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GEOGRAPHY PROJECT REPORT
2019-20

Introduction: Geography is both a spatial and temporal science and it studies the bond between nature and environment, its distribution over space and evolution through time. Thus, geographers have taken a major role in assessing natural disasters like flood, cyclone, droughts and its impact in the society. Later the aspects of man-made disasters or social disasters like poverty, crime, social inequality are included giving the dynamicity to the discipline. The management approaches have also undergone modifications based on perceptions over time like it has changed from the disaster reduction to disaster preparedness when it was understood that natural disasters are unavoidable. Undoubtedly, more concerns with the intersection of socio-economic, physical and technological and political/legal systems and more sharing areas of interest, knowledge and methods with many other fields of study, will make geography more powerful in the aspects of disaster prevention and management.

Curriculum: U.G. B.Sc. 6th Semester Geography CBCS Honours (Paper C14P- Project Report on Disaster Management) under Vidyasagar University

Title of the Report: 'Riverbank Erosion in Malda: A Case Study of Suksena Village, Manikchak Block '

Place Visited: Suksena Village, Manikchak Block, Maldah District, West Bengal

Field Duration: 28.02.20 to 01.03.20 (incl. journey)

No. of Student Participant: 15 (Fifteen)

Supervisor: Dr. Ina Dhar Roy Dasgupta, Assistant Professor of Geography & HoD

Objectives:

- a. To evaluate the scenario of river bank erosion in Manikchak Block, Malda specially
- b. To identify the problems faced by affected people of Suksena village.

Findings:

The Ganga in Malda district in the upstream of Farrakka Barrage has been undergoing extensive erosion along the left bank even though it has been strongly protected. Manikchak Block of Malda falls within the very high vulnerable zone. The main shifting of river during 1977-1990 comes under Manikchak Block. Nearly 4.5 lakh people have lost their homes due to bank erosion and 22 mouzas of Manikchak have gone in the river till date. The Suksena village is badly damaged by the erosion of the Ganges. The villagers have been evicted three to four times as a result of repeated erosion. The village symbolizes chronic poverty and unemployment. The education and health infrastructure is in very bad condition; people are living in tents with very bad sanitation. The roads are severely damaged and immediately need repairing.

A Project Report on
River Bank Erosion in Malda : A Case study of
Suksena Village, Manikchak Block

By

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6th Semester

Geography Honours

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SAHID MATANGINI HAZRA GOVERNMENT COLLEGE FOR
WOMEN.

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CHAPTER- I

Introduction

Riverbank erosion is the wearing away of the banks of a stream or river through its flooding, meandering or general watercourse. Riverbank erosion and channel shifting is a geo-morphological phenomena that has been studied by various researchers in last few years (Pati et al 2008, Phillip et al 1989; Tangri 2000; Das & Saraf 2007, Das et al 2007).

The Ganga river is one of the major river systems in India. Gangetic plain covers a large portion of India. The river Ganga emerges from the Gangotri glacier, about 4500m. Above mean sea level in the Uttarakhand, Himalayas, and flows down to the Bay of Bengal covering a distance of 2525km. Each year the river carries millions of tonnes of sediment load & deposits in the plain areas. This sedimentation is the source of major water resource related challenge in India each year. The sediment deposition creates many severe problems like the decrease of river depth due to riverbed siltation. But when the discharge increases, the river exerts pressure on its two walls & lateral erosion starts, which becomes the root of many flood & river bank erosion hazards in India.

