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Coping Strategies Practiced by Displacees for River Erosion

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Abstract

The study aimed at assessing the extent of coping strategies practiced by the displacees due to river erosion and socio-demographic factors influencing the practice of coping strategies. The study was conducted in Mehendigonj upazila of Barisal district. Descriptive and diagnostic research design and simple random sampling techniques were applied for gathering pertinent data. Data were collected during May to June 2010 by using a pre-tested interview schedule. Eleven socio-demographic characteristics of the respondents were considered as the independent variables, while coping strategies practiced by the respondents was the dependent variable of the study. Majority of the respondents (74%) practiced medium level of coping strategies against river erosion and rest of them (26%) practiced low level of coping strategies while none of the respondents practiced high level of coping strategies. Correlation analysis indicates that age, education, earning family member and organizational participation had significant positive relationship with the practice of coping strategies. Three leading coping strategies practiced by the respondents were 'searching for social assistance', reducing portion size of meal', and 'seeking help from NGOs'. Significant positive differences were found in respondents' source of drinking water and type of toilet during his/her first shift of house to the time of interview. Massive educational program focusing awareness, rescue, motivation and creation of additional income generating activities were provided as major suggestions to enhance the coping ability of the river erosion affected people.

Keywords: *Coping strategies, displacees, river erosion.*

Introduction

The natural disaster and environmental degradation arising from the world wide climate change is one of the most critical and time befitting issue all over the world. A low lying country with more than 230 rivers and waterways, Bangladesh is widely regarded as being one of the most vulnerable countries due to its disaster prone and odd geographic location, socio-eco-environmental condition and over population (Hamid, 2009). Bangladesh is the part of world's most dynamic hydrological system. In fact, the country is a tender landmass framed by three major rivers and a fluid landscape.

Bangladesh is frequently hit by different natural disasters such as flood, drought, riverbank erosion, cyclone and storm surge etc. Each of these has impact on the livelihood of major population to a great extent. Rivers and other water bodies comprise about 9% of the total land area (Anonymous, 2008). River bank erosion is an ongoing disaster. Because Bangladesh is situated on the delta of the Ganges-Brahmaputra-Jamuna river systems, which has more than 300 perennial tributaries and distributaries, it is also highly vulnerable to the effects of flooding and river-bank erosion. In normal flood years, some 18 percent of Bangladesh's land mass is covered by flood waters; while in severe years this can reach 40 per cent (Rogge and Elahi, 1989). It has been estimated that about 2,000 to 3,000 kilometers of river-bank line

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experience major erosion annually (Islam and Islam, 1985). The Flood Plan Coordination Organization (FPCO) reports that 4.3 million inhabitants of the char land in the major river systems comprise the most vulnerable group in Bangladesh. In addition, about 9,000 hectares of mainland and 5,000ha of char land are reworked each year by erosion (FPCO, 1995: 7) and over 60,000 people become landless due to river-bank erosion problems along the main rivers of Bangladesh. Among these only a few people are able to cope successfully due to resource constrains. Considering all of these points, the need of such study was strongly felt to assess the extent of the coping strategies practiced by the displacees of river erosion; to explore the relationship between selected characteristics of the respondents with their practice of coping strategies; and to find out the changes in dwelling status of the respondents due to river erosion.

Methodology

The descriptive and diagnostic research design was applied in the present study. The present study was conducted at Ulania, Gobindopur and Bhasanchar union of Mehendigonj upazila under Barisal district. Considering the severity of river erosion five villages were selected as the milieu of the study. All the households of the selected upazila who shifts his/her house at least one time due to river erosion were the population of the study. Thus, an updated list of 956 river erosion affected households was prepared with the help of local leaders like Union Parisad (UP) Chairman, UP members, SAAO and local NGO workers. Finally, 120 erosion affected household head were randomly selected as the sample. A reserve list of 12 erosion affected household was also prepared so that the respondent of this list could be used for interview when a respondent in the original list was not available for interview.

The dependent variable of the study was 'coping strategies against river erosion.' Coping strategies practiced by the displacees against river erosion were measured on the basis of their extent of practices. The score of the respondents was computed on the basis of one's practice of coping strategies. For each coping strategy of the scale the respondents indicate whether they practiced the coping strategies 'regularly', 'frequently', 'rarely' and 'not at all'. Score assigned to the four responses were 3, 2, 1 and 0 respectively. Thus, the range of score of coping strategies of the respondent could vary from 0-45; where zero (0) indicates no practice and '45' indicates regular practices\ of different coping strategies against river erosion. In order to measure the extent of practices of the coping strategies against river erosion modified Mean Index (MI) as developed by Biswas (2004) was used.

$$\text{Mean Index (MI)} = \frac{f_1x_1 + f_2x_2 + \ldots\ldots + f_nx_n}{N} \times 100$$

$$= \frac{\sum_{i=0}^{n} f_n x_n}{N} \times \mathbf{100}$$

Where,

X_i = scale value at the i^{th} priority of the strategy.
f_i = Frequency of responses on that strategy

n = number of strategies in the parameter
N = number of respondents
i = 1,2,3,……n

Data were collected from the sample river erosion affected household head using a pre-tested and structured interview schedule through personal door to door visit and contact by the researcher himself during 15 May to 25 June 2010. Statistics like range, mean, number and percentage distribution, standard deviation were used to describe and interpret the data. Co-efficient of correlation was computed for exploring relationships between strategies practiced by the displacees of river erosion and their selected characteristics.

