



Research Monograph Series No. 15

Experiences of Deluge: Flood 1998

Edited by

**Syed Masud Ahmed
Hasan Shareef Ahmed**

November 1999

**BRAC
Research and Evaluation Division
75 Mohakhali, Dhaka 1212
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FOREWORD

The devastation and destruction caused by the flood of 1998 was unprecedented in the history of this country. It continued for more than 65 days and affected 100,000 sq. km. areas and destroyed basic infrastructures like roads, bridges, houses, standing crops of the fields, killed birds, animal and cattle heads. The most damaging aspect of the flood was the destruction of people's means of livelihood. Decades-long efforts, both government and non-government, in alleviating poverty were threatened.

The devastating flood of 1998 had important lessons for government and the NGOs. As soon as the flood reached disastrous proportion, BRAC began a massive relief operation for the marooned people to help them cope with the situation. To hold back the downsliding of its programme participants who lived in the flood affected villages into destitution, BRAC undertook a comprehensive programme to restore homesteads, rehabilitate agriculture, create employment, prevent epidemics of gastrointestinal diseases, provide nutritional support to pregnant women and children, and to bring life back to normal. To help plan a comprehensive need-based rehabilitation programme, BRAC's Research and Evaluation Division undertook a number of studies during September-October 1998 to assess the loss and damage to assets of the programme participants, and also to understand community's needs and perceptions in coping with the situation. The studies used both quantitative and qualitative methods and most of the core researchers of BRAC were involved in field operations. These reports are compiled in this single volume and I am sure it will prove to be of use to development practitioners, particularly those working on disaster mitigation.

Fazle Hasan Abed
Executive Director
BRAC

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A QUICK ASSESSMENT OF FLOOD LOSSES AND POST-FLOOD REHABILITATION NEEDS IN BRAC'S PROGRAMME AREAS

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SUMMARY

To examine the effects of 1998 flood and help plan a comprehensive need-based rehabilitation programme, BRAC's Research and Evaluation Division carried out a rapid survey to assess the loss and damage of the assets to BRAC programme participants, and the damages caused to BRAC's assets in the field offices. A team of BRAC researchers collected information using semi-structured questionnaires and checklists during 15-30 September 1998 when the flood was at its peak. The study was done in 11 worst hit districts identified by BRAC management information system and eight *thanas*¹ of Dhaka City.

Findings reveal that 87% of BRAC group members in rural areas and 45% in urban areas had their homesteads damaged, partially or fully. Fifty-eight percent of members in the rural areas and 31% in urban areas lost some poultry, while 11% of the households reported to have lost cattle in rural areas and about 2% in urban areas. On average, the loss of homestead and productive assets per household was higher in the urban areas (Tk 7,301) than in the rural areas (Tk 6,118). In the rural areas, the loss of assets of BRAC participants was estimated to be about 45% of the total non-land productive assets held by BRAC participants (1996 price). Eighty-five percent of member households in rural areas and 51% of households in urban areas suffered income loss due to flood. In the process of survival, they became heavily indebted to moneylenders (around 33% households in rural and 11% in urban area). Sixty-three percent of the members in rural areas and 15% in urban areas could not deposit their regular savings while loan installments could not be paid in 60% cases for rural and 12% for urban areas. The major source of cash

¹ Thana is the lowest administrative unit of the government.

for either loan repayment or savings deposit in rural areas was borrowing from relatives without interest (44% and 47% respectively), while in urban areas the major source for loan repayment was borrowing from moneylenders (37%) and for savings deposit was borrowing from relatives (39%). On an average, BRAC office premises remained under two feet deep water for about 15 days and the average estimated damage per Area Office (AO) was around Tk 27,000. Around 53% of the BRAC schools in rural areas and 43% in urban areas were closed for an average of 24 days due to the flood. Based on discussions with community members and key-informants, and comparing expected yields with those of last year, it was estimated that standing crop damage in the survey areas was 66% for *Aman*, 71% for sugarcane, and 69% for jute.

Flood caused changes in the food habit of the people in terms of frequency of intake, quantity and quality.

The most common health problems faced by the flood victims were diarrhoea, respiratory illnesses, fungal infection of the lower part of the legs, contact dermatitis and malnutrition. Like any other natural calamities, the women were affected most in this deluge. They had to bear the major burden of the disruption of normal livelihood in terms of collection of safe water, sanitation, preparing and distributing whatever food they could manage among the family members (keeping little for themselves and keeping the family together). Lack of income created a state of helplessness that led to increased tension within families; an increase in domestic violence was reported in urban area.

Programme participants expected BRAC to reschedule their loans for at least two months, and provide new loans for reconstruction of homesteads and agricultural rehabilitation. They also expected emergency health services such as, supply of ORS and medicines for diarrhoeal diseases, skin diseases and respiratory infections. Restoring tubewells and rehabilitation of sanitary latrines were also suggested as a priority task.

This unprecedented flood shattered the economic backbone of the wage-labourers and sharecroppers, as many were practically unemployed for more than eight weeks. The decade long gains of micro-credit programmes in alleviating poverty and empowering poor appeared to have come under threat; major investments will be required to put this back on track. The implications for the programme are discussed and specific recommendations are made.

INTRODUCTION

Bangladesh is largely a flat deltaic country formed by the confluence of great river systems of the Ganges, the Brahmaputra and the Meghna. These river systems annually drain a vast basin about 12 times its own size. Since the water of the above three major river systems passes through Bangladesh (only 7.5% of total catchment area) to the Bay of Bengal, the country becomes the worst victim of excessive rainfall in the upper catchment area outside its territory. Due to the low gradient of the rivers of Bangladesh and a flat terrain, every year, floods inundate a substantial part of the country and causes destruction to lives and properties. But at times it turns into catastrophic proportion.

From early July 1998, Bangladesh began to experience the worst flood of the century. Bangladesh witnessed severe floods in 1954/55, 1974, 1987 and 1988 when one-fourth to half of the country went under water causing immense damage to lives and properties (Table A) (1). The flood in 1988 was termed as catastrophic when 52 percent of the country's land was inundated. In that flood 52 districts and 30 million people were affected. However, the scale and duration of the recent flood of 1998 has surpassed all past experiences in recorded history. Almost two-thirds of the country went under water on an average of 8 to 9 weeks; 55 of the total 64 districts (32 in the riverine areas of Jamuna, Brahmaputra, Padma and Meghna), were severely affected. A total of 33 million people were marooned of which 18 million needed emergency food and health services. The prolonged and devastating flood caused huge damage to crops, property and livelihood. Houses were inundated, some being washed away by the current of the surging water. The roads and highways and related infrastructure went under water, thus disrupting the communication lifelines of the country. There was immense damage to dams and culverts. At the peak of the disaster, there were few places where people could find a dry place for shelter as all the traditional places where people usually take shelter during flood such as schools, mosques, community centres were submerged. They had to live with their cattle and poultry under the same roof. The marooned people in millions suffered from scarcity of safe drinking water and were without any sensible means of sanitation. The death tolls due directly to flood touched the thousand-figure mark. This number is sure to rise in the future due to water-borne epidemic and severe malnutrition, especially among under-five children, soon after the floodwater recedes. The capital city also had its share of disaster. Substantial parts of old and new Dhaka were submerged. Water logging and failure of drainage systems caused an environmental nightmare.

BRAC works with the poor section of the society and like any other disaster, the poor suffered more than any other group. The countrywide

network of BRAC also suffered heavily from the devastating flood. BRAC's goal of poverty alleviation among its targeted rural households suffered a severe setback. To mitigate the effects of the flood and plan a comprehensive need-based rehabilitation programme, information is needed on flood losses and post-flood rehabilitation needs of the programme participants. With this in mind, a quick survey was done to assess the damage and losses occurring to BRAC members and BRAC's infra-structural assets as well as immediate and long-term post-flood rehabilitation needs. Eleven worst affected districts and 9 *thanas* in Dhaka city were surveyed.

Table A. Flood affected areas in major floods since the sixties (area of Bangladesh=1,48,393 sq. km.).

Year of flooding	Flood-affected area (sq. km.)	% of total area
1954	36,780	24.8
1955	38,850	26.2
1974	52,520	35.4
1987	57,270	38.6
1988	77,700	52.4
1998*	1,00,000	67.4

* Source: GOB web site as of 26 September 1998
(<http://www.bangladeshonline.com/gob/flood98>)

Objectives

The objective was to quickly assess the damage and losses occurring to BRAC programme participants and BRAC's infra-structural assets and to determine immediate and long-term post-flood rehabilitation needs. More specifically, this study aimed to explore:

- the losses of BRAC members in terms of homesteads, household productive assets, income losses, and their coping strategies;
- the losses to BRAC's assets (including damage to physical infrastructure) at the Area Office (AO) level, and losses incurred by BRAC operations from the onset;
- perception of the BRAC members and the community about their post-flood rehabilitation needs and BRAC's role in it; and the
- future implications for BRAC.

Rationale

Being the largest indigenous NGO working for improving the socio-economic condition of the poor in Bangladesh, BRAC is obliged to take a pro-active and effective role in the relief and post-flood rehabilitation activities so that damages can be minimized and sliding into the poverty trap can be prevented. Valid information is therefore needed to identify key areas of intervention. Thus, the study was designed to give a quick feed-back to the policy makers and programme planners for helping them formulate an effective and need based rehabilitation programme.

METHODOLOGY

Due to urgency of the information required, a quick survey design was adopted to collect both quantitative and qualitative data on the effects of the flood on the lives of the poor and their post-flood rehabilitation needs.

Selection of the study areas

The study was conducted in both rural and urban areas where BRAC has programme interventions. The eleven worst affected districts identified by the BRAC management information system were selected. These were: Manikganj, Munshiganj, Chandpur, Sirajganj, Pabna, Gaibandha, Kurigram, Gopalganj, Faridpur, Madaripur, and Chapai Nawabganj. In the urban component, eight affected *thanas* of Dhaka city were also included.

Sampling

For each of these districts, BRAC management grouped the Area Offices (AO) into three categories by subjective assessment based on the extent of flood-affected area in the *thana*, duration of the flood, and damage to homesteads, properties and crops, etc. At the AO level, the villages under it were similarly categorised. For our purpose, we tried to select one AO from each category. From each AO, we selected three villages of three different categories following discussion with BRAC field staff. Similarly, for each urban *thana* of Dhaka city, three localities were selected following the same criteria as for the rural areas.

Sample size

The survey covered 33 rural AOs in the 11 worst affected districts (99 villages) and 8 *thanas* (24 localities) in Dhaka city (Annex A). Information on damage to homestead and productive assets were collected from

3,505 village organization (VO) members and 628 slum organization (SO) members from 1,528 VO members and 178 SO members interviewed respectively. The rest of the information was collected from the 1,528 VO members and 233 SO members interviewed.

Data collection

The data collection began on 15 September 1998 when the water had just started to recede and was completed by 30 September. The investigators had to work under very difficult circumstances as communication was disrupted, and the flooding and river currents posed formidable risk to movement from one village to another.

Development of instruments, training, data processing and analysis

A structured form was used for data collection on asset losses of BRAC programme participants and BRAC area office premises (including physical infrastructure). Checklists were used for group discussion and observation. For group discussion, at least six VO members of BRAC were assembled in a convenient place, in some cases the boat by which the investigators visited the village. In selecting discussants, attempts were made to include some knowledgeable members from VO management, if available. Information on loss of homestead and productive assets were recorded for as many VO members as the discussants could recall. On the other hand, information on household assets, poultry, loans and savings were recorded for only those members present in the group discussion. While assessing damage to homesteads, cost for repairing the damage was considered. Damage to productive assets was estimated on the basis of what the particular lost asset would have fetched if sold in the market. Crop loss was estimated on the basis of discussion with knowledgeable members of the community and also, discussion with key informants on the expected yield this year for selected rich households. All information were cross-checked with a second person from the same village before recording.

A three-day intensive training was given to the core researchers on the survey instruments. Each research team working in the rural districts consisted of one core male researcher and one male interviewer while the urban team was composed of two core female researchers. Each core BRAC researcher also received help from a research assistant during fieldwork.

Limitations

This study being a quick survey adopted a flexible research design mainly based on group discussion, information from the key informants,

and observation. As only BRAC programme areas in the worst affected districts were included in the survey. The findings may not be generalised for the entire country. Shortage of time compelled us to be flexible in terms of the duration of training and development of instruments. However, using core researchers instead of interviewers in the survey ensured validity and reliability of the data collected.

RESULTS

Losses incurred by BRAC members

Asset loss

Table 1(a) shows the distribution of BRAC households reported to have incurred asset losses due to flood of 1998 in the rural and urban areas. Around 87% households in rural areas and 45% in urban areas lost homesteads, either completely or partially. The loss of household assets like furniture and utensils was more in urban areas (71% & 43% respectively) compared to rural areas (44% & 30% respectively). Besides homestead, the major areas of losses in rural areas were: poultry (58%), small trees and nurseries (36%), and livestock (11%). Mobile trade (hawker of foodstuffs, vegetable, groceries, etc.) and rickshaw/rickshaw van were reported to be the major area of losses in the urban areas. Table 1(b) presents the estimated loss per household (homestead+productive assets+household assets) according to the severity of damage. On average, the loss of BRAC rural households was less than the BRAC urban households (Tk 5,000 vs. 7,000 respectively). However, the loss in rural areas was estimated to be around 45% (in the severely damaged villages) of the total non-land assets possessed by BRAC households in 1996 price (3).

Table 1a. Distribution of BRAC households reported to have incurred asset losses due to flood, 1998.

	% of households incurred loss	
	Rural (n=3,505)	Urban (n=628)
Homestead	87	45
Furniture*	44	71
Utensils*	30	43
Poultry*	58	31
Livestock (cow/goat)	11	2
Fish (from inundation of ponds)	9	-
Trees (nurseries and small trees)	36	-
Suruchi (restaurant)	3.1	-
Supannya (grocery)	3.0	-
Baby Taxi/Tempo	-	1
Rickshaw/Rickshaw van	-	10
Shop	-	9
Small trade (mobile)	-	25

*From a smaller sample of 1,226 respondents in rural area and 178 respondents from urban area.

Table 1b. Estimated loss in Taka per BRAC household (including homestead) by level of damage due to flood, 1998.

	Level of damage			
	Rural			Urban
	(n=3,505)			(n=628)
	Severe (n=1,460)	Moderate (n=1,042)	Minimal (n=1,001)	Severe (n=628)
Total estimated loss per HH (Taka)	6,118	5,118	3,756	7,301

Income loss and alternative sources of income

An attempt was made to estimate the loss of income of the BRAC member households. Income loss is estimated to occur when the income of the member household from alternative source (source other than the pre-flood occupation, if any) was found to be less than the pre-flood income. The results showed that 85% BRAC households in rural areas and 51% households in urban areas suffered income loss due to flood. Next, we tried to explore the alternative source(s) of income of the member's household. The results are shown in Table 2. Borrowing from the moneylenders (with interest) and relatives (without interest) together

emerged as the most important source of cash both in rural (48%) and urban areas (28%). In the rural areas, one-third of the households survived on taking loans from moneylenders, at high interest rates ranging from 120-140%. Relief from GO/NGOs was another major source in the rural areas. In the urban areas, more households made an income from ferrying passengers by boat compared to the rural areas. In affected urban areas, boats became an important means of communication during flood; because of population density and increased mobility in the city, it opened up a new avenue of income for some people. In fact, a surge of new boat making was seen in the city during the flood. Wage labour (10%) and pulling rickshaw/rickshaw van (around 15%) were two other major sources in the urban areas.

Table 2. Single major alternative source of income of BRAC households for carrying on daily expenses during flood, 1998 (%).

Single major alternative source of income during the flood	Rural (n=1,226)	Urban (n=178)
Borrowing from moneylenders*	32.6	10.7
Borrowing from relatives (without interest)	15.9	17.4
Relief (GO & NGO)	9.6	8.4
Fishing	8.1	1.1
Household's savings	6.4	1.7
Sale of household assets	5.2	3.9
Petty trade	4.2	6.2
Wage labour	3.3	10.1
Plying boat	2.9	7.9
Credit from grocery (in kinds)	2.8	1.7
Rickshaw/Rickshaw van	1.6	14.6
Service	1.4	4.5
Loan taken from BRAC before flood	1.0	0.6
Others†	5.0	11.2

* At 120-140% interest rate;

† e.g., capital of small trade, loan from other *samity*, etc.

Savings deposit and loan repayment

Around 63% of BRAC members in the rural area and 15% of BRAC members in the urban area could not deposit their savings either totally or in most of the occasions during flood (on an average preceding six weeks from the day of survey). On the other hand, 60% BRAC members in the rural area and 12% in the urban area could not repay loan installments either totally or in most occasions during flood (Table 3).

