CHANDRAKONA VIDYASAGAR MAHAVIDYALAYA

A Project Report on

Flood at Lower Shilabati River Basin: A Case Study of Selected Mouzas at Chandrakona Block I, Paschim Medinipur, W.B, India

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Preface

Geography deals with man environmental relationship. Conflicts and cooperation are common phenomena that exist between man and nature in different parts of the Earth's surface. This is a dynamic process and the main aim of Geographer is to highlight and explore this matter. River plays an important role in human activities and socio-economic development. River sometimes causes water-induced disaster, especially now a days focus has been shifted to flood in case of India as well as West Bengal. West Bengal is river-based State. The Shilabati River (also known as Silai) is the largest and the main tributary of river Rupnarayan in the western part of West Bengal. Almost every year the Shilabati causes flooding, particularly in Banka, Manik Kundu, Jharul, Kaskuli, Bagpata, Haldar Bar, Mansatalar Chatal, and Khirpai and Ghatal area. Villagers living adjacent to the river Shilabati have to live with flood. The main aim of the present study is find out the main causes of flood and its effect on the social and environmental condition and to generate eco-friendly arrangements supported by local technical knowledge and materials for flood risk reduction.

Acknowledgement

To conduct this project successfully, we are thankful to many of the concerned people. Among them, firstly we would like to express our sincere gratitude to the authority of this college for their support. We are grateful to all the faculty members of our department and college for the help rendered to us in the course of our project work. We give special thanks to the all of the students of 6th Semester in the Department of Geography of our college for their active performance during fieldwork and post field works.

Official staff of the local authority along with local residents helped us by providing maps, relevant documents and information.

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I. Introduction

The district of Paschim Midnapore lies in the South Western corner of the State of West Bengal. It is bounded by Jhargram district in the West and by the Mayurbhanj and Balasore District of Orissa in the south. To its eastern side is the Purba Midnapore, while the district Bankura lies to its North. The district' s Head quarter is at Midnapore. It is situated between 22° 57'10'' N and 21°36'35'' N latitude and between 88° 12'40'' E & 86° 33'50''E longitude.This district falls under Survey of India Topo Sheet No. 73N/1, 73N/2, 73N/3, 73N/4, 73N/5,73N/6, 73N/7, 73N/8, 73N/9, 73N/10, 73N/11, 73N/12, 73N/14, 73N/15, 73 O/1, 73 O/5.

Administration Division:

The district comprises two subdivisions: Medinipur Sadar and Ghatal. Medinipur Sadar Subdivision consists of Midnapore municipality and six community development blocks: MedinipurSadar, Garhbeta–I, Garhbeta–II, Garhbeta–III, Keshpur and Shalboni. Ghatal Subdivision consists of five municipalities (Ramjibanpur, Chandrakona, Khirpai, Kharar and Ghatal) and five community development blocks: Chandrakona–I, Chandrakona–II, Daspur–I, Daspur–II and Ghatal.Medinipur is the district headquarters. Other than municipality area, each subdivisioncontains community development blocks which in turn are divided into rural areas andcensus towns.

As per Census 2011, total area of the district is 9,368 sq. km. and population 59, 13, 457 with 30, 07,885 males and 29, 05,572 females. PaschimMedinipur district ranks 7th in the terms of literacy in the State with 78 per cent, whereas the State average is 76.3 per cent. The proportion of Scheduled Castes and Scheduled Tribes population of PaschimMedinipur district comprises of 19.1 per cent and 14.9 per cent whereas the whole State average is 23.5 and 5.8 percentages respectively. Paschim Medinipur district have a rural population of 87.8 per cent, ranks 5th place in the State.

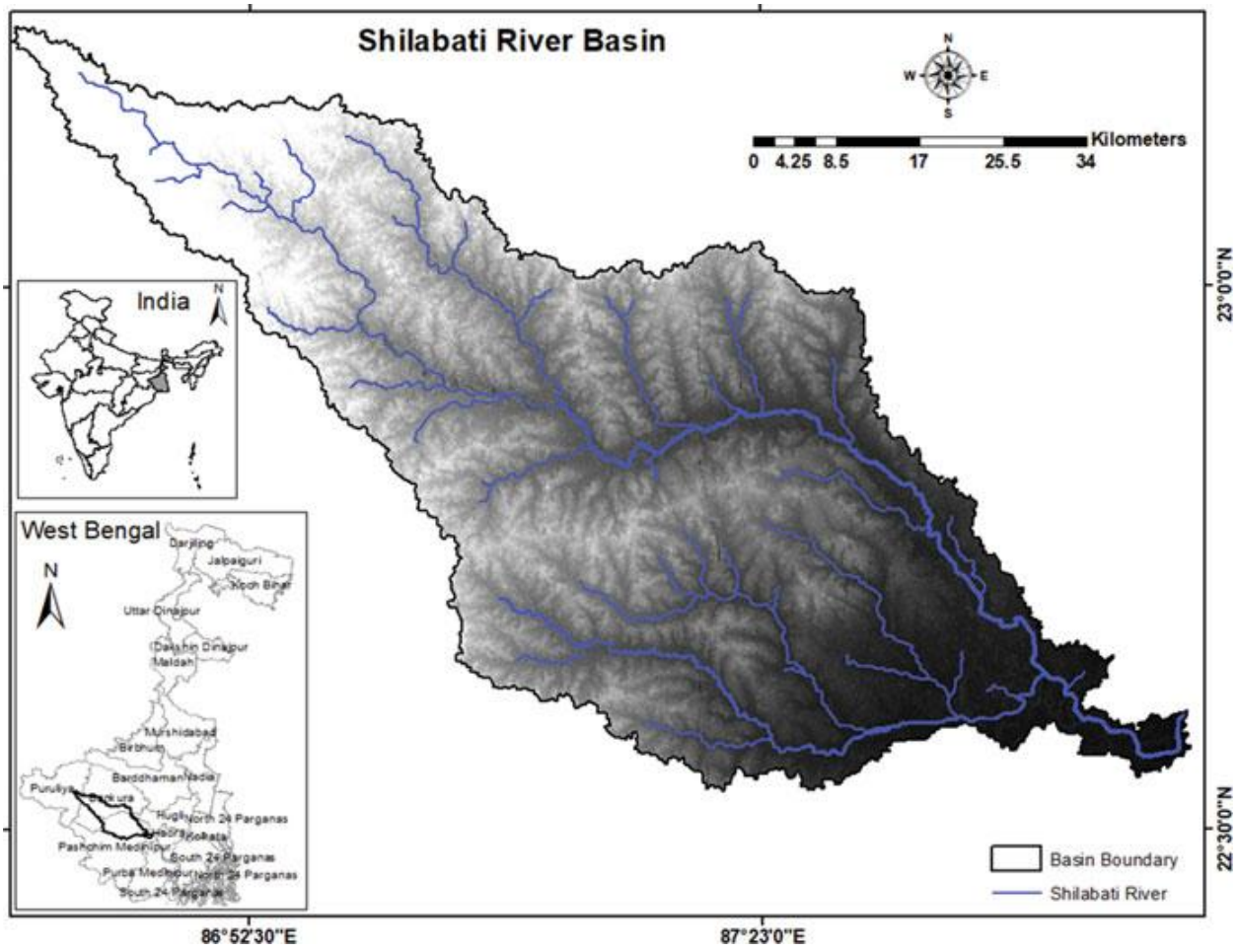


Fig 1.Location Map of Shilabati River Basin in West Bengal

Adopted from Bhunia et al.2021, at P.K.Shit (eds.), Groundwater and Society, Springer Nature Switzerland AG 2021.

River Shilabati is the largest and the main tributary of river Rupnarayan. The Shilabati river basin is located 22° 35'5''to 22° 47'37'' north and 87°36'22'' east to 87°49'8''east in southern part of Ghatal subdivision of the Pashim Mednipur district of West Bengal (Das et al.,2020). The catchment area (**Fig 1**) of the river Shilabati is characterized by the tropical monsoon type of climate with an average rainfall of 1320 mm. Annual temperature ranges from 6°C (December–January) to 50°C (May–June). The average annual rainfall within the basin is 150 cm, with a relative average humidity of 60–65%. The region is distinguished, topographically, by isolated hills at the higher basin and gentle slope in the lower catchment area. The angle of junction of

Shilabati river withrespect to the Rupnarayan river is 230 degrees, and the gradient of Shilabati is 11minutes 055.03seconds (Das and Bandyopadhyay 2015). The basin's general slope is towards the southeast. The latest alluvial sediment that is deposited by the main river system and its tributaries are found in the lower portion of the basin. The river Shilabati causes flood at the lower part of its basin area.The worst sufferer are the prople living adjacent to the Bhabanipur,Bagpota,Kashkuli,Jharul,Halderber villages.The present study mainly concentrates on the Bhabanipur mouza. Total geographical area of the Bhabanipur mouza (study area) is 246.80 hectares according to the data of Census of India 2011.

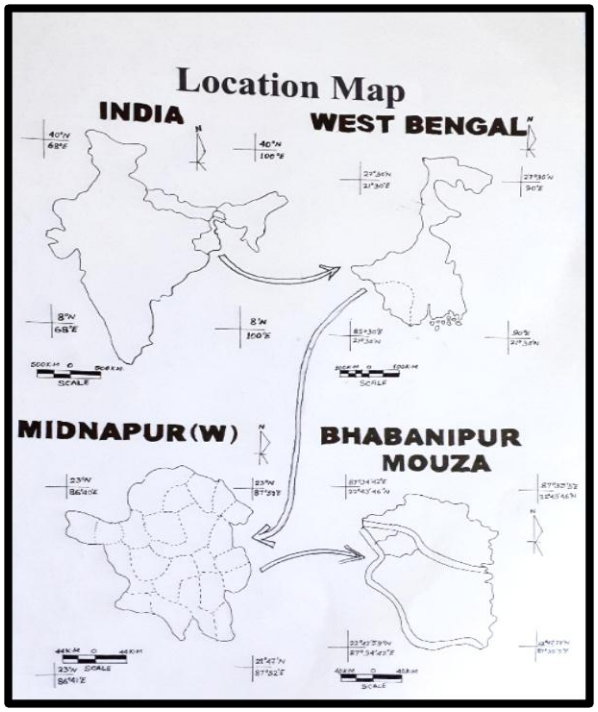


Fig 1.a.Location of Bhabanipur Mouza

Objectives:

Each research study has its own specific objectives. Objectives of the present study are

- To find out the main causes of flood and its effect on the social and environmental condition.
- To generate eco-friendly arrangements supported by local technical knowledge and materials for flood risk reduction.

Methodology of the present work

To achieve the above-mentioned objectives, the research works have been carried according to the following methods.

Pre Field Methods

This phase is characterized by collection of primary ideas about the study areas. Therefore, the data collected form

- The Survey of India Toposheet No.73N/9,73N/10(1976)
- Cadastral map of Bhabanipur mouza of Chandrakona Block I.

Works in the Field for Primary Data Collection

This phase of the work consists of field observations and measurements. Following works were done in the field.

- Cross sectional profiles were done drawn across the river at 500 meters intervals all along the selected portion of the river stretch. Thus, seven such profiles have been drawn using Dumpy Level to understand the riverbed and the floodplain morphology.
- GPS survey was also carried out to explore the altitudinal variations in different parts of the floodplain.
- Sketches were drawn in the field and photographs were taken.

Post Field Works for Analysis and Interpretation of Data

This phase of the work involves the analysis and interpretation of the collected data from the field and from the secondary sources.

Database Collected from the Secondary Sources

The data that have been collected from the Secondary sources are mentioned below:

- Annual Flood Report 2013 (Government of West Bengal).
- Government of West Bengal (2014): District Statistical Handbook, Paschim Medinipur.
- Applied Economics & Statistics, Government of West Bengal (2014): District Statistical Handbook, Paschim Medinipur.
- District census Hand books, Paschim Medinipur, 2011.
- A case study of Paschim Medinipur Research papers.
- Few books and literature.
- Some basic informations from internet.

Limitations

- Some parts of the field areas are inaccessible due to presence of steep slope and forest cover. Therefore, it was not possible to take the profiles exactly at 500 meters regular intervals.
- Depth of the riverbed could not be measured meticulously at every location due to inaccessibility.

II.Review of the of the study Area in regional Perspective

Location:

The study area extends from the Banka Sultanpur more (22˚ 72' 57.5" N,87' 57 ' E) to Bagpota. (22˚ 71 ' 79.83 " N,87˚ 58' E). Along this segment the river flows along a sinuous course with moderate slope mainly along the left bank and major part of the right bank is deeply undercut to form steep cliff.

Relief

The study area represents an undulating surface continuoiusly sloping towards North West to South East. Geomorphological setting of PaschimMedinipur district can be divided into following units:-

i) Laterite covered platform sedimentary areas underlain by deposits of older alluvium bearing rolling plains.
ii) More or less Flat Alluviul Plain of Recent Age to the East and South-East.

Drainage

Shilabati River: River Shilabati is the largest tributary of river Rupnarayan and as the main contributor in formation of the river Rupnarayan. River Shilabati emerges from the confluence of several smaller river streams generated from the Chhota Nagpur Plateau like Purandar, Shalad, Joy-Ponda, Parang, Betai, Donai, Amlagura etc. Shilabati has a comparatively broader drainage Basin with substantial agricultural activities. The main course of Shilabati is originated in district Purulia, passes through district Bankura and enters district PaschimMedinipur after meeting river Joy-ponda at village Kenja in C. D. Block Garbeta II. It then flows in West –South-West direction and passes through C.D. Blocks Garbeta I, Chandrakona II, Chandrakona I and Keshpur. From Keshpur, river Shilabati moves in North- North-East direction through C.D. Blocks Debra and Dantan.

