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GRT INTER ISLAND RELOCATION DUE TO NATURAL HAZARDS AND SOCIO-ECONOMIC CHALLENGES: A CASE STUDY ON HUGLI ESTUARY ISLANDS

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Abstract:-Hugli, the westernmost distributary of Ganga-Brahmaputra delta is characterised by numerous transient islands. These are evolved by bio-tidal accretion processes and are active grounds for natural hazards to act in. The present study concentrates on the inter island relocation of Lohachara and Ghoramara islanders to Sagarestuary and socio economic challenges they faced therein.

Keywords:Hugli estuary, Ganga-Brahmaputra delta, transient islands, relocation.

1.1 INTRODUCTION

Hugli is the westernmost distributary of the Ganga-Brahmaputra delta. Evolution of the islands in the Hugli estuary is a natural phenomenon and often follows a cyclic pattern (Bandyopadhyay, 2000; 2004). The islands are extremely prone to natural hazards and transient in nature. The islands, in spite of their transient characteristics, attracted humans as soon as they became stable after emergence. Premature reclamation made the region forever lower than the highest high tide and storm surge levels and made them prone to tidal ingress and flooding due to breach in the embankments (Chakma and Bandyopadhyay, 2012). Therefore, migration and/or relocation of the affected people are common in these islands.

An effort has been made here to analyse the socio-economic challenges of the relocated islanders from Lohachara and Ghoramara islands to the colonies of the Sagar island.

1.2 The Case of Lohachara and Ghoramara Islands

Lohachara and Ghoramara islands (21° 55' N and 88° 07' 30" E) were attached with the Sagar island (21° 37' to 21° 52' N and 88° 02' to 88° 11' E) up to 1903-04 and detached from it in 1904-05 (Bandyopadhyay, 1994; 1997). Administratively, Lohachara (JL. No. 3) and Ghoramara (JL. No. 2) islands were part of Sagar C.D. block. Before vanishing of Lohachara island from the estuarine environment it had 871 ha area in 1922-23 and eroded away completely in the year 1971. Ghoramara has suffered a lot due to severe erosion problem too. The island lost major portions of Khasimara, Baishnabpara and Raipara areas in recent years. It has already lost more than 70 per cent of its land area in the past 50 years (Chakma and Bandyopadhyay, 2012). [Fig. 1, Table-1].

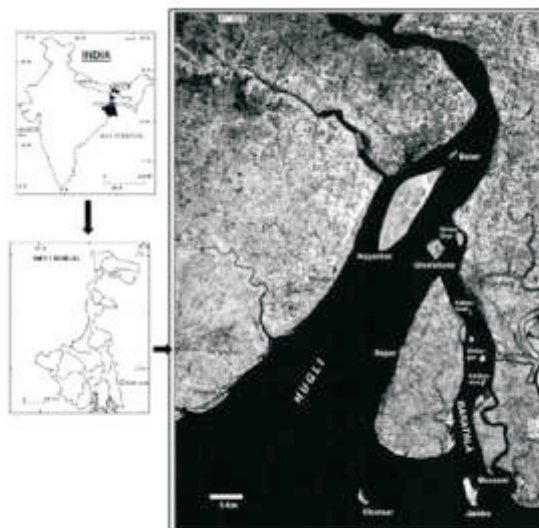


Fig.1: Location of the study area (base image: IRS 1D L3 NIR Band, 25.01.2001)

Table-1: Loss of areas (ha), 1922-23 to 2009

J.L. No	Mouza Name	Area in 1922-23 (ha)	Area in 2009 (ha)	Percent of area lost in 1922-23 to 2009
1	Khasimara	319	0	- 100
2	Ghoramara	1,852	502	- 72.89
3	Lohachara	871	0	- 100

Source: Chakma and Bandyopadhyay, 2012 [Survey of India topomap (79 C/1); IRS-1D L-3 satellite image 25.01. 2001, IRS P6 L-3, 16.03.2009]

1.3 Relocation in Sagar Island

Displaced people or environmental refugees from Ghoramara, Khasimara and Lohachara islands are resettled in Sagar island by the local government authority. The main concentrations are found in Bankimnagar, Gangasagar and Jibantala-Kamalpur colony areas (Table-2).

Phuldubi colony: It was the first resettled colony in Sagar island during 1964. People from Khasimara were relocated here. Total households included 11 with a population of 50. Each household granted 0.533 ha of land from the government.