Table 3. Distribution of BRAC members who could not deposit savings or repay loans during flood, 1998 (%).

BRAC members who could not	Rural	Urban
	(n=1,225)	(n=178)
Deposit savings either totally or in most of the occasions	63	15
Re-pay loan installments either totally or in most of the occasions	60	12

Table 4 shows the single major source of cash for those BRAC members who deposited their savings and repaid loans during flood in rural and urban areas. It is interesting to note that the major source of cash for either loan repayment or savings deposit in the rural areas was borrowing from relatives without interest (44% and 47% of loan repayment and savings respectively) while in the urban areas the major source for loan repayment was borrowing from moneylenders (37%) and for savings deposit was borrowing from relatives (39%). Loan taken from BRAC before flood was used in some cases in rural areas for loan repayment (4%) and savings deposit (5%). This proportion was low in urban areas (1% for both).

Table 4. Single major source of cash for depositing savings and repaying loans during flood, 1998 (%).

Source of cash for	Rural		Urban	
	Loan repayment (n=484)	Savings (n=450)	Loan repayment (n=156)	Savings (n=150)
Borrowing from relatives (without interest)	43.8	47.3	28.0	39.3
Borrowing from moneylenders*	3.9	0.9	36.6	12.7
Fishing	4.5	6.4	0.6	0.7
Household's savings	4.5	5.1	3.7	4.0
Sale of household assets	3.3	2.2	4.3	5.3
Petty trade	5.8	7.6	3.1	2.7
Wage labour	3.1	-	2.5	5.3
Plying boat	1.9	2.7	6.2	6.7
Rickshaw/Rickshaw van	2.3	2.7	5.0	8.0
Loan taken from BRAC before flood	4.3	4.9	1.2	1.3
Selling milk	1.2	1.6	-	-
Others†	21.4	18.6	8.8	14.0

* At 120-140% interest rate;

† Selling relief materials, money saved by reducing daily food and other expenses, help from relatives, preparing bread for BRAC relief, begging, etc.

Change of food habit and household food stock

The food habits of the affected people changed during flood both in quality and quantity. Instead of three meals a day, at best they could manage two meals – that was also true for those households who could manage an alternative source of income. One woman from a middle income family said, *“We used to eat at least three bela (times) but now we eat one bela (times) if we are lucky... .”* Those who could find a dry place and fuel, used to cook once a day and prepared meals for the whole day. Sometimes, they cooked for one day and took meals for two to three days. One woman from urban slum said, *“We buy cow dung which costs 15 taka a stick, before it used to cost 10 taka. It is also hard to get and the sticks lasts us only one day.”* Others tried to survive on dry food like *muri, chira* etc. with molasses or had rice with only onion or green chilly. They did not prefer ‘*ruti*’ because it needed much fuel to prepare. Sometimes they had to starve in spite of rice availability in the household because they could not manage fuel. Quite a few went without any food for several days together, surviving on water and wheat fried with salt or some relief materials, which were quite small in amount and infrequent in supply compared to their need. The poor households both in rural and urban areas had little food in their stock. Besides well-off households in the villages, the middle and marginal farmers had some stock of food from their last harvest, which depleted rapidly due to prolonged flooding. Only the rich households had some meagre stocks and soon they had to buy food from markets. The consumption of vegetables, especially the green leafy varieties, diminished substantially due to the inundation of vegetable plots. In the urban area the slum dwellers didn’t have any food in stock whatsoever as they were used to buying food on a daily basis.

Water, sanitation and health

The majority of the flood-affected people in the villages used tubewell water for drinking. In places, the submerged tubewells were raised and water pumped for a few minutes before collection. In other places, women used to fetch water from far away where the tubewells were not inundated. However, for washing utensils and other domestic activities, floodwater was used. Very few used alum or tablet for purifying water either because these were not always available or the people did not like the taste of treated water.

In the urban area, people collected water from schools, mosques or other places where the water sources were not inundated. Some boiled water or used alum/tablet for purifying water. Some in the *Katasoor Beribadh* area of Dhaka city stated that they had to buy water *“....We also buy water from the ‘malik’ (owner) of the deep tubewell....sometimes depending*

on the person it costs us Tk 10, 20 or 30.” The women had to go on boats across to the main road to access water, “...We have to walk to where the supply line is and then stand for a long time, and then we get our water. But it is free.”

Sanitation posed a serious problem, especially for women. Men used to go by rafts or boats to a distant place for defaecation. Sometimes they used to respond to nature’s call when plying boat. The men also used trees or rafts for this purpose. Women had to wait till dusk “...We go to attend nature’s call early in the morning or very late in the evening...this is ‘shorom’ (shameful) for us...you are a woman, you know what it is like.” Some used to defaecate inside the house and others used to defaecate deep in the floodwater while bathing. Sometimes, they could not find bushes or some natural hideout to defaecate because these were inundated; polythene bags were used instead. They voiced their shame and embarrassment in the following words, “...What to do now...we put our thing (faeces) in polythene packets or kagoj (paper) and throw it into the water...” In the urban area and in some rural areas, makeshift latrines were made on water bodies with bamboo poles and old clothes, especially for women. A few mentioned the indignity they were facing as they were forced to take baths in front of the *para* (neighbourhood) men and outsiders “...All of us bathe together, we take turn for having a bath by the side of the road...‘kee ar korbo’ (what else to do)?” Two younger women mentioned about washing their menstrual clothes. “where will we wash it...we throw it into the river and the dirty clothes go into the water...” During the flood, women used to drink less water and take less food so that they would have to urinate and defaecate less frequently. In desperation, one marooned woman in the urban slum lamented “...We cannot eat properly, we cannot bathe properly and we cannot leave the house...what to do?”

In the areas visited, people were found to be increasingly suffering from respiratory infections, skin diseases and diarrhoea. Fungal infection on the skin of the legs due to prolonged submersion in dirty water was common. Few could manage pre-packaged oral saline from relief workers. People had very little opportunity of seeking treatment for their illnesses; either they had no money to spend on treatment of illness or no health care provider was available in the vicinity, excepting of course the indigenous ‘folk’ practitioners. Some of the slum women admitted quietly to taking their sick children to the local ‘huzur’ (religious leader) or a ‘fakirani’ (female faith healer) for ‘phook phak’ (faith healing): “She doesn’t take money from us, neither does the huzur. We give the fakirani agarbati and few things if we want to...” Another woman complained, “...My son is so sick from ‘amasha’ (dysentery)...the NGO doctor gave us some tablets but how can a child eat tablet? We need syrup!” People said

that few community health workers, if at all, either of government or NGO came to visit them and gave medicine.

Members' perception on BRAC's role in post-flood rehabilitation

The BRAC VO members placed high hope on BRAC in their post-flood rehabilitation endeavour. The first thing that they expected from BRAC was the rescheduling of outstanding loans for at least two months. They wanted BRAC to give them new loans for reconstruction of homesteads and agricultural rehabilitation. BRAC could also provide seeds and seedlings, which would be in short supply. Loans for buying poultry, cattle and fodder would be useful. Most of the members wanted to withdraw some savings to meet urgent needs. The members said that BRAC could help them in restoring the tubewells and rehabilitation of sanitary latrines. They wanted emergency health services from BRAC in the form of ORS, medicine for diarrhoea/dysentery, skin diseases and respiratory infections. They hoped that BRAC would take measures through its Shasthya shebikas (SS) (female health workers) to check the epidemic of diarrhoea in their community. Some wanted BRAC to employ their husbands or male employers till they can go back to normal situation. None of the discussants wanted to live on relief materials for indefinite period--what they wanted is credit, productive inputs and work so that they would earn their livelihood on their own, repay their loans and would not have to depend on the charity of others. One influential school teacher in a slum said during discussion, *"...If you want to save lives of thousands, try to give them work and nothing else."*

"Everything we have is hope!"

Despite the serious condition existing, in places we found people smiling and singing; children enjoying the water in whatever way they could. Young women with *henna* decorated hands smiled at us, *"Hope is everything we have; we don't want anyone to take it away from us. You (BRAC and other NGOs) give us support, we know how to survive."*

Impact of flood on the community and their survival strategies

Damage to crops

This flood caused catastrophic damage to crops. Major proportion of standing crops in the field was destroyed. The paddy fields were under eight to ten feet deep water for an average of eight weeks depending upon the area. Due to prolonged flood, most of the sugarcane and jute rotted in the field. Those who harvested earlier, could save some of these crops. In areas like Matlab where moderate flooding is an annual event, people usually do not plant *Aus* but they cultivate the deep-water variety of

Aman. Villagers of the region opined that they would reap this *Aman* harvest if not attacked by pests, etc.

A tentative estimate of damage of standing crops. The proportion of crops damaged was estimated through discussion with people from both poor and well-off households and also, by inquiring about some wealthiest households in the village regarding expected harvest this year compared to last year's. We found that the damage to crops varied from place to place. In places like Matlab where moderate flood is an annual event, farmers usually harvest deep variety of *Aman*. This crop was not destroyed completely and farmers expected to harvest major part of this crop in the current year. Considering all these, the loss of standing crops in the 99 villages surveyed was estimated (Table B).

Table B. Estimated damage of standing crops in the villages surveyed due to flood, 1998.

Level of damage to villages	Estimated loss of standing crops (%)		
	Paddy (<i>Aman</i>)	Sugarcane	Jute
Severe (n=42)	72	97	74
Moderate (n=29)	63	85	67
Minimal (n=28)	62	49	65
Average (n=99)	66	77	69

Prospects for next crops. Most of the villagers said that after the floodwater recedes, winter vegetable and *Rabi* crops like pulses, onions, potatoes, etc could be planted. But they needed enough supply of seeds because they don't have any stock of seeds. In these areas there was no prospect for sowing indigenous variety of *Aman* but they expected to plant *Boro* (HYV) in November. However, some of the farmers had consumed the seed paddy due to prolonged flood.

Coping strategies

Shelter. The flood affected people both in rural and urban areas clinged to their own homestead as long as possible until the water level compelled them to leave. When water started pouring in, they built bamboo platform and shifted their belongings on it. As the water level rose, they raised the platform accordingly. Later, when it was no longer possible to stay within, some of them shifted to the roof of the homestead. When everything was inundated, they took shelter in nearby schools, or empty under-construction buildings (in urban area) or on nearby embankments or culverts. Where these were not available, they moved to take shelter by the side of the highways in makeshift shelters

made with plastic sheets on bamboo frames. A group of men said during discussion, “...*We have lost everything, without our homes we have nothing... now our houses are gone, broken and destroyed...*” Another woman said, “...*My house is submerged, we sleep on the pucca rasta (main road)...what to do if there is nowhere else to go...?*” Some women from urban slum complained that now that their houses are completely submerged, the rent in nearby *basti* had gone up “...*What will we do, pay rent of 900 taka or buy and eat food to live?*”

Poultry and livestock. Besides loss of human lives and crops, poultry and livestock were also affected. In rural areas, people were found to try their best to save their livestock, sometimes in preference to man because for them that was the most valuable productive asset. They made makeshift shelters in high and dry places (if any) and tried to feed the livestock as best as they could manage, sometimes sharing their own food like ‘*ruti*.’ The fodder was not available and people fed water hyacinth as a substitute. This may cause diarrhoea among the cattle and may be a major cause of mortality in post-flood period. A substantial proportion of poultry was swept away, especially in urban slum areas.

Transportation. Country boat was the principal means of communication both in rural and urban flood-affected areas. People used boat for going to far-off places. They had to spend quite a good amount of money for paying fares, especially those in urban areas who had to move for official business. For moving within the village, people used rafts made from banana tree; sometimes they had to buy the tree from their neighbours. Most of the time, they swam or used large cooking pots or pitchers to go to neighbouring places. This was especially true for women. In the urban area, small boys and girls ferried marooned people in small country boat called ‘*dingi*’.

Alternative income source. The opportunities for alternative income was very limited during the flood. One woman said, “...*My husband cannot ply rickshaw...the daily rent is 30 taka but where will he go with it...there is flood, and the mud roads are under water*”. Another man in urban area said, “*I used to drive the truck from here to collect sand and/or bricks and take it to Gulshan, Baridhara and I used to earn 150 to 200 taka a day...now I have no job...*” Some people who could manage some capital from moneylenders (at exorbitant rate of interest) or other sources tried to earn income from alternative occupations like ferrying people on boat, catching fishes where possible, ferrying people in the inundated roads in small boats or rickshaws in urban area, etc. In urban area, women who used to do petty trade by ferrying different consumer goods like saree, etc. or sewing clothes and supplying to different shops in the markets were totally out of business. Some opined, “*To make a blouse we*

get Tk 2 only and if we do some design in the blouse we get Tk 2.75. Now, for two months there is no work...you see there is no work in the market. No one is buying and there is no demand for labour...we are in tension!" Both in rural and urban area, the majority who could not manage any alternative source of income tried to meet daily family expenses by taking loans from moneylenders or relatives, borrowing daily necessities from grocery shops or well-off neighbours, advance sell of labour and crops, etc. People from urban slum complained that at places theft and robbery increased "...When we went to 'tran shibir' (relief camp) our fans and other household items such as clothing and utensils were all stolen...you see that woman – pieces of her tin roof was taken away." A woman sadly said, "I stay awake all night to guard our household materials now that our house is under water; the children sleep next to me (on a polythene old torn sheet on the roadside) and I try to get some sleep but it is difficult to sit and watch and also sleep." The wage labourers and the marginal farmers in the village tried to survive by selling valuable assets of the family like ornaments, poultry and livestock, table fan (in urban area), etc. We came to hear of instances of men deserting their wives and children because they were unable to feed them. The destitute mostly lived on relief distributed in the flood shelters. The endurance of the middle income families both in the rural and the urban areas knew no bound; they exhausted all their resources and could not ask for relief from anyone due to self-esteem.

Gender issues. This year's flood has been a devastating setback particularly for women and children because it has weakened even further their vulnerable position in society. As in any natural calamity, the women were the most affected in this deluge. The women had to bear the major burden of the disruption of normal livelihood in terms of collection of safe water, response to nature's call, preparing and distributing whatever food they could manage (by begging, borrowing, standing in long cues for relief materials) among the family members keeping little for themselves, etc. Most of the time they had to move in knee or chest deep water to perform household chores and they had to wear wet clothes all day long because few had any spare ones. Their household heads became unemployed and the source of earning dried up and they had to explore outside for feeding the family. Lack of income, hunger and helplessness of the situation led to increased tension within family and an increase in domestic violence was reported, especially in the urban area. One woman in an urban slum explained, "...When there is 'obhab' (crisis) then of course there are more fights between husband and wife...he beat me because I asked him for bazaar money, he hasn't bought anything for the last two days so I asked him for money to buy food and he beat me..." One BRAC member said, "...I asked him for 'paan' (betel leaf) and he said 'from where will I get your paan?' I didn't say

anything but my son said to my husband 'give me one take'. My husband came running to hit my son but I jumped in front and then he tried to hit me but I fled..." A third one narrated, *"...I am his first wife, his second wife gets most of the bazaar money or whatever little he has...and I cannot ask him anything at all. If I mention her name he beats me."*

Men without any opportunity of income earning stayed at home and most of the times they were found to gossip in a group. Very few men were found to share the workload with their spouse (especially so in urban areas). One middle-aged man in the urban area said, *"I am not used to household works. I used to be a driver, my duty was to give money in my wife's hand."* In urban areas, sexual harassment and violence was reported in the flood shelters. Adolescent girls and young women felt insecure and used to remain awake in the night to guard against the *mastans* (hoodlums).

Relief operation. People appreciated BRAC's coordination of relief operation at the centres. But they were unhappy and critical about the management and irregular distribution of materials at field level. Members visited in many of the urban slum complained that they received relief materials from BRAC only for a day or two in last one-and-a-half month. Staff from BRAC's Urban Development Programme office said that they only followed the order given by relief committee and distribute relief materials in places they have been asked to. In most of the remote and difficult to reach areas, people remained hungry for food, medicine, drinking water for days together both in urban and rural areas. The people worriedly kept saying to the investigators, *"Don't forget us, we usually get bypassed in all of the relief operations because we are staying inside the 'golly' (alley)."* Many complained about the quality of *rutis*; if packed with molasses (when hot), and kept under the sun for several hours (the places are quite far from the distribution centres and take longer hour to reach by boats) become rotten. Many other NGOs and organisations were seen carrying materials for cooking by boat to remote areas and were cooking food there, fed the hungry people and came back. A few opined that the relief operation was much better during the 1988 flood. Government relief was found to be insufficient compared to NGO/private relief activities. People reported that there was corruption in distributing relief. Relief activities of BRAC in both rural and urban areas were reported to be insufficient compared to other NGOs such as CARE, etc. Several small relief organisations were found who were trying to help flood victims in remote areas. One of them said, *"...We were able to distribute medicines and food from our own resources with help from rich people of the community for last one month. We can not go to them everyday. Big organisations like yours could help us. We are ready to help our poor neighbours who are victims of flood."* People preferred the

decentralized relief distribution system, which would make it easier for them to collect relief materials rather than having to swim all the way, and stand for hours in wet clothes to get relief goods.