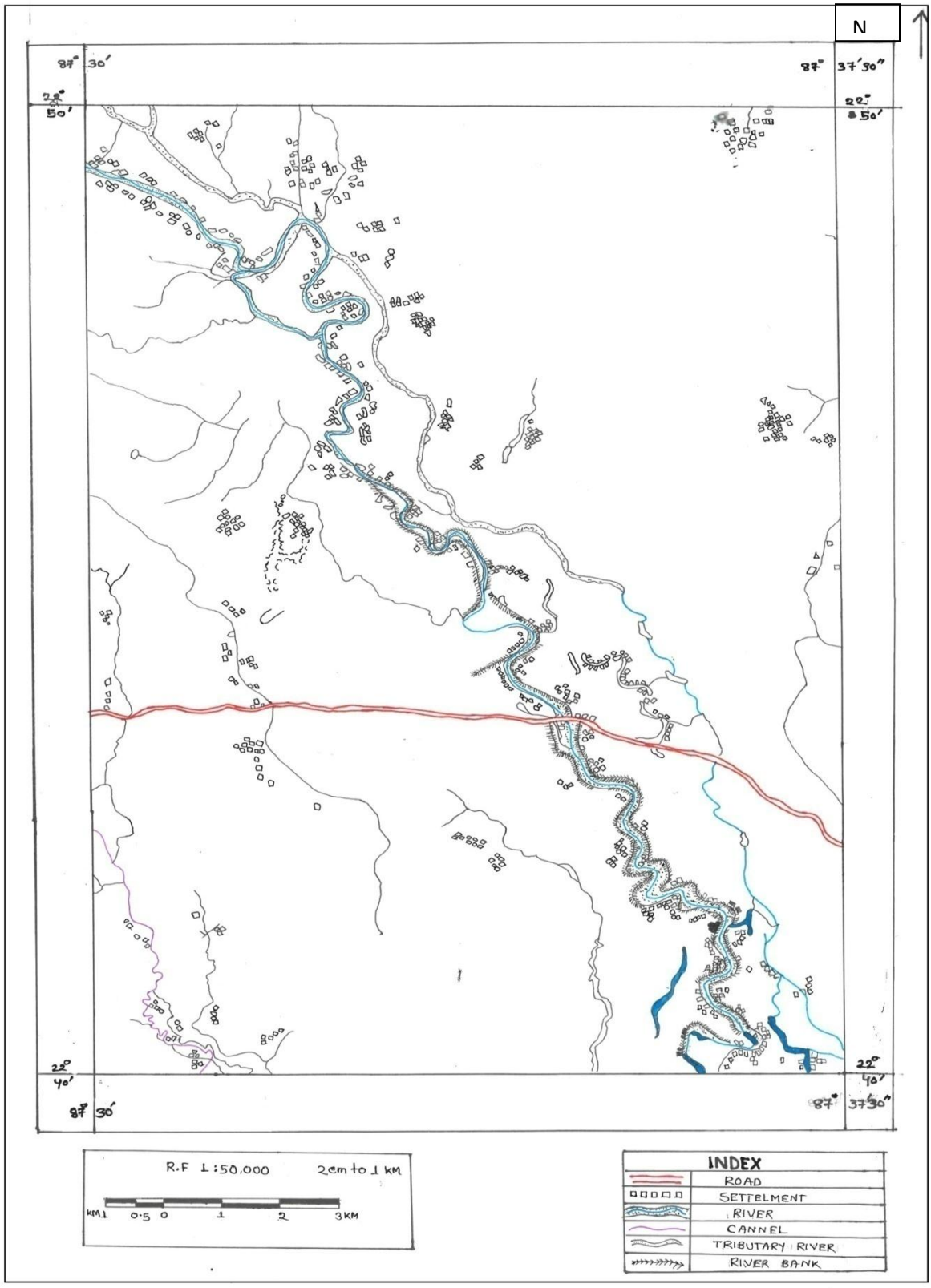


Fig.2 Meandering Course of the River Shilabati

Climatic Characteristics

Rainfall and Temperature

Bhabanipur mouza enjoys the tropical monsoon type of climate with an average annual temperature of 25° C and total annual rainfall of 110 cms. May is the hottest month with mean temperature of 34°C while January with a mean temperature of 16° C is the coldest.Rainfall is not well distributed throughout the year but is seasonal because of the influence of monsoon winds.83.89percentage of rainfall occurs between June to September. Relative humidity is high al through the year except dry months of December and January.It is definitely higher in the monsoon months.

Hythergraph

A Hythergraph (Taylor type) has been drawn based on Temperature and Rainfall data of Khirpai station of 2017, which shows the minimum temperature at the month of January and December, and 83.89% of rainfall, occurs between June to September.

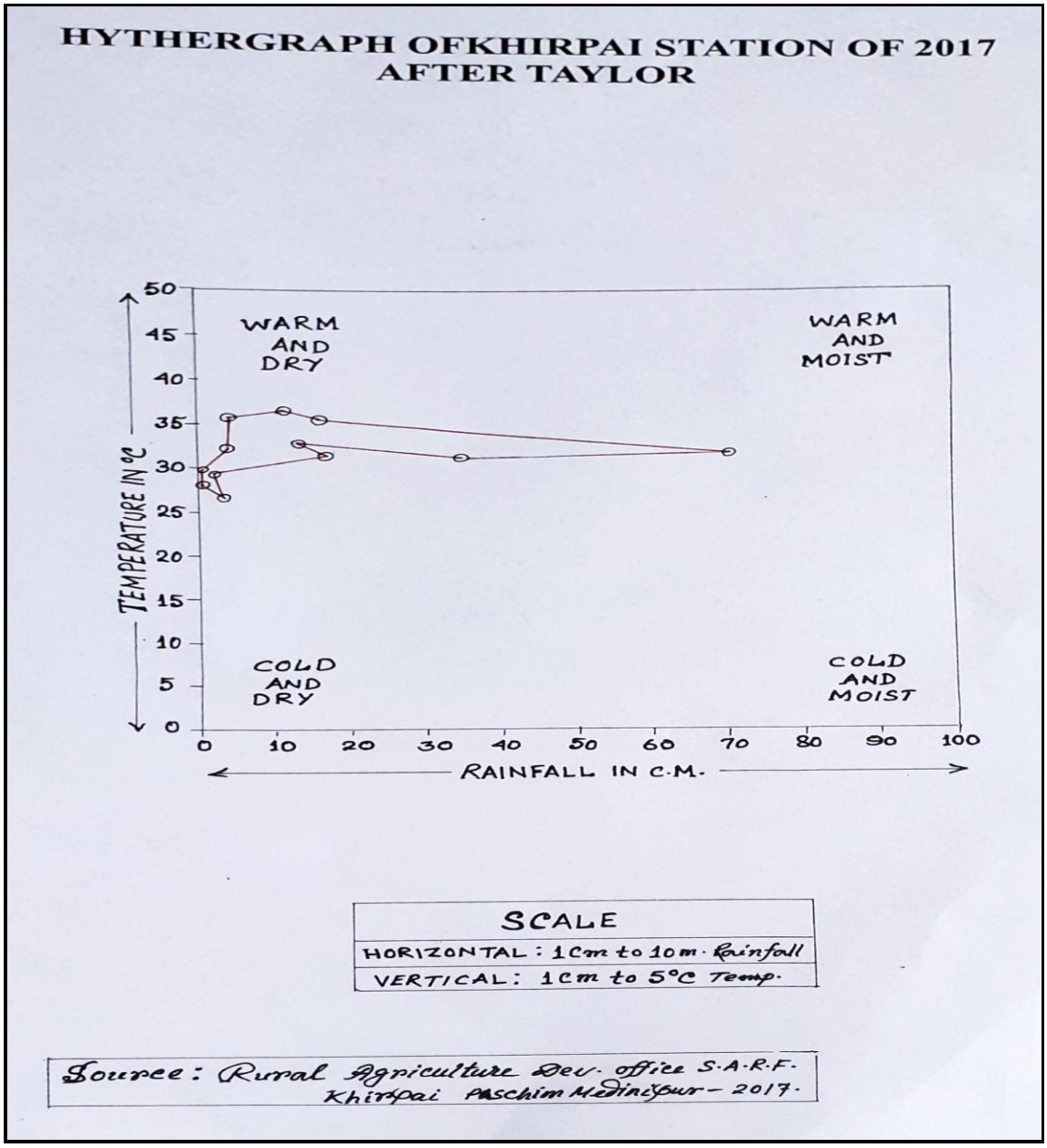


Fig 3. Hythergraph of Khirpai Station

III. The Geomorphological Assessment of the Stream segment

The river Shilabati is a typical alluvial channel and it is characterized to be formed in sediment that has been and is being transported by its flowing water.Inplan view, alluvial channels display four basic forms that represent a graded series –straight, meandering, braided and anatomising. The stream segment of the river Shilabati exhibits a meandering character. The geomorphological characteristics of the selected segment of the river Shilabati has been analyzed by drawing cross profiles and topographical zonations.They are discussed as follows.

The Cross Profiles

The characteristics of the river course and its bank can be examined with the help of the several cross sections which has been covered at 500 meters horizontal distances. These profiles have been denoted as AB, CD, EF, GH, IJ and KL.

The Cross Sectional Profile along the line AB

The location of the profile is at 87˚34'44.4"E and 22˚43'27.7"N. Here the width of the river 50-60 meters wide on an average, the depth ranges between 5 to 6 meters. The left bank is characterized by sandy loamy soil and there is a cliff in the upper portion of the river bank. The right bank is gently to moderately slopping and dominated by potato fields, small bushes.

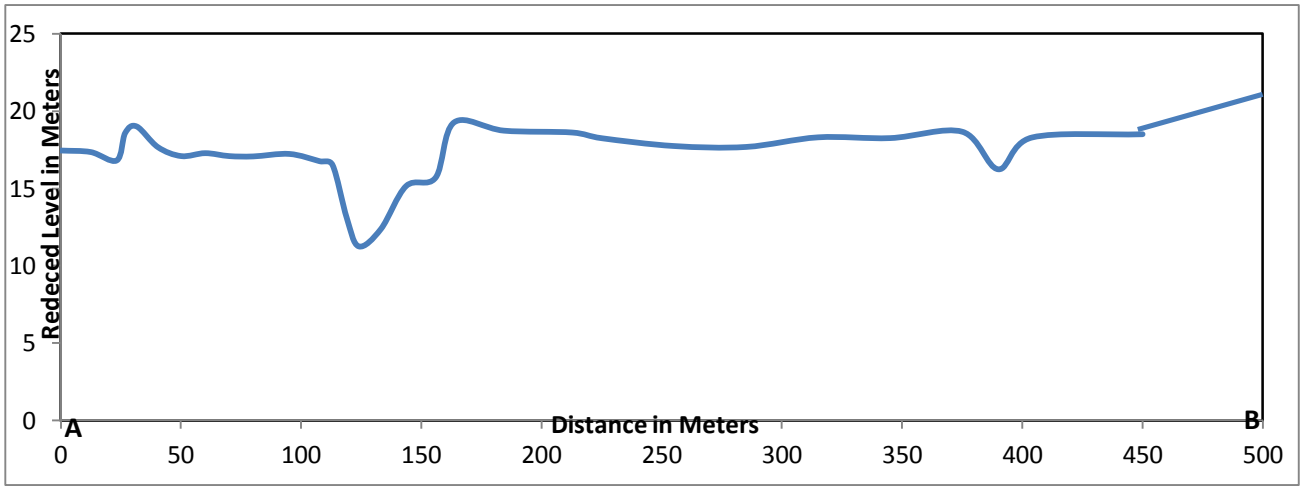


Fig.4 The Cross Sectional Profile along the line AB

The Cross Sectional Profile along the line CD

The location of the profile is at 87˚34' 44.4" E and 22˚43 ' 27.7 " N. Here the width of the river 40-50 meters wide on an average, the depth ranges between 5 to 6 meters. The left bank river has two floodplain surfaces and they are separated from each other by a steep cliff. One of the floodplain is wider than the other and is dominated by agricultural land.

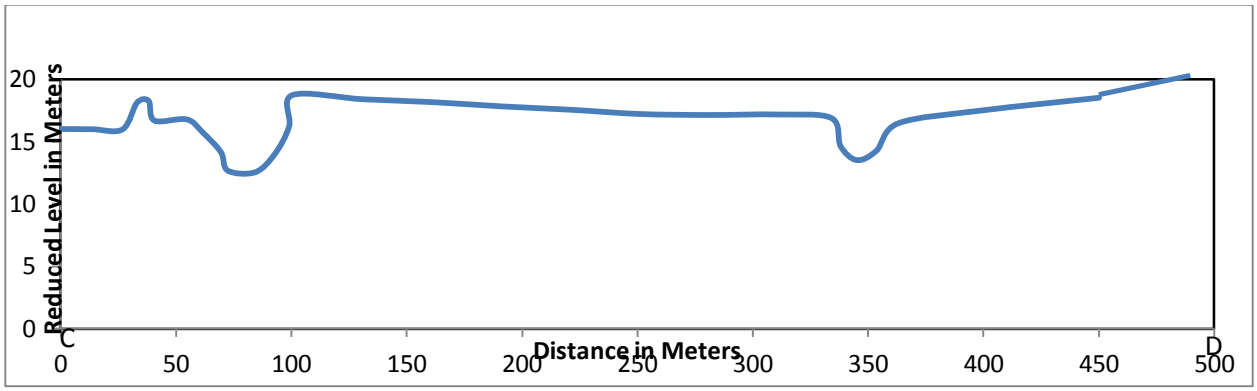


Fig.5 The Cross Sectional Profile along the line CD

The Cross Sectional Profile along the line EF

The profile was taken at 87˚34' 40.4E and 22˚43 ' 21.9-" N. Here the river is 40-50 meters wide on an average, the depth ranges between 3 to 4 meters. The left bank has two floodplain surfaces which are covered by mud. Right bank is less steep as compared to the left bank.

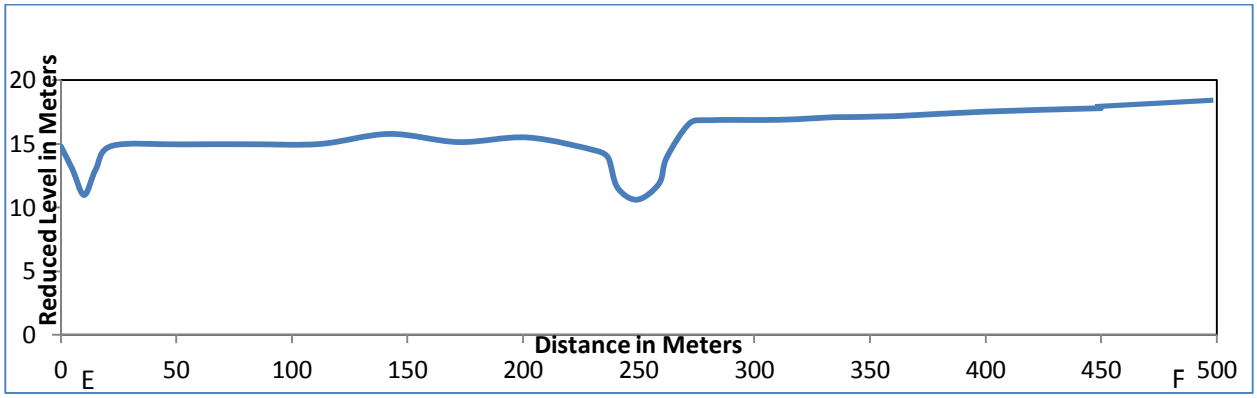
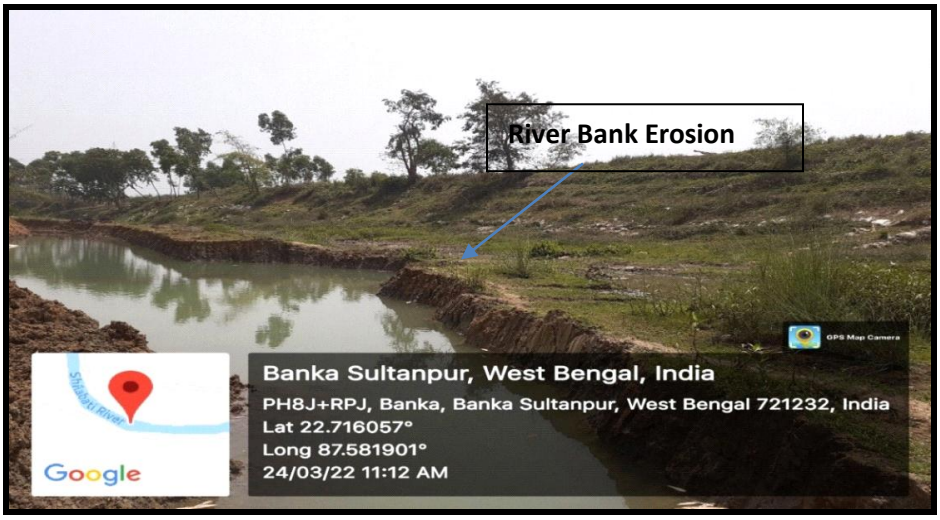


Fig.6 The Cross Sectional Profile along the line EF



The Cross Sectional Profile along the line GH

The location of this profile is at 87˚34'47.6"E and 22˚43'21.5"N.The width of the river is 60 -70 meters, and on average the depth ranges between 5 to 6 meters. The right bank is gently sloping in compare to the left bank.The floodplain surface is almost regular surface where domestic solid waste are being dumped.

