

Natural Disasters, Risks, Vulnerability and Persistence of Poverty: An Analysis of Household Level Data

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Abstract

The paper explores the vulnerability and persistence of poverty amongst the rural households in the disaster-prone areas of Bangladesh. It draws upon some of the factors and processes that have prevented certain groups of people in ecologically vulnerable areas escaping from extreme poverty using both household level data and focussed group discussions. In the light of this, special attention has been given to the *monga* problem, which refers to the state of seasonal unemployment and deprivation, especially in the northern districts of Bangladesh. The paper also suggests ways to cope with the vulnerabilities faced by the people living in the river erosion and flood affected areas. Useful insights into comparisons between ecologically favourable and unfavourable zones are also provided in terms of the socio-economic characteristics and poverty status of the households, their coping strategies, as well as their access to services provided by both government and non-government organizations. The study has used quantitative analyses of household level data collected from a 64-village census plus survey conducted under the Programme for Research on Chronic Poverty in Bangladesh (Phase II).

The important conclusions derived from the paper suggest that flood-prone zones are the worst off among different disaster-prone areas in terms of food shortages, the incidence of extreme poor, insufficient income, illiteracy, and a high concentration of wage labourers. Therefore, as expected, access to government programs like the VGD/VGF is the highest in the flood-prone zones. On the contrary, infrastructural services particularly that of roads, are more prevalent in the ecologically favourable areas. The paper observes that groups that appear to be particularly vulnerable include households with limited assets, women-headed households, adolescent unmarried girls, elderly people without family to support them, fishermen, and communities living on the island or attached chars. Their vulnerability is further exacerbated by their inability to reduce the risk of natural disasters. In as high as one-third of the cases, the households, especially in unfavourable zones, do not have any viable coping strategies. For those who have, borrowing and savings are the most common approaches. Interestingly, it was observed that some people (though lesser in proportion) were able to sustain and sometime even improve their economic position compared to others with similar conditions, due to: smaller household size, more earners, better health, diversification in employment, greater migratory tendency, linkages, and motivation.

I. Introduction

This study builds on the earlier work on Unfavourable Agricultural Environment and Chronic Poverty carried out in PRCPB-I. It was subsequently felt that although the earlier work addressed some important issues and derived some interesting conclusions regarding the adverse interface between chronic poverty and unfavourable agricultural environment, further probing into the vulnerability and persistence of poverty of the rural households in disaster-prone areas deserves serious consideration. In particular, what factors and processes have prevented the chronically poor households in disaster-prone areas from escaping from extreme poverty while other rural households could merit further investigation. It is believed that along with quantitative analysis of household level data collected from field survey, focus group discussions and individual case studies with qualitative information can throw light in this respect. In fact, this is precisely what has been attempted in this paper, using the data collected from the 64-village survey supplemented by individual case studies and focus group discussion in some selected disaster-prone areas in Bangladesh. Section II of this paper presents the findings of 64-village survey (Census plus, household level and community survey) to assess the vulnerability of the households in different disaster-prone areas. This is followed, in Section III, by a discussion of relevant issues related to persistence of poverty while addressing *monga* problem in ecologically vulnerable areas in northern districts of Bangladesh. Some concluding remarks are made in Section IV of the paper.

II. Chronic Poverty, Vulnerability and Socio-economic Conditions in Disaster-Prone Areas

The initial phase of the 64-village survey recently carried out (April-June, 2005) under PRCPB-II provide information related to status of poverty and other socio-economic characteristics of the households in both favourable and unfavourable ecological zones (See Annex I for a description of the methodology of selection of favourable and unfavourable villages/areas where the survey was actually carried out). An analysis of these information would provide some useful insights into the poverty status of the households as perceived by them and their crisis coping strategies, access to services provided by both government and non-government organizations in both ecologically favourable and unfavourable (i.e. flood-prone, drought-prone, salinity-affected etc.) areas. A summary of the findings is presented below. These, it may be emphasized, would provide a static picture of the average level of affluence or the lack of it and the coping strategies adopted by the households in different types of ecologically unfavourable environments as compared to those in the favourable areas. An enquiry into the dynamics of chronic poverty -- the persistence of extreme poverty

over time -- i.e. what keeps them poor for a prolonged period of time is not attempted here.¹ This would involve an in-depth investigation into the processes and constraining factors -- physical, social, economic, demographic -- which have prevented the poor to escape from extreme poverty. Focus group discussions and individual case studies with qualitative information may throw light in this respect. An attempt will be made to discuss some of these issues in the next section while addressing *monga* problem in ecologically vulnerable areas.

Summary of Findings from Field Survey

- As expected, the households in unfavourable zones are more prone to food shortages and have lower percentage of households having surplus food as compared to those in the favourable zone. About two-third of the households in these areas face food shortage, whether temporary or regular. Flood-prone zones are the worst off among all zones in terms of food availability. More than one-third of the households in these zones face food shortage throughout the year and another one-third face temporary food shortage during the year (Table 1).
- Poverty situation in the ecologically vulnerable zones are also worse off compared to the favourable zones. More than two-third of the households of the vulnerable zones belong to poverty category as perceived by them. The corresponding figure for favourable zone is 40 per cent. Proportion of extreme poor households is also highest in flood-prone areas. About one third of the households in these areas consider themselves as extreme poor (Table 2).
- In terms of 10-stage ranking (self assessment) as well, flood-prone zones are the worst off having three-fourth of the households in the 3 lowest ranks, and having more than a quarter of the households in the lowest rank alone. The lowest 3 ranks are also heavily populated (70 per cent) in the drought-prone and salinity-affected areas. The corresponding figure for the favourable zone is about 31 per cent (Table 3).
- More than three-fourth of the households in the flood-prone zone and more than 70 per cent in the drought-prone zone think that their income (monthly) is not sufficient for them to meet the minimum expenses they require as compared to 42 per cent for the households in favourable zones (Table 4).
- The total household income is observed to be much higher in the favourable areas (Tk. 50634) as compared to that in the unfavourable areas (Tk. 31430). Although the labour income (derived from agricultural and non-agricultural wage), is roughly the same across

¹ A rigorous analysis to capture the dynamics of poverty would require panel data set for the households in different ecological zones which are not readily available.

different ecological zones, both the agricultural income (crop and non-crop income) and non-agricultural income (derived from trade and business, services and remittances) are much higher for the households in favourable zone as compared to those in the unfavourable zones (Table 5). In the favourable zone, the largest share of total household income is derived from crop income (26%), followed by income derived from trade and business (24%) and remittances (21%). In the unfavourable zones, the pattern is almost similar except in case of services (16%) which constitute the third largest source instead of remittances (6%) which now account for the second lowest source of total household income. This is specially true for the households located in drought-prone areas. It would thus appear that the households in the unfavourable areas could not expand their narrow livelihood base geared around lower agricultural activities, specially crop production through diversification of non-agricultural activities.