People's perception on post-flood rehabilitation

BRAC's group members and the community people articulated some of their strategies about post-flood rehabilitation during discussion. People involved with agriculture said that they would try to reap a late variety of indigenous *Aman* if the flood recedes before the third week of September. Otherwise they will cultivate wheat, maize and *rabi* crops from October and during winter HYV rice will be planted. But for these to take place effectively plenty of agricultural inputs will be needed like seed and seedlings, fertilizer and pesticides, and also credit. The petty traders who had exhausted their capital during flood especially in the urban area, wage labourers and the like were at a loss as to what to do for survival in the immediate aftermath. As most crops are destroyed, the need for agricultural labour would be negligible. Due to damage to road and bridges, those who used to pull rickshaws/rickshaw vans would be in trouble. Some expected to get involved in the government's food/cash for works programme to repair rural infrastructure, etc. Those who were self-employed in petty trade were thinking of borrowing from the money-lenders to restart their business. Those who had some land, would either sell or mortgage it to raise cash. The fishermen were likely to have a good time because when the water starts receding, they expected a good catch. Most of the affected people were concerned about how they would feed their families in the immediate future before resuming income earning as they have nothing left to buy food with.

Loss and damage to BRAC

Infrastructure damage and loss to BRAC assets

Information on loss and damage to BRAC properties were collected after discussion with BRAC staff. Only those area offices (AO), which were housed in BRAC's own premises were considered for estimating damage to physical infrastructure (e.g., office building, etc.). As all the urban offices were housed in rental premises, these were not included for damage estimation. On an average, BRAC premises surveyed were inundated by two feet of water for about 15 days.

Table 5 presents loss to BRAC assets other than physical infrastructure in rural area office premises according to the severity of damage. The mean damages varied from Tk 1,093 to 68,664. Total estimated damage to BRAC's assets (including damage to physical infrastructure) was Tk 26,958 per area office.

Table 5. Estimated loss to BRAC's Area Office assets* according to severity of damage due to flood, 1998 (n=33).

Level of damage	Mean estimated loss (Taka)
Severe	68,664
Moderate	43,957
Minimal	1,093

* Office furniture, kitchen equipment, other amenities like water pump etc. and materials like cement and poultry feed stored in the office premises.

Credit operations during flood

Tables 6 and 7 show the state of BRAC's credit operations with respect to savings, loan repayments, and credit disbursed during 1st week of June to 1st week of September. The month of June was free of flood. Since early July flood started and gradually engulfed the areas by mid-August. In the first week of September, the flood situation in the affected districts became grave. It can be seen that with the aggravation of flood during August, all the targets started faltering sharply in rural areas but not in urban areas. It is interesting to note that at the peak of the flood in the 1st week of September when the misery of the poor knew no bound, the achievement in savings and loan repayments was maintained at around 93% and 83% respectively in the urban areas while this was only 37% (for both achievement in savings and loan repayments) in the rural areas. However, the loan disbursement during this fortnight remained almost same for both rural and urban areas (31% and 35% respectively).

Table 6. Dislocation in BRAC's credit operations in rural area due to flood, 1998.

Fortnight	% of targeted savings achieved	% of targeted loan installments achieved	% of targeted loans disbursed
June 1-15	107	104	92
June 16-30	127	116	109
July 1-15	142	86	79
July 16-31	98	105	93
August 1-15	81	78	71
August 16-31	97	83	63
September 1-15	37	37	31

Table 7. Dislocation in BRAC's credit operations in urban area due to flood, 1998.

Fortnight	% of targeted savings achieved	% of targeted loan installments achieved	% of targeted loans disbursed
June 1-15	111	100	102
June 16-30	110	100	84
July 1-15	111	100	104
July 16-31	116	98	105
August 1-15	108	97	61
August 16-31	115	97	61
September 1-15	93	83	35

Table 8 shows the total deficit in achieving savings deposit and loan installments as well as deficit in loan disbursed in the BRAC offices surveyed during July 1 to September 15. Clearly, credit operations suffered more in rural areas compared to urban areas in terms of savings deposit (7% vs. no deficit) and loan installments (22% vs. 5%). In absolute value, this amounted to around Taka 4.11 crore in the 33 AOs surveyed or Taka 12.5 lac per AO in the study areas.

Table 8. Total deficit in achieving savings and loan installments, and loan disbursements in the surveyed areas during flood, 1998 (July 1– September 15).

	Total deficit in achievement in Taka		
	Savings	Loan installments	Loan disbursed
Rural AO (n=33)	8,29,193 (7%)	4,02,85,128 (22%)	6,42,45,862 (33%)
Urban AO (n=8)	No deficit	2,99,507 (5%)	24,53,000 (30%)

Paying back BRAC's dues

The loss of income has affected members' ability to pay back loan installments and savings deposit, but they somehow managed cash by cutting their daily food and other living expenses, borrowing from relatives or moneylenders or taking a part of their husband's income, if any. They exhausted their household savings and sometimes sold household productive assets to raise the cash needed. A woman said,

“*Apa, my husband earned 2,000 taka a month but now he is in problem with work and I ask him for 30 taka for my loan repayments and he beat me.*” Another woman in the urban area said, “*The day I gave my loan I couldn’t do my shopping (bazaar).*” In places, we heard of isolated instances where members were obliged to repay loan installments under the most difficult situations. Some BRAC members were concerned when they could not withdraw their own savings with BRAC at times of emergency, which disappointed them quite a lot.

BRAC schools

Table 9 presents the state of BRAC’s non-formal education programme in rural and urban areas during flood according to level of damage. In the severely damaged areas, proportionately fewer schools in the rural areas (80%) were closed compared to the urban areas (92%). This trend was reversed for moderate and minimally damaged villages. On an average, the schools were closed for 20 days in rural areas and 28 days in urban areas.

Table 9. Status of BRAC schools in rural and urban areas during flood, 1998.

Level of damage	% of total BRAC schools closed in the area	
	Rural (n=2,977)	Urban (n=633)
Severe	80 (n=930)	92 (n=370)
Moderate	39 (n=1,339)	21 (n=101)
Minimal	40 (n=708)	17 (n=162)
Average	53	43

Some illustrative case notes

Case 1. Abandoning the near and dear ones

In Rayerkandi village under Matlab *thana*, a poor family was marooned in flood water for about two months. During the process of survival, it exhausted all its resources. Soon there was nothing left to eat. Relief in the village was not available regularly. The family had five young children and one very old grandparent named Maran Barman aged above 60 years. The household head, an agricultural labourer, could not find any means of livelihood. Once he decided to move to his in-law’s house in the neighbouring district. They left their homestead, but did not take the old man with them. Sometimes later, the neighbours found the old man dead from starvation...the dead body was left floating with a pitcher tied to the neck, because they could not cremate him... Instances came to the notice

of the investigators when husbands ran away abandoning their wives and children because they were unable to feed them any more.

Case 2. Income loss and loan repayments

“We have been suffering for three months now...” said one BRAC member in a slum of Dhaka city. The male income earners of BRAC households used to supply lunch to rickshaw pullers, sell *futchka* and *chatpati*, do carpentry work, or supply cartoons to the garment factories, etc. These activities are now severely disrupted due to flood. One woman recalled, *“My husband used to work in a construction site; he used to remove the ‘mati’ (mud) from the area and sell it to others. But now because of the flood, he is fully ‘bekar’ (unemployed).”* Another one said, *“...My husband has been sleeping for two days, he has no work...there is flood, and there is no income”*. Income loss has affected members’ ability to repay loans; they managed with great difficulty to payback the fortnightly installments. Some women said that they sold their personal and other possessions such as gold earrings to repay loans; others have taken loans from relatives (interest free) or moneylenders (with high interest) to pay. They were upset that BRAC staff were still collecting payments and one woman exclaimed to the interviewers, *“We need you to stop these loan repayments at least for a month...what is the point of giving us relief on one hand and taking money from us the next day!”*

Case 3. Mastans reaping the benefits (!) of flood

Plying boat for ferrying passengers to and from workplaces opened up new opportunities of alternative income for the slum dwellers. But people complained that many of them could not work as boatman, because local *mastans* (hoodlums) restricted the number of boats that could ply and the boatmen had to pay them 50% of what they earned. The *mastans* erected a makeshift booth and blocked the two ends so that no rickshaw could ply and no body misses paying the tolls. One woman had taken loan from BRAC and used it to buy and sell *bhushi* (fodder). A few days ago her son was bringing *bhushi* from the bazaar and had Tk 1,500 with him. Everything was forcefully taken away by the *mastans*. She started crying when telling her story, *“...Me and my family have not eaten anything except chapatis and molasses given in the relief packet the other day...”*

Case 4. Guarding against sexual violence: an urban flood shelter

This flood shelter in a school of Dhaka city near Sobhanbagh area had many young women among the refugees. Both men and women had to share common places for dwelling without any physical barrier of

demarcation. Their privacy was seriously compromised as they had to use common latrine and bathroom facilities. The condition of pregnant women was worse. There were some outsiders who in collusion with the miscreants from within the shelter attempted to sexually harass young women. Besides, some commercial sex workers were also suspected to take refuge in the shelter and clandestine illegal sex was reported. Many of the young women could not sleep in fear of molestation by *mastans*. The older men and women kept guard at night in shift against any untoward incidents. The opinion leaders and the school authority played an effective role in containing the threat of sexual harassment and at some point of time, police was also deployed.

Case 5. Helping each other in disaster

In this crisis, people helped each other in whatever way they could. Some rich people used to distribute cooked food and other materials to poor neighbours in the rural areas. Those who could manage a boat shared it with neighbours for going to places. Young boys and girls were seen to ferry people voluntarily from across the *basti* to the main road. In one slum area, a group of ten women bought together a boat for Tk 1,800 to move about and go to private places for their personal hygiene and bathing. Families were found to volunteer information on other families so that no one missed relief goods; on occasions, they also received relief materials on behalf of absentees. According to BRAC staff, follow-up visits revealed that most of the families no matter how desperate or poor, had passed on the food items to the concerned family members rather than usurping it for themselves.

DISCUSSION

Every natural disaster creates its own culture. This is also seen in the catastrophic flood of 1998 that caused colossal damage to crops, property and livelihood. Loss of income and livelihood, especially among the disadvantaged groups, caused immense misery for the affected people but they did not give up. Courageously and boldly, they stood up to meet the challenge and develop innovative coping strategies.

Extent of damage

The extent of the damage was formidable in the districts along the riverine areas of Padma, Meghna and Jamuna. However, all people in the flooded areas were not equally affected. Those living below the poverty line like the marginal farmers, landless people living on wage-labour or self-employment and the slum people were the ones most affected. Majority of these people lost most of their household assets, productive

assets, and homesteads. The semi-pucca and *katcha* types of homesteads were almost universally destroyed. Assets accumulated over time were lost within a matter of days. By an estimate, the asset loss of members in the severely damaged villages amounted to around 45% of the total non-land productive assets of BRAC households in 1996 price (3). Also, valuable household assets were sold or mortgaged to cope with the prolonged flood; many households exhausted their savings and capital (of small trade) for survival. Poultry and livestock were largely affected. Due to lack of fodder and disease, the damage to the livestock may affect post-flood rehabilitation activities. As BRAC members come from the poor section of the population, their condition was worse.

Damage to crops

About 66% percent of standing *Aman* in the study villages was damaged. The major part of the jute and the sugarcane was also damaged (69% and 77% respectively); of those remaining, the yield will be poor in quality. In places like Matlab, some harvesting will be obtained from the deep variety of *Aman*. Some indigenous variety of *Aman* can be cultivated if sowed by the 1st week of October. But, due to damage of seed beds, there will be scarcity of seedlings. Also, the demand of seeds for different *rabi* crops will be increased due to damage of farmers' stocks. BRAC can fill in this gap by supplying seeds and seedlings in its agricultural rehabilitation package.

Damage to life and livelihood

Both in intensity and duration the flood broke down the usual livelihood pattern of the affected population. The death toll all over the country till the time of writing this report was around 1,000. The landless agricultural labourers and the urban day labourers had been practically unemployed for an average of more than eight weeks. These households became severely indebted to the moneylenders (at 120-140% interest rates); the marginal poor exhausted their entire household savings and capital to meet the crisis. They need substantial help in the form of agricultural inputs and cash to go back to their original livelihood during the post-flood rehabilitation.

Health and nutrition

This year's prolonged flood, lasting for over two months, left much of the population with severe health problems. Diarrhoea, chest infection, skin diseases and malnutrition were of immediate importance. The children and women, especially pregnant women, are at special risk. The flood gravely threatened the nutritional status of women and children in a situation where 90% of all children and 53% of all women are already

malnourished. The spectre of epidemic of diarrhoea looms large. As the water recedes, the probability of an epidemic will increase further. Also, mosquitoes will spread malaria and dengue fever for which there is no vaccine. Lack of intake of green leafy vegetables for prolonged period during flood may aggravate nightblindness. Vitamin A substitution for under-fives may be necessary. Disruption in EPI may cause outbreaks of childhood infectious diseases.

In urban area the situation became an environmental nightmare, especially in slums and flood shelters. An urgent clean-up operation was needed in the homestead and slums when the people began returning home. BRAC's health programme can play a key role in disseminating health and nutrition education as well as restoration of tubewells and sanitation among the flood affected people.

Credit operations

The credit operation of BRAC in rural areas began to falter from the beginning of August while in the urban area the normal transactions continued until the 1st week of September. As quantitative data revealed, the majority of the members borrowed money from either relatives or moneylenders to deposit savings and repay their loan installments. This created dissatisfaction and tension among those BRAC members who lost their means of livelihood, especially in the urban areas. From discussion with the RDP management at the Head Office, it appeared that during early September verbal instructions were sent to field offices to adopt a flexible arrangement for collecting savings and loan installments, keeping in mind the capacity of the members to repay. At places this was not followed. BRAC needs to rethink its strategy for credit operations during disasters.

BRAC's response to the disaster

As soon as the flood reached disastrous proportion, BRAC came to the aid of the affected people with the full might of the organisation in both rural and urban areas. It began a massive relief operation for the marooned people to help them avoid starvation. Makeshift kitchens were opened at BRAC field offices to prepare hand-made wheat-flour *ruti* and it was distributed with molasses and safe drinking water. BRAC also distributed water purifying tablets, ORS packets and milk to children in urban areas. However, the quantity and, in some cases quality of the food like hand-made *ruti*, was not satisfactory. This was also corroborated by the report of BRAC's Monitoring Division on flood damages and losses of the programme participants conducted in 19 RDP areas (4). It was reported that 13% of BRAC households received no relief at all. Fifty-one percent of the BRAC households received relief for one or

two days and only 12% for five or more days. BRAC households received much more relief from the government (44%), followed by BRAC (27%) and other NGOs (10%).

IMPLICATIONS FOR THE PROGRAMME/SPECIFIC RECOMMENDATIONS

At the time of writing this report, floodwater was receding fast. The flood-affected people were making their way back to whatever left of their damaged homes and try to rehabilitate themselves. The post-flood rehabilitation of these people poses a formidable challenge. Leading NGOs like BRAC can come up with urgent and appropriate programmes that would help preventing death from starvation, restore homesteads, rehabilitate agriculture, create employment, prevent epidemics, provide nutritional support to pregnant women and children, and bring back life to normal.

The devastating flood of 1998 has important implications for the NGOs, especially the big ones like BRAC. It has severely weakened the economic backbone of the programme participants. The decade long gains of micro-credit programmes in alleviating poverty and empowering poor appear to have come under threat of withering away; major investment will be required by the NGOs to put development back on track. To hold back the downsliding of its beneficiaries, BRAC should consider the following measures:

Short-term measures (before the end of October 1998)

- At AO level, the coordination of activities may be strengthened to streamline the rehabilitation activities in an organised manner.
- Rescheduling of savings deposit and loan repayment for those members who currently have no source of income; immediate steps be undertaken to allow withdrawal of members' savings (up to 75%) on easy terms.
- Give a lump sum grant (may be Tk 500-1,000 per HH, depending upon damage) for reconstruction of homesteads, and food subsidy for at least two weeks (up to mid-October) until the government's test relief and other rehabilitation programmes come under full operation.
- Give new loans for rehabilitating the members into agricultural and other self-employment activities; the repayment of these loans should start at least one month later. BRAC may think of arranging seeds, seedlings and other agricultural inputs at a subsidized price for

speedy rehabilitation of agriculture and generation of wage-employment for agricultural labourers.

