Bangladesh Journal of Extension Education *ISSN 1011-3916*
Volume 21, No. 1&2, 2009:133-140 *Research Article*

Food Security Strategies Followed by the Farmers of a Disaster Prone Haor Area of Kishoreganj District

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Abstract

The study was undertaken to determine the nature and severity of food security strategies followed by the farmers of the disaster prone haor area of Kishoreganj district. Relationships between the severity of food security strategies of the farmers and their selected characteristics were also explored. The study was conducted in two villages under Itna upazila of Kishoreganj district. Data were collected from a sample of 150 farmers, who were randomly selected from the population of 1,001 farmers living in the study area. A four point rating scale was used to obtain the severity of 16 selected food security strategies followed by the farmers in the study area. Data were collected during August to October 2009 through face to face interview by using a pre-tested interview schedule. The common food security strategies followed by the farmers in the study area were: spending money from deposit, relying on less preferred and less expansive food items, borrowing money from NGOs and local moneylenders, reducing number of meals in a day, selling land and other assets (tools, seeds, livestock etc.), mortgaging land and ornaments, limiting/reducing amount of food per meal, reducing adult consumption for the sake of children. According to the severity of food security strategy score, an overwhelming majority (84 percent) of the respondents were in medium level severity compared to 12 percent and 4 percent having low and high level severity of food security, respectively. Severity of food security strategies followed by the farmers had negatively correlated with their age, family size, local orientation, farm size, annual family income and extension media contact, while no significant relationship was observed with education and organizational participation.

Keywords: *Food security, coping strategies, severity of food security strategies, haor.*

Introduction

Bangladesh suffers from different kinds of disasters. Floods, cyclone, tornado, storms and river bank erosion lead to huge scale loss of physical infrastructure and livelihoods of the people of the country. Disaster makes life miserable and causes a big loss of lives, property and crops. The peasants also loss stocks of food grains, seeds and agricultural implements. Many people have to leave their house and take shelter on high roads or ground where they have to depend on charity in case of flood. Disaster also often leads to the disruption of the transport and communication system. In short the effects of disaster are manifold and immeasurable. People of Bangladesh have to practice different kinds of food security strategies during and after disaster and the resource less people have to follow the strategies with great severity.

The large inland depression commonly known as the *haor* basin is located in the north-eastern part of Bangladesh. The large saucer shaped basin covering an area of 8,000 sq km is the largest single inland depression in the country and derives its name from the multitude of large lake like fluvial features known as *haors*. There are 47 major *haors* in the *haor* basin (Ali, 1990).

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The ecology of *haor* areas is different from other parts of Bangladesh. People of the *haor* areas have to fight against all natural calamities like floods, storm, river erosion, etc. Moreover, the majority of the *haor* residents are living below the poverty line. A major part of a year (about 7-8 months), the whole *haor* area goes under water. There remain only limited livelihood options for the haor people at the time of inundation. During the recession of water at the onset of dry season, moderate to severe river bank erosion cause a huge threat to the houses and shelter of the people. A single disaster like early flood and tornado cause long-term damage to the livelihoods of the poor haor people. Little attention so far has been given to address the problems of the haor. As a disaster-prone area, there should be an appropriate disaster response strategy to ensure that the people of haors have access to readily available means and arrangements to recover at the quickest possible time. Before launching any appropriate disaster risk reduction programme in hoar areas, it is of utmost important to know the food security strategies followed by the people living in haors during and after disasters. Although people have traditionally developed different kinds of coping strategies to avoid or to reduce the damages of disasters (Paul, 1995; Nasreen, 1999; and Ahmed, 2005), specific study on food security strategies followed by the farmers in disaster prone areas like hoars are almost unavailable. Keeping these issues in view, the present study investigated the food security strategies of the farmers of haor area during and after disasters. It also explored the relationship between the farmers' severity of food security strategies and their selected characteristics.

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Methodology

***Locale of the study*:** According to the objectives, the study was to be conducted in a typical hoar area. Itna upazila under Kishoreganj district was selected as the study area because of the fact that this upazila was located in deep haor region and it was vulnerable to all types of natural disasters occur in the haor regions. After consultation with locale upazila level officials and key-informants, two villages, namely Madhyagram and Purbagram under the Itna union of the upazila were selected as the specific study areas. The two villages were selected for incorporating adequate number of farmers of all categories (large, medium, small and landless) in the sample.

Measurement of food security strategies: Food security strategies followed by the farmers of the *haor* area were the main focus of the study. Sixteen probable strategies were selected through literature review and consultation with key informants. Following the criteria of World Food Programme (WFP, 2008), the strategies were arranged in a four point continuum (frequently, less frequently, rarely and not at all) in order to perceive the severity of practice of the strategies. Against a specific strategy, the respondents answered whether they followed the strategy "frequently", "less frequently", "occasionally" or "not at all", while scores were assigned as 3, 2, 1 or 0 respectively. On the basis of severity of strategies, eight common strategies were separated from all followed strategies, while the mean scores of these strategies were added to obtain a "food security strategy index score" for each respondent. Thus, the severity score range could range from 0 to 24, 0 indicating no severity of food security strategies while 24

indicating the highest level severity of food security strategies.