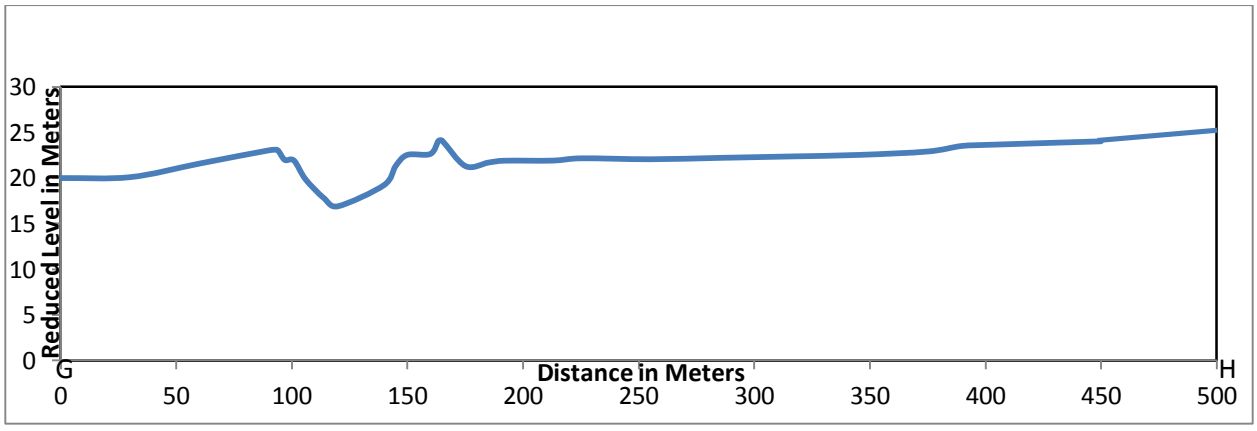


Fig. 7 The Cross Sectional Profile along the line GH

The Cross Sectional Profile along the line IJ

The profile site is located at 87˚34' 53.2.6"E and 22˚42' 58.5" N.The depth of the river ranges between 4 to 6 meters. One of the important characteristics of this profile is the deposition of sand in the middle portion of the river. Therefore, the water of the river flows being divided into two parts. The left bank is steep near the river channel. The lower floodplain surface is a cultivated land and the upper floodplain surface is covered by forests and settled areas.

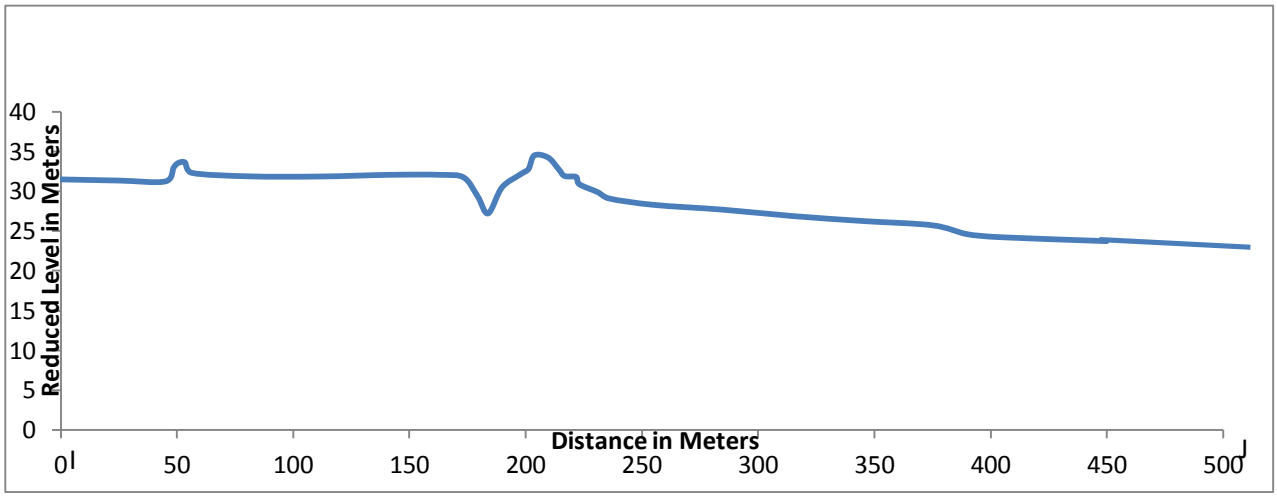


Fig.8 The Cross Sectional Profile along the line IJ

The Cross Sectional Profile along the line KL

The location of this profile is at 87˚34' 52.5"E and 22˚43' 00.2" N. The depth of the river ranges between 3 to 4 meters.Here a major portion of the river valley is filled in with sand deposits.The sand deposition in the middle portion of the river has caused the channel to flow along a narrow course, wide away from the river banks on both sides. The lower floodplain surface is the right hand side of the river is a low land and is dominated by human habitation.The upper floodplain surface to the left bank of the river is mainly covered by forests.