- There is a correspondence between the poverty status as perceived by the households (defined in terms of food availability, Table 1) and the total income of the households derived from different sources (Tables 6 to 9). The households which face persistence food shortages (food shortage throughout the year) record the lowest household income (Tk. 17164), followed by those households who face temporary food shortages (Tk. 22965). As expected, the total household income (Tk. 88173) of the surplus households is the highest in the sample (Table 8). It is also observed that labour income constitutes the major source of income (61 per cent) for the poorest households, facing food shortage throughout the year. This is true for the households located in both favourable and unfavourable areas, although the incidence of agricultural wage is more pronounced in the latter as compared to the former. The share of labour income, as expected, is very small (only 4 per cent) for the non-poor surplus households.
- Educational attainments also differ across ecological zones. The highest rate of illiteracy is observed in the flood-prone zone (52 per cent) and the lowest in the drought-prone zone (42 per cent). In terms of the level of education attained, the favourable zones are ahead of the unfavourable zones though not by much (Table 10).
- With respect to the main occupation of the members of the household, day labourers are the dominant category in the unfavourable ecological zones. This is more pronounced in the flood-prone and drought-prone zones. In the favourable areas, the involvement of the households in trading and professional activities is much more evident as compared to those in the unfavourable areas (Table 11).
- Infrastructural services particularly that of roads (both for facilitating communications with local markets and between districts) are the most prevalent among all the

government services received by the households, followed by primary education. Access to primary education is roughly similar in both favourable and unfavourable areas. However, the road service is more prevalent in the favourable areas and less in the flood-prone as well as drought-prone areas (Table 12). Access to VGD/VGF is the highest in the flood-prone zones, as expected.

- With respect to access to private and non-government services, health related services are more common. About 30 per cent of all the private and non-government services received by the households in all zones are the health related ones. The incidence of private health services is the highest in the favourable zones and the lowest in the drought-prone zones although the access to private clinic is greater in the latter areas. However, the single most important service is the bus service, which accounts for more than 25 per cent of all services. In the drought-prone zones, this percentage is remarkably lower (12 per cent) as compared to other zones taken together. Micro-credit services account for 17 per cent of all the services in all zones. As expected, access to micro credit service is much greater among the households in unfavourable areas (19 per cent) as compared to favourable areas (12 per cent). Among unfavourable areas, however, access is much lower in the flood-prone zones (15 per cent). The other important service is mobile phone, which accounts for almost 12 per cent of all the private and non-government services. Access to this service is much greater in unfavourable areas (15 per cent) as compared to favourable areas (5 per cent). NWD/ISD phone service, on the other hand, is very meagre in the unfavourable zones as compared to the favourable ones (Table 13).
- Borrowing and saving are the most common coping strategies when the households are in crisis. In about half of the cases, the households resort to either of these strategies, borrowing being the dominant mode. Also, this seems to be more prevalent among the households in the favourable areas. In more than one-third of the cases, the households do not have any coping strategy (either they do nothing or can't do anything). This is observed to be more pronounced among the households in unfavourable zones (Table 14).
- Two-thirds of the households cannot recover from the financial crisis they face. This inability to recover is remarkably higher among the households in the unfavourable areas, as compared to those in the favourable areas (Table 15).
- An attempt has been made to capture the dynamics of poverty across different ecological zones in terms of food availability of the households and how the situation has changed over the last ten years. It has been observed that the percentage of the households which face persistent food shortage throughout the year remained the same as before, in both favourable and unfavourable areas. However, the proportion of households facing

temporary food shortage has declined in the favourable areas over time, while those in the unfavourable areas specially in the salinity-affected area the proportion has increased, as compared to the situation prevailed ten years ago (Table 16).

III. *Monga* in ecologically vulnerable areas

Monga deserves special attention in our study for two reasons: first, although *monga* represents the traditional problem of seasonal poverty in September-October period, its persistence over time occurring every year gives it a flavour of chronicity and/or intergenerational transmission of poverty. Secondly, *monga* is largely confined to ecologically vulnerable parts of northern districts with, of course, yearly variation of its severity.² We discuss below poverty situation in *monga* areas based on focus group discussion and selected case studies specifically carried out for this study.³

Monga, as mentioned above, refers to lack of seasonal employment and deprivation in the ecologically vulnerable northern part of the country. This part of the country is affected by both river erosion and flood almost every year. In addition, lack of diversified employment opportunities during the lean season (September-October) leads a large proportion of the people who are already poor to a situation where they suffer heavily from very little or no work, little or no income and hunger. During *monga*, some people are able to eat only one meal a day or even one meal for two to three days. People, particularly the poor, also suffer from diseases to a large extent during this time of the year because of not being able to eat sufficient and proper food (they even sometime eat something that are hazardous to health) and seek treatment after they get sick. As a result, *monga* appears to the poor people of the region as double burden – opportunity reducing and capability destroying.

Ecological and seasonal vulnerability faced by the people living in the region are more or less common to everybody. They include loss of land due to river erosion, crop damage due to natural calamities (i.e., flood, storm, excessive rain, etc.), lack of income because of seasonal scarcity of employment, etc. However, it affects different people differently depending on their economic and social status. People with poor material and human resource base and also with vulnerable and seasonal occupations are the worst affected groups to these vulnerabilities. From intra-household perspectives, children, elderly and

² Putting *monga* in a time perspective of the last fifteen years, it has been observed that one of the important changes which has taken place over the 1990-2005 period is the general reduction of the seasonal poverty across Bangladesh and its continued persistence in the ecologically vulnerable areas of northern districts (PPRC Report, 2005).

³ The key points emerged from the in-depth interviews and case studies in *monga* areas are presented in Annex-II.

women are more vulnerable to these circumstances than men as their mobility and physical capacity are limited to cope with the situation.

With respect to coping with the situation, what people usually do are the following: reduction of food intake and expenditure on other necessities (e.g., education, health, clothing, housing, etc.), use of savings, migrating to other areas for work, selling of whatever assets they have (including even bed and little ornament that married women use in their noses as mark of being married and respect to their husband), borrowing with relatively high rate of interest, and receiving support from government and agencies. However, these strategies are also not shared by everyone in the *monga* areas. Relatively affluent ones can depend largely on their savings. Those who have superior human capital (including more earners) can take advantage of whatever opportunities available to them and also migrate to other areas for work. Those who have relatively greater asset base can depend on them. Those who have strong social capital can gain support from community, government and other agencies. People who are deprived of all these options are the ones who are most vulnerable and exposed to hunger and deprivation.