Data collection: Keeping the objectives of the study in view, a structured interview schedule was prepared to collect data from the farmers of the study area. The schedule was pre-tested before final data collection and necessary modifications were made on the basis of pre-testing experience. Data were collected from the selected farmers by using the interview schedule during August to October, 2009.

Findings and Discussion

Food Security Strategies followed by the Farmers of the Haor: As mentioned earlier, 16 food security strategies were considered for the investigation. On the basis of severity of practice, eight strategies were found to be commonly practiced by the farmers (having mean value around or larger than 1). The results have been presented in Table 1. The occasionally practiced strategies excluded from the analysis were: purchase food on credit (mean severity of practice: 0.29), out migration of household members in adverse season (0.26), borrow food from neighbours and relatives (0.09), selling labour in advance (0.09), skip day without eating (0.07), migrate to city or other areas, (0.03), selling of food aids (0.01), send family members to eat elsewhere (0.00).

Table 1. Commonly practiced food security strategies by the farmers with their mean score and rank

Commonly practiced food security strategies	Mean score	Rank
Spend money from deposit	2.24	1
Rely on less preferred and less expensive food items	2.16	2
Borrow money from NGOs and money lenders	1.43	3
Reduce number of meals in a day	1.42	4
Sell land and other assets (tools, seeds, livestock etc.)	1.26	5
Mortgage land and other ornaments	1.13	6
Limit/reduce amount of food per meal	1.05	7
Reduce adult consumption for sake of children	0.95	8

The result of the study has similarity to a number of nationally and internationally conducted studies. Some of these studies included World Food Programme's assessment study on Sidr affected people in the coastal area of Bangladesh (WFP, 2007), Maxwell and Caldwell's (2008) study on tsunami affected people in Sri Lanka, and Rahman's (2009) study on food security strategies followed by ultra poor in two selected flood prone areas. These studies indicated that peoples of the disaster prone areas followed the above-mentioned food security strategies with different level of severity. As all these strategies related to very basic needs of food security, the concerned authority should paid appropriate attention on these issues during planning a location specific disaster risk reduction programme.

In the haor area, levels of disaster coping ability and food security strategies followed by the farmers vary on their nature of farm sizes. Therefore, the commonly practiced food security strategies were analyzed according to the farming categories of the respondents and are presented in Table 2.

Table 2. Severity of food security strategies followed by different categories of farmers in the disaster prone haor area

Commonly practiced food security strategies	Average food security strategy practice scores by farmer groups (possible score range: 0-3)			
	Large (30)	Medium (32)	Small (38)	Landless (50)
Spend money from deposit	3.00	3.00	2.97	0.72
Rely on less preferred and less expensive food items	1.16	1.72	2.24	2.98
Borrow money from NGOs and money lenders	0.36	1.37	1.50	2.06
Reduce number of meals in a day	0.40	0.81	1.05	2.72
Sell land and other assets (tools, seeds, livestock etc.)	1.70	1.97	1.97	0.00
Mortgage land and other ornaments	1.40	1.78	1.84	0.00
Limit/reduce amount of food per meal	0.00	0.06	0.32	2.86
Reduce adult consumption for sake of children	0.03	0.00	0.00	2.82

Note: The land size classification has been done according to DAE (1999).

Data presented in the Table 2 clearly indicate that the severity of food security strategy of the farmers mainly depends on their financial solvency as indicated by the fact that the large and medium farmers mainly tried to solve their food related problem by procuring money from different sources, while the small and landless farmers resorted to different kinds of livelihood adaptations. For example, it is interesting to note that landless farmers could not follow strategies like "selling land and other assets" and 'mortgaging land and other ornaments." This is due to the fact that the landless farmers did not have assets to follow such types of strategies for procuring food. On the other hand, the large and small farmers mainly solved their problems by spending money from deposits, which was not suitable for landless farming families.

The respondents were classified into three categories on the basis of their severity of food security strategies in eight commonly followed strategies. The score ranged from 6 to 19 against the possible range from 0 to 24, while the average score was 11.64. The categories are shown in Table 3.

Table 3. Categories of farmers in the haor areas on the basis of their severity in food security strategies

Categories of farmers (score range)	Percent	Mean	Standard deviation
Low severity to food security strategies (up to 8)	12		
Medium severity to food security strategies (>8 -16)	84	11.64	2.70
High severity to food security strategies (>16)	4		

It appears from the Table 3 that although only four percent farmers were found having followed highly severe food security practices, an overwhelming majority of the respondents fell into the medium severity categories, which is difficult to overlook. It means that the medium to highly severe food security strategy following farmers were easily vulnerable to different disasters and seasonality related shocks in the haor areas. As majority of the farmers in the haor areas lack alternative resources and they do not have alternative livelihood opportunities during the water logging months (May – November), their main concerns are the food security issues in the lean period. Agriculture in haor areas are in constant risk if appropriate food security strategies are not adopted by the concerned authority in the haor area.