- BRAC should consider massive employment generation activities; such as the rehabilitation of the physical infrastructure damaged by the flood, so as to increase the purchasing capacity of the members.
- An extensive campaign is needed in the health sector. Tubewells and sanitary latrines should be rehabilitated combined with distribution of ORS, water-purifying tablets, and arranging ORT corners at BRAC field offices (already started). Adequate medicine for treating common illnesses like chest infections, fungal infection of the legs, skin diseases etc. should be supplied to the mobile medical teams already formed. Nutritional supplementation (including vitamin A) for the under-fives and the pregnant women needs urgent consideration to prevent nightblindness and PEM.
- BRAC education programme may have to supply inputs for rehabilitation because the affected community probably will not be able to do these by themselves

Long-term measures (November 1998 and beyond)

- A disaster management cell comprised of people from all relevant programmes should be formed to meet any emergency disaster situation in future. It will draw up a disaster management plan and raise up a trained cadre to use in the crisis. In overcoming the present crisis, the everyday struggles and heroism of the people played a significant role. Their experiences should be used. The grassroots members of BRAC should be involved in any future planning of disaster management. Local workshops may be arranged at the AO level and suggestions from these may be incorporated in the planning process. This will ensure local diversity in managing disasters.
- BRAC should create an endowment fund to operate emergency relief in future disaster situations; also, the package of relief goods need to be worked out beforehand, keeping in mind the nature of the disaster and the nutritional needs of the children and women.
- RDP-EHC may consider training of its health cadres on emergency health management in disaster situation, and dissemination of health and nutrition education; a module of training for this purpose should be developed.

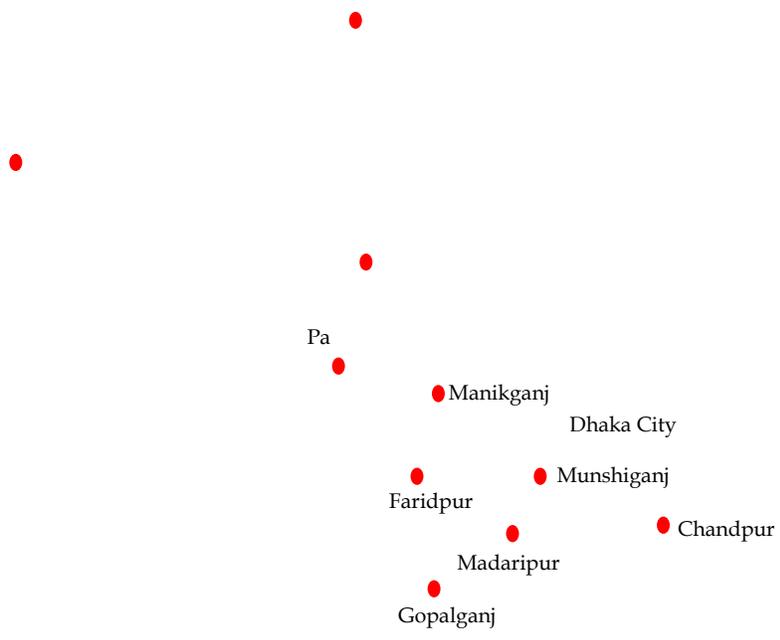
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- BRAC's credit operation needs re-thinking to meet the challenge of disaster situations. A balance has to be found between sustainability of the credit programme and humanitarian needs of the borrowers.
 - A mechanism should be developed to coordinate relief activities of the government, NGOs and personal initiatives to ensure even distribution of relief materials in a particular area.

We conclude by quoting the following statement of a flood-affected BRAC VO member of Dhaka city during group discussion:

“Everything we have is hope; we don't want anyone to take it away from us. You (BRAC and other NGOs) give us support, we know how to survive.”

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THE POOR IN DHAKA CITY: THEIR STRUGGLES AND COPING STRATEGIES DURING THE FLOOD

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SUMMARY

Poorer groups are exposed to increased vulnerabilities during floods. Some of the difficulties faced by them include loss of possessions, fear of extortion and looting, and separation from their social network. The poor undertake different coping strategies to adapt to the flood such as abandoning land or housing, salvaging household items, selling land or livestock, and moving housing or family members to safer places. Perceptions of loss of the poor seem to be far more affected by damages in personal livelihood, and less by the overall scale of losses in the area. Women and children are often the most vulnerable groups during such disasters. Lack of sanitation facilities particularly affected women. A majority of the latrines were submerged and inaccessible. This resulted in loss of privacy and shame for the women, with most being forced to defecate in their own homes. Some women were able to access, with great difficulty, latrines outside their neighbouring area. Floods usually result in an acute scarcity of safe drinking water due to the contamination of water sources, such as tubewells and reserve tanks. This adversely affects the existing poor health conditions of slum dwellers. There were numerous reports of diarrhoea and other illnesses amongst both children and adults. The flood left most of the urban poor unemployed. This resulted in an increase in tension and domestic violence, particularly towards women. In some areas, BRAC members were pressured into repaying loans even though most were severely affected by the flood. Furthermore, NGOs chose to implement separate flood relief strategies instead of coordinating their efforts.

INTRODUCTION

Bangladesh recently experienced the most devastating flood in over a decade. The damage was significant. The capital city of Dhaka was particularly affected. During such times of crisis, normal life patterns are disrupted, and individuals and families are exposed to great material and personal losses. The poor undertook several different strategies to cope with the disaster. In addition, non-governmental organisations (NGOs) and government agencies mobilised resources for intervention in the flood hit areas, and food, medicine and clothing were provided for the poor.

A preliminary study was undertaken in Dhaka to identify some of the problems and constraints faced by the urban poor living in the flood-affected areas. The study documents the experiences of a large number of urban poor men and women living in several *bastis* (slums), and illustrates the complete devastation in their lives, from extensive losses in personal and material resources, to greater uncertainties with employment, health, and access to basic services. The study attempts to highlight some of the perceptions, needs and coping strategies of the urban poor during the flood.

Floods are recurring events in Bangladesh, and the experiences of the urban poor in a disaster situation need attention. A better understanding of their experiences, practices and concerns is important. Thus, the study attempts to provide insights, allowing planners and policy makers to adequately assist in future floods.

METHODOLOGY

This was a short qualitative study. Altogether thirty-two men and women, BRAC and non-BRAC members, from four *bastis* (slums) were randomly selected and interviewed. The slums visited included Shaheedertek and Bailtala in Mohammadpur, Katashurberi slum, and Shibir *Masjid* (mosque) and Mothertek in the Shabujbagh area. Wherever possible, when discussing sensitive women's issues, the interviews took place in the privacy of one of the women's homes so that they would speak freely about issues related to violence and sexual harassment occurring during the flood. However, as most slums were submerged by floodwater, majority of the discussions took place on roadsides, boats, and at shelters. Information was cross-checked through further discussions with other informants, NGO workers, and slum dwellers residing in the area. The length of the non-structured interviews varied from one to one-and-a-half hours.

Limitations

It was a short exploratory study to initially assess the needs and perceptions of the urban poor of Dhaka City during the flood. As such, it was not possible to explore in-depth some of the broader issues.

FINDINGS AND DISCUSSION

Homelessness: increased vulnerability of the poor

During the flood, poor people suffered from considerable vulnerability ranging from a loss in material resources, to fears of theft and extortion, to becoming separated from their wider social network (1,2). Their narratives revealed a number of concerns. The women and men spoke of the fear of the rising levels of water, *“The water rose and I was with two children, so I went and stayed at the medical college... My house is submerged, we sleep on the pucca rasta (main road)...what to do there is nowhere else to go for us?”* Another woman exclaimed, *“There is faeces floating around inside our homes...what will we do? We have to move!”*

A few institutions provided temporary shelters for the flood-affected poor. Many of the poor had become displaced, and moved with their basic belongings of utensils and bedding to the nearby shelters and relief camps. A number of women mentioned a place that was primarily a hospital for the elderly, as their place of shelter for the past few weeks. They had previously stayed at the nearby Islamic Foundation building and in an empty construction site. Slum dwellers from similar neighbourhoods preferred to move to the same shelter. This ensured that the existing ties and social network of the slums remained intact in the unfamiliar shelter, providing strength and security for one another. A study showed similar behaviour where people who had become separated from their community were easily disadvantaged, thus families displaced by the flood tended to cluster together with their kin¹ in their new settlement (3).

Others spoke of sleeping on the main road when they had no other alternatives. In several *bastis*, the poor had raised the level of their *chowkis* (beds) and stoves with bamboo and desperately attempted to keep their basic belongings afloat. In some of the houses, bricks were inserted under the *chowki* (bed) to raise it above water level, *“We went and got eet (bricks) from the roadside and put it under our beds to remain afloat...”* Cattle and goats were left in empty construction sites.

¹Kin here refers to blood-related family members and fictive kin members.

The most devastating loss for the poor was the irreparable damage done to their homes. For the urban poor, security is having a roof over their heads (4). The women and men repeatedly cried over the loss of their homes. A group of men remarked, *“We have lost everything. Without our homes we have nothing and now our houses are gone, broken and destroyed...”* Their sense of despair and utter helplessness at their present situation was overwhelming.

An important concern was the high incidence of theft occurring when families left their belongings and sought temporary shelter elsewhere. A family narrated, *“When we went for shelter, our fans and other items such as clothing and utensils were all stolen. Pieces of our tin roof was taken.”* One woman exclaimed, *“Apa, what are we going to do, sort out our utensils and belongings or buy food? All we have is our home and now we have nothing, no tin, no home, everything is flooded!”* A woman sadly explained, *“I stay awake all night to guard our household things now that our house is under water, the children sleep next to me.”* Several flood studies documenting people displaced by the floods found that slum dwellers do not re-locate too far from their original residing place. They preferred to remain nearby, in the hope that the area will remain undamaged (2).

Hygiene, shame, and the ‘public’ gaze

During such disasters, women and children tend to be most vulnerable (5). Most women did not have access to basic sanitation as majority of the latrines was submerged by floodwater. This resulted in women having to resort to desperate measures to cope with this predicament. Some women expressed their dismay at the situation, *“Apa, what to do now, we put our faeces in plastic packets or newspapers and throw it into the water and we have to do the same thing with our children’s faeces...”* Despite the more relaxed atmosphere of *purdah*¹ rules in urban areas, women experienced shame and felt uncomfortable using the few remaining latrines in the presence of ‘unfamiliar’ men who often loitered nearby. Most of them mentioned being able to freely access latrines with greater privacy in the past. With the recent floods, however, the situation had become difficult, leaving women feeling vulnerable and exposed to the public domain of men (5). Some women resorted to going to other less flooded *bastis* and using their latrines. Others would control themselves for as long as possible, and finally if they had no choice, were forced to urinate or defecate inside their own homes. A few women spoke of the indignity of having to take baths on the roadside in public view. *“All of us*

² *Purdah* has shifting meanings contextually and historically. Here I refer to the seclusion of women from the public world of men.

take baths together. We take turns taking a bath on the roadside. They see us but what else can we do?"

Some men spoke with resignation of their own inadequacies at being unable to provide clothing for their wives, with their spouses 'indecently' exposed to the public gaze of male strangers. *"Apa at least we as men can manage somehow, but what about the mother of our children? Now with the flood we cannot even clothe them properly, and they have to go out into the open in their cheera (torn) sarees! What will people say?"* The urban men and women expressed their frustration at being unable to live in dignity as human beings. They were worried about breaking social norms, and this created tension for the families. Studies on Bengali society have found social norms to be flexible depending on circumstances, with people overlooking 'inappropriate' behaviour, and not making it a matter of shame for the family (6). A recent study, however, on adolescent girls' experiences during the recent flood, found that women and young girls were subjected to disparaging comments from men if they were seen to be inappropriately dressed, despite the circumstances (5).

No safe drinking water: diarrhea, sickness and ill health

Floods usually results in an acute scarcity of safe drinking water due to contamination of water sources such as tubewells and reserve tanks. This adversely impacts the existing poor health conditions of the slum dwellers. Some women living in the Katashurberi *bastis* coped by purchasing water, *"We buy water from the owner of the deep tubewell - depending on the person it costs us 10, 20 or 40 taka."* Not everyone, however, could afford to buy water, and basically resorted to drinking whatever dirty water was available. The common declaration was, *"What to do, Apa?"* People in the interviews complained of fevers and high temperatures. *"Apa, my mother-in-law is so sick, because of all this dirty water she is nearly dying."* Another woman said, *"My son is very sick, for the last few days he has dysentery and is very sick ...the NGO doctor gave us some tablets, but how can a child eat tablets, we need syrup."* Another woman piped up, *"They sell syrup in the market. Why do they give us tablets? Our children will not be able to swallow these big tablets? My husband is also very sick, he has loose motion and has been in bed for some days."*

In all of the areas visited, the men and women in the *bastis* kept saying, *"Give us medicine, my son is sick, my husband has had diarrhoea for two days,"* and in the areas visited by boat, most of the *basti* people desperately asked for saline (ORS). A few asked *"Apa, do you have medicines?"* Due to the flood, individuals and families living in slums and

shelters were increasingly isolated from accessing adequate medical care and medicines.

No work: how can we repay our loans?

During any disaster situation, work and wages become scarce for the poor. The prices of basic food items generally multiply, with severe stress imposed on the poor who are dependent on daily wages for survival. Most of the urban poor are unskilled, and involved in the informal sector. A majority tends to work in uncertain jobs as wage labourers and daily labourers. Thus, during the flood such jobs are most likely to be affected and threatened (4,7). All of the women and men complained of the lack of available work, *“My husband cannot ride a rickshaw, it costs 30 taka daily to rent but where will he go with it...there is flood, and there is no income.”* Another woman said, *“My husband has been sleeping for two days, he has no work because now he makes only 20 taka a day riding a baby taxi.”* A basti man commented, *“Well my mateer kaj (earth cutting) is completely finished. There is no work for me anymore.”* Another man said, *“I used to drive the truck from here to collect sand and/or bricks and take it to Gulshan and Baridhara. I earned 150 to 200 taka a day...now I have no job and I am unemployed.”*

A woman and her mother, both of whom would break bricks for a living, were unable to do any work. The woman said, *“We usually go and work in Sobhanbagh but now it is all flooded and we cannot earn any money.”* Another woman, who was still able to break bricks [although her place was slowly getting flooded], said that she was relying on the 3 takas she made per tukri (basket) to survive. Another man said, *“We are slightly worse-off but before the floods we were not much better-off either.”* A few women claimed that since their houses were completely submerged by the floodwater, the rent in the nearby bastis had risen, *“Apa what will we do, pay rent of Tk 900 or try and eat food to live?”* Others stated, *“We cannot pay 200 taka rent and also eat, and with no income what are we going to do?”*

Some women complained that they were unable to continue their income earning activities such as selling vegetables, sugarcane, and clothes because prices had risen. *“Apa, now a mishti kumra (pumpkin) costs 12 taka or more, and 20 taka in some places. Before we could buy mishti kumra for 4 or 5 taka...now how can we buy and how can we sell?”* Another woman who was repaying an NGO loan stated, *“We cannot even sell sarees anymore, where is the money?”* Most women complained that they were having difficulties repaying loans and resorted to borrowing from different people (loan sharks and relatives) to repay these loans. Thus, the consequence is further debt problems for the women and their

families. It has been argued that the loss of one set of resources for the poor seriously affects the functioning of others, and disasters can send such families or particular members into a downward spiral, ‘intensifying their burdens and decreasing the prospect of recovery’ (8).

Domestic violence: “I can’t ask him for money - he will beat me!”

Owing to the existing taboos and shame associated with domestic violence, most women were reluctant to speak about domestic abuse. A few women viewed it as a ‘private’ family matter and thus felt disinclined to comment on incidents in their neighbourhood. Further, some women felt they deserved to be beaten, owing to their own behaviour, thus taking the blame on themselves. Some women, however, preferred to deny any knowledge of violence in their *basti*, perceiving it as undermining their community or *basti*’s reputation, “*Not in our basti, we don’t have problems like that. All our men are good.. In the other bastis these things probably happen!*” However, the study uncovered some incidents of domestic violence. In one of the slums visited, a group of women pushed a young girl, no more than 16 years of age forward and exclaimed, “*Look at her, look at her arm Apa, it is broken*” [I looked to see a large bruise on her arm and her face was considerably swollen]. She reported, “*He beat me because I asked him for bazaar money, he hasn’t bought anything for the last two days, so I asked him for money to buy food and he beat me.*”

The women explained that due to the recent flood, there was less money, and greater pressure on their husbands to provide for their families. “*Apa, due to the frustration of being bekar (unemployed) they beat us!*” Most women and men¹ agreed that lack of work and increasing uncertainties due to the flood led to increased tension amongst family members, resulting in some incidents of domestic violence. Most women said that they felt vulnerable and angry but were unable to do anything regarding their situation. One woman narrated, “*I cannot ask him anything at all and if I do, he beats me.*” A BRAC flood report also found similar reported incidents of domestic violence in eight study areas² of the worst flood-affected areas of Dhaka city (9).