South Haradhanpur colony: It was established in 1964. Displaced people from Khasimara were resettled here. Total households included 14 with a population of 65. Amount of the land granted was same with Phuldubi.

Bankimnagar colony: The second largest resettlement project started in 1972 at Bankimnagar colony with the displaced people of Lohachara? “the vanishing island” of the Hugli estuary. Each household got 0.833 ha of land as grant from the government. Number of households found 151 with population of 1,057.

Gangasagar colony: It was established in 1981 at the Gangasagar area. People from Ghoramara were resettled here. Each family got one room mud house with 0.267 ha of land as grant from government. Total number of households included 150 with a population of 1,050.

Jibantala-Kamalpur colony: It is the 5th colony continuing resettlement of people though the project started since 1983. It consists of two parts—Jibantala and Kamalpur areas. Jibantala is older than Kamalpur. Each part again subdivided into two and categorised as number one, two, three and four according to the establishment period. Together the colony consists of 136 households with a population of 816. Each family got one pucca (brick-built) house with tin shade and 0.2 ha of land as grant from the government (Chakma and Bandyopadhyay, 2012).

Table-2: Relocated colonies at Sagar, 2012

Sl No.	Name of Colony	Year of establishment	Number of households and Size	Total population	Government aid given
1	Phuldubi	1964	11 (5)	55	Land: 0.533 (ha)
2	South Haradhanpur	1964	14 (5)	70	Land: 0.533 (ha)
3	Bankimnagar	1972	151 (7)	1057	Land: 0.833 (ha)
4	Gangasagar	1981	150 (7)	1050	Land: 0.267 (ha) and one mud walled house
5	Jibantala-Kamalpur	1983	136 (6)	816	Land: 0.2 (ha) and one brick-built house

Source: Local Panchayet office: Sagar and Field survey, 2012

1.4 Materials and Methods

The present work is based on both quantitative and qualitative methods of research. To assess the changes in island areas, maps, satellite imageries of various years have been compared after reducing or enlarging them to a suitable scale.

Before commencing the household survey in the colonies, extensive field visits were conducted to understand the socio economic as well as cultural context of the area. A stratified random sample of households were chosen for the purpose of the questionnaire survey. The questionnaire was prepared keeping in mind the objectives of the study. The survey covered a total of 125 households (730 persons) which included speaking to the residents of each selected colony households for collection of the primary data and cross verifying the information collected.

1.5 Results and Discussion

1.5.1 Socio-Economic Characteristics of the Islanders

Social Groups, Bonds and Kinship

Social groups of the colonies include general hindu, scheduled caste (SC) and muslim communities. General category of hindu dominates in Gangasagar colony (50 percent). SC communities dominates the settlements of Phuldubi (63.64 percent), Bankimnagar (56.67 percent) and South Haradhanpur (50 percent). The muslim community predominates in the Kamalpur (39.47 percent) area. People have developed social bond within them and are cooperative in nature due to their common traumatic past and new aspiration in the new land. Kinship dominates the colonies. Most of the people are settled here with their close relatives.

Spatial Concentration of Social Groups

To find out the spatial concentration of social groups in relocated colony areas, location quotient (LQ) technique has been applied. Kamalpur has shown high concentration (LQ>1) of muslim groups, Gangasagar has a high concentration (LQ>1) of the general hindu groups due to its close proximity to the holy Kapil temple and the Sagar Mela ground. Bankimnagar has a concentration (LQ>1) of SC groups. In South Haradhanpur both general hindu and SC groups are found in equal concentration (LQ>1). In Phuldubi a high concentration of SC groups are to be with a substantial number of the general hindu groups as well (Table-3).

Table-3: Concentration of people of different categories in the colonies, Sagar

Colony Name	General Hindu population (%)	SC population (%)	Muslim population (%)	LQ of General Hindu population	LQ of SC population	LQ of Muslim population
Phuldubi	9.09	12.73	0.00	1.02	1.42	0.00
S. Haradhanpur	15.9	12.73	0.00	1.4	1.12	0.00
Bankimnagar	20.5	30.91	16.67	0.84	1.27	0.68
Gangasagar	34.1	18.18	20.83	1.64	0.75	0.85
Jibantala-Kamalpur	20.5	25.45	62.5	0.66	0.82	2.02

Source: Field survey, 2011-2012

Education, Income and Occupation Scenario

In general literacy rate is high (60 percent and above) in the resettled colonies except in Kamalpur colony (43.1 percent). Gangasagar and Bankimnagar colonies show high literacy rates (91.9 percent and 85.58 percent). [Fig.-2].