Farrakka barrage has its special importance for the existence of Calcutta Port. The construction of Farrakka barrage was started in 1962 & was completed in 1971. Four more years were needed to build up the feeder canal, and the project was dedicated to the nation on the 21st May 1975 (Banerjee 1999). The 2.64 km. long Farrakka Barrage was designed to divert 40,000 cusecs of Ganga water toward Bhagirathi with a view to flush the sediment load into the deeper part of estuary and resuscitate the navigational status of the Kolkata Port (Rudra 2014). It was built with the objective of inducing water into the Hugli river. The obstruction seems to lead the river to make her own way, mainly in upstream of Farrakka Barrage. The main sufferers are the two districts of West Bengal, Malda & Murshidabad (Banerjee & Chakrobarty 1983). This change of Ganga river course and resulting riverbank failure is a long term natural disaster in West Bengal. This has become a chronic problem from early 60's and it has manifested itself to a formidable magnitude during last four decades as evident from many studies (Rudra 1996a, b2004; Banerjee 1999, Mukhopadhyay 2003). In the upstream the major part of the erosion victim area comes under Malda district, mainly four blocks viz. Manikchak, Kaliachak II, Kaliachak III, & Ratua I. It

causes huge population migration from the villages near the river. (Showkat, Iqbal 2010). It also results in the change in river morphometry as well as the border shape between Malda and Murshidabad, between West Bengal and Jharkhand state and between India and Bangladesh. It results in a social and political conflict also .The present study is an attempt to give a whole picture of the problem of river bank erosion and its impact in Malda with special reference to selected village of Manikchak Block

CHAPTER-II

Study Area

Malda, a district of West Bengal, is located almost in the central part of the state, near the Indo – Bangladesh Border. The total area of the district is about 3733km² (as per census 2001). The district consists of 15 sub-division, commonly known as blocks. One side boundary of the district is drawn by the river Ganges itself. This study is based on the river Ganges left bank erosion on west side of the river. This study would be limited to Manikchak Block only. According to a report, 750 km² land area was lost in 30 years in Manikchak & Kaliachak areas (Banerjee 1999). The total population of Manikchak was 214123 where 110407 were men and 103716 were women in 2001. In 2011, the total population became 269813 where 139593 were men (51%) and 130220 were women (49%). Population below the 6 years of age is 43282.

The map of suksena village (Fig no.-1):

CHAPTER-III

Objectives

The objectives of the present study are:

To prepare the total scenerio of river bank erosion in Malda specially Manikchak Block.

To identify the problems faced by affected people of Suksena village.
To find out some remedies if possible.

Methodology

This study can be divided into three steps (Table No. 1)

Table No. 1: Methodology

Pre- Field	<ul style="list-style-type: none">• Consultation of various research paper from journals books etc. on river bank erosion in general, impact on the study area and collection of necessary documents and maps• Preparation of Questionnaire• Collection of Secondary data from Census Handbook• Collection of maps from Block Development office, Manikchak.
Field	<ul style="list-style-type: none">• Questionnaire Survey 40 samples of Suksena village based on Random Sampling.....of the total households of the village were covered• Collection of field photographs and recording of videos while surveying the common people.• A discussion session with the Disaster Management Officer of Manikchak Block.

CHAPTER-IV

River Bank Erosion in Malda

River bank erosion is prominent in Malda district caused by the river Ganges. Now it is well accepted that the intensity of the Ganges-bank erosion in West Bengal has increased after the construction of Farrakka Barrage (Rudra 2010). The Ganges in Malda district in the upstream of Farrakka Barrage has been undergoing extensive erosion along the left bank even though it has been strongly protected.

In the second decade of the 20th century, the course of the Ganga between Rajmahal and Farrakka was straight and aligned in a southeasterly direction. This course is described in the topographical sheet bearing No 72P/13 surveyed in the year 1922-23. This was not the course of river during the earlier centuries when Ganga flowed along an altogether different course dashing Gour, the mediaeval capital town of Bengal. Subsequently, the river direction changed. In 1948-50 survey shows that the river Ganga had a definite tendency to swing to the left below Rajmahal and to the right below Farrakka. In 1967-68 the bank line had moved considerably towards the left below Rajmahal - Farrakka reach (Sangupta 1969). Though the position at Farrakka remained unaltered, the river had move considerably towards the right below Farrakka. In 1970-72 the bank line indicates that on the upstream of Farrakka Barrage, the erosion.