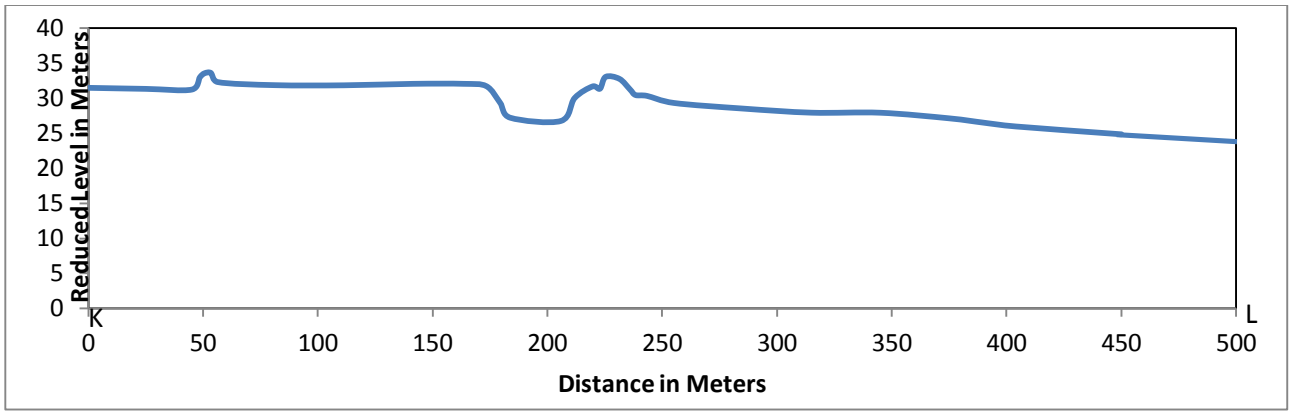


Fig.9 The Cross Sectional Profile along the line KL

Landuse Changes along the River Banks of the Study Areas

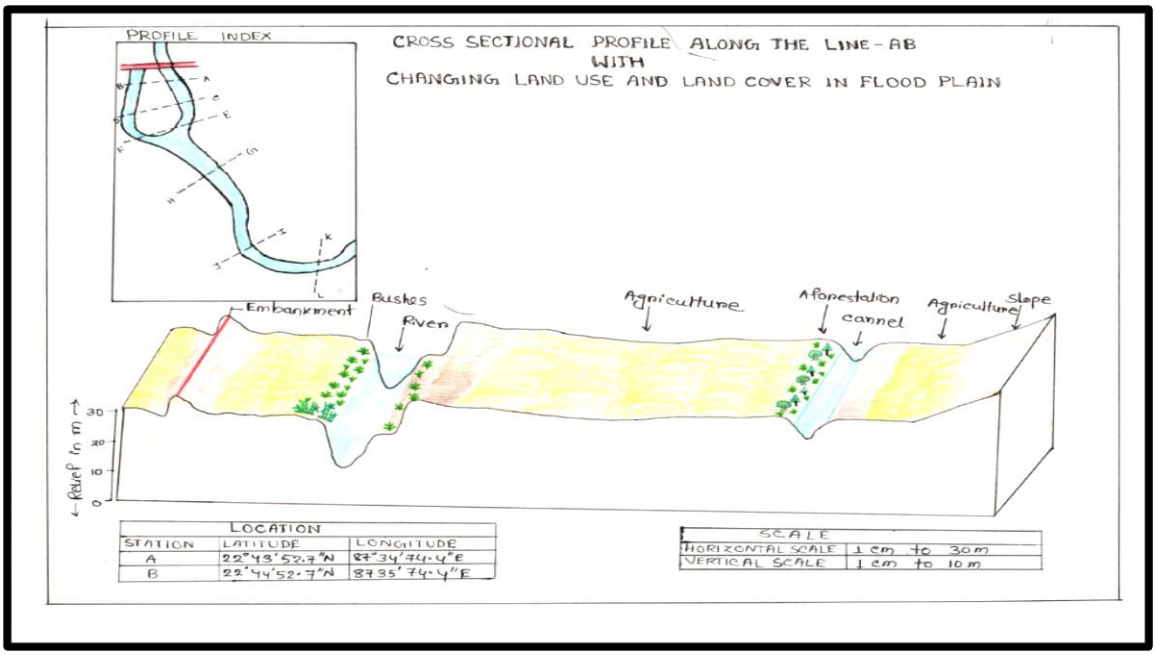


Fig.10 Landuse Changes along the Cross Sectional Profile AB

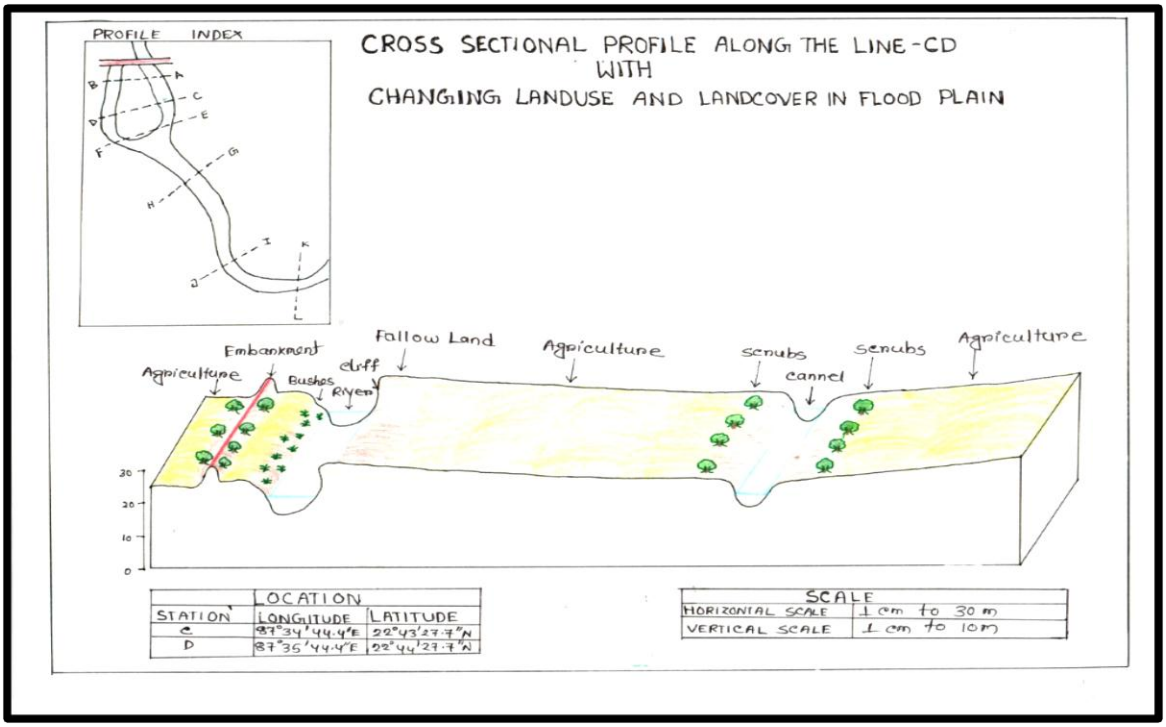


Fig.11 Landuse Changes along the Cross Sectional Profile CD

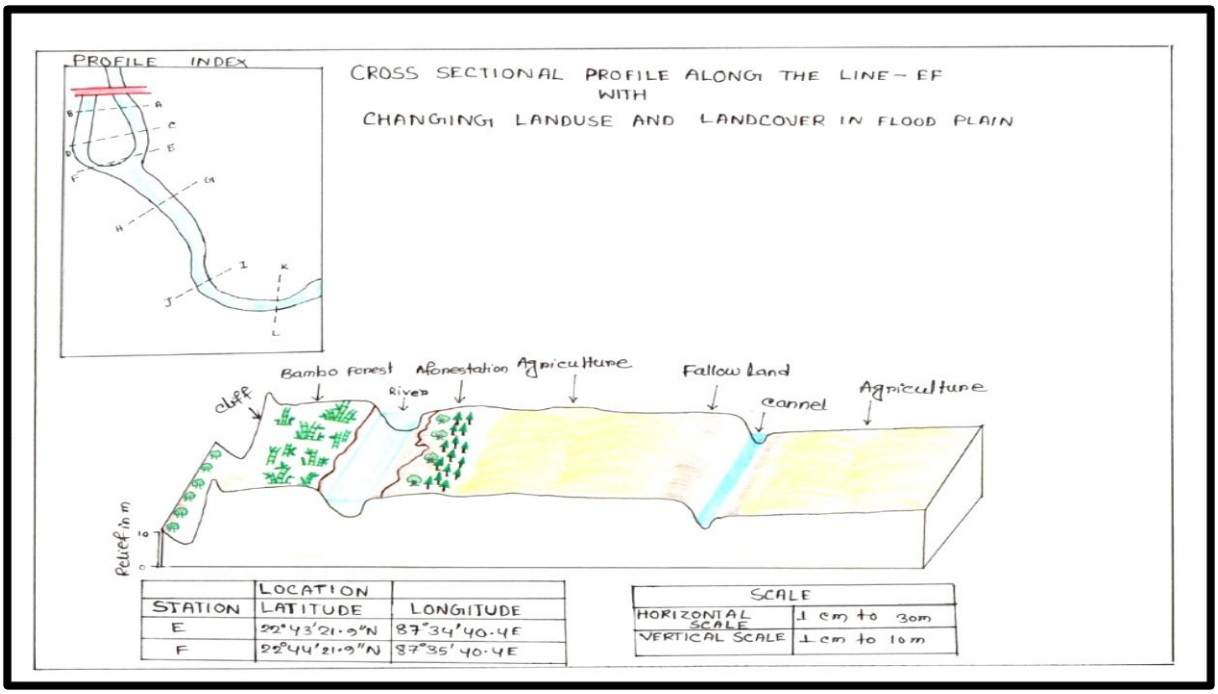


Fig.12 Landuse Changes along the Cross Sectional Profile EF

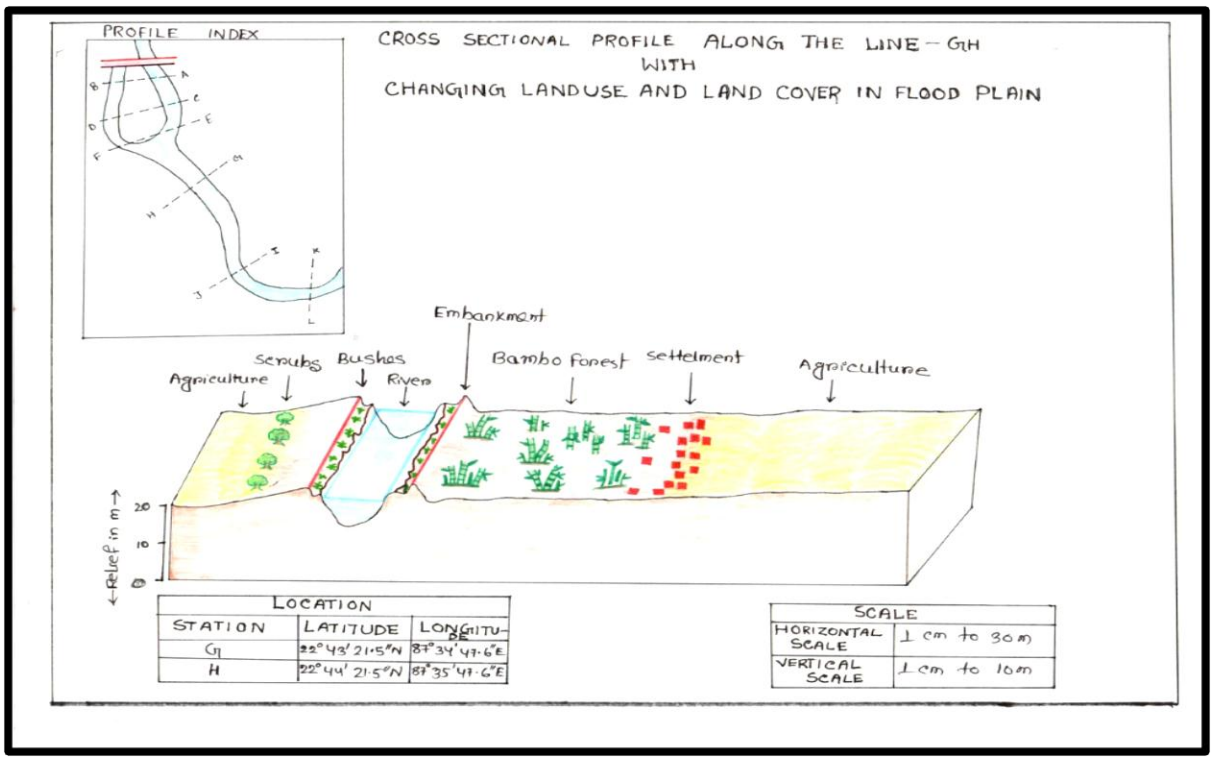


Fig.13 Landuse Changes along the Cross Sectional Profile GH

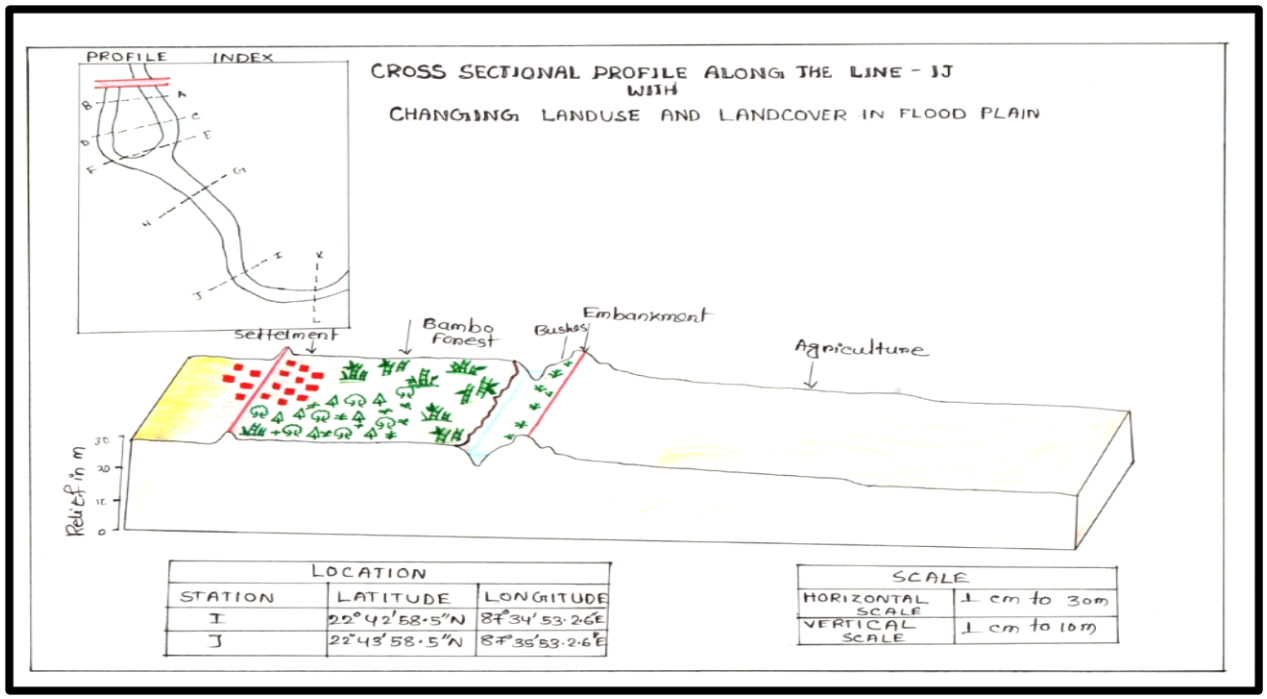


Fig.14 Landuse Changes along the Cross Sectional Profile IJ

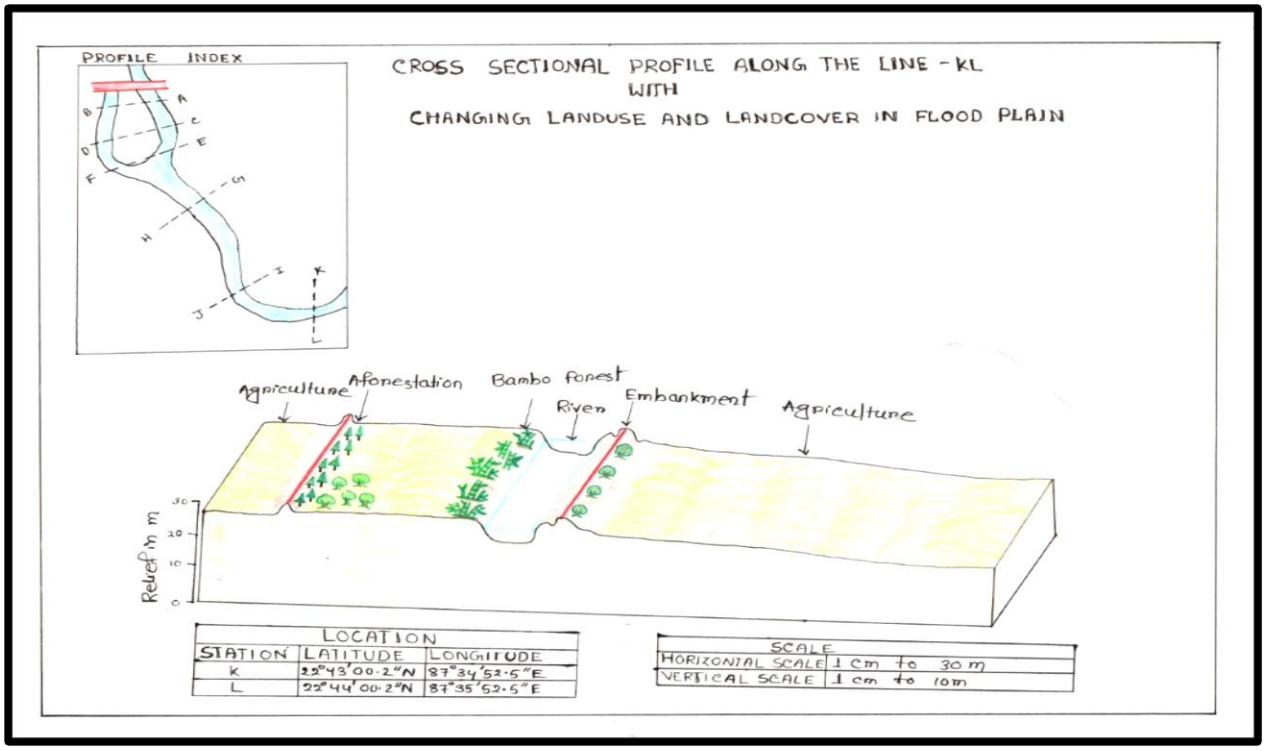


Fig.15 Landuse Changes along the Cross Sectional Profile KL

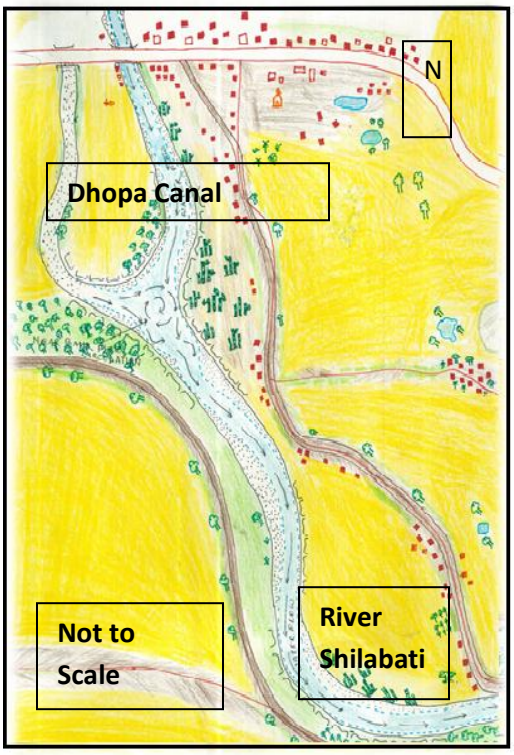
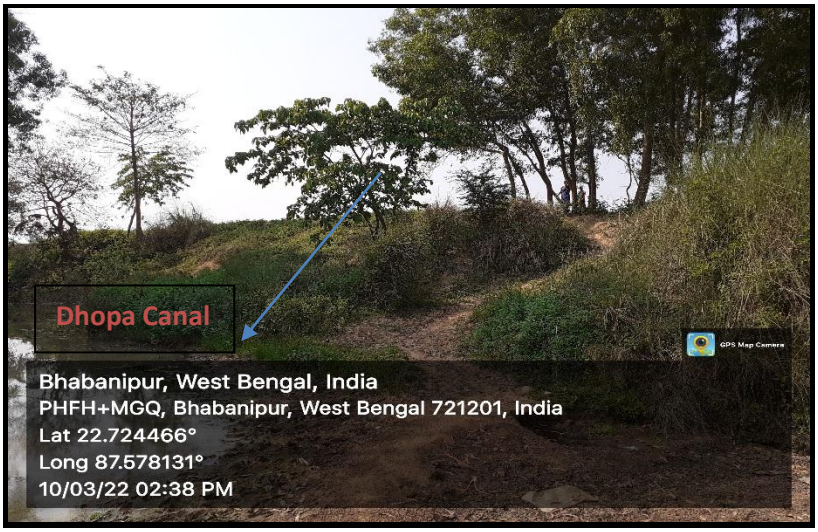


Fig.16 Landuse Map of the Lower Shilabati River Basin at Bhabanipur Mouza



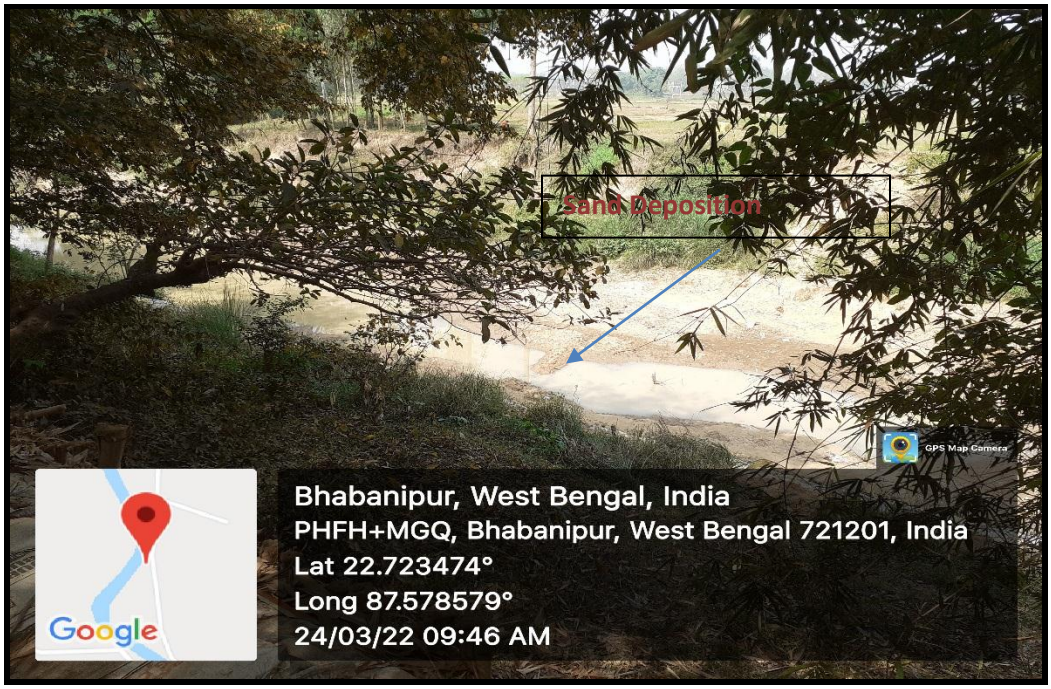
Major Landform Features

The channel environment in the study area is depositional in nature. However, during the flood season, while large volume of water comes into the channel, erosional processes become operational to bring considerable modifications in the landform features. The river belt features of the study area may be categorized into three main types.

- Channel bed depositional features
- Erosional features of the channel bed and channel margin

Channel bed depositional features

The channel bed depositional features have been formed by the voluminous deposition of sand in different microenvironment. Such features are found to occur in the form of bars and islands such as mid channel bars, longitudinal bars attached to the bank.



Erosional features of the channel bed and channel margin

The erosional processes shape erosional features during the flood events of the rainy seasons. As the energy level of the stream increases largely during this period of the year, erosional activities become strengthened to create and modify erosional features such as

- Cliff features on the channel banks associated with meander heads.
- Channel Bank rills and gullies formed by the running water flowing into the channel from the bank surfaces during high rainfall episodes.

IV Morphological Changes of the River Segment during Recent Past

One of the most important characteristics of the alluvial channels is its changing the course. Like the entire river course, the Shilabati has also changed its course within the study area with time. A change in the river course is controlled by the several factors. However, the river course changes naturally but human influence is much more responsible for the acceleration of such

changes of the river courses. Here the river Shilabati is changing as response to both the two factors.

V Perception Study of the villagers

Perception of the villages living adjacent to the bank of the river Shilabati is very important, as they are the worst sufferer during flood period as well as one of the important stakeholders for the planning processes.

Socio Demographic Profile of the Respondents

Almost 20 familes have been surveyed based on simple random sampling techniques by lottery method. Among them 30% of the respondents belong to 20 to 40 years of age group and 35% respondents belong to 40 to 60 years of age group, while only 5% respondents belong to 0 to 20 years of age group. Almost 44.88% of them are male and 55.11% are female.75% are belong to general caste category,15% from Scheduled caste and 5% each from scheduled tribe and other backward caste category.75% of them are literate. Average household size of the family 6.

