Chapter IX

RIVER-BED LAND USE FROM BARSUL CHANCHAI TO PAIKPARA SETTLEMENT

9.1 INTRODUCTION

The Lower Damodar takes a sharp south ward bend from Barsul-Chanchai in accordance with the regional slope of the Bengal delta. Geologically and geomorphologically this section is distinctively different from the section above Barsul-Chanchai. Sudden south ward bend is attributed to the lineament characteristics of this part of Bengal basin. The lineament analysis of Bengal basin as inferred from Landsat imagery shows ten major lineaments and the Damodar lineament is one of them (Agarwal and Mitra, 1991, Fig.- 9.1a). Some other tributaries of the Hugli Bhagirathi such as the Mayurakshi, Khari, Banka etc., show similar trend and this trend is also explained in terms of lineament characteristics (Niyogi, 1975).

Geomorphologically all the rivers show deferred tributary junctions. Had the east west trend of the Lower Damodar continued, river would have joined the Hugli far north of the present Falta outfall. Infact, it is this Barsul-Chanchai section from where several distributaries were thrown in the historical past and some of which became the main channel in a specific period. It has been mentioned in chapter four while tracing the flood history of the Lower Damodar. That channels have dried up but large and small natural levees (Fig. 9.1c) and Palaeo Sub delta (Fig. 9.1b) are still to be found (Niyogi 1975, Agarwal and Mitra, 1991). From Barsul-Chanchai there has been a gradual diminution of cross section i.e., width of the natural river and overall shrinkage of the channel. This section is also conspicuous by an absence of prominent mid-channel alluvial bars, a significant feature above Barsul-Chanchai.

But treatment of the Lower Damodar below Barsul-Chanchai in a separate chapter is not on the basis of geological and geomorphological characteristics only but also on the basis of settlement characteristics. This is the section where river-bed occupiers are not refugees.

9.2 RIVER-BED CHARACTERISTICS

Alternate point bars with a narrow channel are the primary characteristics of the river-bed. The S.O.I. map of 1969–70 shows the left bank embankment only as the right bank embankment has already been removed. Instead, on the right bank, there are several spill channels of which Nagra hana spill channel merits mention. Figure 5.3 shows the river-bed characteristics of the Damodar and its main spill channel, the Muchi hana. The following features are to be noted from figure 5.3:

i. The main Damodar is narrower than its spill channel, the Muchi hana.

ii. The Muchi hana, appears to be braided channel.
SOME GEOMORPHOLOGICAL ASPECTS

MAJOR LINEAMENTS

PALAEO SUB-DELTA

ANCIENT ABANDONED CHANNELS AND NATURAL LEVEES

Fig. 9.1
iii. The Begua hana connects the Damodar with the Muchi hana.
iv. The Muchi hana takes a new name as Kanki-Mundeswari.
v. The Amta channel is the continuation of the Damodar.
vi. The left bank embankment has been shown.

9.3 LAND USE

In the Amta Channel, Land use characteristics are quite different from the upper sector of the Lower Damodar mentioned in previous chapter.

9.3.1 PAIKPARA

9.3.1.1 Introduction and Locational Characteristics

Paikpara is a very old settlement in the Barddhaman district. It was previously known as Panchpara. In Bengali 'panch' means five and para means locality. From the name Panchpara it appears that the settlement probably consisted of five localities. In India, village communities are segregated according to castes and each locality or para usually takes the name of the dominating caste residing in that area. Weavers, blacksmiths, cobblers, etc., occupy different parts of a single settlement and localities are named after them. Such localities broadly speaking can be treated as distinct social areas in a settlement. But caste nuances however, are not to be observed in the present Paikpara settlement.

Paikpara is sited at the bifurcation point of the Muchi-hana and the Damodar (Fig. 5.3). It is under the police station of Jamalpur of the Barddhaman district. Paikpara extends between the parallels of 23° 0' N to 23° 0' 50" N and 87° 57' 30" E to 87° 58' 20" E. The nearest railway station is Memari.