Social capital

Nath describes how rural women in the course of their daily work meet, interact, and exchange news and information beyond the confinement of

¹ They were interviewed separately, to afford privacy and encourage discussion on the violence issue.

² Domestic violence was not reported in all of the eight areas, but there were reports of violence from at least one area by a number of women, who admitted that although their husbands beat them occasionally, the recent flood had exacerbated the situation.

their household boundaries (10). Similarly, in urban areas, there tends to be an extensive network throughout each slum. Most households within the neighbourhood are generally linked through 'real' or not blood related kin ties, and tend to rely on each other for social support. However, in a crisis situation, people tend to become displaced and dispersed. Thus, there is a break in the old network of existing bonds, as people may re-locate temporarily to shelters, abandon their homes, and move elsewhere. In addition, the burden of poverty and increasing uncertainty, result in individuals becoming very self-absorbed, in their own and their family's survival.

There appeared to be no visible unity amongst the women or men residing in Shaheedertek or Baitala slums. They were unable to mobilize any groups together and due to their own extreme poverty, were unable to look out for one another. However, a few individuals regularly informed the community about food relief being provided in particular localities. Although, it is quite feasible that at an invisible level some of the women and men provided each other with comfort and relief emotionally, if unable to materially. Surprisingly, the only area in which the women and men in the *bastis* of Shaheedertek, had visibly mobilized, was in the daily feeding of the Maulana¹ at the *basti* mosque. "*Apa we are taking turns feeding him, after all he is teaching our children prayers and the Quran.*"² Nurul Amin (a local leader) has drawn up a list of the people who will feed the Maulana, so we all know who is feeding him on which particular day."

In the Shabujbagh area of Shibir *masjid* (mosque) and Mothertek, there appeared to be greater unity. Several hundred people were living in *tran shibirs* (empty construction sites turned into relief camps) in Mothertek. They had moved because they were no longer able to remain in their homes. In the *tran shibirs*, there was an organizing committee who had a list of all the families residing. The food items were passed onto members of the organising committee, who were in charge of distributing the food and relief items to all the families residing in the *tran shibirs*. In the slums of Shibir *masjid*, families volunteered information on other members in the neighbourhood, so that no one missed out on flood relief goods. Others even volunteered to keep relief goods on behalf of families who were not available at the time. According to NGO staff, follow up visits revealed that most families, no matter how desperate or poor, had always passed on the food items to the concerned family members, rather than keeping the food for themselves.

³ Religious teacher.

⁴ The holy book for Muslims.

Relief assistance: adequate or inadequate?

There appears to be a culture of 'universal dependence' existing amongst a majority of the urban poor (2). Most of them expected the government and NGOs to provide food, clothing, money and other assistance during disaster. It has been argued that this mentality can lead to a type of apathy amongst the poor, who may hesitate to help themselves (2). Slum dwellers acknowledged assistance received from the government, NGOs, and charity organizations. Many were, however, angry and held the view that they received insufficient assistance from NGOs, as well as the government. A few individuals mentioned that relief operations were much better during the 1988 flood. They felt that the present distribution by the government in their slums had been misappropriated, while a few argued that since the *basti* population had increased considerably in the last ten years, it was impossible for the NGOs and the government to feed everyone.

CONCLUSION

The study highlighted some of the perceptions, needs and vulnerabilities of the urban poor. It revealed various social, cultural and economic issues that affected their lives, particularly during a crisis situation. Women and children are often the most vulnerable groups during disaster suffering from personal hygiene and domestic violence problems. The report illustrated the complete devastation in their lives, from extensive losses in material resources - home, bedding, and utensils, to greater uncertainty with employment, health, and access to basic services. Temporary re-locations occasionally led to the breakdown of carefully built up social networks, increasing insecurity and uncertainty at unfamiliar shelters. Furthermore, greater liabilities were incurred as money was required for basic living costs. Existing resources become commercial commodities, with the poor paying for basic services such as water, and access to latrines, with rent prices increasing dramatically. For some of the poor, who were part of an NGO micro-credit group, being forced to repay loans during the flood, resulted in bigger debt problems. This creates a culture of hostility and alienation from the particular NGO (6). In addition, NGOs appeared to be working separately in the affected areas. NGOs and the government could link up to work more effectively together during flood, thus creating more efficient relief operations.

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A VISIT TO A FLOOD SHELTER IN DHAKA CITY*

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SUMMARY

The 1998 flood has been one of the most disastrous of the century. Besides massive loss of crops, lives and assets, millions of people were displaced. Many of them took refuge in temporary shelters. This study ascertained how victims coped in such circumstances. One of the shelters, operating in a large school building of Dhaka was observed; and 15 male and female victims, and two teachers from the school were interviewed. The shelter provided refuge to over 1,200 distressed victims, largely belonging to the day-labourer category. Most lost their belongings, and daily livelihood, showing extreme eagerness to resume work. Massive and improper use of school facilities caused breaking and stealing of the devices and fixtures. An extremely unhygienic environment prevailed, and children defecated unattended. There was increased illnesses, particularly diarrhoea, with inadequate medical supplies. The pregnant and single young women faced the most difficulties. For pregnant women, there was a lack of hygiene and medical care, and young women faced the fear of harassment. They received inadequate relief goods from both the government and the NGOs. Many reported a rise in tension among the family members due to this abnormal circumstance.

INTRODUCTION

The 1998 flood has been one of the most disastrous calamities of this century. The flood has submerged two-thirds of Bangladesh for over nine weeks. The loss of crops and assets was *massive*. Millions of people were marooned, became homeless and had to take shelter on roads, rooftops, in schools, *madrasas* and private houses. Did the flood-affected people in temporary shelters have adequate relief, medical care and other facilities? What problems did they face? To investigate the above

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questions, the Research and Evaluation Division of BRAC initiated a series of studies.

The present study was a quick investigation carried out in one of the shelters of Dhaka City. Data were collected in mid-September 1998 from two sources of a shelter through informal interviews. Interviews were carried out with some flood-affected people: (i) four married couples, (ii) four single females (iii) two males and ii) two male key-informants who were school teachers. The physical facilities, environment of the shelter and living conditions of the dwellers were also observed.

The shelter

The ground and first floors of a 4-storied school building with easy access was converted into a shelter for the flood-affected poor. People started arriving at the shelter towards the end of July 1998, and the place became extremely crowded with over 1,200 people, mostly women and children. Boundary walls, a collapsible gate, and security guards protected the shelter. The headmaster including some teachers of the school, in co-operation with the local government representatives oversaw the dwellers. A large number of occupants were part-time maid-servants (*buas*), others were garment and cottage industry workers, small traders and rickshaw pullers. A majority of the victims were residents of slums, which had become inundated, compelling them to take refuge at the school.

The residents had access to the water supply, sanitary latrines and electrical devices including ceiling fans, which belonged to the school. Due to the large number of people living in the congested surroundings, there appeared to have been improper use of furniture and fixtures, and damage was done to fittings of toilets. Accessories of water supply were either broken or out of order. The school teachers reported that many fittings and fixtures were stolen, and expressed worries that fund constraints may make it difficult to repair or replace many of the damaged goods in the near future.

Both men and women were compelled to use the same toilets. This created a problem for women, especially pregnant women. The surroundings of the toilets were dirty and unhygienic as children defecated everywhere. Infants crawled and played in the dirt, mostly unattended, risking their health. Although the school authority got some bleaching powder from the municipality, the stock ran out quickly.

Loss of assets and income

They were able to bring most of their portable belongings, but failed to bring furniture and other heavy items. Some commented, "*We are unaware about the materials left behind.*" Most of the interviewees lost wages for being absent from work. In many cases, the employers asked them to leave the work places, as those were flooded. Even the small traders on the footpaths and rickshaw pullers could not work for many days. On the contrary, many maid-servants (*Buas*) continued their work.

One woman lost Tk 150 while was moving to the shelter. She explained, "While preparing to come to the shelter I kept the money inside the folding of my bed sheet, when unfolded it in the evening to make my bed, I did not find the money." Interestingly, this lady lost two kg of rice on another occasion. She narrated, "*I received two kg of rice for relief. Leaving the rice at my place, I along with my small baby, went out to mobilise more assistance. On return, I found my rice was stolen away.*" These incidents distressed her enormously. No other informants experienced anything similar.

Coping with the situation

The people at the shelter received relief goods such as rice, wheat, *chapati*, *chira*, molasses, ORS packets, and so on. Relief came from different sources on different days but not everyday. The quantity of rice or wheat typically was two kg per household. The relief providers did not consider individual family needs. Therefore, the amount was inadequate for many large families.

Most recipients were unaware of the specific sources of the relief goods, and thought that it was coming only from the government. However, the key informants were more aware of the specific sources of relief. They said, "Both the government as well as the NGOs and private agencies provided relief." They mentioned of BRAC as well. One dweller explained, "*Relief items and their volumes do not meet our daily requirements. For instance, only rice or wheat is not enough for a meal. Other items like salt, spices, vegetables are required to prepare balanced meals but those are not provided.*"

No distress sale was reported then. But they felt that they might need to sell their valuables when they would start to settle back. Besides, when relief was not available they were to manage food on their own. In such situations, those who were unable to afford starved. Some mentioned spending from their savings, while some borrowed from well-off relatives. They were very concerned on the price-hike of the essentials that reached

beyond their buying capacity. If the trend went uncontrolled they would be in great trouble. They said, "We are extremely distressed and penniless. We will face a bleak future."

Illnesses and treatment

Diarrhoea and fever appeared to be rampant. One two-month old child already died of diarrhoea in the shelter, while many children and adults were reported to be suffering. A female patient was sent to the hospital by ambulance arranged by the headmaster of the school who had connections with Anjuman-e-Mafidul Islam, a charitable organisation. "*I arranged for the ambulance the other day to shift a diarrhoea patient to the hospital,*" he said. One couple with four children reported that all their children suffered from high fever for a few days. They got treatment from the visiting doctors, whose affiliations could not be known. Interestingly some believed that the drugs given by the doctors were not effective and could not be relied on. Two bottles of syrup were found with a young mother, which she bought from the market at a cost of Tk 50. Reasons of such beliefs and practices could not be ascertained. While inquired, many dwellers could not show their ready stock of ORS packets indicating insufficient supply of ORS.

A group of students, belonging to the Bangladesh Chatra League, opened a centre in this school for preparing ORS packets and distributed those among the victims in other areas. Everyday the volunteers produced over 2,000 packets following the WHO standard formula. The leader confirmed that the quality was not monitored until then.

There were also pregnant women at the shelter. Two already gave birth and moved to their relatives. Another two were on the verge of delivering. There were no facilities to assist the pregnant women in case of emergencies. The pregnant women were in a difficult situation in the shelter with restricted mobility, little privacy, and unhygienic conditions. There were also inadequate community feelings, and a reciprocal support system among the dwellers to fight some of the inevitable consequences of a disaster.

Social problems

Increased economic and psycho-social tensions among the family members were reported, which can be attributed to unemployment, forced absence from work, and sudden erosion in income. They reported that relations between husbands and wives had deteriorated. One couple said, "*Tension leads to quarrels between us.*" Such events disturbed peace in many families. No husband, however, had battered his wife.

The dwellers irrespective of gender and age had to sleep together, making the teenage girls and single young wives (without male guardians) vulnerable especially after dark. Many parents and guardians said, "*Our daughters or daughters-in-law stay awake in fear of harassment.*" Although the shelter dwellers did not report any sexual harassment or violence, the key informants did. In the beginning some attempts were made to harass women by some outsiders. Enhanced security measures taken by employing police effectively prevented any deterioration of the situation.

Looking at the future

The study highlighted some salient features of the flood victims residing in one of the flood shelters in Dhaka City. The victims often appeared to be fatalists. They said, "Everything depends on the Almighty. We have nothing to do on our own." Most of them, however, could not tell anything in particular about the rehabilitation process. People were desperately ready to return to their work and normal life. A few said that they would go back to work immediately. About income loss, they said that they would do additional work if available. One extremely distressed young mother who foresaw a dismal future said that she would stand before the well-off of the society with her small child and would urge them to feed her child. She was hopeful that some would help her. "*Otherwise, I shall work as a maid-servant.*" When asked what the GOB and others including NGOs should do after the flood, the victims parried the question by saying that no one would listen to them (*ki bolbo, amader katha ki tara shunbe?*). Such a statement expressed a deep sense of hopelessness and disillusionment about the system.

Disaster management is a crusade to save and help the victims. Active participation of people from all walks of life including the development partners is necessary to make it a success. For effective disaster management in Bangladesh, the following strategies could be considered in future:

- Specific shelter(s) could be assigned to specific agencies to carry out relief work;
- Shelter management committee could be formed for each shelter with the enthusiastic people from the local community;
- A National Disaster Management Alliance may be formed which will mobilise resources for and plan about relief and rehabilitation activities. The alliance could also operate a monitoring cell to oversee implementation;

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- Relief items should be given according to the family size and needs;
 - Relief should contain a package of all essential items for a complete meal where applicable;
 - Separate toilet and bathing facilities for men and women should be arranged; and
 - The shelter management should take care of the security of inmates; and people should be made aware about the common disasters occurring in the country, including information about the causes and the impacts, as well as disaster preparedness and management.

HEALTH DURING DISASTER: SHARING EXPERIENCES WITH 1998 FLOOD VICTIMS

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SUMMARY

This was a quick ethnographic exploration to share the experiences of people concerning their health during 1998 flood of Bangladesh. The study area was Kamrangirchar of Lalbag *thana* in Dhaka city. In-depth interviews with five men and five women and two small group discussions with both the groups were conducted. Sleeplessness over several nights due to various worries caused extreme tiredness among the flood affected people, which hampered their normal daily activities. There was acute scarcity of safe drinking water in the beginning of the flood. However, the Bangladesh army and BRAC made arrangements for fresh drinking water in the locality. Lack of toilets was one of the most embarrassing issues, particularly for women. The incidences and death due to diarrhea was not very high, though there were cases of fever, common cold, pneumonia and various skin diseases. Due to the reduction of family income, food intake was less. The stressful situation also made people psychologically vulnerable. Some irregular mobile medical teams from various NGOs provided medical support. The study reveals that disasters usually give rise to common health problems, with the key difference being that the burden of the problem is greater and their defenses lower.

INTRODUCTION

Disaster is defined as "*A serious disruption of life, arising with little or no warning, causing or threatening death or serious injury to rendering homeless, such number of persons in excess of those which can be dealt with by the public services operating under normal procedures and calls for the special mobilization and organization of those services*" (1).

Disaster may be defined in different ways but only the people affected know what a disaster really is. Moreover, no doubt a disaster will be

assessed differently by those who are engulfed by it and those who view it from the outside. Natural disasters not only bring immense suffering and misery to millions of people but also trigger a whole set of mechanisms that affect the economic and social life of the people in a variety of ways. Disaster disrupts the culture of normal life and people reconstruct their life socially, economically as well as medically. A new form of temporary culture is developed which we can call a 'disaster sub-culture'. The subculture is influenced by the stressed situation of the disaster itself and also by the preexisting social and economic conditions. The impact of disaster on the physical, mental and social well being of individuals and communities will vary depending on how well they can cope with any sudden changes for the worse. How people cope will be determined by their personal strengths, those of their families, friends and community and on the resources, which they have or receive. Social science research on natural disaster can help us understand the human aspects of the problems to design an effective programme of disaster management. However, there is lack of research on social and behavioural aspects of disaster, particularly in Bangladesh (2).

Bangladesh is one of the most disaster prone countries of the world. Almost regularly Bangladesh experiences natural disasters such as, floods, cyclones, tidal bores, droughts and food shortages. Floods, particularly are a common place occurrences in Bangladesh. The flood of 1998 however surpassed all previous records of this country. It was severe both in terms of the amount of water it brought and the length of its duration. The flood began in mid-July 1998 and continued up to September 1998. Millions of people in the country became homeless, houses and dwelling units were destroyed, and roads, railways and bridges were massively damaged. Many parts of the capital city, Dhaka also went under water. However, immediate relief and rehabilitation activities were also undertaken by the government and NGOs.