Findings and Discussion

Socio-demographic variants of the respondents

Average age of the respondents was 48.98 years. The cumulative percentage of middle and old aged respondents was 80 percent. It was found that majority of the respondents (67%) had mere signature ability or were illiterate with a very poor average educational score of 1.98. Most of the respondents (74%) had been living in the concerned locality for about 50 years. It was also observed that the lion portion of the respondents (85%) shifted their house within the range of 3 to 6 times and mass displacement occurred (71%) during the year 2009-2010. Most of the respondents possessed medium to small (80%) family but overwhelming majority (95%) had small earning family member. Regarding the farm size, a big mass of the respondents (94%) were landless followed by marginal 4% and small 2%. It is clear that 89 percent of the respondents maintained their life with small to medium income while the average annual family income was Tk. 84.96 thousands. Ninety three percent of the respondents had low organizational participation with medium to low extension contact (76%).

Extent of practice of coping strategies

The major focus of the study was respondents' practice of coping strategies. The coping strategies assessment score of the respondents ranged from 10 to 30 against the possible range of 0 to 48. On the basis of respondents score they were classified under the following categories presented in Table 1.

Table 1 Distribution of respondents according to their coping strategies

Categories	Respondents		Mean	SD
	Number	Percent		
Low (Up to 16)	31	26		
Medium (17-32)	89	74	19.63	4.37
High (above 32)	0	0		
Total	120	100		

Facts furnished in Table 1 imply that mean coping strategy practice score of the respondents were 19.63 with a standard deviation of 4.37. Most of the respondents (74%) practiced medium level of coping strategies while rest of them (26%) practiced low level of coping strategies and none of them practiced higher level of coping strategies.

The community respondents apply an all out attempt to become resilient by applying different coping strategies according to their previous experience, knowledge level and asset position. In order to understand the comparative importance of the different coping strategies and to identify their extent

of practice, the selected sixteen coping strategies were assigned rank order.

Results in Table 2 reflect that among the coping strategies 'searching for social assistance' ranked first and 'reducing portion size of meal' ranked second followed by 'trying to find help from NGOs', 'savings for bad times' and 'buying lands in relatively safer place' ranked third fourth and fifth, respectively.

After river erosion the distressed people suffer from lack of shelter, hard cash and other basic needs which they cannot afford by their own. So, they go to the local aristocrats with the hope of getting assistance because they found them aside before during their bad times. Besides, it is the local people who can help them immediately than others without any delay during emergency need. So, the very first coping strategy might be searching for social assistance. Haque and Zaman (1994) in a study reported that networks of social and religious links and interdependence whose participants are obliged to assist one another in the event of a difficult situation. Again food is basic for life. During the period of river erosion the victim respondents tries to survive him/herself and his/her family by reducing the portion size of meal because food staff are in great demand then. Haque (1997) in his study also revealed that a vast proportion of the rural poor survive on subsistence livelihoods, with little opportunity to acquire savings or assets which might protect them against natural calamities.

External help is an obvious need to overcome the disastrous situation. In such case the respondents found the non-governmental organizations more interacting and quick responding for help in easy terms and conditions than the government bodies. This is why coping strategies like 'seeking help from NGOs' might rank third. Similar findings were also observed by Rogge and Elahi (1989) and reported NGOs play important role in advocating for the extension of credit and small enterprises to displaced communities.

Table 2 Rank order of the coping activities according to their coping index

Sl.	Coping activities of river erosion	Score of opinion				CI	Rank order
		Re	Oc	Ra	Naa		
1.	Searching for social assistance	232	78	26	23	299.17	1
2.	Reduce portion size of meal	160	111	34	26	275.84	2
3.	Trying to find help from NGOs	164	78	54	26	268.33	3
4.	Savings for bad times	160	75	52	29	263.33	4
5.	Buying lands in relatively safer place	144	69	70	26	257.5	5
6.	Looking for alternative income generation activities	72	144	48	30	245	6
7.	Mortgage ornaments/ assets	56	108	68	36	223.33	7
8.	Spend from savings (if any)	16	114	98	29	214.67	8
9.	Reduce number of meal	76	75	58	47	213.33	9
10.	Seeking help from GOs	32	102	60	48	201.67	10
11.	Spending more time on own occupation	112	39	22	68	200.83	11
12.	Temporary lodging on others place/ land	40	78	74	47	199.17	12
13.	Sell labor in advance	24	126	32	56	198.33	13
14.	Skip without eating	12	36	110	50	173.33	14
15.	Selling normal land	4	30	38	90	135	15
16.	Sell other assets	4	15	22	103	120	16

Re- Regularly; Oc-Occasionally; Ra-Rarely; Naa- Not at all; CI-Coping index

On the other hand, most of the respondents belonged to landless category with low income. Besides, they are very poor in other asset position. This is why coping strategies like 'selling other assets' occupied the bottom place in rank order.