On the left bank was continuing unabated though apex of the erosion was moving downstream. A common difficulty faced by the lower riparian regions along the Ganga is the frequent phenomenon of river floods. The report of the Official study Group constituted by the Ministry of Water Resources in 1986 and led by the Irrigation Advisor of the planning commission, estimates that around 111 million ha land area affected by the water erosion, just followed by the water logging which affected 2.46 million ha of land.

Among the total North Bengal , Manikchak Block of Malda fall within the very high vulnerable zone (Karmakar 2016). The main shifting of river during 1977-1990 comes under Manikchak Block. During 1990-2001, Manikchak falls within the maximum river shifting area. Though during 2001-03 shifting was less, but Manikchak remain within the affected areas. (Thakur, Agarwal, Laha 2012) (Fig -2)

Fig 2:River Bank Erosion Gram Panchayets of Manikchak Block, Malda

The main problems of managing the Ganga river basin may be summarised as follows:

1. Large-scale erosion of the river bank Ganga. (due to geology, hydrology of the river and geotechnical properties of the bed and river banks).
2. General Tendency of the Ganga to shift towards left bank of Farrakka (aggravated by human intervention).
3. Anti-erosion measures not so successful.
4. Non-availability of adequate quantity of boulders for construction of revetments and spurs.

Table no 2 shows the left bank erosion by the Ganges in Malda upstream from the Farrakka Barrage. During 1931-1978 the total loss was 14335 hectares.

Table No. 2: Impact of River Erosion

Year	Maximum app. Bank length affected (km.)	App. Erosion width(metres)	Land loss(hectares)
1979	5	200	60
1980	7	150	105
1981	11	400	260
1982	5	150	65
1983	5	200	90
1984	7	100	70
1985	6	150	90
1986	6	200	105
1987	8	300	240
1988	7	100	70
1989	10	150	150
1990	8	200	160
1991	11	150	170

1992	9	150	130
1993	7	200	145
1994	7	1250	160
1995	8	200	145
1996	15	250	310
1997	6	100	60
1998	10	900	330

Source: Superintending Engineer, Farrakka Barrage Project

The 1998 flood affected more than 2/3rd of the district and a population over 22 lakhs with nearly 4.4 lakh houses being destroyed or suffered huge damage. The loss of human lives was highest in Kaliachak I followed by Manikchak.

In Malda the total eroded land between 1979 and 2004 had been 4247 hectares. More than 200 sq km. of fertile land had been swept away till 2004. The dimension of loss of livelihoods can be seen in the loss of 61.10 sq km. agricultural lands, 25 sq km. orchards, 85 sq km. settled land, 7 sq km. wetlands and 13 sq km. other lands totalling 191.10 sq km. during the last one decade. In 2001 itself 2500(app) families in Malda were displaced. According to the report of the committees set up by Planning Commission (1996), nearly 4.5 lakhs of people have lost their homes due to left bank erosion and 22 mouzas have gone in the river of Manikchak, Kaliachak I & II.

The human impact of continuous bank erosion and sedimentation in Malda has been tremendous leading to displacement, eviction loss of land and property making the areas vulnerability prone. The riverine change in the post Farrakka situation has played a massive role in the rise of the new running or existing 'Chars' in Malda & brought vagaries to the life of the erosion victims living in these fragile land patches. The people who migrate and settle in the newly emerged char lands lead a life under the shadow of poverty and insecurity. The erosion and resultant homelessness cause an oversupply of agricultural labour in the fertile 'Chars' engaging the labourers at a wage lower than the minimum fixed by the government. In the Malda 'Chars', the average daily wage of adults working in the chars is less than Rs. 60. There is no hospitals in the Chars. Most children suffer from malnutrition.

