost by forest and dry sandy river beds. The area belonging to Duars is disectd by numerous rivers and hill streams in every direction.

The Terai region lies about 100 meters above sea level. It is an intermediate zone between the hills and the plains.

The Terai in Darjeeling, geographically a part and parcel of this region, pleads its geological neutrality. It is composed of alternating beds of gravels sand and boulders,

brought down from the hills and deposited by the torrential rivers on reaching down to plains where their velocity and carrying capacity are miserably lost.

2.03 The Transitional Zone between the Terai and the Duars

This is the plain of Cooch Behar. This area has an average elevation of about 90 meters above the sea level. It is a triangular shaped plain area, which remains waterlogged during the rainy season. This area is intersected by numerous rivers and streams flowing southwards.

2.04 The Plains of Uttar Dinajpur, Dakshin Dinajpur and Malda to the South

This region includes the whole of the districts of Malda, Uttar Dinajpur and Dakshin Dinajpur districts. The region forms a part of "Ganga Brahmaputra Doab"[1], the parts of which lies in Bangladesh.

This large plain mainly composed of old and recent alluvium, sandy loams drained by many large and small rivers, characterized by recent floods. The altitude is insignificant here, varying from 300 meters to 100 meters from north to south.

Uttar Dinajpur and Dakshin Dinajpur are mainly flat in appearance, but there is a difference between the north and south districts. The south district consists of law ridges, the highest of which does not exceed 30 meters. The topography of both the districts is generally undulating. The general slope of both the districts are from north to south, which is indicated by the south flowing rivers.

The topography of the district of Malda is also flat in nature. The river Mahananda divides the district into two parts – the Rarh and the Barind. The eastern part of the river Mahananda is known as Barind and western part is known as Rarh. The Barind tract is generally elevated, varying from 15 meters above the level of Ganga. Apart from the Barind tract the rest of the district is generally plain land. The Barind tract is

[1] Spati, O.H.K., 1967 : India Pakistan - The Bengal Delta, Chapter 9 (Region XII), p. 571.

divided by the rive Kalindri into two parts. The northern part of the river Kalindri is known as 'Tal', which is subjected to deep floods. The meandering courses of the river give rise to swamps. South of the Kalindri river lies the fertile tract of the district.

2.05 Drainage System

North Bengal is drained by many large rivers with their numerous tributaries and distributaries. The varied physical and geological characteristics of the region have profoundly influenced the drainage pattern of the area. In the district of Darjeeling rectangular drainage is observed. In other plain areas of North Bengal dendritic drainage pattern is noticed. Fig. 2.1 depicts drainage system of North Bengal.

The large rivers of North Bengal are the Tista, the Torsa, the Jaldakha, the Sankasa, the Raidak, the Mahananda, the Mechi, the Balason, the Atrai, the Punarbhaba, the Jangon. Only the Ganga and the Tista and some other tributaries have their origin in glaciers. Other rivers rise from the drain outs of the precipitation in the different parts of the Himalayan range and these rivers become dry in the dry season. Some of the rivers of the North Bengal are falling in the Ganga and others are falling in the Brahmaputra.

A brief description of the rivers of North Bengal are given below :-

The Tista

The most important river of North Bengal is the Tista with its many tributaries and distributaries. There is a controversy about the source of the river Tista. According to some sources it rises from the Chitamu lake in Tibet. Other maintains that the river rises below Kanchanjungha. Tista was flowing into Ganga till 18th centry, but due to the devastating flood of 1787 it changed its course and joined the Brahmaputra.