9.3.1.2 Hydro-geomorphological Characteristics

Paikpara is an oval-shaped village. The maximum length and width is 1.6 km. and .96 km. respectively. Surface material is sandy loam. Initially, Paikpara (previously Panchpara) was sited on the right side of the river Damodar and the present site was shown as a point bar, as is observed from the Dickens' map of 1854. This map, does not show any spill channel (Fig.-5.3). In the mid-nineteenth century the right bank of the Damodar was almost open due to the removal of 32.19 km. of the old embankments. But the left side was completely chained by a high continuous embankments as has been mentioned previously. This section has become very significant from socio-economic point of view. Opening of spill channels or flood channels is a natural process at the delta stage of any low gradient alluvial channels. In all probabilities the Muchi hana was formed as a natural spill channel below Jamalpur. It may also be presumed that the removal of the right bank embankment helped in opening up of such spill channels as has been mentioned in chapter 5. Such spill channels often develop as a consequence of neck-cut off. The Muchi-hana has been referred to as Muchi Khal in the cadastral map of Paikpara. The term 'Khal' is often used for an artificially cut channel. The local believes that the Muchi hana is a man-made channel. Such artificial cuts are common in the Mississippi below
the Arkansas river. Schumn in 1977 has referred to the dramatic shortening of the Mississippi river after 1929 as a result of artificial cuts-off. (Schumn, 1977). Thus by 1856, the Muchi hana was a well-defined flood channel. In the map of 1957 Muchi hana has been shown as a wide braided channel. In 1957 if 1416 cumecs of water used to pass through Rhondia, the entire discharge of the Damodar used to flow through the Muchi hana. At higher flood stages a part of the discharge though small, goes into the Amta Channel (D.V.C. 1957).

Let us now examine the opening of the Begua hana. The D.V.C. report of 1957 mentions that a transverse dyke was put up across the Muchi hana in order to revive the old Damodar Channel and to close the Muchi hana (D.V.C. 1957). But this measure proved ineffective, instead, it helped in opening of the Begua hana (D.V.C. 1957, vol-1). It is believed that this Begua hana is an anthropogenic effort. It is also believed that the main purpose behind digging the Begua Muchi channel was two fold, to lessen pressure on the main Damodar and to save the settlements and the railway line on the left from flood havocs. The Muchi Begua is known as Kanki further down and as Mundeswari when it enters the district of Hugli. The Begua channel was so narrow that it used to look like a village nala (brooklet) but within twenty years it has become a wide river. It is also believed that because of the widening of the Begua, flood propensity in an otherwise flood free area has increased. In the month of August 1993 extensive areas were flooded. (Pratidin 13th September, 1993). Paikpara is now bounded by the Muchi-hana on the right side and the old decayed Damodar on the left. At the point where muchi hana bifurcates, a high sand bank completely shuts off the flow of water into the Damodar and the newly scoured bed of the Muchi hana is lower than the sand filled bed of the Damodar (Bose, 1948; D.V.C. 1957). So, the maximum discharge i.e., more than eighty per cent flows through this hana (D.V.C. 1995). Paikpara now looks like a mid channel bar (Fig.-5.3).

9.3.1.3 Population and Land Use Characteristics

Paikpara is settled by local Bengalees. They are more or less undifferentiated in terms of religion, caste and occupation. The area between the Muchi-hana on the right side and the old Damodar in the left is a region of continuous bank erosion and depopulation. In 1961 the total population was 811 and total number of household was 115 which has been decreasing due to excessive bank erosion specially on the left side of the Muchi-hana. In 1971 the Total population was 455. In 1981 the total population decreases to 418 and number of houses is only 65 (census, 1961, 1981). The population is still decreasing. In 1995 there are about 50 houses and total population is only 323.

Hydro-geomorphological characteristics impart a strong influence on the river-bed land utilization in Paikpara. Because of decreased flow the Damodar river-bed looks like a string of stagnant pools barring a few months in monsoon. Within these stagnant pools clay particles are deposited due to very slow vertical accretion and low rate of settling velocity of clay particles (Morisawa, 1968). Clayey soil is mixed with sandy soil so as to increase water retentive power of soil. Sandy bed load is thus put to agricultural uses and water from stagnant pools is used for irrigation.
Crops grown are rice, potato and oilseeds. Clay deposits of the river-bed are used for wet rice. Alum, another important vegetable for Paikpara is noted (Pl-9.1). Another noticeable feature of the river-bed land utilization is gamma grasses which are cultivated to arrest flood propensity.

During monsoon or if there is a back rush from the Muchi-Begua hana, the old Damodar looks like a perennial river. Water is then lifted from the river to irrigate the interstream areas (Pl.-9.2).

There is a sand quarry on the Muchi-hana near Fethpur. The Bishalakshi dah i.e., natural lake or depression on the Muchi-hana is shown in the map surveyed in the year 1929-30 (Fig.-5.3). Such depressions locally known as ‘daha’ are usually formed during floods due to scouring action of water. Successive floods deepen these depressions which ultimately become components of the landscape. This depression was probably created during floods of 1913. In course of time this depression has been filled up by sands as is observed from the S.O.I. map of 1970. What was once flow resources has now become fund resource which is utilized for sand quarrying. Incidentally it may be mentioned that at Similagarh and Pandua near Barddhaman, paleo channels of the Damodar were chance discovered (Mallick and Bagchi, 1975, Fig. 9.1c) and fertile agricultural lands were either sold or leased out for sand quarrying. For gradual deterioration of the physical and social environment as well as the Government of West Bengal put a ban on quarrying activities since 1980, but sand heaps are still visible in that area. The sand quarries of Paikpara are owned privately though revenues are collected by Government. Coarse sand found below .91 meter to 1.2 m and is sold out at Rs. 2,000 (1 US dollars = 21 Rs.) for every lory and fine sand of Rs. 225 for each lory. The sand is sent to Calcutta by lory. Price behaviour of different types of sands indicates that sands are no more fundamental entities but important geomorphic resources and resource potentialities have been enhanced due to nearness to Calcutta where demand for sand is high for reasons obvious.