Despite the above vulnerabilities, it was interesting to note that some people (though lesser in proportion) were able to sustain and sometime even improve their economic position compared to others with similar initial conditions. What were observed as the drivers of improvement for the former group of people are the following: smaller household size, more earners, good health, diversification in employment, migratory tendency, linkages, and motivation (i.e., determined to tackle the situation with whatever means). Lack of the above resources force people to slippage when these ecological and seasonal vulnerability occur, especially in severe form.

What does this tell us about? How to tackle these vulnerabilities? Several suggestions came up from the discussions with the affected people. These are: social safety-nets and health services covering all the vulnerable groups for the entire *monga* period as immediate step; providing support for employment creation through promotion of non-farm activities (i.e., establishing small-scale industries, providing training and credit for undertaking income generating activities such as poultry, livestock etc.) and support to small/marginal farmers (i.e., timely availability of diesel, seeds and fertilizer) as medium-term strategy; and flood protection and support for alternative agricultural activities (agricultural research on development of viable new agricultural crops suited to the eco-system) as long-term strategy.⁴

⁴ An effective anti-*monga* strategy should combine both long-term solutions and year-specific actions. The long-term solutions to *monga* problem has been identified to be (a) livelihood diversification (b) improving physical protection through a coordinated approach and location-specific micro interventions and (c) creating awareness and social mobilization (PPRC Report, 2005).

What people themselves can do with respect to tackling with the situation? There were a few suggestions in this respect as well. These are: grasp whatever opportunities are available to them (i.e, diversification of employment); migrate to other areas where there are some scope of work during that period; and to provide education to the children so that they can find regular employment in the future.

The persistence of extreme poverty seems to be more pronounced in the river-erosion areas. In fact, available evidence underscores the importance for according priority to meeting the needs of the extremely distressed population residing in river-erosion belts (including remote charlands). River erosion affects all – both the rich and the poor. However, the poor are more severely affected. The marginalized victims of riverbank erosion loose their settlements and employment and become helpless with very low resource base. Studies on squatters in Bangladesh have revealed that a sizeable proportion of the population affected by riverbank erosion migrates to urban areas in search of livelihoods. Over 10 per cent of the erosion victims in Kazipur of Pabna district have had no other option but to migrate in nearly urban centres. They eventually ended up in squatter settlements.

With more than 50 per cent of all rural households already landless in Bangladesh, the unpredictable occurrences of rapid river encroachment are devastating for the rural population, in particular for marginal peasants who lose their last parcels of land. The changing river course, therefore, generate a process of involuntary migration among the potential and actual victims of disaster, and accentuate the process of impoverishment among the displaced population. While the communities, living in chars and river-erosion areas, are very vulnerable to environmental risks, and have developed certain strategies to mitigate or cope with the consequences of events that are somewhat predictable and regular, such as annual floods, there are very few formal or informal mechanisms to deal with bigger shocks such as riverbank erosion or massive floods (such as the floods in 1998). Risk reduction mechanisms seem to be lacking in the affected communities.

The groups that appear to be particularly vulnerable includes households with few assets, particularly limited to physical and financial assets, both de jure and de facto women-headed households, adolescent unmarried girls, elderly people without family to support them, fishermen and communities living on the island or attached chars. All these groups have very restricted employment and income-generation opportunities, restricted mobility or access to services, are physically vulnerable and experience social discrimination in various forms. Social discrimination is best understood as not having many rights – whether it is the right to physical safety, employment opportunities, social protection or the right to participate in decision-making (Sultan, 2002).

The response by the Government to address the river erosion problem so far has largely been confined to the construction of embankment and river training works. Unfortunately, however, embankments have proved to be ineffective in withstanding river bank erosion. Efforts have also been made to protect a few urban centres of commercial activities such as Chandpur, Sirajgonj etc., by dumping boulders and concrete blocks. These are also not of much success. More importantly, no well-thoughtout and properly devised comprehensive strategies for the erosion victims, have been taken up, specially in the *monga* areas (Kelly and Chowdhury, 2001).

IV. Concluding Remarks

Bangladesh is one of the most disaster-prone countries of the world. Bangladesh experiences different types of natural disaster very frequently. These include flood, drought, cyclone and riverbank erosion. Natural disasters not only bring immense suffering and miseries to million of affected people but also triggers a whole set of mechanism that affects the economic and social life of people. These has both short and long-term socio-economic implications. It is usually the poor who suffer the most because they lack the resources to overcome their financial losses. Their asset base and economic staying capacity is very low and therefore, cannot withstand the onslaught of such disaster making them utterly vulnerable. In most cases, the vulnerability derives from poverty itself. Poor people are more likely to live in disaster-prone areas. This vulnerability is further exacerbated because the poor who are forced to live in these areas cannot afford to undertake measures to reduce the risk of natural disaster.

Our analysis of the findings of both 64-village survey to assess the vulnerability of the households in different disaster-prone areas and the qualitative information derived from focus group discussions as well as from individual case studies specially in the *monga* areas tend to support these views. The quantitative evidence from the 64-village survey largely provided a static picture of the average level of affluence (or the lack of it) and the coping strategies adopted by the households in the unfavourable areas prone to different types of disaster, as compared to those in the favourable areas. Focus group discussions and individual case studies with qualitative information, on the other hand, has thrown light on the underlying process and the constraining factors, which have prevented the poor to escape from extreme poverty. This was evident while addressing *monga* problem in ecologically vulnerable areas, specially among the extremely distressed population residing in river-erosion belts including the remote charlands.

Attempt may be made in future research to explore whether and how the risk minimizing behaviour of the peasant households who are preoccupied with their livelihood security and survival contribute to the persistence of their extreme poverty. Appropriate investment strategies under such risky environments may follow from such rigorous analysis with important implications for public policy interventions.