The cross-border conflict not only has an inter-dimension, but it also has intralevel of complexities. In Malda, 'Chars' have created problem with the

adjoining state of Bihar. Mouzas on the char lands like Piapore, Paranpur, Palashgacha, Kanchi Jadupur, Srighar, Begamganj, Dogachchi, Daskathia, Nityanandapur, Mangatppur, Hosenbad, Hakimbad, Jitugarh inhabited by one and half lakh people, can be accessed from Paglar Ghat in two hours by boat. It does not have a single health centre or primary school and the administration there is of Bihar. Yet for registration of land one has to come to Malda since the land belongs to Malda officially. In the census handbook these places are shown to be part of Malda. A strong kind of dual stateship prevails here. Those displaced have ration cards and Identity cards issued to them by the West Bengal government. In other words of the victims of the Malda bank erosion "*If we know which administration we belong to , we could figure out our rights and make necessary demands .*" Human life on 'Chars' lacks facilities of sanitation, education, medical treatment, market and even drinking water. Women are the worst sufferers and forced to take up additional burden of providing financial support. They either join bidi industry or to be couriers of smuggling industry.

Chapter-V

1. General characteristics SUKSENA

According to the 2011 census-

Particulars	Total	Male	Female
Total No. of Houses	406	-	-
Population	1,502	764	738
Child (0-6)	292	144	148
Schedule Caste	823	413	410
Schedule Tribe	644	331	313
Literacy	29.75 %	38.06 %	21.02 %
Total Workers	561	367	194
Main Worker	218	-	-
Marginal Worker	343	168	175

a. Location of Suksena village :-

Suksena is a village of Manikchak block of Malda district. The village of suksena is situated between the village of Dergama in the north, Baidukra in the south, Nowar jagir and Hara chandra pur in the east and the Rambari, sabhanath pur and hirananda pur located in the middle of the village.

b. Demographic Features-

i. Age sex structure:-

The surveyed data reveals that the proportion of women and men in that village is almost equal. The no. of children in the village of suksena is high those who are under 1-10 years of age. Again the number of girls is high. The number of people aged 61-70 years old is low. The number of men in the work force is low and probably due to this the living conditions of the people of that area are poor.

(Fig no.-3)

ii. Level of Education:-

The level of education is very poor in suksena. The illiteracy rate is much higher among women than the men.

The main reason for the section in education in that village is that the people there are not getting the minimum amount of food they can afford, for which there is no desire to study. Again there is no school within the village and children have to go to far from schooling. If the government arranges for the construction of a school near the village and the provision of Free teaching and mid day meal the condition may improve. (fig no.-4)

iii. Employment:-

The number of non - worker is higher than the worker of the village. The workforce has more womens. Due to river erosion, the villagers have faced lot of landloss. Thus most of the villagers are work as daily labour. (fig no.-5)

iv. Occupation:-

People in the village are mostly illiterate and thus they are not associated with any specialized of job. They even do not have the land to cultivate. Therefore both men and women of that village are employed for labor and sell the cattle (cattle, goats, sheep) that are raised in the house and run their family.

V. Income:-

The people of that village have very low monthly income as they are employed as impermanent laborers .The highest income is recorded as 4000 rupees and the

lowest income is 500 rupees(monthly). They even can not provide the amount of food they required.(fig no.-6)

C. Housing condition:-

i. Roof :-

As the income of the people of suksena village is low. Houses are mostly kutcha in nature. Most of the houses are made up of roofing stick and also some of the roof made of tin and asbestos. Houses with stick roof suffer heavy rainfall during the monsoon. The roof of the house is also likely to be broken during these Storms.

ii .wall:-

Due to the low income of the people of suksena village, their houses are in very poor condition. Most of the walls are made up of stick and also some of the house walls are made of brick and tin. The village of suksena is flooded every year and the walls frequently get collapsed during floods.(fig no.-7)

iii. Floor

All the houses are having mud floor.the .During the rainy season, the ground floor is always wet and thus cold, cough and various diseases are very common here.

D. Basic Facilities:-

i. Water supply:-

There is no tube well to supply water to the village of suksena. They usually drink river water without any purification. It has been observed that the local people suffer from different chronic problems like stomach problem, skin diseases. River is the source of water for other purposes like cooking, bathing, washing etc.

ii. Toilet Facility:-

People in suksena village have no toilet to use on their own. Everyone in the village uses open toilets. The environment surrounding the use of open toilets is deteriorating and spreading various kinds of germs.