Average monthly income of the colonies ranges between Rs. 1,500-2,000. People in the colonies are mainly engaged in various informal type of occupation.

In Phuldubi colony, people are employed as daily wage labours (54.55 percent), cultivators (36.36 percent) and van rickshaw pullers (9.09 percent). Average monthly income is Rs. 1,000-1,500. In South Haradhanpur colony, people are engaged as daily wage labourers (50 percent), cultivators (35.71 percent) and van rickshaw pullers (14.29 percent). Average monthly income is same as Phuldubi colony. In Bankimnagar colony, most of people are cultivators (90 percent). A small number of people are engaged as van rickshaw pullers (3.3 percent) and small traders (8.67 percent). Average monthly income is Rs. 1,500-3,000. In Gangasagar colony, people are engaged as cultivators (33.33 percent), daily wage labourers (26.67 percent), van rickshaw pullers (23.33 percent) and small traders (16.67 percent). Average monthly income is Rs. 1,000-2,500. In Kamalpur majority of the people are acted as daily wage labourers (52.63 percent). Average monthly income is Rs. 1,500-2,500 (Fig.-3, 4).

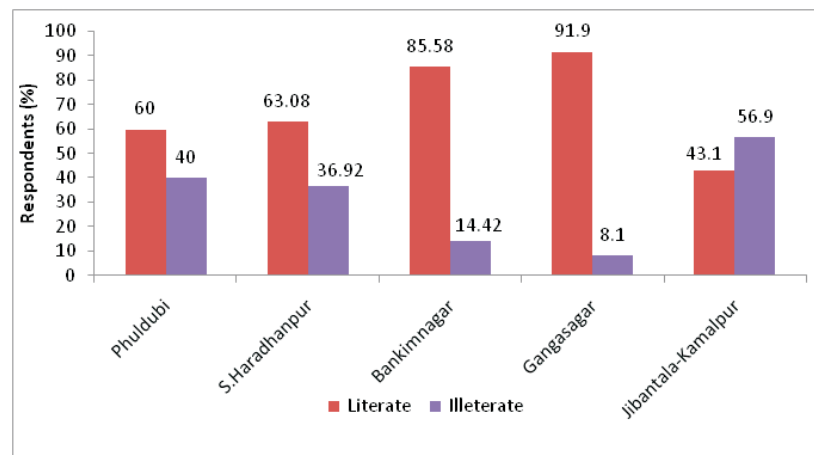


Fig.-2: Status of literacy in colonies, Sagar; Source: Field survey, 2012

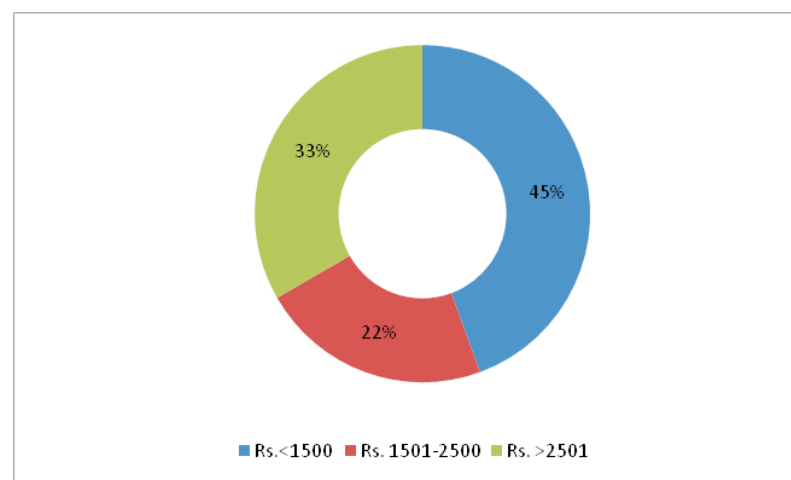


Fig.-3: Average monthly income in colonies, Sagar; Source: Field survey, 2012

LIVELIHOOD CHALLENGES

Displacement is always a traumatic experience and the estuarine islands are no exceptions. The settlers have undergone many difficulties including inventing new livelihood opportunities and setting up new homes. With shifting location livelihood has also changed for the resettled islanders in Sagar. In Jibantala-Kamalpur, 90 percent of the respondents have changed their occupation from fishing to small trade, 33.33 percent to van rickshaw pulling and 52.63 percent to daily wage labourer from cultivation. In Gangasagar colony too diversification of livelihoods options have been noticed. Except for 18.42 percent of the respondents all others have changed their family occupations. In Bankimnagar, people have still been able to continue with their previous occupation, cultivation. Due to their long association with the land and knowledge of the soil they have been able to maintain the soil fertility. In South Haradhanpur, 50 percent of the respondents and in Phuldubi, 54.55 percent have transformed from being cultivators to daily wage labourers.