Relationship between selected characteristics of the respondents and their coping strategies

The findings of the study (Table 3) demonstrate that level of education, earning family member and organizational participation are positively and significantly correlated while age had negative and significant relationship with the coping strategies practiced by the respondents.

Table 3 Relationship between selected characteristics of the respondents and their coping strategies

Selected personal attributes	Co-efficient of correlation (r)
Age	-0.232*
Level of education	0.260**
Year of living in the locality	-0.058
Number of shifting	0.072
Total family member	0.184
Earning family member	0.227*
Land ownership and tenure	-0.019
Annual family income	-.024
Organizational participation	0.206*
Extension contact	0.131
Fatalism	-0.188

*Significant at 0.05 level of probability
**Significant at 0.01 level of probability

As people grow up they gather more experience from past events that have been happening surrounding them. Ultimately, they can decide quickly. So the aged people have better choice of coping strategies. Education facilitates individuals to gain knowledge and thus increases their power of understanding. Consequently their outlook is broadened and horizon of knowledge is expanded. The real and outer world is exposed to an educated man and he can gain various experiences for perceiving a thing better (Uddin and Rahman, 2008). That's why with the increase of level of education coping ability of a person increases.

Earning family members can provide financial support in activities needed to become resilient. So, increasing trend of practice of coping strategies with increasing number of earning family member is obvious. Organizational participation broadens outlook, help in gaining knowledge (Hossain *et al.*, 2008) which could help them better practice of coping strategies. Similar result was found by Farhad (2008).

Change in dwelling status

Change in dwelling status is an important indicator of change in living status. However, changes in dwelling condition of the respondent during his/her first shift of house to the time of interview are discussed in Table 4.

Results furnished in Table 4 indicate that tin built house increased by 100 percent while tin roofed house and hut decreased by 44 percent and 6.35, respectively from the respondents' first shift of the house to the time of interview. In case of source of drinking water deep tube-well user increased by 210.34 percent while shallow tube-well, river water, canal water and pond water user decreased by 93.75 percent, 80.49 percent, 88.89 percent and 100 percent, respectively. UNICEF (1992) in a report pointed out that the efforts of Bangladesh have brought about a commendable success in rural water supply sector.

Again 90 percent of the respondents used deep tube-well as the source of drinking water which is higher than the national coverage which is 88% for rural areas (Anonymous, 2010).

Table 4 Distribution of erosion affected respondents according to their change in dwelling status

Dimensions of dwelling status	Category	Before 1st shift of house (%)	During interview (%)	Percent change	t value
Type of house	Tin	12	24	100	1.57
	Tin roofed	25	14	-44	
	Hut	63	59	-6.35	
Source of drinking water	Deep tube-well	29	90	210.34	9.87*
	Shallow-well	16	1	-93.75	
	River	41	8	-80.49	
	Canal	9	1	-88.89	
	Pond	5	0	-100	
Toilet condition	Full sanitary	3	4	33.33	2.01*
	Half sanitary	31	42	35.48	
	Open	66	54	-18.18	
Land holding	Landless	94	93	-1.06	-0.34
	Marginal	4	6	2	
	Small	2	1	-1	

*Significant at 0.05 level of probability

In case of toilet condition full sanitary toilet user and half sanitary toilet user increased by 33.33 percent and 35.48 percent, respectively while open toilet user decreased by 18.18 percent during respondents' first shift of house to the time of interview. It is noticeable that till the period of data collection 54 percent respondent used open toilet while the national sanitation coverage in rural areas is 87 percent (Anonymous, 2010). Landless and small farm category respondents decreased by 1.1 percent and 1.0 percent, respectively but marginal farm holding category respondent increased by 2 percent. This may be due to the fact that some of the respondents regularly loss some land due to river erosion and some other respondent managed some land.

Conclusions

Most of the respondents were middle to old aged and were mostly illiterate living mostly in the locality for about 50 years shifted their house at least 3 times or more. The respondents maintained medium to small family but unfortunately they had low family income with small number of earning family members and most of them were landless. Age, level of education, earning family member and organizational participation significantly linked to practice of coping strategies. Satisfactory differences were found between the year of respondents' first house shift to the date of data collection in various socio- economic dimensions like housing pattern, source of drinking water and sanitation. Educational program focusing upon disaster preparedness, response, rescue, recovery, and mitigation and arrangement for boosting up organizational participation might help them better practice of coping strategies.

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