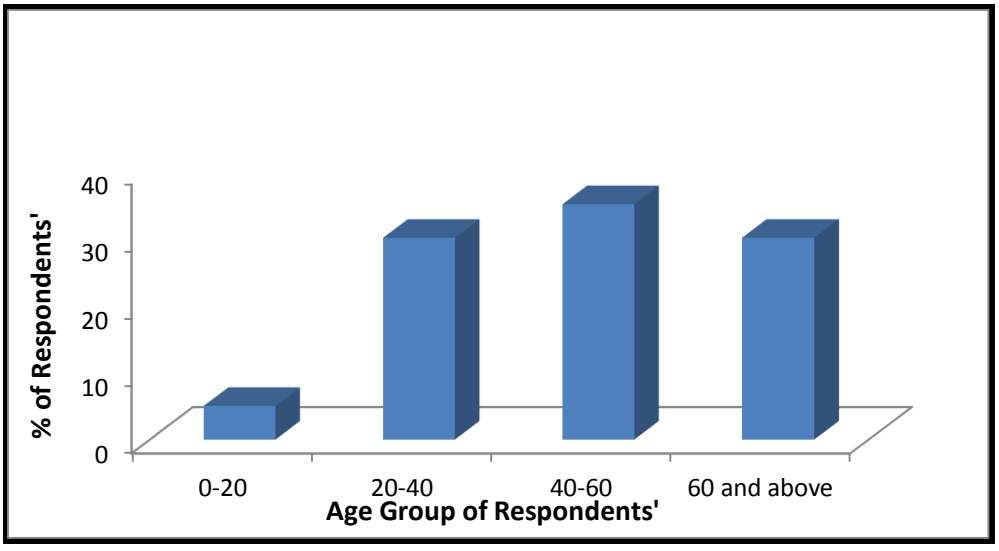


Fig.17 Respondents' Age Group for Conducting Households Survey

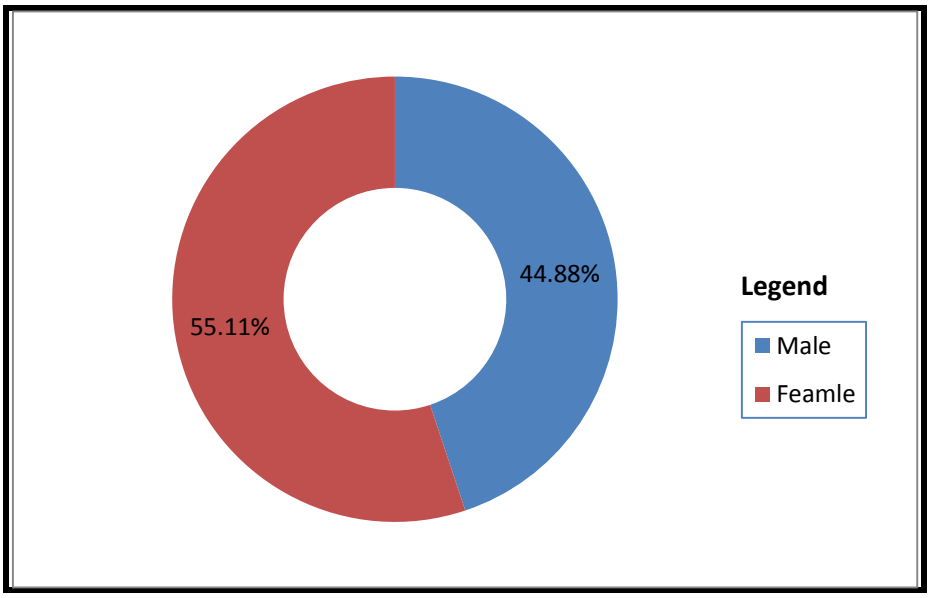


Fig.18 Sex Composition of the Respondents Households

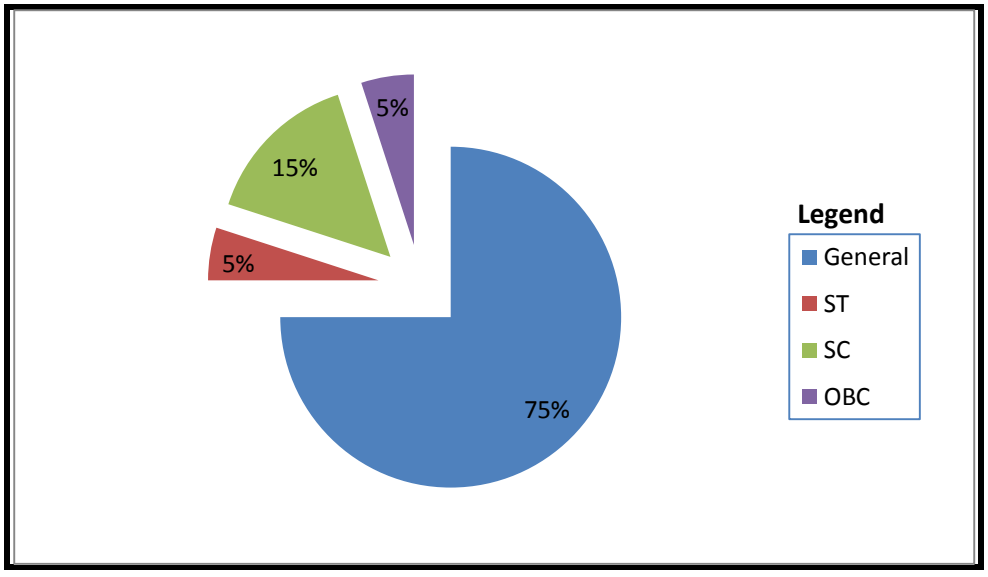


Fig.19 Caste Composition of the Respondents

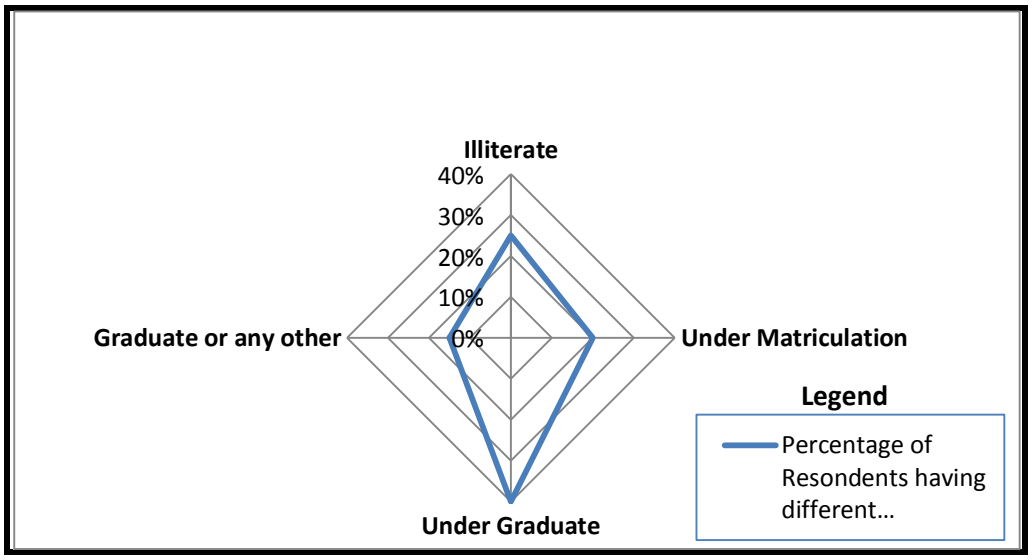


Fig.20 Educational Qualification of Respondents

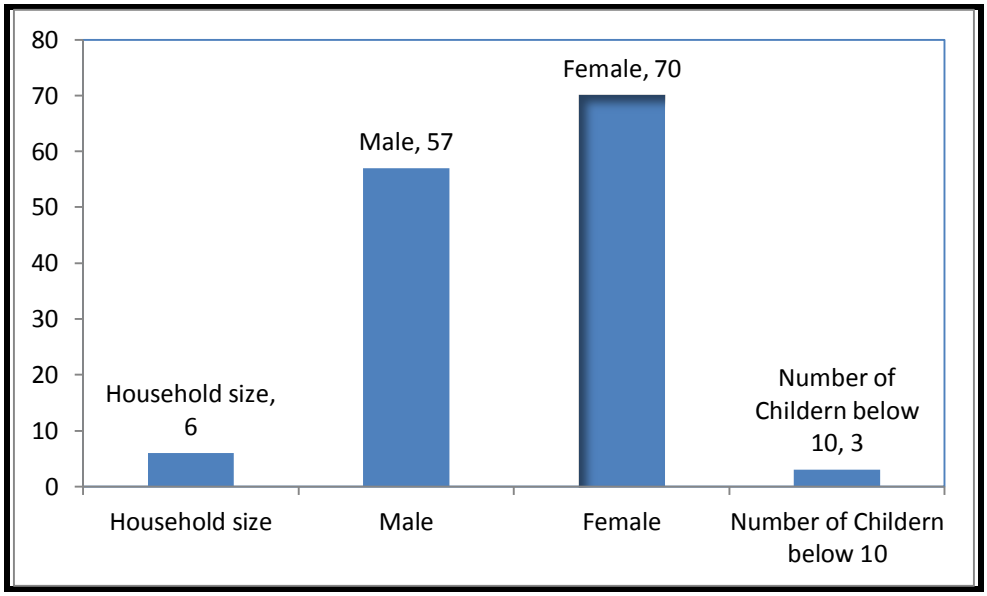


Fig.21 Demographic Composition of Respondents'

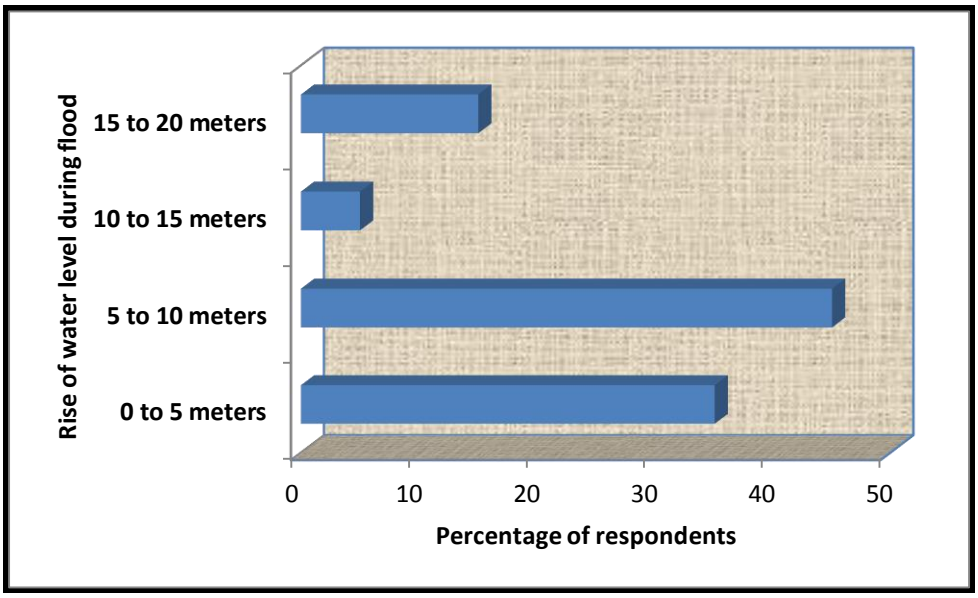


Fig.22 Perception of villagers regarding rise of water level

Flood at the lower part of the Shilabati Basin in view of the Respondent Villagers

Construction of Sluice gate at Banka more causes stagnation of water level at the surrounding areas (locally known as Manashatala Chathal).Kethia canal was constructed to diverge the flow the river Shilabati near Banka, however after few years this canal causes chocked flow and recurrent flood in these areas. Similarly, Dhopa canal was excavated for irrigation purposes and causes the flood at these areas. Embankment height also differs between eastern and western part of the Bhabanipur Mouza.Therefore, during flood water level rises between the areas of two embankment.


Sluice Gate at Banka
Ghatal Rd
Google
Banka Sultanpur, West Bengal, India
PHHG+47M, Banka, Banka Sultanpur, West Bengal
721201, India
Lat 22.727528°
Long 87.574312°
10/03/22 11:27 AM


Construction of Bridge hinders flow of the river water
Mali
Nigeria
Google
Banka Sultanpur, West Bengal, India
PHHG+47M, Banka, Banka Sultanpur, West Bengal
721201, India
Lat 22.7275°
Long 87.574295°
10/03/22 12:26 PM

VI Outcome of the Project

In view of the above changes this can be concluded that the river course and its bank has undergone changed and is still being changed naturally which have further been introduced by the increasing influence of the human activities. In comparison to the past, the river course is currently following a more meandering path and the sand deposition has increased in the riverbed. This has also a great influence on the erosion of the riverbank and the reduction of the river depth and expansion of the river width.In case of the selected portion of the river Shilabati, which has been taken into present consideration deforestation, built up areas and changes in the landuse pattern are responsible for the change in the river course to a very large extent.

Causes of flood

Intense rainfall further accentuated by natural factors and anthropogenic activities are responsible for the recurrent occurrence of flood at the Shilabati river basin.

- **Sinuosity and Stream ordering**

From the topographical study, it is observed that throughout its course river Shilabati is sinuous in nature, which aggravates the flood related issues because water takes much longer period to flow downstream. Stream Ordering (after Strahler's Method) of lower part of the Shilabati River Basin is predominated by first order stream, which causes rapid erosion. The erosive materials while deposited at the riverbed which in turn decreases the depth of the bed level and accentuates flood.

Method for calculating Stream Ordering (after Strahler's Method) is described below

$$R_b = \frac{\text{1st order stream + 2nd order stream + 3rd order stream + 4th order stream + 5th order stream}}{\text{2nd order stream + 3rd order stream + 4th order stream + 5th order stream + 6th order stream}}$$

$$= \left(\frac{551/136 + 136/23 + 23/5 + 5/2 + 2/1}{5}\right)$$

$$= 19.064514/5$$

$$= 3.8129$$

Stream order value 3.8129 indicating the flood prone status of the study area or the river basin.