In Ghoramara, most of the people (44.64 percent) are in monthly income category of Rs. 1,501-2,500 whereas in all the colonies, except in Bankimnagar (40 percent in Rs. 1,501-2,500 category) most respondents fall under the income category below Rs. 1,000 and

Rs. 1,001-1,500. The result is significant as it shows that the income of the immigrant colony people has decreased from the income they enjoyed at their native place in Ghoramara. There is serious problem of unemployment specifically in Phuldubi, South Haradhanpur and Jibantala-Kamalpur colony areas. People in Bankimnagar and Gangasagar are in a better position because of two distinct reasons. In Bankimnagar, people settled from Lohachara island. They were given comparatively fertile land. The NGO's working in this area has also contributed in ensuring that the settlers have a better option. In Gangasagar, due to its location and situational advantages (near to holy Kapil temple) they are able to engage in various businesses and are benefitted during mela also (Fig.- 4).

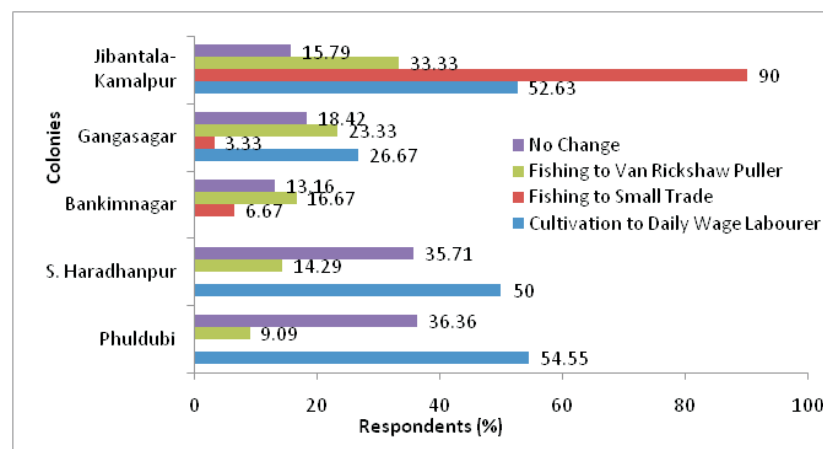


Fig.-4: Changes in livelihoods among colony dwellers, Sagar island; Source: Field survey, 2011-12.

Access to Basic Amenities and Services

None of these colonies are providing basic amenities and services like street light and primary health care centre within the colonies. Tube wells and primary schools are fewer than necessity. Only six households at Bankimnagar and two households at Jibantala-Kamalpur are enjoying solar light facilities and have toilets due to their self efforts (Table-4).

Table-4: Available amenities at relocated colonies, Sagar

Name of Colony	No. of Tube well	Road condition	Street light	(Solar) House light	(Solar) No. of Primary School	Health Centre	Sanitation facility
Phuldubi	1	Brick made	-	-	-	-	-
S. Haradhanpur	1	Brick made	-	-	1	-	-
Bankimnagar	2	Brick made	-	6	1	-	5
Gangasagar	1	Kachcha	-	-	1	-	-
Jibantala-Kamalpur	2	Kachcha	-	2	1	-	2

Source: Field Survey, 2012

1.4.3 People's Perception about Available Amenities among Colony Dwellers

The main problem regarding rehabilitation in the study area is that the new habitats are lacking of basic amenities and services like primary health centre, primary school and electricity. The new lands are far from providing the same agricultural possibilities as Ghoramara did. Extensive losses of original livelihood have been found. Due to the lack of scope for fresh employment secondary migration towards cities are common.

Local people's perception differs significantly when they are asked to state their satisfaction level about available amenities. In Phuldubi, 62 percent people are poorly satisfied. In South Haradhanpur, 42 percent people are poorly satisfied. In Bankimnagar 70 percent people are highly satisfied. In Gangasagar, 60 percent people are moderately satisfied. In Jibantala-Kamalpur, 48 percent people are poorly satisfied.