E. Health :-

i. Common diseases:-

People of suksena village suffer from various kinds of illness all year long. The main disease is fever. There are also other common disease like stomach problem, Headache, vomiting, asthma , acidity, cold and cough etc.

The main cause of the disease in the village is the problem of the water used, turbulent environment. (fog no.-8)

ii. Treatment:-

Medical care is very poor in suksena village. They do not get proper treatment for all disease. It is very difficult for them to go to a clinic in nasa about 10 km from the village.

AGE - SEX STRUCTURE

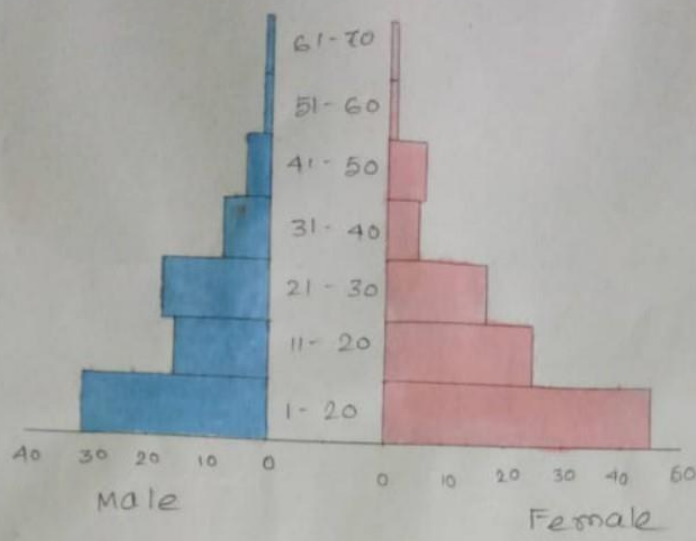


Fig no.-3

Fig-3

LEVEL OF EDUCATION

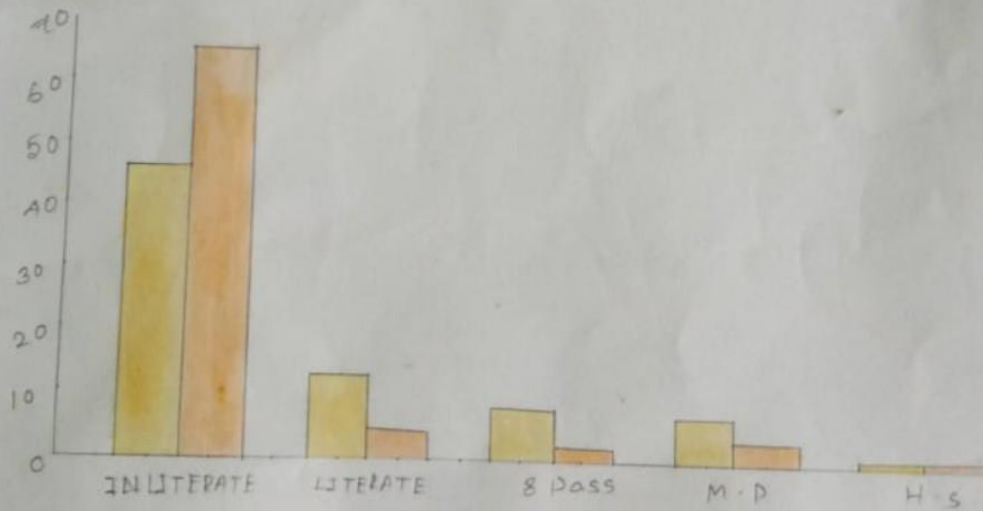
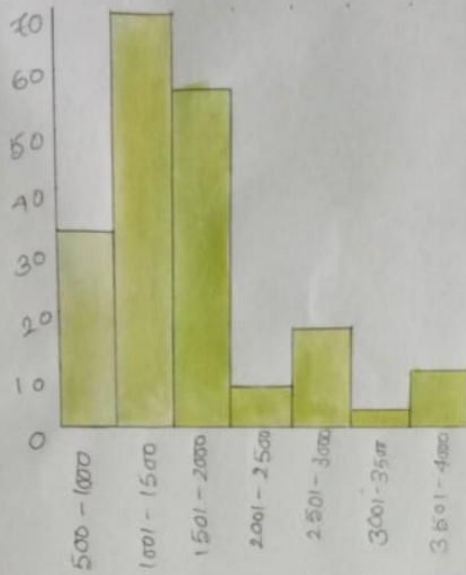