In this study we tried to share the experiences of some of the 1998 flood victims focussing mainly on health related issues. This is to mention again that very few studies exist regarding health during disaster. Rahman and Bennish evaluated the health-related response to large natural disasters using the example of Bangladesh cyclone of 1991 (3). The study found that need assessment was not based on any systematic data gathering from the field. However, there was good coordination of major groups involved in the aid process. Siddique et al. studied the illness patterns and cause of death during the 1988 flood of Bangladesh (4). They found that Diarrhoea was the most common illness followed by respiratory tract infection. Durkin et al. studied the effect of 1988 Bangladesh flood on child behaviour (5). The authors hypothesized that the prevalence of aggression, and extreme shyness would be significantly higher after the flood than before.

METHODOLOGY

This was a quick ethnographic exploration among the flood victims of 1998. The study area was Kamrangirchar under Lalbagh *thana* of Dhaka city, one of the most severely affected areas in the city. The inhabitants of this area are mostly from the lower income group. The study was carried out during the last week of September 1998, when the floodwaters had begun to recede. The researcher traveled the area in a boat, observed the conditions and talked to the people. Water has receded from the houses, but the roads and courtyards were still inundated. People were returning to their normal life. Those who had left their houses for flood shelter had just returned. The researcher talked to a cross-section of people in the flood-affected area. Out of them, ten flood victims were selected for in-depth interviews, five men and five women. Among the men three were rickshaw pullers, one was a baby taxi driver and one a day labourer. Three out of the five women respondents were members of BRAC's village organizations engaged in small-scale business. The remaining two were housewives. All the respondents migrated from different rural areas of Bangladesh, one to twelve years back. The informal and conversational forms of interviews were conducted in the respondents' house, lasting about an hour. Two small group discussions were also conducted, one with the men and the other with the women. All the interviews were tape-recorded and transcribed later. While expressing their experiences during the flood, respondents usually included all the stories regarding their survival, economic and social losses. However, according to the objective of the study we focused our interest on the health-related experiences of the respondents. These include general physical well-being, water, sanitation, illnesses, food and nutrition, and also psychological well-being.

Sleepless nights

While discussing with the respondents it was impossible to ignore their red and extremely tired eyes. This was more prominent among women. During discussions most of them said that they had barely slept in the last two months. Some of the respondents spent the whole period of the flood in a *macha* (a bamboo made platform), built above the water level inside their houses, some on their tin roof and some took refuge temporarily in the nearby flood shelter. Various worries and disturbances kept most of them awake in the nights. The *machas* were very small and there was little room for the whole family, yet they struggled to accommodate all the members. Usually, four to five people slept in one *macha*. One great worry of the mothers was that the children might fall off the *macha*.

One woman said, *"I stayed awake on the macha night after night. Sometimes I slept just for an hour but got up again. I could not sleep because I always worried about my little boy falling off the macha and drowning."*

One day the little son of this woman really fell off the *macha*, when they were all sleeping. The father of the son, however, saved him immediately. After this incidence the whole family moved to a flood shelter. One woman gave birth to her second daughter on the *macha* and spent her whole postnatal period there. It was also extremely difficult for her to sleep with the newborn baby in such a tiny place.

Some were worried about the safety of their young daughters. As one women mentioned, *"We remained on the tin roof of our house. We cooked there, slept there, and spent the entire period of flood on that roof. I could not sleep in the night. I was worried about my two young daughters. It was dark all around during the night as the electricity supply was cut off. The young boys used to hang around with their boats and make dirty comments. I lied awake in the darkness thinking about the danger that might occur to my daughters. Finally we sent them to my brother's house, which was out of the flood-affected area."*

Some remained awake in the night to guard against thieves. One man said, *"I remained awake almost every night. There was darkness all around as there was no electricity. We used to hear rumors about looting in different parts of the city. I therefore kept watch on all the directions throughout the night. I only slept when I could not stay awake anymore."*

The situation was worse for those who went to the flood shelters. In the flood shelters, though the above mentioned worries were absent, the situation itself was not favourable for normal sleep. According to one man, *"There were 15-20 families in one small room. It was very crowded. The children were crying all around, some were quarreling. No privacy. I could not sleep at all."*

Sleepless nights, therefore was a common experience of most of the flood victims, which caused deterioration in their general well-being. This particular influence of the flood on people's physiology often remains unnoticed by outsiders.

Water, water everywhere, not a drop to drink

During the flood, the whole country was under water but getting fresh drinking water was one of the most difficult tasks. In the study area there was no piped water supply from the government, people used

tubewell water. But all the tubewells of the area were drowned during the flood. People had great difficulty in getting fresh water.

One woman said, *"When all the tubewells drowned, we had no choice but to use flood water. The water was filthy and smelt awful. I used alum to purify it. Sometimes I also boiled it."*

However, this situation did not last long. Within a week two initiatives had been taken in that area. One by the Bangladesh Army and the other by BRAC. Bangladesh army established a mobile fresh water tank in the nearby dry area and BRAC installed a new tubewell in the locality above the water level. This solved the water problem to a great extent. As one woman mentioned, *"Hundreds of people took water from the tubewell given by BRAC. It saved our lives. From morning till evening hundreds of people were around the tubewell, like ants around a piece of sugar."*

For some it was still a problem to fetch water. Some lived quite far from the BRAC installed tubewell or the army mobile water tank. They had to take boats to reach these sources of pure water. But the boats usually did not want to take people who wanted to hire it for the purpose of fetching water, because usually there was a long queue near the tubewell or water tank and the boat had to wait for a long time. Many of them therefore had to swim to the tubewell.

One woman said, *"Everyday my youngest daughter swam to the tubewell with a dekchi (cooking pot) and waited in the chest-deep water for a long time. After a great struggle she managed to collect one dekchi of water which I used for the whole day."*

This one pot of water was a precious asset for them and they had to use it very carefully. They used it for cooking and drinking. But that small amount was never adequate for the needs of the whole family and they could not always drink when they were thirsty. The woman continued, *"I could live without food but how is it possible to live without water? Sometimes the thirst was unbearable."*

Many diseases were also associated with contaminated water and water shortage. Without adequate water people could not wash themselves properly nor their clothes. Utensils and food could not be prepared adequately and hygienically. The restrictions on cleanliness resulted in various parasitic, fungal and skin diseases and eye infections.

Toilet on the tree

The most annoying and embarrassing issue for the people was the lack of latrines. Most of the people living in that area had pit latrines and those had been flooded or washed away. People had to look for alternative ways.

One man said, *"We tied pieces of cloths around the branches of a big mango tree and made a temporary toilet on the top of the tree. We would sit on the branch of the tree while doing it. It was quite difficult to keep balance."*

He said several families used that toilet on the tree. In the morning one would see the people waiting on the branches of the tree while someone else used it. In a normal situation it might be a funny scene but that was not a time to laugh. Another man who has recently migrated from his village said, *"In the village we would take a vela (a boat made from banana tree) and go to an adjacent bush for defaecation during the flood but here in the city it is crowded everywhere and everything is open."*

The problem of latrines was most embarrassing for women. They usually answered the 'natural call' only in the nights, so others would not see. According to one woman, *"I always tried to control the natural call until it was dark."* Some women even defaecated from the *macha* inside their houses when the husbands and children were out.

After defaecating they used to create waves in the water with their hand or something else so that the dirt would go away. But that usually did not solve the problem. As one woman mentioned, *"In the morning after getting up someday I would see the piece of stool floating around my macha."*

This reflects how the flood worsened the hygienic and environmental conditions of the locality and how people had to extend their limits of physiological tolerance.

Diarrhoea, fever, and cough

There were incidences of diarrhoea particularly among the children during flood. This mainly happened during the period when all the tubewells drowned and there was an acute scarcity of safe drinking water.

One woman said, *"For about a week we could not get clean water from any source. I put alum in the floodwater and used it but children*

sometimes drank floodwater, which was contaminated. This is how they got diarrhoea."

Some children got diarrhoea after taking *chapati* and *khichuri* provided by some relief teams. Some complained that foods given by the government and NGO relief teams were rotten.

According to one woman, *"My son became ill after eating the chapati given by the BRAC relief team. Probably they made these chapatis the night before and when they came to us the next afternoon, the chapatis were already rotten. My son started having loose motion after eating those chapatis."*

However, one of the pleasant surprises of the recent flood was that the incidences and the deaths due to diarrhoea were not as high as one would expect in such a disaster. Two factors might have influenced this. Firstly, the message of clean water had been widely spread among the flood-affected people by government and NGO workers and also through different media. Secondly, there was a good supply of ORS made available by various public and private agencies.

According to one woman, *"People came by boat near our houses and supplied saline, I don't know whether they were from the government or NGOs. I gave that saline when my child had diarrhoea."*

Apart from diarrhoea the most common illnesses that people suffered from during the flood were fever, cough and the common cold. There were some cases of pneumonia as well. Both children and adults suffered from fever, cough and common cold, while women suffered most.

According to one man, *"There were no places for children to play, how long could they sit on the macha? They therefore spent most of the time in the water, just playing. As a result they developed fever and cough."*

One woman was still having fever when we interviewed her. She said, *"Many times I had to get down from the macha and walk in chest-deep water. My saree remained wet for long time. I stayed day after day surrounded by water. That's why I got fever."*

In addition to this, most of the respondents complained about developing sores on their feet and various skin diseases from walking in the filthy water. One man mentioned that his peptic ulcer, from which he has been suffering, was aggravated during flood because he was always in anxiety and could not have food regularly.

However, the problem for all of them was the inability to avail treatment for these diseases. Usually they took treatment from nearby pharmacies or from general practitioners. But all the pharmacies were under water and the chambers of the private practitioners were also closed. This disrupted their normal procedure of health care seeking. Some relief teams supplied ORS but not other medicines. Some NGOs, including BRAC, sent their mobile medical teams to the affected areas and supplied medicines. But this was not a regular service and they did not always get medicines when required. There was a lack of alternative therapeutic options. As one woman said, *"This is a city. If I were in a village I could give my son some herbs if he had cough. Here there is nothing except bricks. Here you cannot find any herb or any herbalist to consult."*

There was, however, a BRAC medical team that was stationed in a flood relief center, which supplied medicines to many people. But that was quite far from some of the affected households. As a result, it was very difficult for them to reach the medical team across the water.

No fish, no meat

Food consumption of the people was severely affected during flood. The respondents are all from very low-income groups whose flow of income was disrupted due to the flood. There was no work for the day labourers. The income of the rickshaw pullers and taxi drivers was reduced to a great extent, as people's mobility was reduced. The women who took loans from BRAC for small business could not run their businesses. In general all income-generating activities were halted. This affected the day to day living of the people and the respondents. Poor slum dwellers could not buy the food they required. The respondents mentioned that they could not provide proper meals for their families. They starved many days or took small meals. Sometimes they just depended on the *chapatis* or chicory given by various relief teams.

A rickshaw puller said, *"At the end of the day, after giving the deposit to the owner of the rickshaw, I hardly had any money in my hand. It was impossible to buy food for the whole family. Still I bought something at least to feed my children."*

The food they took was also of lower caloric value. The man added, *"Many days we could not even take rice, we only took kochu (kind of root) or may be just potato. I never could think of buying fish or meat during the last two months."*

This long-term low intake of low calorie foods has definitely influenced the nutritional condition of the flood-affected people. The affect of flood on people's nutrition requires further exploration.

End of the world?

The flood also affected people's psychology. Living in a *macha* surrounded by water day after day, sleeplessness, starvation, illness and insecurity resulted in a severely stressful condition for flood-affected people. They lost hope and inspiration for life. The following are some comments made by the respondents indicate their desperation:

"In the night there was darkness all around as there was no electricity. I would lie awake under the sky on my tin roof. There was water in all directions. It was scary. I would think may be after tomorrow the water will start receding. But the next morning I would find myself once more in the water. I felt so helpless, sometimes I thought the water would never recede, that we will end up our whole lives here in the water." (A rickshaw puller)

"When the water did not recede even after two months I was very scared. I thought that this might be the end of the world. One day I saw a dead body floating on the water, I thought may be we all would die like this one after another." (A house wife)

"Sitting on my macha, I frequently thought why was not Allah taking us away from this unbearable hardship." (A woman, BRAC VO member)

All these comments reflect the impact of flood on people's psychology. However, the psychological effect of disaster will depend on the external loss, the individual characteristic of the victim and also on the social and psychological support.

CONCLUSION

Floods are a commonplace occurrence in Bangladesh. However, the flood of 1998 surpassed all previous records particularly in terms of its long duration. Like any other disaster, the flood disrupted the normal functioning of life. For flood-affected people there were social, economical and physical implications. In this study we tried to share the experiences of the people concerning their health during the flood. This was a small scale, exploratory study of short duration. We had informal conversations and small group discussions with the flood victims in a poor neighbourhood of Dhaka.

People, in general, are more concerned about their economic losses during the flood but they all recognized various effects of the disaster on their health as well. The flood disrupted the normal way of life. They did not have proper places to sleep. The whole family had to stay either on a small *macha* above the water level, on the roof of the house or had to go to a flood shelter. Worries about their children falling off the *macha*, insecurity of their young daughters, or about the thieves in the darkness kept them awake for most of the nights. Sleeplessness over several nights caused extreme stress on them, which hampered their normal daily activities. There was acute scarcity of safe drinking water for some time as all the tubewells were drowned. People used the floodwater for household purposes during that period though they either boiled it or put alum in it. However, the Bangladesh army established a mobile fresh water tank and BRAC installed a tubewell within a week. It solved the fresh water problem to a great extent, though fetching the water was a great hassle for the people.

One of the most embarrassing issues was the lack of latrines. Most toilets of the locality had washed away, so people looked for alternative ways. They even built toilets on the top of trees. This was particularly difficult for women, who had to wait till dark to answer the call of the nature. Surprisingly the incidences and death due to diarrhoea were not very high as usually happens in a disaster situation. The wide spread messages regarding clean water by various agencies and also the supply of ORS probably are responsible for this positive result. However, there were incidences of fever, common cold, and cough. Both children and adults had to spend a lot of time in water, which probably led to these diseases. People also developed sores on their feet and various skin diseases. Normal health care seeking practices were disrupted as all the pharmacies and doctors' chambers were closed. Some mobile medical teams of various NGOs and a fixed medical team of BRAC provided medical support. It was also revealed that due to the reduction of family income during the flood, food intake of the family was reduced, which has had an impact on the nutritional condition of the people. The stressful situation also made them psychologically vulnerable. They sometimes lost hope for life and became fatalistic.

Even though each disaster is unique in nature, scope and timing, the problems created are basically similar. Disaster does not give rise to new or uncommon diseases. People suffer and die in the wake of most disasters from exactly the same disease that they have always suffered and died from. The only difference is that the burden of disease is up and the defenses are down. What was already bad, simply become worse. In all cases of disaster the most effective form of mitigation remains preparedness and where possible, prevention. We need to help decrease

people's vulnerability and strengthen their capacity to respond to events that undermine their physical, mental and social wellbeing.

I conclude with the following words from the 'WHO report: Health in the International Decade for Natural Disaster' (6):

“Although we are still tied to the movements of the winds and tides and of the earth, we tend to forget or dismiss their power. A distressing ‘collective amnesia’ often sits in during the absence of disaster, as people turn their backs on quit volcanoes or tranquil seas and return to their daily tasks. The lessons taught by the storm to one generation of coastal residents are forgotten by the next. Such forgetfulness can be fatal. The history of disaster awareness and preparedness unfortunately is short. We must have the courage to remember and the conviction to act immediately.”

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FEMALE ADOLESCENTS AND CULTURAL NOTIONS OF HONOUR, SHAME, PURITY AND POLLUTION DURING THE FLOOD

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SUMMARY

This paper explores the experiences of female adolescents during the 1998 flood in Bangladesh, focusing on the implications of socio-cultural norms related to notions of honour, shame, purity and pollution. These cultural notions are reinforced with greater emphasis as girls enter their adolescence, regulating their sexuality and gender relationships. In Bangladeshi society, adolescent girls are expected to maintain their 'virginity' till the time of marriage. Contact is limited to one's families and extended relations. Particularly, amongst the poorer, less well-off families, adolescent girls tend to have limited mobility, to safeguard their 'purity'. This is to ensure that the girl's reputation is not tarnished, thus making it difficult for the girl to get married. For female adolescents in Bangladesh, a disaster situation is a uniquely vulnerable time. Exposed to the unfamiliar environment of flood shelters, and relief camps, and unable to maintain their 'space' and privacy from male strangers, left a number of girls vulnerable to sexual and mental harassment. With the flood, it became difficult for most of the girls to be appropriately 'secluded'. Many were unable to sleep, bathe or access latrines in privacy, because most of the houses and latrines had become completely submerged under the floodwaters. Some of the girls who experienced menstruation, were distressed at not being able to keep themselves clean. There are strong social taboos associated with menstruation and due to the dirty floodwaters, it was difficult for the girls to wash their menstrual cloth or change it frequently. Many of them became separated from their social network of kin relations, which caused them a great deal of anxiety and stress. Their difficulty in following some of the social norms have far reaching implications on their health, identity, family and community relations.