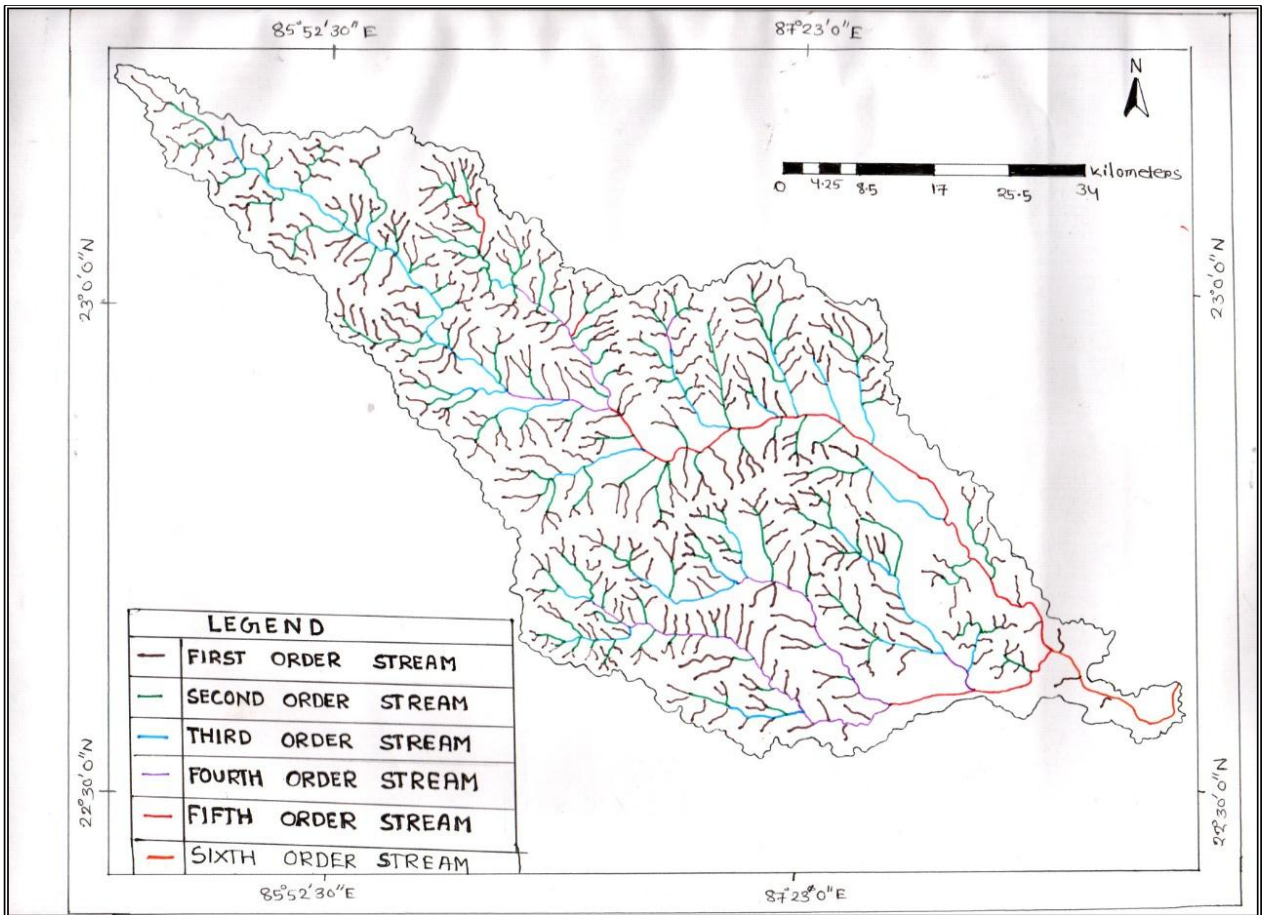


Fig 23.Stream Ordering (by Strahler's Method) of Shilabati River Basin in West Bengal

- **Settlement along the bank of the River**

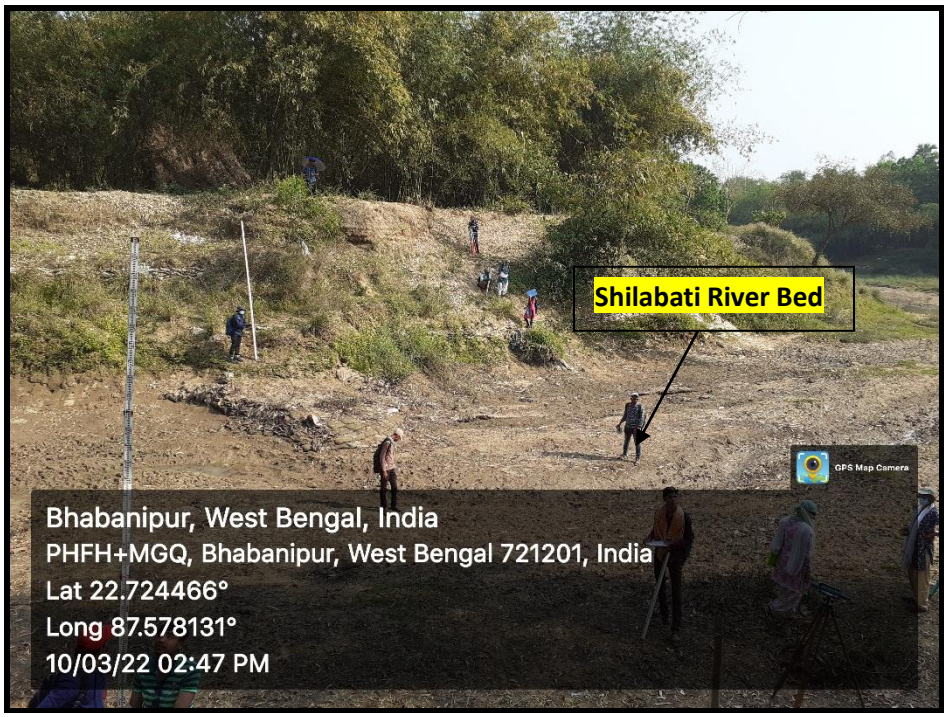
Settlement along the bank of the river adds compressive forces to the soil beyond its capacity and thus causes erosion. Eroded soils accumulate and deposit in the riverbed and reduce the navigability of the river.

- **Right angular joining of the river with the canal**

Dhopa canal carry the water of about 90,000 cusec from an area of approximately 40 square kilometers.The Dhoba khal (canal) joining with the main river at right angle. Because of that, instantaneous water supply increases at a certain time and movement of the water become motionless and oscillated. On the other hand, excess amount of water penetrate through the Dhoba khal causes chocked flow of water in the canal, volume of water increases within very short span of time, results flood and the riverbank erosion.

- **Declining navigability of the river and river bed width**

For agricultural activities or farming on both sides of the river between embankments, the soil loosens and increases soil erosion. This eroded soil is accumulated in the riverbed and the navigability of the river is decreases. In addition, the width of the riverbed is decreasing, because of that water holding capacity of the river is declining. Manmade flood is also noticed at the time of releasing water from Damodar Valley Corporation (DVC).



- **Differential height of the Embankment on both sides of the River**

There are differences in the height of the embankments on both sides of the river. The height of the embankments on the right (western part) side of the river is much higher than that of the river embankment on the left. The height of the river embankment on the left is about 1.50 m to 2.00 meters less than that of the embankment on the right side of the river. As a result, during Monsoon period when the volume of the water in the river increases, level of water as well as pressure increases. The left side of the embankment suffers due to flooding and riverbank erosion. Therefore, the habitants living near the left side of the embankment become worst sufferers in terms of crop failure and loss of properties.

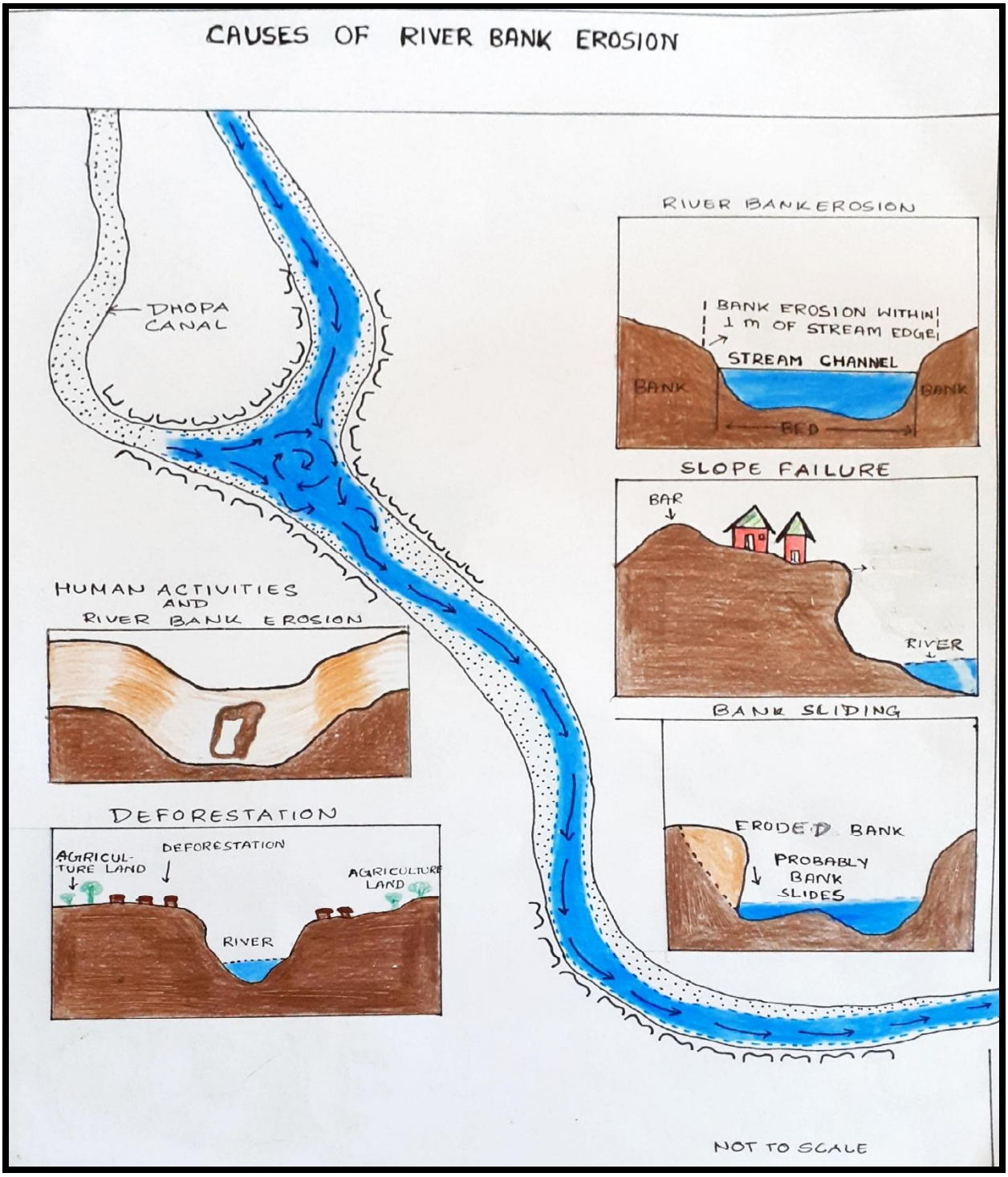


Fig 24.Causes of Riverbank Erosion of the Shilabati River Basin in West Bengal

Other Anthropogenic activities that cause flooding in the basin are

- Extraction of soil and sand from the riverbank
- Cutting down of natural vegetation from the riverbank area.
- Construction of built up areas in vulnerable zones especially on the top of the embankment areas.
- Unscientific agriculture and crop production on both sides of the riverbanks.
- Dumping of domestic waste into the river water and riverbanks.

VII Technical suggestions to combat flood and riverbank erosion of the study area Some plans and methods can be adopted to solve these problems and to maintain eco-friendly arrangements supported by local technical knowledge and materials for flood risk reduction.

- **Sandbagging for Flood Protection**

Sandbagging is a flood prevention technique that acts as a barrier with to help divert and stop water from getting inside habitat parts.

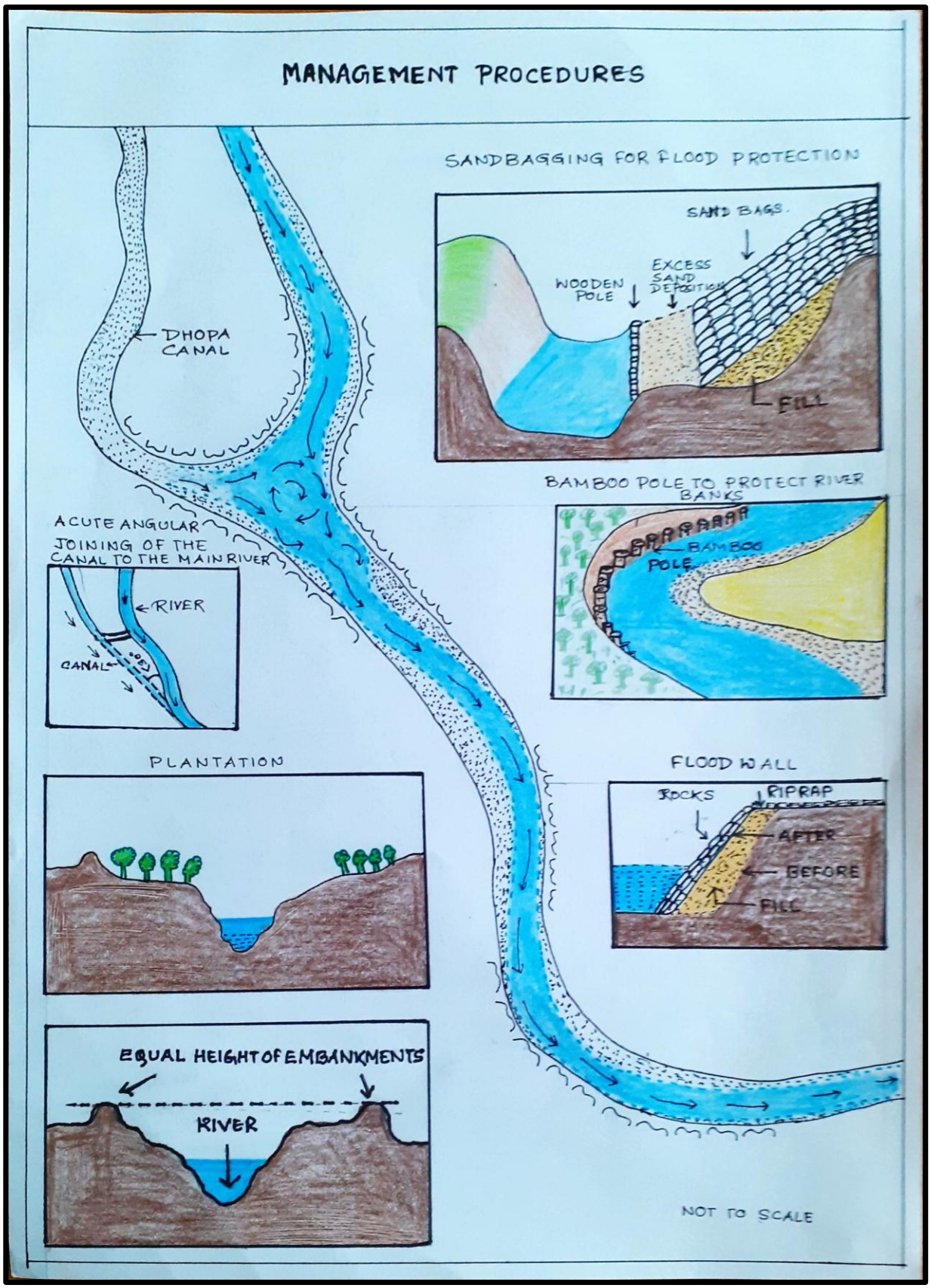


Fig.25 Management Procedures to combat flood at Study Area

- **Bamboo Pole to protect Riverbank Erosion**

The potential of bamboo in erosion control and slope stabilization has been proven worldwide. Therefore, bamboo pole can be used to protect erosion prone riverbank regions.

- **Construction of floodwalls**

The construction of floodwalls and embankments has been the traditional means of flood defence in lowlying communities. In our study area floodwall can form part of the river frontage, such as retaining wall.

- **Acute angular joining of the river with the canal**

The Dhoba khal (canal) joining with the main river at right angle. Because of that, increased volume of water accentuates the riverbank erosion as well as causes chocked flow of water in the canal which we have mentioned as the causes flood. To, overcome this situation, it can be proposed to join the Dhoba khal (canal) with the main river at an acute angle at other suitable places. As a result, rain water can easily flow through the river. The chances or possibility of occurrences of flood will be reduded.