Table 1
Subjective Assessment of the Households by Ecological Zones: Food Availability

Ecological Zones	Shortage throughout the Year (%)	Temporary Shortage (%)	Neither Shortage nor Surplus (%)	Surplus (%)	Total (%)
<u>Favourable:</u>	<u>14.1</u>	<u>19.5</u>	<u>38.2</u>	<u>28.3</u>	<u>100.0</u>
<u>Unfavourable:</u>	<u>30.0</u>	<u>35.0</u>	<u>24.7</u>	<u>10.4</u>	<u>100.0</u>
(a) Flood-Prone	37.4	33.0	18.6	11.0	100.0
(b) Drought-Prone	21.1	37.0	26.7	15.3	100.0
(c) Salinity-affected	24.6	36.5	31.1	7.8	100.0
Total (All Zones)	25.6	30.8	28.3	15.3	100.0

Table 2
Subjective Assessment of the Households by Ecological Zones: Overall Ranking

Ecological Zones	Upper Class (%)	Upper Middle Class (%)	Lower Middle Class (%)	Moderate Poor (%)	Extreme Poor (%)	Total (%)
<u>Favourable:</u>	<u>2.2</u>	<u>10.6</u>	<u>47.5</u>	<u>32.8</u>	<u>6.8</u>	<u>100.0</u>
<u>Unfavourable:</u>	<u>0.6</u>	<u>3.8</u>	<u>24.2</u>	<u>44.3</u>	<u>27.2</u>	<u>100.0</u>
(a) Flood-Prone	0.8	3.8	23.2	40.2	31.9	100.0
(b) Drought-Prone	0.9	5.3	23.0	49.9	20.9	100.0
(c) Salinity-affected	0.1	3.1	25.8	47.0	24.0	100.0
Total (All Zones)	1.0	5.6	30.5	41.2	21.7	100.0

Table 3
Subjective Assessment of the Households by Ecological Zones: 10- Stage Ranking

Ecological Zones	10- Stage Ranking (% of households)										Total
	1	2	3	4	5	6	7	8	9	10	
Favourable:	<u>3.4</u>	<u>13.4</u>	<u>14.1</u>	<u>25.8</u>	<u>25.8</u>	<u>9.1</u>	<u>4.3</u>	<u>3.0</u>	<u>0.9</u>	<u>0.1</u>	<u>100.0</u>
Unfavourable:	<u>18.2</u>	<u>28.6</u>	<u>26.2</u>	<u>15.3</u>	<u>7.4</u>	<u>3.3</u>	<u>0.6</u>	<u>0.2</u>	<u>0.1</u>	<u>0.1</u>	<u>100.0</u>
(a) Flood-Prone	26.3	27.7	22.7	13.5	7.2	2.3	0.2	0.1	0.0	0.0	100.0
(b) Drought-Prone	8.8	28.6	32.5	15.9	8.1	3.5	1.4	0.7	0.0	0.4	100.0
(c) Salinity-affected	12.2	29.7	27.9	17.1	7.5	4.5	0.8	0.0	0.1	0.1	100.0
Total (All Zones)	14.2	24.5	22.9	18.1	12.4	4.9	1.6	0.9	0.3	0.1	100.0

Table 4
Subjective Assessment of the Households by Ecological Zones:
Satisfaction of Minimum Requirement

Ecological Zones	Is the Monthly Income Enough to Satisfy Minimum Required Expenses?		Total (%)
	Yes (%)	No (%)	
Favourable:	<u>57.6</u>	<u>42.4</u>	<u>100.0</u>
Unfavourable:	<u>27.3</u>	<u>72.7</u>	<u>100.0</u>
(a) Flood-Prone	21.6	78.4	100.0
(b) Drought-Prone	29.3	70.7	100.0
(c) Salinity-affected	33.2	66.8	100.0
Total (All Zones)	35.5	64.5	100.0

Table 5
Breakdown of Sources of Income of the Households by Ecological Zones
(Taka Per Household)

Ecological Zones	Agricultural Income			Labour Income			Non-Agricultural Income				Total Household Income
	Crop Income	Non-crop Income	Total	Agricultural wage	Non-Agricultural wage	Total	Trade and Business	Services	Remittance	Total	
<u>Favourable:</u>	<u>13245</u>	<u>2568</u>	<u>15813</u>	<u>2862</u>	<u>4793</u>	<u>7655</u>	<u>12046</u>	<u>4468</u>	<u>10652</u>	<u>27166</u>	<u>50634</u>
	(26.2)	(5.0)	(31.2)	(5.6)	(9.5)	(15.1)	(23.8)	(8.8)	(21.1)	(53.7)	(100.0)
<u>Unfavourable:</u>	<u>8891</u>	<u>1782</u>	<u>10673</u>	<u>4051</u>	<u>3753</u>	<u>7804</u>	<u>5975</u>	<u>5047</u>	<u>1931</u>	<u>12953</u>	<u>31430</u>
	(28.3)	(5.7)	(34.0)	(12.9)	(11.9)	(24.8)	(19.0)	(16.1)	(6.1)	(41.2)	(100.0)
(a) Flood-Prone	8565	2139	10704	4574	3747	8321	6682	5376	2069	14127	33152
	(25.8)	(6.5)	(32.3)	(13.8)	(11.3)	(25.1)	(20.2)	(16.2)	(6.2)	(42.6)	(100.0)
(b) Drought-Prone	10519	2298	12817	4445	4326	8771	6132	3863	508	10503	32091
	(32.8)	(7.2)	(40.0)	(13.9)	(13.4)	(27.3)	(19.1)	(12.0)	(1.6)	(32.7)	(100.0)
(c) Salinity-affected	8648	1160	9808	3279	3539	6818	5078	5115	2317	12510	29136
	(29.7)	(4.0)	(33.7)	(11.2)	(12.2)	(23.4)	(17.4)	(17.6)	(7.9)	(42.9)	(100.0)
Total (All Zones):	10075	1996	12071	3728	4036	7764	7626	4890	4302	16818	36652
	(27.5)	(5.4)	(32.9)	(10.2)	(10.9)	(21.1)	(20.8)	(13.3)	(11.8)	(45.9)	(100.0)

Note: Figures in parentheses indicate the respective percentage share of each category in total household income.