INTRODUCTION

In 1998, Bangladesh faced devastating flood as almost two-thirds of the country went under water for nearly nine weeks. As crops, properties and infrastructures were massively damaged, 30 million people were affected and had to cope with the loss of employment, a drastic reduction in their income, harassment, various health problems, and uncertainty about their future (1,2). Poor women and children have been repeatedly recognized to be the most vulnerable groups during such natural disasters (3,4). However, very little is known about the particular experiences and coping of adolescent girls. Adolescence itself, as a group different from adults and children, is a fairly new concept to Bangladesh and most developing countries. Adolescence, however, is a particularly significant stage in human development with profound influence on the future of an individual. As such, it is a transition period during which young people are gradually socialized to assume their adult roles and, as such, are in great need of guidance and support (5). This is particularly so in times of crisis situations since young people still haven't fully developed the psychological, social and economic coping skills of adults.

In Bangladesh, many - but not all adolescents are married soon after the onset of puberty. However, with changes in the past decade, the 'concept' of adolescence now exists in the sense that girls often remain unmarried for as long as half a dozen years after puberty in rural and urban Bangladesh. This is because of the influence of the market economy. The rural population has doubled, with rural families suffering from steep declines in their land holdings. Thus families cannot rely on land anymore to support themselves or their families. The government has increased the provision of schooling, resulting in an increasing demand for education. The number of boys and girls going to school have trebled. Many rural parents are keen to send their daughters to school, despite the pressures of *purdah*¹ (6). Partly, they hope that their daughters will attract suitable husbands, and any schooling or training may make the girls more employable.

All of the female adolescents in the study, except for one, were unmarried. This is significant as great differences exist between the single and married state of women in Bangladesh. This responsibility weighs heavily on the family (5). Most unmarried adolescent girls are closely watched and tend to be confined to limited surroundings. Preserving female virginity until marriage is still emphasized by society. Pre-marital sexual activity or pregnancies are feared. Thus contact is

¹ *Purdah* has shifting meanings contextually and historically. Here it refers to the seclusion of women. However, norms can be flexible depending on the class and economic situation of the women and their family.

limited to one's families and extended relations. Particularly, amongst the poorer, less well off families, adolescent girls tend to have limited mobility, to safeguard their 'purity.' If the girl is known to have had pre-marital sex, the social status of the whole family is affected. As a result, it will become difficult for the family to get the girl married, and she will become unmarriageable, or will be married to a widower, or a man much older than her. Further, this affects the marriage chances of the adolescent girl's sisters, if she has any (6).

Marriage is still the only socially acceptable option for women. Getting married is equated with achieving social adulthood. With marriage, in most cases, comes social recognition and physical security. Unmarried girls and women are vulnerable to verbal and physical abuse and face various forms of discrimination (7). Girls conforming to these norms bring honour to themselves and their family, which in turn serves to improve their socioeconomic status in their community and increases their chances of good marriage proposals (8,9). The importance of maintaining one's reputation therefore leads to considerable social pressure, for both their families and themselves, and thus significantly influence their behavior and attitudes. The links between adolescence and sexuality are not simple or similar everywhere, with their experiences varying. Social understanding of these notions vary with context and have both social and economical implications, and are central to individuals, families and community life in Bangladesh and are particularly significant for adolescent girls (9).

Thus, family efforts to ensure virginity at marriage defines the nature of female adolescence to a large extent¹. For instance, one of the respondents was going to school until recently, when her parents took the decision that she was to remain at home, and instead help her mother with household chores till she was married off to a suitable boy, as she had come of age (had started menstruating). Although, two of our respondents were working as garment factory workers, living and renting a room in Dhaka city, away from their families. Although they had defied their 'traditional' ways, and were earning an income and living independently, they were conscious of being viewed as 'unconventional' and thus were quick to point out how they lived their lives as 'good and moral' individuals. Studies have noted that there is considerable social stigma attached to garment work in Bangladesh, and awareness of this stigma is apparent in the girls' narratives of their experiences during the flood (5). They are seen to be at risk of sexual activity, as they have greater mobility and autonomy, and spend extended hours beyond the supervision of their families. As material conditions alter, so do forms of articulating *purdah* and increasing numbers of adolescent girls are being

¹ Caldwell et al, found in such understandings prevalent in South India, Sri Lanka and parts of Africa.

pushed by poverty to seek work outside the home. Thus, *purdah* is redefined as a 'state of mind', which is explained as not requiring isolation; rather it reveals itself in civil behaviour, modestly dressed, and appropriate behaviour towards men (10). However, despite their efforts as far as possible to follow traditional definitions of gender, adolescent girls working in factories are still subject to harassment.

Adolescent perspectives, their particular development issues, life experiences and coping mechanisms are largely unexplored in Bangladesh. This paper focuses on the social aspects of a group of adolescent girl's experiences, particularly on the implications of Bangladeshi socio-cultural norms related to notions of honour, shame, purity and pollution, particularly during the floods. For female adolescents in Bangladesh, who are learning to conform and cope with finding their identity in society, a disaster situation is a uniquely vulnerable time. The narratives of the nine girls reveal their anxieties about issues of sexuality, shame, fears of harassment, and being viewed as 'bad girls' and so on. In a disaster situation, as coping mechanisms are disrupted, it became increasingly difficult for the adolescent girls to maintain particular norms. Their experiences reflect cultural understandings of female adolescence and sexuality so deeply embedded in Bangladeshi society. Their difficulty in following some of these societal expectations has far reaching implications on their health, identity, family and community relations. It is hoped that an insight into their experiences will provide knowledge crucial in comprehending the specific development issues faced by adolescent girls. Moreover, this will be of assistance for future flood related operations better oriented toward the needs and practices of this vulnerable group.

METHODOLOGY

Bangladesh is a predominantly Muslim country, with a population of 120 million people. It is divided into 64 districts, 496 *thanas*, 4,451 unions and 59,990 villages.

The study took place in both rural areas of Manikganj, and urban areas of Kamrangichar and Badda in Dhaka. Discussions were carried out with nine girls, their average age was between 15-19 years old. Each interview took over two hours, sometimes even longer. In-depth interviews for our case studies and informal discussions were the two main qualitative research methodologies used in eliciting information from female adolescents and family members. The adolescent girls were selected randomly, however we were able to gather information on experiences from those who had lived in shelters and relief camps as well as those who had lived in their homes throughout the ordeal.

In-depth interviews were taken from both Hindu and Muslim girls. The data highlight the similarity of their experiences irrespective of their religions. The concept of adolescence in Bangladesh is similar to understandings of adolescence prevalent in South Asia. Although notions of *purdah* are enforced on Muslim girls, such cultural norms do exist for Hindu girls. It can be argued that in Bangladeshi society, adolescent girls on the whole, are subjected to very strict norms and scrutiny, and any 'deviation' has social, cultural and moral consequences in Bangladesh.

The interviews were conducted with each adolescent girl alone, in the privacy of their homes to afford them 'space' to discuss sensitive issues privately. They spoke quite candidly of their vulnerability during the floods, their new living arrangements, water and sanitation problems, and their health and safety concerns. Two sets of informal discussions took place in the *baris* (households) with mothers as well.

Profile of adolescent girls interviewed.

Name and age	Place	Occupation	Living arrangements
Ganga 18 (Hindu)	Gheor	Quit school. Tutors children and does household work	Stayed at home during the flood
Chandana 14 (Hindu)	Gheor	Goes to school	School was shelter
Anjona 15 (Hindu)	Gheor	Goes to school	Stayed at the hospital and then moved to the school with family
Runa 16 (Muslim)	Kamrangichar Rhosoolpur	Works from the house - assists her mother make hair pieces	Stayed at home during the flood
Shilpi 16 (Hindu)	Kamrangichar -Nabinagar	Goes to school	Stayed at home for the first month. She was sent to Moulvi Bazaar to her older Sister's place for the rest of the flood period
Jasmine 16 (Muslim)	Kamrangichar -Nabinagar	Used to go to school. Now helps her mother with household work and looking after siblings	Stayed at home with family
Nasima 16 (Muslim)	Badda	Garment worker	Stayed home with father, grand-mother and siblings
Rehana 18 (Muslim)	TB gate	Garment worker	Stayed at rented home
Sheela 18 (Muslim)	Dhaka Cantonment	Garment worker	Stayed at rented home

FINDINGS AND DISCUSSION

Living in public view...Shame! Shame!

A majority of the girls experienced great shame because they had to live in exposed conditions. A number of them had to share their living arrangements with strangers in relief camps or live on their roofs, exposed to everyone as their houses were completely submerged by floodwater. A few had to live in cramped conditions with extended family members whose homes had become inhabitable. The adolescent girls were particularly concerned and ashamed about being exposed to the 'public eyes of men' while carrying out their daily activities such as bathing, going to the toilet and sleeping. In addition, they were greatly concerned about having their partially uncovered body revealed and exposed to men. For the girls living in shelters, the particular concerns were to live with strangers, especially men and to be at risk of exposing parts of their body. Anjona, was living in a relief camp and spoke about her sleeping arrangements. She stated:

"We stayed in the verandah area, and used kagoj (paper) and polythene on the floor and a sack was used as partition. On one side of the verandah was the main road. Sleeping there was not too bad...[she hesitates and then says] as my parents were with me. Actually I felt some shame in case there was batash (wind) and my clothes would become disheveled and people could see. I used to go to sleep late at night sometimes because I would worry about my clothes coming up and not being covered properly. This is not my home. I had some difficulties living in this place."

For some girls living at home, a major concern was to be confined to stay in their houses, cramped up with other family members in front of whom they had to carry out their daily activities.

Ganga talked about her difficult sleeping arrangements. Her family was sharing their house with another extended family who had previously lived next door. The extended family's house had become completely submerged by the floodwaters. She reported her shame of having to constantly live in such close proximity with another family, especially the male member of the family, in their home for such a long time. She said, *"Can you imagine the lajja (shame) for us girls? We had to stay in this in room and have to change our clothes, eat, sleep and do everything there for more than two months! When I was sleeping I would think to myself - how am I sleeping? We had bouji's (fictive kin) husband also staying there with us! Are my clothes all going here and there? How did I sleep - did he see anything?"*

In addition to the floodwaters obstructing lanes and roads, concerns about their safety and the need to protect their reputation prevented the adolescent girls from leaving the compound. Ganga explained the

difficulty of being confined within the house and the arguments used to encourage her to stay at home. She said:

“It was so bad to stuck inside the house for three months during the floods. Just eating, sitting and sometimes cooking the food. Sometimes we would go on a nouka (boat) and go and visit people. We would also go and give drinking water to some of the houses that did not have access to a nouka or a belah (boat). ...My mother would get angry with us for going outside of the house, but how can anyone stay at home all day everyday for three months? She said that going on a belah, people will say bad things about us. She said they would say: “these big girls-where are they going? There is more suspicion in a village. People think that young girls going around might be doing bad things, you know, prem (romance)!”

However, a few of the adolescent girls living in the urban areas of Dhaka city, were not confined at home, as they were compelled to go to work despite the floodwaters obstructing and flooding most of the lanes and roads. These girls supported the family income by working, and thus, could not afford to stay at home. In addition, they appeared to appreciate having a dry place to go where they had space. Nasima commented, *“I had to go to work because we need the money. We live month to month... We wanted to go back to work as well because at least at the factory we can remain dry!”*

The adolescent girls living in shelters and in their homes explained the shame and distress they experienced as they had to go to the toilet and bathe in front of male strangers. The ponds were now surrounded by many unfamiliar and familiar men similarly displaced, and the toilets were completely flooded and non-existent. The floodwater was also very dirty with filth and sewage. As a consequence, most of the girls could not bathe frequently which made many of them feel ashamed as they felt dirty. Some of them could only bathe every three to four days. Chandana reported, *“Sometimes days would go by and I was unable to shower at all. Maybe even 3 to 4 days, I felt so unclean and dirty bheethoray (inside) and I felt bad.”*

Ganga also shared her embarrassment:

“To go to the toilet was a big problem for me. Can you imagine bouji’s husband is in the same room and sometimes I had to go and urinate in the middle of the night right outside the house, in the verandah. I had to just pull my pyjamas down and do it right there near the verandah. I felt so bad, because I could not go anywhere and imagine they (the brother, the fictive kin’s husband and her sisters and mother) could hear everything! Sometimes my stomach would hurt from holding it in.”

Many girls explained that they were so embarrassed to go to the toilet in public that they would wait till late at night when no one could see. This is the situation of Chandana. She explained how she coped with the situation, *“I just held it in- I would try not to go unless I really had to! What I would do is not eat at all sometimes or eat less so that I would not have to go to the toilet at all... then when I just couldn’t anymore, I would and stand in the jol (water) and do it there. So much shame this is - To be out there in the open like this and do this - I felt so bad about it!”*

It therefore appears from these particular findings, that girls’ experiences in the floods have affected their sense of self-respect as they reported great shame and distress. The attitude of modesty and shame about one’s body that were expressed by all the girls in this study, are considered to be an essential attribute of an ‘honourable girl’ (6,8). In Bangladeshi society, young girls are taught at a very early age to have modesty and shame about one’s body. These notions of modesty and shame regulate gender relations and sexuality. During adolescence particularly, as girls learn to deal with their own sexuality, these notion of shame and modesty are reinforced with greater emphasis. Girls, therefore learn, that while within the compound their interaction with other male relatives is rather relaxed, the outside world is an unsafe place where ‘honourable’ women are out of place. Deviation from these norms, in contrast, brings shame, and ruins chances of having good marriage possibilities (6,8,11). In the context of the flood, sharing their living arrangements with strangers, especially men, and carrying their daily activities such as bathing, going to toilet or sleeping in public view were distressing for the adolescent girls. Even though there is flexibility in the applications of those norms, for adolescent girls, it was not significantly relaxed, as adolescence is the period when girls are rigorously socialized to conform.

Solidarity in coping

The girls in the study networked with their relatives and friends in their efforts to cope with the disruptions in their lives caused by the floods. Regarding their housing arrangements, some families that were able to remain in their homes accommodated extended family members whose houses had become inhabitable. Also in quite a few cases where girls were living at home and had to cope with the restrictions in their housing space, the male members of the family helped the girls maintain privacy for their daily activities. For instance, Ganga explained that during the floods, her father went to stay in the bazaar. Anjona also explained that her father would leave home early so that they could have some privacy to carry out their daily activities (bathing, going to the toilet, etc). Ganga reported,

“Before the flood, we stayed in the bari (home), with our family¹. In the past my father and brother slept in the barindah (verandah) and we [the rest of the sisters and mother] slept in the room. But during the floods, my father went and stayed in the bazaar. (Bouji’s husband) also left around 9 a.m. and then we would get the opportunity to go and take a bath, and change our clothes.”

Runa also reported a similar situation. She explained, *“When we bathed or changed our clothes, we put partitions in the room. When my brother was here during the day... he would lie there on the bed and cover his face with the blanket while my sister or I got changed.”*

For going to the toilet, Shilpi and Runa reported that their father made them latrines which they could use late at night when fewer people were around. Others networked with their female relatives and friends when they had to leave their compound or shelter to go to the toilet or to bathe. This was to ensure their protection and to safeguard their reputation, as ‘good girls don’t walk around alone’. As such, Ganga explained, *“A few of us would go to the mango tree, early in the morning and sometimes late at night to go to the toilet. I would go with my mother, and my cousin or sisters to a secluded corner when we had to bathe.”* One of the girls, Anjona was able to access her aunt’s home after bathing, which afforded her with some privacy, for changing her clothes after her bath. She said, *“I had to bathe because sometimes it had been almost 3 to 4 days and I had not had a chance to bathe properly. After a quick dip, I would go in my wet kapor (clothes) and walk to my phopoo’s (father’s sister) house,... my aunt’s place was right near the pukur (pond).”*

Working at the factories appeared to help the girls cope with the flood, because it gave them a dry place to go where they had a bit more space. The factory managers were also helpful as they provided salines to the girls when they were sick. Moreover, the girls were relieved that the factories were operating, as they desperately needed the income.

Unfamiliar faces, fear and harassment!

A common concern brought up by the girls was the fear of harassment caused by the presence of male strangers roaming around the neighborhood and streets. Almost all the girls had witnessed or heard stories of girls being harassed. Although some of the girls explained that harassment was usually present during normal conditions, the recent flood had exacerbated the situation, and the incidence of harassment had increased. Shilpi reported:

¹ The family consists of three sisters, including Ganga, and one brother aged 16 years of age and parents.