Fig no.-4

→ male
 → female

Source: Field survey Fig-4

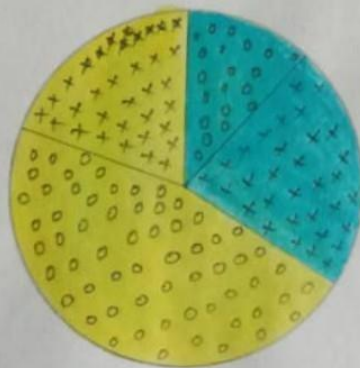
INCOME STRUCTURE



← Income (RS) →
Fig. - 6

Fig no.-6

EMPLOYMENT

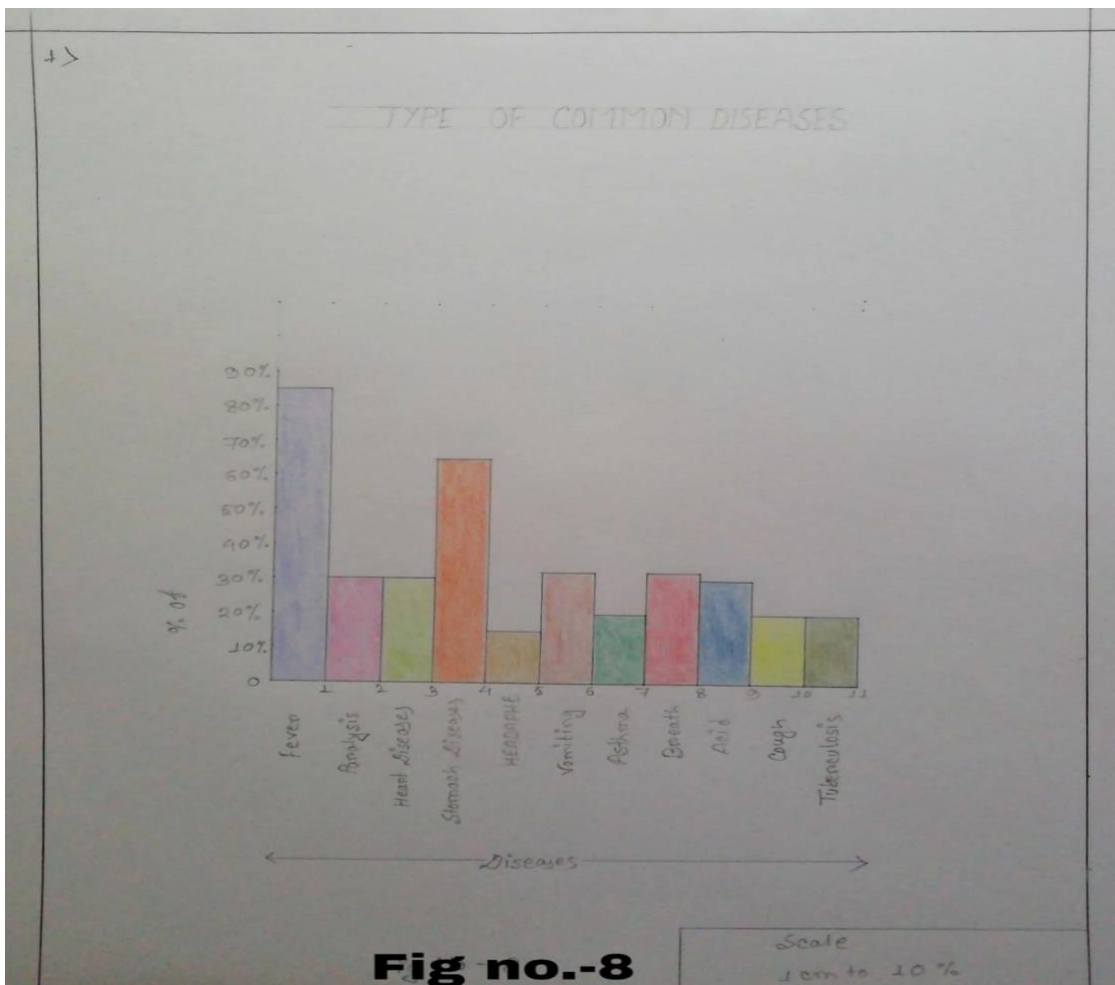
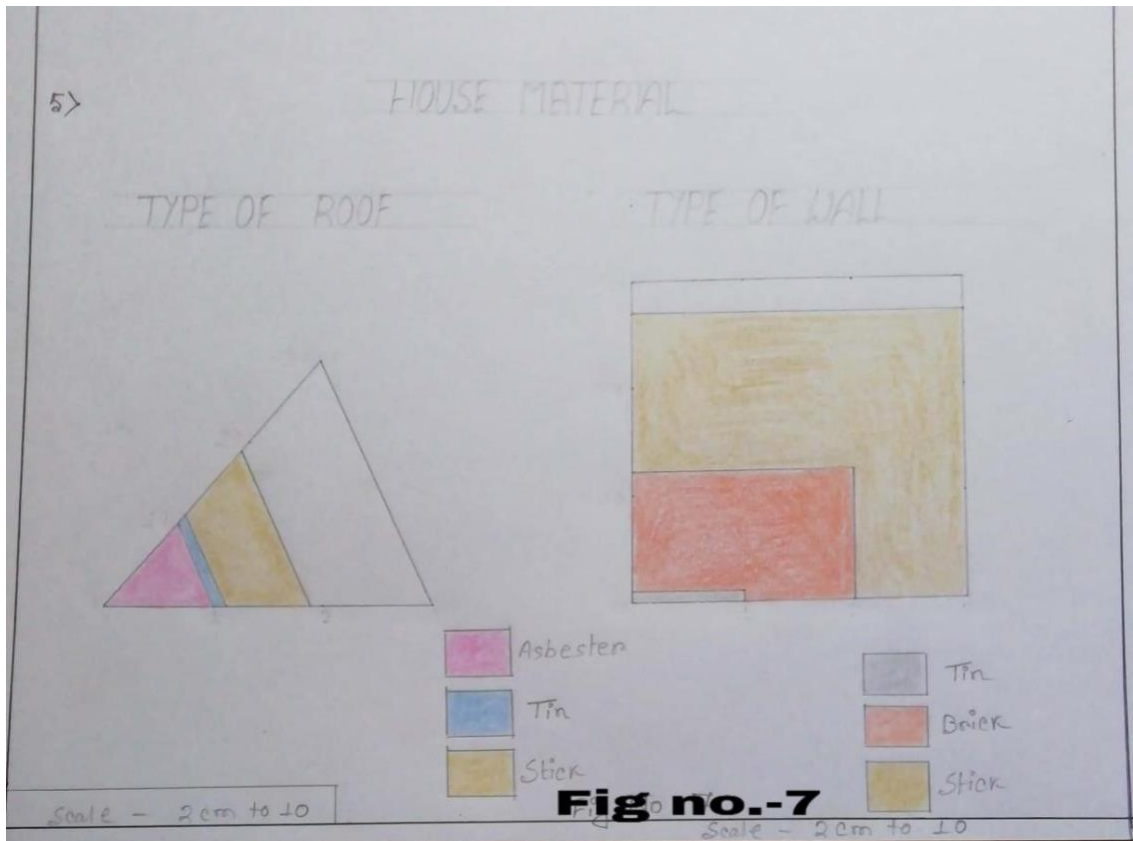


■ Worker oo Male
■ Non-worker xx Female

Fig no.-5

Fig. - 5

Source :- Field survey



Chapter-VI

River Bank Erosion and its impact: Suksena

1. **Migration-** suksena village is the most affected Village as a result of river bank erosion.