The Tista drains the three northern districts of North Bengal such as Darjeeling Cooch Behar and Jalpaiguri. In Darjeeling district the river flows through a deep gorge

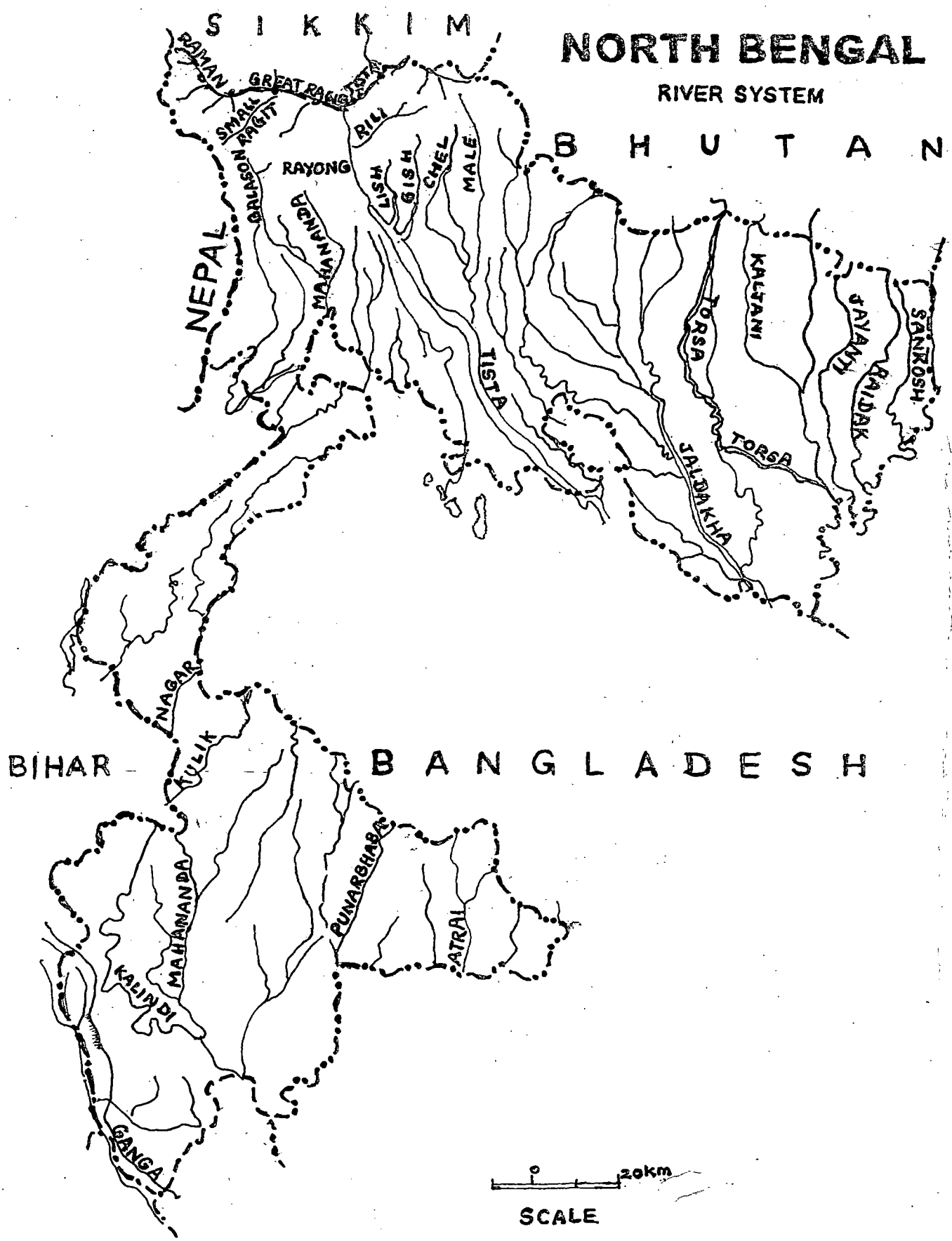
NORTH BENGAL
RIVER SYSTEM
SIKKIM
BHUTAN
NEPAL
BIHAR
BANGLADESH
RAMAN
GREAT RANGIT
TISTA
SMALL RAGIT
RILI
RAYONG
LISH
GISH
CHEL
MALE
GRAISON
MAHANANDA
TISTA
TORSA
KALTANI
JAYANTI
RAIDAK
SANKOSH
JALDAKHA
TORSA
NAGAR
KULIK
MAHANANDA
KALINDI
PUNARBHABA
ATRAI
GANGA
0
20km
SCALE