Fishing was one also an occupation of the people of this village (Pl-9.3). Some stagnant pools in the decaying drying main Damodar used to be utilized as fish ponds but due to obstruction through minor control structures there is dearth of fishes now. Paikpara is approachable form Jamalpur side. Cycle, rickshaws and van rickshaws ply on the left bank embankment. During dry months the Damodar is fordable, during monsoon it is navigable. The Begua-Muchi hana is navigable through out the year and bamboo bridge is found on the old Damodar (Pl-9.4).

Paikpara shares one of its characteristics with Gangtikali, the first settled bar below the Panchet reservoir. There was a change in settlement site with the change in resource base from coal mining to agriculture, in Gangtikali. Change in settlement site in Paikpara is due to truncation of agricultural resource base on the one and emergence of a new resource base on the other(Fig.-9.2). Before the opening of the Begua-Muchi hana Paikpara settlement was on the left, away from the Damodar. But the old settlement site has become vulnerable due to problems of bank erosion on the ‘hanas’ (Pl-9.5) and the settlement has shifted towards east where resource potentialities of the river-bed has increased (Fig. 5.3). This type of migration from west to east is thus partly ecological and partly impelled
(Spencer, 1954). At least people had some choice regarding when to migrate and where to migrate. Unlike refugees the locals are more mobile on the social space.

The village is still not free from flood havoc as the cadastral map shown transverse alignment of plots. The farway Durgapur barrage also exerts its influence on the present settlement site. If discharge from the barrage exceeds 2832 cumeecs the area gets flooded. So depopulation has become common characteristic in Paikpara and the financially strong locals find no problem in purchasing lands outside the territory.

Paikpara attained the status of a mid-channel bar due to opening of the Muchi-Begua hanas. Similarly few other overbank settlements became river-bed settlements due to construction of the left-bank embankment. Harogobindapur is one of them protected by embankments on the left and decaying drying Damodar on the right (Fig.-5.3). Main crops are wet rice and potato. Despite protection provided by the left bank embankment agricultural landscape is less diversified in Harogobindapur. Embankments are lined with energy plantations and they form an important resource base for the river-bed occupiers.

9.3.1.4 Summary

i. What was once a part of the main land is now a part of the river-bed (Pl.-9.6).

ii. A neck cut off known as Muchi hana is the threshold which has brought about series of changes.

iii. The main Damodar has nearly dried up an new it looks like a chain of stagnant pools.

iv. The Begua hana has assumed the dimension of a river causing floods in flood years.

v. The interstream area between the Damodar and the Muchi hana is prone to bank erosion from both sides.

vi. Sudden release of water from the upstream barrage and reservoirs has increased bank erosion problems.

vii. Original settlement site was on the right side, now due to bank erosion the settlement site is on the left.

viii. Bank erosion has led to depopulation.

ix. River-bed is used for raising cereals, vegetables and oil seeds.

x. Gamma grasses are grown in flood prone parts of the bed.

xi. Excess water from the old Damodar is pumped out and used for irrigation.

xii. River-bed sands are quarried to be transported to Calcutta.

xiii. Harogobindapur is another important settlement but less prosperous.

xiv. Strip plantations on the embankment form an important resource base.
CHANGES IN CULTURAL LANDSCAPE OF PAIKPARA

1957

1996

REFERENCES

- Authorised agricultural land
- Unauthorised agricultural land
- Settlement
- Submersible sand
- River channel

Fig. 9.2
9.4 COMMENTS

Paikpara is an example of changing location of resource base subsequent to a geomorphic threshold. The opening of the Muchi-Begua hana has transformed an overbank settlement into a mid-channel settlement. Paikpara was safer on the west but the same western side has become hazardous. Second, the Damodar bed has changed its resource status from flow resource to a fund resource. Third, compared to the refugee settlements above Barsul-Chanchai Paikpara settled by local is less prosperous.

Harogobindapur like Paikpara was also overbank settlement but now it is a river-bed settlement because of the left bank embankment. Embankment is considered to be safer therefore settlement is shifting towards east. Because of transient nature of marginal sandbars land utilization is less significant in this part of the Lower Damodar.
9.1 Vegetables like Alum in Paikpara.

9.2 Water is lifted from old Damodar to irrigate inter-stream areas.
9.3 Temporary obstruction on the flow of the river for pisciculture.

9.4 Bamboo bridge on the old Damodar.
9.5 Bank erosion on the Muchi hana.

9.6 River-bed, Paikpara.