Table 6
Breakdown of Sources of Income of the Households by Ecological Zones: Food Availability
(Taka Per Household)

Shortage throughout the year

Ecological Zones	Agricultural Income			Labour Income			Non-Agricultural Income				Total Household Income
	Crop Income	Non-crop Income	Total	Agricultural wage	Non-Agricultural wage	Total	Trade and Business	Services	Remittance	Total	
Favourable:	<u>2239</u>	<u>311</u>	<u>2550</u>	<u>4289</u>	<u>5681</u>	<u>9970</u>	<u>4399</u>	<u>875</u>	<u>583</u>	<u>5857</u>	<u>18377</u>
	(12.2)	(1.7)	(13.9)	(23.3)	(30.9)	(54.3)	(23.9)	(4.8)	(3.2)	(31.9)	(100.0)
Unfavourable:	<u>1993</u>	<u>621</u>	<u>2614</u>	<u>6784</u>	<u>3741</u>	<u>10525</u>	<u>2702</u>	<u>977</u>	<u>133</u>	<u>3812</u>	<u>16951</u>
	(11.8)	(3.7)	(15.4)	(40.0)	(22.1)	(62.1)	(15.9)	(5.8)	(0.8)	(22.5)	(100.0)
(a) Flood-Prone	1512	418	1930	7365	2994	10359	3817	1300	178	5295	17585
	(8.6)	(2.4)	(11.0)	(41.9)	(17.0)	(58.9)	(21.7)	(7.4)	(1.0)	(30.1)	(100.0)
(b) Drought-Prone	1085	1765	2850	4792	4903	9695	1638	88	0	1726	14271
	(7.6)	(12.4)	(20.0)	(33.6)	(34.4)	(67.9)	(11.5)	(0.6)	(0.0)	(12.1)	(100.0)
(c) Salinity-affected	3159	607	3766	6399	4699	11098	1047	690	97	1834	16698
	(18.9)	(3.6)	(22.6)	(38.3)	(28.1)	(66.5)	(6.3)	(4.1)	(0.6)	(11.0)	(100.0)
Total (All Zones)	2030	575	2605	6412	4030	10442	2955	962	200	4117	17164
	(11.8)	(3.4)	(15.2)	(37.3)	(23.5)	(60.8)	(17.2)	(5.6)	(1.2)	(24.0)	(100.0)

Note: Figures in parentheses indicate the respective percentage share of each category in total household income.

Table 7
Breakdown of Sources of Income of the Households by Ecological Zones: Food Availability
(Taka Per Household)

Temporary Shortage

Ecological Zones	Agricultural Income			Labour Income			Non-Agricultural Income				Total Household Income
	Crop Income	Non-crop Income	Total	Agricultural wage	Non-Agricultural wage	Total	Trade and Business	Services	Remittance	Total	
<u>Favourable:</u>	<u>4680</u>	<u>2011</u>	<u>6691</u>	<u>4591</u>	<u>5381</u>	<u>9972</u>	<u>6615</u>	<u>1940</u>	<u>1833</u>	<u>10388</u>	<u>27051</u>
	(17.3)	(7.4)	(24.7)	(17.0)	(19.9)	(36.9)	(24.5)	(7.2)	(6.8)	38.4	(100.0)
<u>Unfavourable:</u>	<u>5477</u>	<u>1183</u>	<u>6660</u>	<u>3874</u>	<u>4845</u>	<u>8719</u>	<u>3879</u>	<u>2144</u>	<u>711</u>	<u>6734</u>	<u>22113</u>
	(24.8)	(5.3)	(30.1)	(17.5)	(21.9)	(39.4)	(17.5)	(9.7)	(3.2)	30.5	(100.0)
(a) Flood-Prone	6152	1368	7520	4078	5510	9588	4638	2702	752	8092	25200
	(24.4)	(5.4)	(29.8)	(16.2)	(21.9)	(38.0)	(18.4)	(10.7)	(3.0)	32.1	(100.0)
(b) Drought-Prone	4716	1866	6582	6325	4871	11196	2741	568	221	3530	21308
	(22.1)	(8.8)	(30.9)	(29.7)	(22.9)	(52.5)	(12.9)	(2.7)	(1.0)	16.6	(100.0)
(c) Salinity-affected	5053	719	5772	2698	4122	6820	3513	2163	858	6534	19126
	(26.4)	(3.8)	(30.2)	(14.1)	(21.6)	(35.7)	(18.4)	(11.3)	(4.5)	34.2	(100.0)
Total (All Zones)	5340	1326	6666	3998	4937	8935	4351	2109	904	7364	22965
	(23.2)	(5.8)	(29.0)	(17.4)	(21.5)	(38.9)	(18.9)	(9.2)	(3.9)	(32.0)	(100.0)

Note: Figures in parentheses indicate the respective percentage share of each category in total household income.

Table 8
Breakdown of Sources of Income of the Households by Ecological Zones: Food Availability
(Taka Per Household)

Neither Shortage nor Surplus

Ecological Zones	Agricultural Income			Labour Income			Non-Agricultural Income				Total Household Income
	Crop Income	Non-crop Income	Total	Agricultural wage	Non-Agricultural wage	Total	Trade and Business	Services	Remittance	Total	
<u>Favourable:</u>	<u>11354</u>	<u>3002</u>	<u>14356</u>	<u>2649</u>	<u>5451</u>	<u>8100</u>	<u>13292</u>	<u>2898</u>	<u>4100</u>	<u>20290</u>	<u>42746</u>
	(26.6)	(7.0)	(33.6)	(6.2)	(12.8)	(18.9)	(31.1)	(6.8)	(9.6)	(47.5)	(100.0)
<u>Unfavourable:</u>	<u>12414</u>	<u>2203</u>	<u>14617</u>	<u>2194</u>	<u>3208</u>	<u>5402</u>	<u>8533</u>	<u>9104</u>	<u>2982</u>	<u>20619</u>	<u>40638</u>
	(30.5)	(5.4)	(36.0)	(5.4)	(7.9)	(13.3)	(21.0)	(22.4)	(7.3)	(50.7)	(100.0)
(a) Flood-Prone	12720	2929	15649	2166	3393	5559	10303	10769	3677	24749	45957
	(27.7)	(6.4)	(34.1)	(4.7)	(7.4)	(12.1)	(22.4)	(23.4)	(8.0)	(53.9)	(100.0)
(b) Drought-Prone	10532	2262	12794	3636	4906	8542	4846	5026	151	10023	31359
	(33.6)	(7.2)	(40.8)	(11.6)	(15.6)	(27.2)	(15.5)	(16.0)	(0.5)	(32.0)	(100.0)
(c) Salinity-affected	12820	1669	14489	1737	2513	4250	8498	9274	3427	21199	39938
	(32.1)	(4.2)	(36.3)	(4.3)	(6.3)	(10.6)	(21.3)	(23.2)	(8.6)	(53.1)	(100.0)
Total (All Zones)	12026	2496	14522	2361	4029	6390	10276	6831	3392	20499	41411
	(29.0)	(6.0)	(35.0)	(5.7)	(9.7)	(15.4)	(24.8)	(16.5)	(8.2)	(49.5)	(100.0)

Note: Figures in parentheses indicate the respective percentage share of each category in total household income.