FIG.- 2.1

known as Sivok Khola pass. In hilly areas its drainage area is 4800 square kilometers. The hill tributaries of the river are Rangpo, Rangit, Ranjo, Raying Rambi and the Sevok. In the plain areas Lish, Ghish, Saldanga, Karla, Dhalk are the tributaries of the Tista. The Bara Rangeet river joins Tista at the northern junction of Darjeeling and Kalimpong Sub-Division. Near Sivok the river comes down the plains. After a short course in the Darjeeling district the river Tista enters Jalpaiguri district and flows across the district of Jalpaiguri and finally enters the Mekliganj Sub-Division of Cooch Behar district. Here the river flows for about 11.30 kilometers and thereafter it enters Bangladesh and joins the river Brahmaputra.

The Mechi

The Mechi river rises in the Rangbang spur in the Singalila range in Nepal. The river flows in a north south direction. It flows along the eastern border of Darjeeling district. Near the western boundary of Siliguri Sub-Division it eventually joins the Mahananda in the Purnia district of Bihar.

The Jaldakha

The Jaldakha is called in the upper course as Di-Chhu. It receives Ni-Chu in the north-eastern part of Kalimpong Sub-Division. The combined river flows southward with the name Jaldakha and forms the boundary of Darjeeling district and Bhutan. In Jalpaiguri district the river flows southward at the extreme south of Cooch Behar district. The river finally enters Bangladesh and joins the Brahmaputra. The tributaries of the Jaldakha rivers are Diana, Murti, Khanabati, Mujnai and Dharala etc.

The Torsha

This river has originated from the Bhutan hills below the Tung pass. It flows through the Chumbi valley of Bhutan and then enters the Jalpaiguri district. The river eventually enters the Cooch Behar district in a north-south direction, splits up into two branches. The western one joins the Brahmaputra after a course of 392 kilometers and the eastern one flows into Raidak.

The Sankosh

The river rises in the Bhutan hills. Sankosh separates Jalpaiguri district from Assam. It flows through the north-eastern portion of Cooch Behar district and receives a branch of Raidak. The combined river is known as Gadadhar which finally falls into the Brahmaputra.

The Mahananda

The Mahananda has its source near Mahaldiram range a few kilometers east of Kurseong in Darjeeling district. It flows in a southerly direction and reaches the plains in Siliguri Sub-Division. Here it changes its course a little to the west and forms the boundary line between the Terai and Jalpaiguri as far as Phansidewa in the extreme south east of the district. The Mahananda separates Darjeeling district from Uttar Dinajpur and enters Bihar. It however enters West Bengal from the northern part of Malda district and flowing through the district and finally enters Bangladesh to join the river Padma. The Mahananda receives a number of hilly streams, the most important being Balason.

The Balason

It originates from Lepcha Jagat and turns southward having several small streams rising in the valleys, west of Kurseong, join together to form Balason which ultimately joins with the Mahananda river in the lower reaches.

The Nagar

The Nagar rises at the south Dinajpur and flows southward and joins the Mahananda river.

The Kulik

The Kulik has originated in Bangladesh. It is the principal tributary of Nagar.

The Punarbhaba

This river flows in a north-south direction. The Punarbhaba enters the district of Dakshin Dinajpur from Bangladesh on the north of Gangarampur Police Station. Leaving the district of Dakshin Dinajpur it touches the north eastern boundary of Malda district and then enters Bangladesh.

The Atrai

It enters the district of Dakshin Dinajpur on the north of Kumarganj Police Station. It also flows in a north south direction and enters Bangladesh.

The Tangon

This river flows through the district of Dakshin Dinajpur and enters Malda at the junction of Gazole and Bamongola Police Station. It joins Mahananda river at Malda district. A branch of the river Tangon named Tara Tangon flows for several kilometers and joins the parent river near Bamongola.

The Kalindri

The Kalindri is taken as an off shoot of the eastern branch of the Ganga. Actually it is a branch of the river Mahananda.

The Ganga

The Ganga flows through the south-western boundary of Malda district. There is a big island or 'char' in its bed known as 'Bhutni diara' or 'Bhutni Chak'. The river flows through two channels lying north and south of this island, the main channel being on the Rajmohal side.