Every time the river took it's form, the village was damaged, causing people to change their habits. Due to river erosion, the people of that village have changed place twice, thrice and four times. We have done a total of 40 homes in that village and have learned that the 50% people have changed the place 4 times in that village, 17.5% of people have changed place 3 times and 32.5% of people have changed place twice. The village was repeatedly damaged due to river erosion, but no man has moved away from that village. (Fig no.-9)

2. **Loss –** Due to the river erosion suksena village was severely damaged due to their loss of

Salinity. Due to river erosion, Many people's houses, cattle and other items have been damaged of that village we have do a total of 40 homes in that village and have learned that. Among them 35% of the people were monetary, 17% of the people cattle, 40% of the land and 8% of the people were damaged in other things. (Fig no.-10)

3. **Occupational change** – The people of the village of suksena have also repeatedly

Changed their livelihoods because the river is most affected by the river erosion. Most of the people in that village were formerly engaged in agriculture work and fish farming who are currently employed in labor and some people are still associated with agriculture work. Of the 40 houses we surveyed, 50% were employed form agriculture work to labor, 35% people were employed form fishing to labor and 15% people are still employed with farming. (Fig no.-11)

1)

MIGRATION

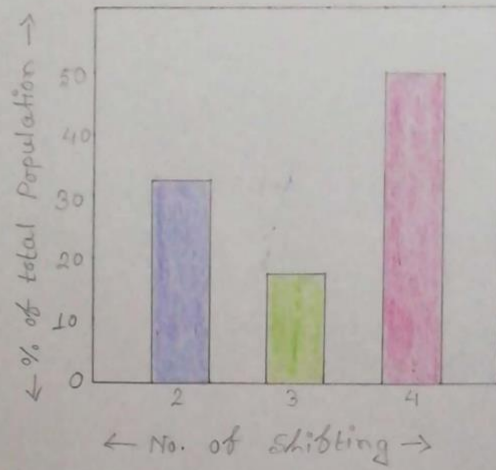


Fig no.-9

2)

OCCUPATION CHANGE

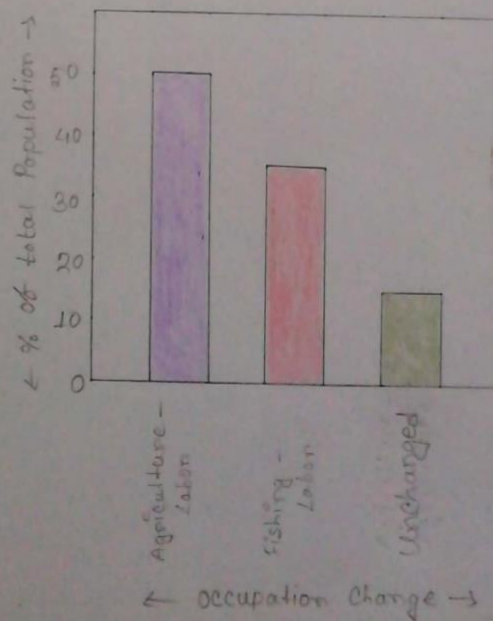


Fig no.-11

Source → House Hold Survey

3)

AMOUNT OF LOSS







INDEX	
	→ Monetary
	→ Cattle
	→ Land
	→ Others

Fig no.-10

Source- House Hold Survey

Conclusion:-

We have done that by field survey in suksena village of manikchak block. The village was badly damaged by the erosion of the Ganges. The people of that village have been evicted three to four times as a result of repeated erosion of the river bank. The people of that village have no income most of the people are employed as laborers. Besides, there are no good school in the area. If there is any disease, it has to be taken for treatment. The transportation system is of an infinite nature, 90% of the people in the village have chalk walls and tin tents. For these reasons, the life of the people that village E.g. -a good jinic, improving the transportation system, improving the education system, if the house is helped to make the house and if a work place is built in that area, then the people there will get jobs. This will improve there quality life.

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