Table 9
Breakdown of Sources of Income of the Households by Ecological Zones: Food Availability
(Taka Per Household)

Surplus

Ecological Zones	Agricultural Income			Labour Income			Non-Agricultural Income				Total Household Income
	Crop Income	Non-crop Income	Total	Agricultural wage	Non-Agricultural wage	Total	Trade and Business	Services	Remittance	Total	
<u>Favourable:</u>	<u>27181</u>	<u>3489</u>	<u>30670</u>	<u>1249</u>	<u>3056</u>	<u>4305</u>	<u>17914</u>	<u>10120</u>	<u>30593</u>	<u>58627</u>	<u>93602</u>
	(29.0)	(3.7)	(32.8)	(1.3)	(3.3)	(4.6)	(19.1)	(10.8)	(32.7)	(62.6)	(100.0)
<u>Unfavourable:</u>	<u>31900</u>	<u>6143</u>	<u>38043</u>	<u>1171</u>	<u>1414</u>	<u>2585</u>	<u>16395</u>	<u>16918</u>	<u>8720</u>	<u>42033</u>	<u>82661</u>
	(38.6)	(7.4)	(46.0)	(1.4)	(1.7)	(3.1)	(19.8)	(20.5)	(10.5)	(50.8)	(100.0)
(a) Flood-Prone	32722	8955	41677	654	1620	2274	16414	18111	9715	44240	88191
	(37.1)	(10.2)	(47.3)	(0.7)	(1.8)	(2.6)	(18.6)	(20.5)	(11.0)	(50.2)	(100.0)
(b) Drought-Prone	37548	4145	41693	833	1202	2035	22780	15017	2527	40324	84052
	(44.7)	(4.9)	(49.6)	(1.0)	(1.4)	(2.4)	(27.1)	(17.9)	(3.0)	(48.0)	(100.0)
(c) Salinity-affected	26238	2944	29182	2293	1231	3524	11518	16360	11753	39631	72337
	(36.3)	(4.1)	(40.3)	(3.2)	(1.7)	(4.9)	(15.9)	(22.6)	(16.2)	(54.8)	(100.0)
Total (All Zones)	29523	4805	34328	1210	2242	3452	17160	13493	19740	50393	88173
	(33.5)	(5.4)	(38.9)	(1.4)	(2.5)	(3.9)	(19.5)	(15.3)	(22.4)	(57.2)	(100.0)

Note: Figures in parentheses indicate the respective percentage share of each category in total household income.

Table 10**Educational Attainment of Members of the Households by Ecological Zones**

Ecological Zones	Educational Attainment of the Households (Percentages)						
	Illiterate	Below Primary	Primary Complete	SSC/HSC	Higher Education	Others	Total
<u>Favourable:</u>	<u>45.3</u>	<u>20.2</u>	<u>27.1</u>	<u>5.9</u>	<u>1.2</u>	<u>0.3</u>	<u>100.0</u>
<u>Unfavourable:</u>	<u>47.2</u>	<u>21.2</u>	<u>25.2</u>	<u>5.2</u>	<u>1.0</u>	<u>0.3</u>	<u>100.0</u>
(a) Flood-Prone	51.9	19.0	22.8	4.9	0.8	0.5	100.0
(b) Drought-Prone	41.5	24.5	28.7	4.4	0.9	0.0	100.0
(c) Salinity-affected	44.6	22.2	26.3	5.7	1.1	0.1	100.0
Total (All Zones):	46.7	20.9	25.7	5.4	1.0	0.3	100.0

Table 11**Main Occupation of the Members of the Households by Ecological Zones**

Ecological Zones	Type of Occupation				
	Cultivators	Labourers	Small Traders/ Professionals	Larger Traders/ Professionals	Total
<u>Favourable:</u>	<u>31.6</u>	<u>26.3</u>	<u>16.3</u>	<u>25.9</u>	<u>100.0</u>
<u>Unfavourable:</u>	<u>26.7</u>	<u>35.7</u>	<u>21.3</u>	<u>16.3</u>	<u>100.0</u>
(a) Flood-Prone	24.7	40.1	20.3	14.9	100.0
(b) Drought-Prone	30.9	45.5	10.5	13.1	100.0
(c) Salinity-affected	27.1	27.4	26.5	19.0	100.0
Total (All Zones):	28.1	33.1	19.9	19.0	100.0

Table 12

Types of Government Services Received by the Households by Ecological Zones

(percentage of households)

Services Received	Ecological Zones					Total (All Zones)
	Favourable	Unfavourable	Flood- Prone	Drought- Prone	Salinity- affected	
Primary Education	<u>13.1</u>	<u>13.3</u>	12.7	14.3	13.5	13.2
Secondary Education	<u>5.6</u>	<u>6.0</u>	5.7	5.9	6.2	5.9
Higher Secondary and other Education	<u>0.6</u>	<u>1.0</u>	1.1	0.7	1.1	0.9
Vaccination (Child)	<u>7.5</u>	<u>8.6</u>	7.6	11.7	9.0	8.3
Vaccination (Pregnant Women)	<u>4.6</u>	<u>4.3</u>	2.1	9.4	4.3	4.4
Union Family Health Institute	<u>8.9</u>	<u>4.8</u>	8.6	3.0	1.3	6.0
Thana Health Institute	<u>2.1</u>	<u>5.2</u>	4.5	6.3	5.4	4.3
Thana Office for Animal Services	<u>0.1</u>	<u>0.9</u>	1.5	1.3	0.0	0.7
Thana Office for Fisheries	<u>0.0</u>	<u>0.0</u>	0.0	0.0	0.0	0.0
Agro-Bank	<u>2.2</u>	<u>0.8</u>	0.8	0.7	0.8	1.2
Thana Office for Agricultural Extension	<u>0.4</u>	<u>0.7</u>	0.9	1.2	0.2	0.6
Food for Work	<u>0.0</u>	<u>0.3</u>	0.5	0.3	0.1	0.2
Food/Funds for Education	<u>3.3</u>	<u>3.7</u>	4.2	5.4	2.4	3.6
VGF	<u>1.9</u>	<u>2.2</u>	3.2	2.5	0.9	2.1
VGD	<u>0.6</u>	<u>0.9</u>	1.5	0.7	0.3	0.8
Elderly/Widow Allowance	<u>0.5</u>	<u>0.9</u>	1.0	0.6	0.8	0.8
Institutional Training	<u>0.1</u>	<u>0.0</u>	0.1	0.0	0.0	0.1
Rural Electricity/PDB	<u>6.3</u>	<u>7.6</u>	8.1	2.7	9.6	7.2
Roads for facilitating communication with local market	<u>22.5</u>	<u>19.7</u>	17.7	17.5	23.1	20.6
Roads for facilitating communication between districts	<u>18.4</u>	<u>16.9</u>	15.2	14.2	20.1	17.4
Others	<u>1.2</u>	<u>2.3</u>	3.6	2.3	0.8	2.0
Total	<u>100.0</u>	<u>100.0</u>	100.0	100.0	100.0	100.0