- **Equal height of the Embankment on both sides of the River**

There are differences in the height of the embankments on both sides of the river. The height of the embankments on the right (western part) side of the river of the study area is much higher than that of the river embankment on the left which alarms rise of water levels during monsoon period and causes flood. If the height of the river embankment on both sides would be equal, the the velocity and direction of water level can properly be maintained even after increasing volume of water in the river. The excess water from the river can be evenly distributed in the floodplain on both sides. As a result, on the one hand the intensity of erosion decreases and on the other hand the probability of river bed erosion decreases. Therefore, if the height of the embankment on the left is equal to the height of the embankment on the right, it is expected that the severity of the flood will be prominently reduced.

- Cutting down of vegetation should be stopped and encouraged afforestation.
- Illegal soil and sand mining should be dealt with strict manner.
- Disposal of the waste materials on the riverbanks and into the riverbeds must be restricted to maintain the quality of the water.
- Agricultural activities must be done scientifically to protect the soil erosion.

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ANNEXURE
DUMPY LEVEL SURVEY

PROFILE ALONG THE LINE- AB **SL. NO: 1**

NAME/GROUP OF SURVEYOR: **DATE: 10.03.2022**

LINE	STATION	DISTANCE ON		STAFF READING IN METER			RISE IN M	FALL IN M	R.L	REMARKS
		GROUND IN M	MAP IN CM (1 CM to 30 M)	BS	IS	FS				
	A	0	0	3.15					17.45	Agriculture
	A1	12.4	0.41		3.25			0.1	17.35	Agriculture
	A2	23.2	0.77	3.42		3.79		0.54	16.81	Agriculture(C.P)
	A3	26.7	0.89		1.65		1.77		18.58	Bar
	A4	31.5	1.05	1.34		1.23	0.42		19	Bar / Road
	A5	40.3	1.34	2.695		2.67		1.33	17.67	Bar
	A6	50	1.67	1.32		3.27		0.575	17.095	Agriculture(C.P)
	A7	60	2		1.14		0.18		17.275	Agriculture
	A8	70	2.33		1.32			0.18	17.095	Agriculture
	A9	80	2.67		1.34			0.02	17.075	Agriculture
	A10	95	3.17	1.28		1.18	0.16		17.235	Agriculture(C.P)
	A11	107.6	3.59		1.75			0.47	16.765	River bank
	A12	113	3.77	0.38		2		0.25	16.515	River bank(C.P)
	A13	118.9	3.96	0.45		3.79		3.41	13.105	River (C.P)
AB	A14	123.9	4.13		2.28			1.83	11.275	River
	A15	133.1	4.44	3.53		1.16	1.12		12.395	River(C.P)
	A16	143.6	4.79		0.76		2.77		15.165	River
	A17	155.9	5.19	4		0.21	0.55		15.715	River(C.P)
	A18	163.6	5.45		0.44		3.56		19.275	River bank
	A19	184.3	6.14		0.98			0.54	18.735	Agriculture
	A20	212.7	7.09	0.57		1.1		0.12	18.615	Agriculture(C.P)
	A21	225.1	7.5		0.94			0.37	18.245	Agriculture
	A22	255	8.5		1.44			0.5	17.745	Agriculture
	A23	285	9.5	1.78		1.5		0.06	17.685	Agriculture(C.P)
	A24	315	10.5		1.16		0.62		18.305	Agriculture
	A25	345	11.5	1.98		1.21		0.05	18.255	Agriculture(C.P)
	A26	375	12.5		1.58		0.4		18.655	Agriculture
	A27	404	13.33		2.03			0.45	18.205	canal
	B	500	16.66			1.53	0.5		17.705	Agriculture

DUMPY LEVEL SURVEY

PROFILE ALONG THE LINE-CD **SL. NO:2**

NAME/GROUP OF SURVEYOR: **DATE:10.03.2022**

LINE	STATION	DISTANCE ON		STAFF READING IN METER			RISE IN M	FALL IN M	R.L	REMARKS
		GROUND IN M	MAP IN CM (1CM to 30 M)	BS	IS	FS				
CD	C	0	0	3.535					16	Agriculture
	C1	13.6	0.45	3.58		3.555		0.02	15.98	Agriculture(C.P)
	C2	26.7	0.89		3.59			0.01	15.97	Agriculture
	C3	33	1.1		1.44		2.15		18.12	Bar/Road
	C4	38	1.27	1.36		1.31	0.13		18.25	Bar/Road(C.P)
	C5	40.5	1.35		2.94			1.58	16.67	Agriculture
	C6	54.5	1.82	0.11		2.84	0.1		16.77	Agriculture(C.P)
	C7	61.4	2.05		1.15			1.04	15.73	River bank
	C8	69.3	2.31	1.85		2.73		1.58	14.15	River(C.P)
	C9	72.3	2.41	2.81		3.33		1.48	12.67	River (C.P)
	C10	84.2	2.81		2.94			0.13	12.54	River
	C11	92.7	3.09	2.24		1.48	1.46		14	River (C.P)
	C12	98.9	3.29	3.6		0.08	2.22		16.22	River bank(C.P)
	C13	100.4	3.35		1.1		2.5		18.72	Agriculture
	C14	131	4.37		1.44			0.34	18.38	Agriculture
	C15	161	5.37	0.87		1.67		0.23	18.15	Agriculture(C.P)
	C16	191	6.37		1.21			0.34	17.81	Agriculture
	C17	221	7.37		1.48			0.27	17.54	Agriculture
	C18	251	8.36	1.29		1.82		0.34	17.2	Agriculture(C.P)
	C19	281	9.36		1.37			0.08	17.12	Agriculture
	C20	311	10.37		1.33		0.04		17.16	Agriculture
	C21	334	11.13	1.17		1.62		0.29	16.87	Agriculture(C.P)
	C22	338	11.26	0.25		3.43		2.26	14.61	Agriculture(C.P)
	C23	345	11.5		1.35			1.1	13.51	Agriculture
	C24	353.5	11.78	4		0.6	0.75		14.26	Canal(C.P)
	C25	363	12.1	3.82		1.8	2.2		16.46	Canal(C.P)
	C26	400	13.33		2.78		1.04		17.5	canal
	C27	450	15		1.78		1		18.5	Agriculture
	D	500	16.67			1.28	0.5		19	Agriculture

PROFILE ALONG THE LINE- EF **SL. NO: 3**

DATE: 10.03.2022

NAME/GROUP OF SURVEYOR:

LINE	STATION	DISTANCE ON		STAFF READING IN METER			RISE IN M	FALL IN M	R.L	REMARKS
		GROUND IN M	MAP IN CM (1CM to 30M)	BS	IS	FS				
EF	E	0	0	2.3					18.15	Road
	E1	20	0.66		5			2.7	15.45	Marsh
	E2	34	1.13	0.25		0.35	4.65		28.1	Bar(C.P)
	E3	39	1.3	1.51		2.44		2.19	25.91	Bar(C.P)
	E4	69	2.3	1.45		0.8	0.71		26.62	Bar(C.P)
	E5	99	3.3	1.3		1.31	0.15		26.76	Forest(C.P)
	E6	109	3.63	1.69		4		2.7	24.06	Forest(C.P)
	E7	113	3.76	0.83		3.73		2.04	22.02	Forest(C.P)
	E8	122	4.06		2.1			1.27	20.75	River bank
	E9	131	4.36	4.1		1.16	0.94		21.69	River(C.P)
	E10	135	4.5		1.76		2.34		24.03	River
	E11	140	4.66	2.54		1.22	0.54		24.57	River(C.P)
	E12	170	5.66		1.48		1.06		25.63	River bank
	E13	200	6.66		1.84			0.36	25.27	Agriculture
	E14	230	7.66		1.2		0.64		25.91	Agriculture
	E15	260	8.66	1.28		1.99		0.79	25.12	Agriculture(C.P)
	E16	290	9.66		1.3			0.02	25.1	Agriculture
	E17	310	10.33		1.31			0.01	25.09	Agriculture
	E18	340	11.33	1.44		1.43		0.12	24.97	Agriculture(C.P)
	E19	347	11.56		3.3			1.86	23.11	Canal
	E20	352	11.73		5.3			2	21.11	Canal

	E21	357	11.9		3.3			2	19.11	Canal
	E22	362	12.06	2.32		1.49	1.81		20.92	Agriculture(C.P)
	E23	367	12.23		1.85		0.47		21.39	Agriculture
	E24	400	13.33	2.67		1.35	0.5		21.89	Agriculture(C.P)
	E25	450	15		1.89		0.79		22.68	Agriculture
	F	500	16.66			1.32	0.57		23.25	Agriculture

DUMPY LEVEL SURVEY

PROFILE ALONG THE LINE- GH **SL NO :4**

NAME/GROUP OF SURVEYOR: **Date:24.03.2022**

LINE	STATION	DISTANCE ON		STAFF READING IN METER			RISE IN M	FALL IN M	RL	REMARKS
		GROUND IN M	MAP IN CM(1CM to 30M)	BS	IS	FS				
GH	G	0	0	2.18					20	Agriculture
	G1	30	1		2.08		0.1		20.1	Agriculture
	G2	60	2	2.72		0.6	1.48		21.58	Agriculture
	G3	90	3		1.28		1.44		23.02	Bar/Road
	G4	92.6	3.08		1.24		0.04		23.06	Bar/Road
	G5	96.8	3.22	1.49		2.32		1.08	21.98	River bank
	G6	100.8	3.36	0.45		1.56		0.07	21.91	River
	G7	105.8	3.53		2.49			2.04	19.87	River
	G8	113.8	3.79	1.72		4.55		2.06	17.81	River
	G9	119.8	3.99		2.6			0.88	16.93	River

	G10	139.8	4.66	2.46		0.29	2.31		19.24	River bank
	G11	144.8	4.83	2.49		0.39	2.07		21.31	Forest
	G12	149.8	4.99		1.28		1.21		22.52	Forest
	G13	159.8	5.33	2.81		1.18	0.1		22.62	Forest
	G14	163.3	5.44	1.15		1.39	1.42		24.04	Forest
	G15	165	5.5		1.14		0.01		24.05	Agriculture
	G16	175	5.83	1.08		3.89		2.75	21.3	Agriculture
	G17	185	6.17		0.69		0.39		21.69	Agriculture
	G18	191.8	6.39	3.12		0.49	0.2		21.89	Forest
	G19	212.7	7.09		3.11		0.01		21.9	Forest
	G20	225.1	7.5		2.86		0.25		22.15	Forest
	G21	255	8.5		2.96			0.1	22.05	Forest
	G22	285	9.5		2.81		0.15		22.2	Forest
	G23	315	10.5	2.45		2.66	0.15		22.35	Forest
	G24	345	11.5		2.28		0.17		22.52	Forest
	G25	375	12.5		1.91		0.37		22.89	Forest
	G26	390	13	2.85		1.3	0.61		23.5	Forest
	G27	404	13.47		2.71		0.14		23.64	Forest
	G28	450	15		2.35		0.36		24	Forest
	H	500	16.67			2.25	0.1		24.1	Forest

PROFILE ALONG THE LINE- IJ **SL NO :5**

NAME/GROUP OF SURVEYOR: **Date:24.03.2022**

LINE	STATION	DISTANCE ON		STAFF READING IN METER			RISE IN M	FALL IN M	RL	REMARKS
		GROUND IN M	MAP IN CM(1CM to 30M)	BS	IS	FS				
IJ	I	0	0	1.47					24	Threshing floor
	I1	30	1		0.86		0.61		24.61	Threshing floor
	I2	60	2		1.49			0.63	23.98	Threshing floor
	I3	80	2.67	1.84		2.82		1.33	22.65	Road(C.P)
	I4	93	3.1		1.13		0.71		23.36	Forest
	I5	118	3.93	1.2		0.97	0.16		23.52	Forest(C.P)
	I6	148	4.93		1.88			0.68	22.84	River Bank
	I7	178	5.93	2		3.88		2	20.84	River(C.P)
	I8	186	6.2	2.59		4.2		2.2	18.64	River(C.P)
	I9	193	6.43		2.69			0.1	18.54	River
	I10	205	6.83	3.56		1.36	1.33		19.87	River Bank(C.P)
	I11	215	7.16	3.4		0.54	3.02		22.89	Bar/Road(C.P)
	I12	223	7.43		1.39		2.01		24.9	Road
	I13	231	7.7		1.4			0.01	24.89	Road
	I14	236	7.87	2.14		4.2		2.8	22.09	Agriculture(C.P)
	I15	255	8.5		2.93			0.79	21.3	Agriculture
	I16	285	9.5		2.54		0.39		21.69	Agriculture
	I17	315	10.5		2.34		0.2		21.89	Agriculture
	I18	345	11.5		2.23		0.11		22	Agriculture
	I19	375	12.5		1.98		0.25		22.25	Agriculture
	I20	390	13	2.12		1.73	0.25		22.5	Agriculture(C.P)
	I21	404	13.47		1.87		0.25		22.75	Agriculture
	I22	450	15		1.62		0.25		23	Agriculture
	J	500	16.67			1.37	0.25		23.25	Agriculture

PROFILE ALONG THE LINE- KL **SL NO:6**

NAME/GROUP OF SURVEYOR:

LINE	STATION	DISTANCE ON		STAFF READING IN METER			RISE IN M	FALL IN M	RL	REMARKS
		GROUND IN M	MAP IN CM (1CM to 30M)	BS	IS	FS				
KL	K	0	0	3.5					31.5	Threshing floor
	K1	25	0.83		3.65			0.15	31.35	Threshing floor
	K2	45	1.5		3.75			0.1	31.25	Threshing floor
	K3	48.5	1.62		2		1.75		33	Road(C.P)
	K4	50.5	1.68		1.43		0.57		33.57	Forest
	K5	53.4	1.78		1.39		0.04		33.61	Forest(C.P)
	K6	56.3	1.88	0.84		2.68		1.29	32.32	River Bank
	K7	81.3	2.71	1.37		1.33		0.49	31.83	River(C.P)
	K8	111.3	3.71		1.34		0.03		31.86	River(C.P)
	K9	141.3	4.71		1.13		0.21		32.07	River
	K10	163.3	5.44	0.8		1.13	0		32.07	River Bank(C.P)
	K11	175.3	5.84		1.13			0.33	31.74	Bar/Road(C.P)
	K12	179.3	5.98	1.74		3.5		2.37	29.37	Road
	K13	183.8	6.13		3.89			2.15	27.22	Threshing floor
	K14	205.8	6.86	3.58		4.34		0.45	26.77	Threshing floor
	K15	211.8	7.06	3		0.3	3.28		30.05	Threshing floor
	K16	219.6	7.32		1.35		1.65		31.7	Road(C.P)

	K17	222.8	7.43	3.08		0.68		0.33	31.37	Forest
	K18	225.3	7.51		1.38		1.7		33.07	Forest(C.P)
	K19	231.3	7.71		1.67			0.29	32.78	River Bank
	K20	235.9	7.86		3.18			1.51	31.27	Threshing floor
	K21	238.3	7.94		3.98			0.8	30.47	Threshing floor
	K22	243.3	8.11	1.56		4.1		0.12	30.35	Threshing floor
	K23	255	8.5		2.57			1.01	29.34	Road(C.P)
	K24	285	9.5		3.37			0.8	28.54	Forest
	K25	315	10.5	1.4		3.96		0.59	27.95	Forest(C.P)
	K26	345	11.5		2.21			0.01	27.94	River Bank
	K27	375	12.5		3.01			0.8	27.14	River(C.P)
	K28	390	13	1.52		3.63		0.62	26.52	River(C.P)
	K29	404	13.47		2.06			0.54	25.98	River
	K30	450	15		3.18			1.12	24.86	River Bank(C.P)
	L	500	16.67			2.81	0.37		25.23	Bar/Road(C.P)