The people are asked to give their suggestions as how to improve the condition of their respective colonies. According to the respondents, a primary health centre is the utmost need of the areas (Fig.-5).

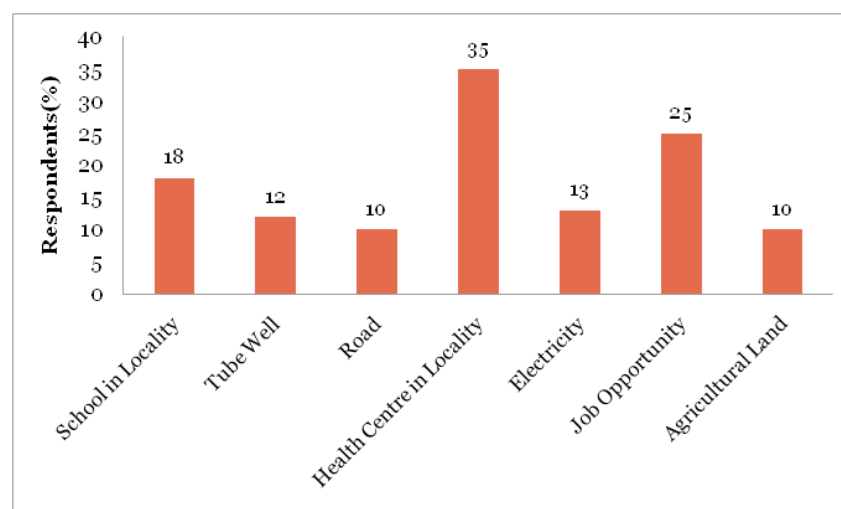


Fig.-5: Suggestive measures for the improvement of the colonies, Sagar island; Source: Field survey, 2011-12.

1.4.4 Vulnerability Assessment

To assess vulnerability and its comparative level in colonies five variables are selected: percent of loss of original livelihood, fall in monthly expenditure (>10 percent), average land loss/ household, percent of dropout of children at 4th standard, and percent of scarcity of drinking water. For each variable, low value marks as Rank 1 and finally, all the ranks of the variables are added as weighted rank. High weighted rank number indicated high vulnerability (Table-5). Result shows variation in the level of vulnerability. Phuldubi is found to be most vulnerable. S. Haradhanpur and Jibantala-Kamalpur colonies are categorised under same class. Bankimnagar is found to be the least vulnerable colony.

Table-5: Vulnerability assessment of the colonies, Sagar island

Name of colony	% of loss of original livelihood	Rank	Fall in monthly expenditure (>10 %)	Rank	Average land loss (ha)/HH	Rank	% of dropout of children at 4thstandard	Rank	% of scarcity of drinking water	Rank	Weighted Rank
Phuldubi	54.55	3	100	5	1.87	4	40	4	75	4	20
South Haradhanpur	50	2	98	4	1.67	3	37	3	90	5	17
Bankimnagar	36.5	1	15	1	2.67	5	14.42	1	10	1	9
Gangasagar	60	4	65	2	1.07	2	15	2	25	2	12
Jibantala-Kamalpur	65	5	95	3	0.67	1	52	5	50	3	17

Source: Field survey, 2012

1.4.5 Linkage with Ghoramara

One interesting fact is all the people depopulated from Ghoramara are still in touch with the island up till now. Displaced people from Ghoramara are mainly resettled in Gangasagar and Jibantala-Kamalpur colonies where land is fertile unlike Ghoramara and condition of Kamalpur colony is worst among them. People are leaving their original livelihoods and shifted to other occupation.

1.5 CONCLUDING REMARKS

People in the new habitat are adopting their new living conditions. People are adjusted differently in the new habitats. Rehabilitation facilities have been assessed to be inadequate and negligible for their sustenance in the long run. Extensive losses of original livelihood have been found. Due to lack of scope for fresh employment secondary migration towards cities are common.

The islands of the Hugli estuary are ecologically sensitive and therefore, need to be protected with a concrete government strategy that is at once sensitive to the fragile environment and is conscious of the plight of the displaced inhabitants and their unique problems. Socio-economic backwardness is of prime concern for all of them. A conscious and comprehensive government policy that works in tandem with a sensitised group of inhabitants who are aware of the risks, hazards and the responsibilities of inhabiting such a special ecosystem will be necessary for the protection of the islands and islanders.

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