Table 13

Types of Private and Non-Government Services Received by the Households by Ecological Zones

Ecological Zones	Services Rendered by Private and Non-Government Organization										
	Private Clinic	Private Health Service	NWD/IDS Phone	Mobile Phone	Transport (Bus Service)	Micro-credit	NGO-Education	NGO-Clinic	NGO Services	Others	Total
<u>Favourable:</u>	<u>6.8</u>	<u>26.4</u>	<u>18.9</u>	<u>4.6</u>	<u>27.7</u>	<u>12.4</u>	<u>0.6</u>	<u>0.3</u>	<u>1.7</u>	<u>0.7</u>	<u>100.0</u>
<u>Unfavourable:</u>	<u>3.9</u>	<u>24.4</u>	<u>1.3</u>	<u>14.6</u>	<u>24.3</u>	<u>19.1</u>	<u>1.9</u>	<u>0.7</u>	<u>4.2</u>	<u>5.6</u>	<u>100.0</u>
(a) Flood-Prone	3.2	24.9	1.3	16.0	23.3	14.9	2.8	0.6	5.0	8.1	100.0
(b) Drought-Prone	10.6	22.5	3.4	18.6	11.8	22.2	0.0	0.7	8.9	1.2	100.0
(c) Salinity-affected	2.6	24.5	0.5	11.3	30.1	23.6	1.4	0.9	1.3	3.9	100.0
Total (All Zones):	4.8	25.0	6.8	11.5	25.3	17.0	1.5	0.6	3.4	4.0	100.0

Table 14

Coping Strategies of the Households while Facing Any Crisis by Ecological Zones

Ecological Zones	Coping Strategies (% of households)										
	Saving	Loan/ Borrowings	Selling of Land	Selling of Other Possessions	Cutting Down on Food Intake	Cutting Down on Other Expenses	Disconti- nuation of Studies	Putting Children to work	Do Nothing/ Can't Do Anything	Others	Total
<u>Favourable:</u>	<u>18.1</u>	<u>37.4</u>	<u>1.6</u>	<u>3.4</u>	<u>1.4</u>	<u>9.1</u>	<u>0.1</u>	<u>0.2</u>	<u>25.1</u>	<u>3.6</u>	<u>100.0</u>
<u>Unfavourable:</u>	<u>12.4</u>	<u>31.8</u>	<u>3.8</u>	<u>5.5</u>	<u>2.4</u>	<u>2.4</u>	<u>0.1</u>	<u>0.3</u>	<u>37.4</u>	<u>3.9</u>	<u>100.0</u>
(a) Flood-Prone	12.4	28.6	3.2	5.2	4.4	4.2	0.3	0.6	37.8	3.2	100.0
(b) Drought-Prone	14.8	24.6	8.6	13.4	3.0	0.0	0.0	0.0	33.2	2.4	100.0
(c) Salinity-affected	11.5	37.5	2.7	3.1	0.0	1.4	0.0	0.1	38.6	5.2	100.0
Total (All Zones):	13.9	33.9	3.2	5.0	2.1	4.2	0.1	0.3	34.2	3.8	100.0

Table 15
Ability of the Households to Recover from Financial
Loss due to Crisis by Ecological Zones

Ecological Zones	Able to Recover from Crisis-induced Financial Loss		Total (%)
	Yes (%)	No (%)	
<u>Favourable:</u>	<u>53.6</u>	<u>46.4</u>	<u>100.0</u>
<u>Unfavourable:</u>	<u>25.9</u>	<u>74.1</u>	<u>100.0</u>
(a) Flood-Prone	29.2	70.8	100.0
(b) Drought-Prone	26.4	73.6	100.0
(c) Salinity-affected	22.4	77.6	100.0
Total (All Zones):	33.3	66.7	100.0

Table 16
Dynamics of Poverty by Ecological Zones

(percentage of households)

Ecological Zones	Shortage throughout the Year		Temporary Shortage		Neither Shortage nor Surplus		Surplus		Total	
	Before	Now	Before	Now	Before	Now	Before	Now	Before	Now
<u>Favourable:</u>	<u>14.3</u>	<u>14.1</u>	<u>22.8</u>	<u>19.5</u>	<u>46.6</u>	<u>38.2</u>	<u>16.3</u>	<u>28.3</u>	<u>100.0</u>	<u>100.0</u>
<u>Unfavourable:</u>	<u>30.6</u>	<u>30.0</u>	<u>31.6</u>	<u>35.0</u>	<u>28.2</u>	<u>24.7</u>	<u>9.6</u>	<u>10.4</u>	<u>100.0</u>	<u>100.0</u>
(a) Flood-Prone	38.7	37.4	33.4	33.0	19.9	18.6	8.0	11.0	100.0	100.0
(b) Drought-Prone	22.3	21.1	39.0	37.0	25.6	26.7	13.3	15.3	100.0	100.0
(c) Salinity-affected	24.2	24.6	26.7	36.7	39.0	31.1	10.0	7.8	100.0	100.0
Total (All Zones):	26.2	25.6	29.2	30.8	33.2	28.3	11.4	15.3	100.0	100.0

Annex-I

Categorization of Favourable and Unfavourable Areas: A Methodological Note

It is actually not easy to categorize the ecosystem into different categories. It might well happen that there are favorable pockets within particular unfavorable areas and unfavorable pockets within favorable areas. Also, some areas may be affected by multiple of ecological vulnerabilities which makes the task difficult to categorize them with one identity. Given the above complexities, we have categorized the survey villages into three categories: ‘favorable’, ‘unfavorable’, and ‘neither favorable nor unfavorable’ and analysis has been done in this study focusing on ‘favorable’ and unfavorable’ areas only to explore the differential behavior of these two areas distinctively. And, the categorization has also been made using ecological characteristics of both the villages and the households residing in those villages. Ecological vulnerability indicators that have been considered here include flood, drought and salinity. Since there is a high correlation between river erosion and flood, only flood has been considered as a separate ecological zone.