Selected Characteristics of the Farmers: The Table 4 presents the salient features of the selected characteristics of the respondent farmers.

Table 4. Salient features of the selected characteristics of the farmers in the study area

Characteristics	Measuring unit	Observed range	Mean	Std. dev.
Age	Year	21-80	42.01	12.270
Education	Year of schooling	0-12	2.59	3.604
Family size	Number	1-13	5.33	1.947
Local orientation	Year of living	7-80	40.72	12.910
Farm size	Hectare	0-14.17	2.03	3.046
Organizational exposure	Scale score	0-10	0.99	2.180
Annual family income	'000' Tk.	15.1-1,096	156.65	205.312
Extension media contact	Scale score	0-7 (possible: 0-33)	2.51	1.686

The data on the characteristics of the respondents and the data presented in the Table 4 indicate that the respondents of the study area were relatively younger aged (40% up to 35 years) and had low level of education (64.7% illiterate and 16% having primary level education). The average family size (5.33) was higher than that of the national average of 4.9 (BBS, 2008). The average farm size of the respondents was 2.03 ha which was much higher than that of national average (0.46 ha; BBS, 2006). This was because of the fact that few farmers had very large farm area. Most of the respondents (70.7%) had no organizational exposure and 25.3% having low organizational exposure. Majority of the respondents (43.4%) of the farm households had medium family income, while 29.3% and 16.7% had low and high annual family income, respectively. It was found that 76.7% of the respondents had very low and only 3.3% had low extension media contact. It was an indication of very low level of extension service to this *haor* community.

Relationship between the selected characteristics of the farmers and their severity of food security strategies

Relationship between the selected characteristics of the farmers and their severity of food security strategies were ascertained by computing Pearson's Product moment coefficient of correlation (r) and presented in the Table 5.

Table 5. Relationship between the selected characteristics of the farmers and their severity of food security strategies

Selected characteristics of the respondents	Correlation coefficient (r) with 148 d.f.
Age	-0.198*
Education	-0.065
Family size	-0.168*
Local orientation	-0.240**
Farm size	-0.768**
Organizational exposure	-0.151
Annual family income	-0.744**
Extension media contact	-0.580**

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

The Table 5 show that age, family size, local orientation, farm size, annual family income and extension media contact of the farmers had significant and negative relationships with their severity of food security strategies. However, the farmers' level of education and organizational exposure did not show any significant relationship with their severity of food security strategies. The findings indicate that the more or large in the age, family size, local orientation, farm size, annual family income and extension media contact of the farmer the less was the severity of food security strategies followed by them. It means that these characteristics of the farmers might have a positive impact on developing their ability to cope with disaster related damage and thereby to reduce their vulnerability to these damages. Although not on food security strategy issues, studies on flood coping ability of the households made reflections of the findings of the present study. Studies of Munna (2009) and Khatun (2009) suggested that family size, farm size, organizational exposure and annual family income of ultra poor households had significant positive relationship with their flood coping ability. Similarly, Islam (2005) found that education, family size, annual household income, farm size and extension media contact of the farmers had significant and positive relationships with their flood coping ability.

Conclusion

Farmers of the disaster prone *haor* areas adopted a number of strategies towards food security during and after disasters. It appears that the landless and small farmers had to follow strategies which were related to their livelihoods, while the medium and large farmers resolved their food related problem through procurement of money from different available sources. Severity of food security strategies of the farmers depended on their age, family size, farm size, local orientation, annual family income and extension media contact. These are the indication that landless and small farmers had low coping ability while the medium and large farmers had higher ability to withstand the damage of disasters and seasonal shocks. As the haor area is extremely vulnerable to disasters and majority of the farmers had to adopt different kinds of food security strategies with remarkable severity, the Ministry of Food and Disaster Management with collaboration of the mainstream public sector agricultural extension agencies (Department of Agricultural Extension, Department of Livestock Services and Department of Fisheries) should undertake appropriate policy measures to help the farmers in haor area especially landless and small farmers to get relieve of their food insecurity situation during and after the disaster period. The policy measures should

include adaptation of disaster coping cropping patterns, promotion of livestock related income generating activities among the small and landless households, small and landless farmers' more access to water bodies in the haors, and alternative livelihood opportunities for the farmers during crisis periods. Therefore, the concerned authority should closely examine the food security strategies followed by the farmers in the disaster prone *haor* and widen the social safety net programmes to those people for achieving success of the national food policy.

Acknowledgement

This paper is a part of the research project entitled "Ultra Poor Households' Flood Coping Ability towards Food Security in Two Flood Prone Regions" funded by NFPCSP (National Food Policy and Capacity Strengthening Programme) and supported by FAO, GoB, USAID and the European Commission.

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