PRISMATIC COMPASS SURVEY

NAME/GROUP OF SURVEYOR:

LINE	DISTANCE NO		OBSERVED BEARING		DIFFERENCE(D)	ERROR(e)	HALH OF ERROR(e/2)	CORRECTED BEARING	
	GROUND IN M	MAP IN CM	FB	BB				FB	BB
AB	30	1.2	157°	336^0	179^0	-1^0	$0^0\ 30'$	$156^0\ 30'$	$336^0\ 30'$
BC	30	1.2	153°30′	338^0	$184^0\ 30'$	$4^0\ 30'$	$2^0\ 15'$	$155^0\ 45'$	$335^0\ 45'$
CD	30	1.2	153°30′	$338^0\ 30'$	185^0	5^0	$2^0\ 30'$	156^0	336^0
DE	30	1.2	157°30′	342^0	$184^0\ 30^0$	$4^0\ 30'$	$2^0\ 15'$	$159^0\ 45'$	$339^0\ 45'$
EF	30	1.2	$156^0\ 30'$	341^0	$184^0\ 30'$	$4^0\ 30'$	$2^0\ 15'$	$158^0\ 45'$	$338^0\ 45'$
FG	30	1.2	$151^0\ 30'$	330^0	$178^0\ 30'$	$-1^0\ 30'$	$0^0\ 45'$	$150^0\ 45'$	$330^0\ 45'$
GH	15	0.6	$154^0\ 30'$	$332^0\ 30'$	178^0	-2^0	1^0	$153^0\ 30'$	$333^0\ 30'$
HI	15	0.6	$151^0\ 30'$	335^0	$183^0\ 30'$	$3^0\ 30'$	$1^0\ 45'$	$153^0\ 15'$	$333^0\ 15'$
IJ	15	0.6	$150^0\ 30'$	346^0	$195^0\ 30'$	$15^0\ 30'$	$7^0\ 45'$	$158^0\ 15'$	$338^0\ 15'$
JK	15	0.6	$157^0\ 30'$	$342^0\ 30'$	185^0	5^0	$2^0\ 30^0$	160^0	340^0
KL	15	0.6	170^0	358^0	188^0	8^0	4^0	174^0	354^0
LM	15	0.6	$177^0\ 30'$	$3^0\ 30'$	174^0	-6^0	3^0	$180^0\ 30'$	$0^0\ 30'$
MN	15	0.6	179^0	$6^0\ 30'$	$172^0\ 30'$	$-7^0\ 30'$	$3^0\ 45'$	$182^0\ 45'$	$2^0\ 45'$
NO	15	0.6	183^0	$9^0\ 30'$	$173^0\ 30'$	$-6^0\ 30'$	$3^0\ 15'$	$186^0\ 15'$	$6^0\ 15'$
OP	15	0.6	$201^0\ 30'$	$24^0\ 30'$	177^0	-3^0	$1^0\ 30'$	203^0	23^0
PQ	15	0.6	$201^0\ 30'$	$27^0\ 30'$	174^0	-6^0	3^0	$204^0\ 30'$	$24^0\ 30'$
QR	15	0.6	208^0	33^0	175^0	-5^0	$2^0\ 30'$	$210^0\ 30'$	$30^0\ 30'$
RS	15	0.6	208^0	$34^0\ 30'$	$173^0\ 30'$	$-6^0\ 30'$	$3^0\ 15'$	$211^0\ 15'$	$31^0\ 15'$
ST	15	0.6	210^0	34^0	176^0	-4^0	2^0	212^0	32^0
TU	15	0.6	$214^0\ 30'$	38^0	$176^0\ 30'$	$-3^0\ 30'$	$1^0\ 45'$	$216^0\ 15'$	$36^0\ 15'$
UV	15	0.6	227^0	47^0	180^0	0^0	0^0	227^0	47^0
VW	15	0.6	240^0	60^0	180^0	0^0	0^0	240^0	60^0
WX	15	0.6	216^0	40^0	176^0	-4^0	2^0	218^0	38^0
XY	15	0.6	194^0	$16^0\ 30'$	$177^0\ 30'$	$-2^0\ 30'$	$1^0\ 15'$	$195^0\ 15'$	$15^0\ 15'$
YZ	15	0.6	190^0	10^0	180^0	0^0	0^0	190^0	10^0
A1B1	15	0.6	180^0	0^0	180^0	0^0	0^0	180^0	0^0
B1C1	15	0.6	$157^0\ 30'$	$341^0\ 30'$	184^0	4^0	2^0	$159^0\ 30'$	$339^0\ 30'$
C1D1	15	0.6	$138^0\ 30'$	324^0	$185^0\ 30'$	$5^0\ 30'$	$2^0\ 45'$	$141^0\ 15'$	$321^0\ 15'$
D1E1	15	0.6	139^0	321^0	182^0	2^0	1^0	140^0	320^0
E1F1	15	0.6	136^0	318^0	182^0	2^0	1^0	137^0	317^0
F1G1	15	0.6	$127^0\ 30'$	$309^0\ 30'$	182^0	2^0	1^0	$128^0\ 30'$	$338^0\ 30'$
G1H1	15	0.6	130^0	312^0	182^0	2^0	1^0	131^0	311^0
H1I1	15	0.6	135^0	316^0	181^0	1^0	$0^0\ 30'$	$135^0\ 30'$	$315^0\ 30'$
I1J1	15	0.6	130^0	313^0	183^0	3^0	$1^0\ 30'$	$131^0\ 30'$	$311^0\ 30'$
J1K1	15	0.6	140^0	319^0	179^0	-1^0	$0^0\ 30'$	$139^0\ 30'$	$319^0\ 30'$

K1L1	15	0.6	134^0	316^0 30′	182^0 30′	2^0 30′	1^0 15′	135^0 15′	315^0 15′
L1M1	15	0.6	128^0	309^0 30′	181^0 30′	1^0 30′	0^0 45′	128^0 45′	308^0 45′
M1N1	15	0.6	126^0	306^0 30′	180^0 30	0^0 30′	0^0 15′	126^0 15′	306^0 15′
N1O1	15	0.6	140^0	321^0	181^0	1^0	0^0 30′	140^0 30′	320^0 30′
O1P1	15	0.6	142^0 30′	324^0 30′	182^0	2^0	1^0	143^0 30′	323^0 30′
P1Q1	15	0.6	127^0	314^0 ′30	187^0 30′	7^0 30′	3^0 45′	130^0 45′	310^0 45′
Q1R1	15	0.6	131^0 30′	319^0	187^0 30′	7^0 30′	3^0 45′	135^0 15′	315^0 15′
R1S1	15	0.6	136^0 30′	324^0 30′	188^0	8^0	4^0	140^0 30′	320^0 30′
S1T1	15	0.6	136^0 30′	325^0	188^0 30′	8^0 30′	4^0 15′	140^0 45′	320^0 45′
T1U1	15	0.6	137^0	326^0	189^0	9^0	4^0 30′	141^0 30′	321^0 30′
U1V1	15	0.6	144^0	329^0	185^0	5^0	2^0 30′	146^0 30′	326^0 30′
V1W1	15	0.6	145^0	330^0	185^0	5^0	2^0 30′	147^0 30′	327^0 30′
W1X1	15	0.6	151^0	327^0 30′	176^0	-4^0	2^0	149^0	329^0
X1Y1	15	0.6	157^0 30′	340^0	182^0 30′	2^0 30′	1^0 15′	158^0 45′	338^0 45′
Y1Z1	15	0.6	153^0 30′	341^0 30′	188^0	8^0	4^0	157^0 30′	337^0 30′
A2B2	15	0.6	132^0 30′	325^0 30′	193^0	13^0	6^0 30′	139^0	319^0
B2C2	15	0.6	143^0 30′	329^0 30′	186^0	6^0	3^0	146^0 30′	326^0 30′
C2D2	15	0.6	148^0	333^0	185^0	5^0	2^0 30′	150^0 30′	330^0 30′
D2E2	15	0.6	162^0	347^0	185^0	5^0	2^0 30′	164^0 30′	344^0 30′
E2F2	15	0.6	155^0	337^0 30′	182^0 30′	2^0 30′	1^0 15′	156^0 15′	336^0 15′
F2G2	15	0.6	151^0 30′	339^0 30′	188^0	8^0	4^0	155^0 30′	345^0 30′
G2H2	15	0.6	161^0 30′	347^0 30′	186^0	6^0	3^0	164^0 30′	344^0 30′
H2I2	15	0.6	156^0	343^0 30′	187^0 30′	7^0	3^0 45′	159^0 45′	339^0 45′
I2J2	15	0.6	177^0 30′	355^0	177^0 30′	-3^0	1^0 15′	176^0 15′	356^0 15′
J2K2	15	0.6	162^0	347^0 30′	185^0 30′	5^0 30′	2^0 45′	164^0 45′	344^0 45′
K2L2	15	0.6	194^0 30′	12^0 30′	182^0	2^0	1^0	193^0 30′	13^0 30′
L2M2	15	0.6	184^0	5^0	179^0	-1^0	0^0 30′	184^0 30′	4^0 30′
M2N2	15	0.6	178^0	358^0 30′	180^0 30′	0^0 30′	0^0 15′	178^0 15′	358^0 15′
N2O2	15	0.6	175^0	358^0 30′	183^0 30′	0^0 30′	1^0 45′	176^0 45′	356^0 45′
O2P2	15	0.6	177^0 30′	356^0	178^0 30′	-1^0 30′	0^0 45′	176^0 45′	356^0 45′
P2Q2	30	1.2	176^0 30′	355^0 30′	179^0	-1^0	0^0 30′	176^0	356^0
Q2R2	30	1.2	172^0	351^0 30′	179^0 30′	-0^0 30′	0^0 15′	171^0 45′	351^0 45′
R2S2	30	1.2	167^0	347^0	180^0	0^0	0^0	167^0	347^0
S2T2	30	1.2	161^0	341^0	180^0	0^0	0^0	161^0	341^0
T2U2	30	1.2	146^0 30′	326^0 30′	180^0	0^0	0^0	146^0 30′	326^0 30′
U2V2	30	1.2	136^0	315^0	179^0	-1^0	0^0 30′	135^0 30′	315^0 30′
V2W2	30	1.2	130^0	307^0 30′	177^0 30′	-2^0 30′	1^0 15′	128^0 45′	308^0 45′
W2X2	30	1.2	132^0	310^0	178^0	-2^0	1^0	131^0	311^0
X2Y2	30	1.2	128^0	305^0	177^0	-3^0	1^0 30′	126^0 30′	306^0 30′
Y2Z2	30	1.2	116^0	296^0	180^0	0^0	0^0	116^0	296^0

A3B3	30	1.2	105^0	284^0	179^0	-1^0	0^0 30′	104^0 30′	284^0 30′
B3C3	30	1.2	104^0	282^0	178^0	-2^0	1^0	103^0 ′	283^0
C3D3	30	1.2	100^0	277^0	177^0	-3^0	1^0 30′	98^0 30′	278^0 30′
D3E3	30	1.2	99^0	276^0 30′	177^0	-3^0	1^0 30′	97^0 30′	277^0 30′
E3F3	30	1.2	90^0 30′	273^0 30′	183^0	3^0	1^0 30′	92^0	272^0
F3G3	30	1.2	85^0	265^0	180^0	0^0	0^0	85^0	265^0
G3H3	38	1.5	85^0	264^0	179^0	-1^0	0^0 30′	84^0 30′	264^0 30′
H3I3	30	1.2	85^0	264^0 30′	179^0 30′	0^0 30′	0^0 15′	84^0 45′	264^0 45′
I3J3	30	1.2	68^0	251^0	183^0	3^0	1^0 30′	69^0 30′	249^0 30′

Source: Primary Survey 2022

Household Survey for Perception Study

Table 1

Respondents's Age group	Frequency	Percentage
0-20	1	5
20-40	6	30
40-60	7	35
60 and above	6	30
	N=20	Total=100%

Table 2

Sex Composition of Respondents' Households

Gender	Frequency	Percentage
Male	57	44.88%
Feamle	70	55.11%

Table 3

CASTE COMPOSITION OF RESPONDENTS

Caste	Frequency	Percentage
General	15	75%
ST	1	5%
SC	3	15%
OBC	1	5%
	N=20	100%

Table 4

Educational Qualification of Respondents'

Educational Qualification	Frequency	Percentage of Resondents having different Educational Qualification
Illiterate	5	25%
Under Matriculation	4	20%
Under Graduate	8	40%
Graduate or any other	3	15%
	N=20	100%

Table 5

Household Size of Respondents

Family Members of the Households	Household size	Male	Female	Number of Childern below 10
127	6	57	70	3

Table 6 Perception of villagers regarding rise of water level during flood

Rise of water level during flood	Frequency	Percentage	
0 to 5 meters	7	35	
5 to 10 meters	9	45	
10 to 15 meters	1	5	
15 to 20 meters	3	15	

Source: Primary Survey 2022

QUESTIONNAIRE FOR THE PERCEPTION STUDY AT FLOOD PRONE AREAS OF LOWER SHILABATI BASIN: A CASE STUDY OF BHABANIPUR MOUZA OF CHANDRAKONA BLOCK I

Name of the surveyor:

1. Study area (village/urban):

2. Locality- 3. Block: 4. District: 5.Police Station:

6. Caste Category: (GEN/SC/ST/OBC//OTHERS)

(A) SOCIO-ECONOMIC PROFILE OF THE STUDY AREA:

1. Name of the Respondent.....

2. Age: Please Specify (in years).....

3. Gender: (a) Male (b) Female

4. Educational Qualification:

• Illiterate ( )

• Under Matriculate ( )

• Under Graduate ( )

• Graduate any other ( )

5. Residential Background:

Rural Urban

6. House Position: Pucca ( ) Kachha ( )

7. Name of the village.....

8. Name of the district in which you belong.....

9. Annual Income (Including all scourers)

• Below Rs. <5000 ( )

• Rs.5000-10000 ( )

• Rs.10000-20000 ( )

• Above Rs.20000> ( )

10. Which colour (category) of ration card does your family have?

• Above Poverty Line ( )

• Below Poverty Line ( )

• Below Poverty Line Yojana) ( )

• No response ( )

11. What is your occupation?

Household work

Agricultural Labour

Service

Business

Others

B. ISSUE FOR THE PERCEPTION STUDY AT FLOOD PRONE AREAS OF LOWER SHILABATI BASIN

1. How can you rate the flood situation of your locality?

a) Very poor b) average c) good d) very good

2. For how many times did you observe the flood situation in your areas?

a) For the last 5 years b)) For the last 5 years c) For the last 15 years d) For the last 20 years

3. Can you state the approximate water level rise in the river Shilabati during flood period for the last 5 years? (State in feet)

…….

5. What do you think about the causes of flood in your locality?

…….

6. Did the flood situation paralyse the living condition of your locality? If yes for how many days?

a) more than 15 days b) more than a month c) other (mention)

7. During flood period for how many have you faced the problem of scarcity for pure drinking water?

8. Are you satisfied with the amount of relief during and in the post flood situation provided by the local Government? How can you rate?

a) Very poor b) poor c) average d) good e) excellent

9. How can the problem of the flood situation in your areas be resolved? What is your opinion?

Or

What do you expect from the Government to solve the flood situation in your areas permanently?

……..