The village level indicators that have been taken into consideration include occurrences of flood, drought or salinity during the last 10 years including the number of occurrences. Household level indicators that have been considered here include important hazards faced by the households of the villages during the last 10 years or so. The criteria that have been adopted here in categorizing the households are the following: the villages which exhibits higher proportion of any particular ecological vulnerability supported by both village and household level data have been categorized as unfavorable area with respect to that particular vulnerability; and, the villages, which are relatively free from any such vulnerability supported again by both village and household level data have been categorized as favorable area. The villages which fall in between – affected, but not regularly or severely, have been categorized as ‘neither favorable nor unfavorable’ and excluded from the present analysis. It should, however, be mentioned here that in identifying the salinity-prone areas, additional information was taken into account from the Field Investigators’ experience who visited the villages while collecting data during the survey.

The distribution shows 8 villages as absolute favorable, 9 villages as fully flood-prone, 7 villages as fully salinity-prone and 4 villages as fully drought-prone out of 64 villages.

Annex-II

Some of Key Points Emerged from In-depth Interviews Carried out among *Monga*, River Erosion and Flood Affected People Living in the Ecologically Vulnerable Areas of Northern Bangladesh

1. *Monga* and *Monga* Mitigation

What is *Monga* as Perceived by the People Themselves

- Having no work and earning and also not being able to borrow money or food;
- Not being able to eat every day;
- Bound to sell asset including even bed.

Major Causes of *Monga*

- River bank erosion;
- Loss of crop due to flood almost every year;
- lack of employment during lean season;
- Cyclone, Drought and Excessive rain (sometime).

Problems Created due to *Monga*

- Affected people cannot afford to have any treatment in case of illness and diseases;
- People frequently suffer from diseases including diarrhoea;
- Indebtedness also increases;
- No permanent asset remains, all (including livestock, poultry, bed and furniture, wooden box, valuable clothes, and even *nak phul* (nose ornament)) need to be sold.

Groups of People Affected by *Monga*

- During *monga*, poor people are left with no asset;
- Those who earn their livelihood by selling labour are the worst affected ones;
- Children of the affected families suffer from stomach related diseases because of not having adequate and proper food;
- Other members also suffer from major diseases.

Coping Strategies to Face *Monga* Situation

- Having one meal a day instead of two or even sometime one meal in two days time;
- Selling of permanent assets;
- Borrowing from moneylenders with high rate of interest.

Ways to Overcome *Monga* Situation

- Government can establish small-scale factories in these areas to provide regular employment;
- Need demand-driven youth development training and accompanied loan;
- Cultivation of crops like sugarcane, banana etc, which don't get damaged by flood, should be facilitated and encouraged.

2. Surviving River Erosion

Characteristics

- Have little amount of cultivable land;
- Tin roofed house with wall made of straw;
- Assets: some cultivable land, homestead land, beds, boat, few ornaments;
- 4-5 household members;
- More than one earning members;
- Do migrate, especially to Dhaka;
- Not much education;
- No much diseases;

- Average monthly income is around Tk. 15000;
- Main occupation is agriculture;
- Alongside, have other non-farm activities (working in the garments industry, carrying goods by boat, work of tying tobacco, petty trade/shop) as well;
- No indebtedness;
- No NGO involvement or loan outstanding to moneylender.

Degree of Affectedness

- Have been victims of river erosion at least 4 times. Suffered loss of trees, livestock, dwellings, land, and crops in the fields. Had to fall in shortage of food. Had to have only 2 meals a day. Had to receive temporary loans from moneylenders. Had to change the occupation.

Coping Strategies

- Had to eat less. Had to change occupation. Maintained engagement in agriculture/cultivation with land share-cropped or mortgaged in. Sent the members able to earn out of the locality for work. Accepted whatever work was available at that time. Did not receive any assistance from the government or any non-government agencies. Got assistance from the neighbours in repairing and building the dwellings.

Comparison between the Past and the Present

- Situation is a bit better than before, as earning members have increased. Also undertook additional employments (e.g. carrying goods by boat, garments work, overseas migration for work, petty trade) alongside agriculture.

What needs to be done to tackle the Crisis?

- Need to do any work available to tackle the situation that arises from river erosion.
- To go outside for work.
- To educate children.
- To build embankments.
- To establish factories by both government and non-government initiatives.
- Providing cattle, fertilizer and seeds for the farmers who are victims of river erosion.

3. Victims of River Erosion

Characteristics

- Cultivable land is in the river, no land to cultivate now.
- Tin roofed house with wall made of straw.
- Beds are the only asset.
- 4-6 household members.
- Only one earning member.
- No education.
- Work as day labourer – in the locality and outside.
- Monthly income of around Tk. 950.
- Suffering from diseases;
- Indebted as well.

Degree of Affectedness

- Have been victims of river erosion more than 4 times. Suffered loss of trees, homesteads, land, and crops in the field.

Coping Strategies

- Had to borrow from moneylenders, spent some money from savings, and got some government/non-government relief. No assistance received from relatives whatsoever.

Comparison between the Past and the Present

- Situation now is worse. Had some business in the past, used to cultivate some land, and had some capital; all have been lost due to river erosion. Depending now only on selling labour with only one earning member in the family.

What need to be done?

- Need to provide government/non-government credits to face the situation that arises due to river erosion;
- Need to educate children so that they can make their own way in the future;
- Need to provide government/non-government assistance for cultivation (especially for fertilizer and seed).

4. Surviving Flood**Characteristics**

- More than one acre of cultivable land;
- Own homestead;
- Assets are land, beds, few gold ornaments, livestock, shop, business capital etc.
- More than 6 household members.
- Tin roofed house with wall made of straw.
- More than one earning members. Involved with non-farm activities alongside agriculture.
- Not much health problem;
- Average monthly income of more than Tk. 5000.

Degree of Affectedness

- Have been victims of river erosion more than 5 times. Affected by flood each year. Suffered losses of trees, land, crops, homestead. Son's education was stopped due to being victim of river erosion.

Coping Strategies

- Had to do business alongside cultivation. Started a shop. Sent son to Dhaka for work. Had to temporarily borrow money at high interest (10 per cent per month). Had to eat two meals a day with quality of food not being good (rice, potato). Had received government and non-government relief.

Comparison between the Past and the Present

- Situation now has become a bit better than before even after being affected by flood each year. This is because son is working in Dhaka and in addition, started shop and street vending.

What needs to be done?

- For facing the disaster, the main thing that need to be done is river protection. Cattle have to be provided to farmers for cultivation. Seed and fertilizer have also to be provided. Government and non-government credits are also required.