“It was more scary during the floods because there were more mastaans (hoodlums) and goondahs (thugs) hanging around. Some unknown boys would were roaming around in their noukas (boats) and harassed the girls around here. I once heard that a girl was just walking along when these boys on a boat came up and tried to grab her. She screamed at them and then they just laughed. Then this other woman came out of her house and yelled at them, and they finally went away. It was worrying because one did not know which of the men hanging around were good and which ones were bad!”

The shelters in particular seemed to be perceived as an unsafe place by some of the girls. Chandana reported for instance that she had witnessed numerous fights at the shelters. She explained, *‘There was always a lot of fighting happening.’* Chandana also reported that she felt scared about being harassed by the boys as they would come from other places by boat to hang out, laugh and do *‘rubbish chit chat’* with the other men.

Girls seemed to get some comfort from living close to their normal social network. Anjona reported that the first shelter where she stayed, she felt better because she was closer to her relatives and neighbours. She said, *“I am happy to be back in our home. Although the walls on one side are broken, I still feel safer than there... everyone is a known face around here in our para (neighborhood).”* Jasmine’s mother, a widow, reported that she had decided to stay in her home, despite the fact that she had to live on her roof because she preferred remaining closer to her neighbours. This way she could rely on their assistance in case she or her daughters were mugged or harassed. She stated that if something happened she could quickly scream for her neighbours.

Some of the mothers seemed to be particularly concerned about the safety of their unmarried adolescent girls. A few of the mothers sent their girls to live with relatives who had not been affected by the floods, as they felt they would be safer there. Food scarcity was another reason for sending them elsewhere. That was the situation for Runa's sister and Shilpie. Runa reported, *“My sister, was sent after a few weeks to our mama’s (mother’s brother) home. My mother heard that some young girl’s were harassed...my mother felt that my sister should be sent because it was safer for her to be in the village.”*

The girls working in the garments factory reported that they were compelled to go to work because their families were dependent on their salary. However on their way to work not only did they have to cope with walking in dirty floodwater, which was waist high or even higher, but they also had to cope with considerable harassment. Nasima reported:

"I had to walk in the water for at least an hour before I could get to work. My clothes would get wet as I had to walk in the water [often alone]. The water in some places was almost up to my chest and some places up to my waist. It felt so bad to walk for so long in the water with all the clothes sticking to my chest and upper body like that. Then we had to go and work in the factory all day in the wet clothes. I was often harassed as I walked to work because the boys would say to me and the other girls "we can see everything" and "wet clothes- look at the mal (goods)" One evening when I was coming back from work at 8 p.m. a boy came up to me and said "wait I have something to say to you!" I told him that I had to go and could not speak with him. All these other boys stood around laughing and they kept saying "catch her, keep her - dhorey rekha dey (grab her)". I was scared but I kept my head down and kept walking but with all the mud and water it is difficult to even walk that quickly."

Rehana related another incident of harassment that she witnessed as she was going to work, *"In front of me a girl was walking and everything was wet of hers as she was walking in the water [which was quite high]. She was trying to cover herself with her urnah (cloth that covers the upper body) when some boys in a boat just grabbed her urnah and ran off."*

Most of the girls in this study expressed a general feeling of helplessness in the face of such harassment and believed that the best response was to ignore the harassment. For instance Jasmine stated *"It is better for us to put our heads down and not say anything. What is there to say."* While Sheela, stated, *"In the past I would give gali (abuse) but now I have learnt not to say anything."* Sheela also seemed to put the responsibility of harassment on the girls. She narrated a story about a girl who according to her, was responsible for the dreadful consequences, because of her attitude. She said, *"I heard a girl was raped and killed when walking home from work. This sort of things are the girl's fault - why wasn't she more careful. She must have argued back or shown jheed (stubborn behaviour) to the guys!"*

However, it is necessary to also point out that the response to harassment varied. Rehana for instance, responded back to the assailant when her friend was harassed. She reported:

"Once during the floods, I was in a rickshaw¹ going to work with a friend. Another boy on another rickshaw came up to us and pushed my friend off the rickshaw and threw her in the water. I jumped off and screamed at him, 'don't you have a mother or sisters, why do you do this?' He said, 'Beyshorom (shameless one) chola pheerah korey (roaming around)! You are bad, you left the village to come to Dhaka town because you are bad.' I said

¹ A local three wheeler transport.

to him, 'a lot of people have come to Dhaka to work, what is wrong with that?' I felt very bad.... Why do they say such things? We work so hard - aren't we human. My biggest sadness is that we work so hard to live and eat but they (men in society) still view as bad girls!"

One of the factors which can explain the increase in incidence of harassment during the floods was the increased exposure of the girls to men, who were loitering around more than usual since their work was interrupted. Caldwell et al, suggest that in Bangladesh culture, there is a common perception that teenage girls have no strong will to resist violent males, and that any weakness on a girls' part (such as having exposed body parts) makes them a deserving target. In addition, males are rarely held accountable for harassing young girls and the victims often get blamed (6). In the case of female garment workers, Sajeda et al, argue that many try to protect themselves from negative judgements in the 'public space' of the streets by covering their head and upper bodies and by ignoring men who accost them, as they realize they are particularly vulnerable target for harassment (5). In the context of the flood, a number of girls, who were not garment factory workers, also became exposed to the public space of men. Many, were living in unfamiliar environments, with their families, separate from their previous social network. This created unnecessary tension and anxiety for the girls and their family members.

Bad girls do these things!

In a manner common to discussions in the South Asian region, narratives about sexuality with female adolescents suggests social norms define a 'good' woman as one being ignorant of sex or passive in sexual encounters (5). A few of the girls in the research study, made references to "bad girls." In Bangladeshi society, being labeled 'bad' or *nosta* (spoilt) means being perceived as sexually promiscuous (9). Chandana narrated:

"You see I would not come out of our chala (partitioned area). There are many kharab (bad) boys and girls who do a lot of yelling and chats together. Boys of all ages and all types would come and laugh and hang out. Boys came in noukas (boats) from other places to do ajjay bajjay udda (rubbish chit chat) with the other men. Sometimes people would talk about those girls ['bad' girls] who would come up and down from the roof all the time with the boys, 'mayrah chol cholah! (the girls are precocious)."

Another girl Jasmin commented about a girl living with them in a shelter, "She is a bad girl... she goes here and there and talks to boys..." The girls also talked about the importance of maintaining one's honour and reputation. As such Nasima stated, "Because of the flood there are a lot of problems and the girls have become oshohai (helpless) - there is a chance for

the men to do something! Ek bar manshomman geyley feeray ashbay nah (once honour and dignity is lost, it cannot be retrieved)!"

Sheela expressed similar sentiments about maintaining one's honour. She commented, *"You see there are bad girls around, they dress up all the time and they give us a bad name. The boys hanging around also tend to think we are bad and they used often say to me, 'jaibi' (will you come with me)."* These references to honour in this particular context can be explained by the importance in Bangladeshi society to preserve females' virginity until marriage, as discussed earlier. No physical test is required to prove a girl's virginity but her reputation is a crucial factor. Strong sanctions exist against interactions with men, and none of this activity is socially approved of or accepted (5). As reported by Blanchet, to have been raped, to have had sexual intercourse with a lover or to simply have been seen in a dubious location could irreversibly affect a girl's reputation. Thus, maintaining honour is so important and this explains why young girls are often reluctant to speak of their own experiences of sexual harassment (8). One of the respondents Runa, willingly discussed this issue but defensively stated, *"We are not like that though - no one can say anything bad about us. We never left our home and went outside. Our family has lived here for 20 years! I hear things happening to some girls who were walking around in particular places..."*

Menstrual blood and pollution

Menstruation appeared to be a particularly private matter for the girls. This is because menstruation signifies the coming of age or 'womanhood' for young girls in Bangladesh. Soon after menarche, particularly in rural areas, adolescent girls are married off, although this practice is changing. Symbolisms of sexuality, fertility and pollution are strongly associated with menstruation, and thus it is considered a shameful and hidden subject (11). When a young girl is menstruating she is considered to be 'dangerous and polluting' to the social and moral order. Therefore, various social norms exist to contain the polluting effects of the blood and maintain the purity of the girls. The social taboos surrounding menstruation are so great, that young adolescent girls usually don't share their menstruation experiences even with their own mothers. In the context of the floods, for adolescent girls, their main concern was hiding the fact that they were menstruating from male and female family members and outsiders. They expressed that it became very difficult to be discreet about their *menses* (periods). A few appeared to be able to confide to their close relatives about this delicate subject. A few of the girls explained their predicament. Ganga explained, *"We all do our own thing when periods come and if we have problems we normally ask bouji (fictive kin relation). But it is tension to have all this happening during the flood!"*

Chandana commented:

“I got my periods during the time we were staying there. I told my sister who explained to me what to do while we were living there. She must have told my mother because my mother knew about it as well. My sister said to me, ‘this is a problem, mela (big) problem - how to change and wash it? A lot of the people were on one side of the verandah and we were on the other side. While I was there, I noticed that a girl had got her periods, and she was trying to hide it, as she was ashamed. Finally a day later she came up to me and said, ‘In the floods it has happened what will I do?’ I told her what I have been doing and told her to speak to a didi (anyone who is regarded as an older sister - not necessarily related by blood).”

Jasmin, for example, explained:

“I didn’t feel good having it [periods] during this time because I felt lajja (shame). It is already difficult to wash and because there is dirty water everywhere one cannot even bathe properly and the cloth¹ does not even dry quickly.² The blood is dirty blood and I just felt very unclean and dirty all the time! To be like this and not be able to keep myself clean properly made me feel very kharap (bad) monay monay (in my heart)!”

The feeling of dirtiness were also expressed by the other girls. In addition to not being able to bathe properly, girls explained that they had difficulty finding space and time to wash their menstrual rag without being seen by others. Due to the floods, there was limited space and most people were confined to cramped surroundings. This situation made it even more difficult for young girls to change their menstrual cloth. Nasima was living with her father, grandmother and her two younger brothers in one room in Badda. She explained her frustrating situation:

“I got my menses (periods) during the floods. What was really bad was that I had to keep the same cloth on all day, even if it was completely wet. It would just fill up with blood and I would be too scared to sit or do anything in case someone saw something. I couldn’t wash until late at night. Often at midnight I would get up and wash it in the bonnar pani (floodwaters). I used to feel so scared, as there are so many snakes in the floodwaters. My grandmother never said anything but she knew what was happening. I would dry it behind the alnah (cabinet) or near the corner of the pak ghor (kitchen) where no one would go as I normally did all the cooking.”

¹ Usually a torn piece of sari material/cloth is used as a menstrual rag.

² One of the mothers said that she had some problems during her periods. She felt that she was washing the cloths in the dirty water and was compelled to reuse them, even if they weren’t too dry. She got not too dry, sometimes fairly damp cloths for her periods, and thus had an itchy rash down there that just would not go away for quite awhile! This was also mentioned by one of the girls interviewed in the later case studies.

Ganga who faced difficulties in finding places to dry the menstrual cloth, said, *“We cannot keep that cloth inside the house. My mother offers her puja (prayers) in there; our thakur (religious leader/icon) is there... Older people say one should not have it inside one’s home, one should get rid of it or burn it...”* Huq and Khan (12) also discussed some rules that girls must observe as to where to keep their cloth. They found that because menstrual blood is considered polluting, girls could not keep their menstrual rags in prayers room. They also found that it had to be hidden from the view of others as it could pollute them. A few of the girls believed that they should not be going out in such a state. Nasima explained her predicament, *“Especially during the floods my menses (periods) came and I could not bathe properly and I did not feel clean and I feel dirty and I think it is better not to go anywhere outside the house.”*

Beliefs and practices regarding menstruation varied. Some girls could not afford to let the restrictions interfere with their essential work. This was the situation for Sheela. She explained that in her factory where she worked, girls would come to work during their menstruation period and change at work. She narrated, *“Girls who had their menses (periods) would come with extra pyjama and shalwar¹ and menstrual cloth to change at the work place. What else to do? They are very poor and could not afford to miss even a day! They would always come an hour earlier to do all this.”*

These findings suggest that menstruation is a particularly vulnerable time for young adolescent girls who mostly end up coping on their own. However the situation appears to be exacerbated during the floods due to the lack of access to clean water and cramped surroundings which affords them with no privacy. In addition, as it is such a taboo subject, most of them did not receive much support or explanations from older female relatives.

Illnesses and shame

Girls reported they had some health problems. One of the girls, Nasima explained:

“All this walking in the water caused a lot of problems for us girls. We had gota (boils) and chulkani (scratching/rash) on our legs and feet and even our hand and nails! Most of us have had to wash our clothes and even the kapur (cloth used for menstruation) in the floodwaters, and not being able to dry it properly, the cloth sometimes remained damp. This gave some of the girls problems near there [the genital area]. Some of the girls had so much scratching down there that they could not even walk. A lot of the girls felt a lot of shame to talk about these things. But since we are all girls, we confided

¹ Traditional dress consisting of a long kurta, long pyjamas and another piece of cloth covering the chest area.

to one another. One girl said to me, 'I have gotas (rash) down there because of the floodwaters. I cannot sleep properly at night - what will I do?' A few of the girls bought savlon which they mixed with water and dipped a cloth in the water to wipe themselves in the [perineum] and they wiped their feet and legs. However, I did not have any problems like that except near my feet."

Huq et al. (12) suggested that even in normal conditions, girls have difficulty drying their sanitary pads appropriately and therefore, many girls experience perineal rashes and urinary tract infections. In the context of the floods, the difficulties appeared to have increased. One of the mothers (Jasmin's mother), mentioned facing similar problems during menstruation. She believed that because she had been washing the cloths in dirty water and was compelled to reuse them even if they were not dry, she had developed persistent perineal rashes and cramps as well.

Other girls that experienced ailment in the perineum area reported feeling ashamed and felt uncomfortable with the idea of going to a doctor (especially a male doctor) to discuss this delicate subject. This attitude toward male doctors was also reported in a study on Bangladeshi adolescent girls' beliefs and practices related to menstruation (12). They suggested that social pressures, and attitudes discourage girls, especially when unmarried, to seek help from male doctors for "female" problems. In addition, during the floods, many girls reported that access to medical services was difficult. Therefore, most girls appeared to manage on their own. Jasmine stated, *"A few of the girls bought dettol and mixed it with water and wiped themselves there (in the genital area)...but the itching was terrible..."*

Some of the girls spoke of having general health problems such as fever, diarrhoea, and jaundice. The garment girls mentioned receiving saline from the factories. One girl, Sheela commented, *"there were quite a few illnesses during the floods. We (the other garment workers) all had diarrhea and the office gave us saline."* One of the girls, Runa was affected by jaundice for a few months during the flood.

Fear of abandonment

A girl in the study, Runa, was recently married. She reported being particularly afraid of being abandoned by her husband, because with the floods, her family had no more money to pay the dowry. She reported:

"I was recently married about 6 months ago, but my husband has not been able to take me to his place. He wanted me to remain here with my parents during the floods as it was easier for him to visit me since he works in Dhaka town. My parents have not been able to pay the full

amount of the dowry of Taka 10 000, and that is why he has not been able to take me to his home. Now due to the floods, there will be less money available to give him! What will happen I don't know? But he says he will take me."

Jasmine had similar stories about girls who were unable to pay dowry. In Bangladeshi society, marriage is very important and for a majority of adolescent girls, marriage is one of the means of achieving respectability and social acceptance. For most marriages, the bride's family is required to pay a certain amount of money and goods in kind, as dowry. When families are unable to pay dowry then the girls can be 'justifiably' abandoned, mistreated or returned to their parents (5,8). The floods affected the income earning capabilities of numerous families, and thus, would have directly affected the lives of some adolescent girls.

CONCLUSION

The purpose of this study was to explore adolescent girls' perspectives and practices during the floods of 1998 in Bangladesh. It also intended to raise awareness about some important issues particular to adolescent girls in disaster situations. The findings suggest that the girls' difficulties in conforming to socio-cultural norms caused many girls some loss of self-respect and shame. For instance, bathing or going to the toilet in public, sharing their sleeping arrangements with strangers and male members of the extended family, and being unable clean themselves appropriately when menstruating were all great sources of concerns. In addition, several girls had to cope with the increased incidence of illnesses; their vulnerability being further increased by limited access to health services and their reluctance to seek help. Several girls also had to cope with the increased incidences of harassment during the floods. As such, being exposed to strangers, being separated from their social network, and unable to maintain their seclusion and exposed to the 'public spaces' of men appeared to increase their vulnerability. Another important issue raised by a few of the girls was the fear of abandonment related to difficulties in paying dowry to their potential spouse. Finally, solidarity among family members and neighbors were observed and appeared to greatly help the adolescent girls cope with the disruption in their lives. As such, many of them networked to ensure their needs were being met. Therefore, being close to relatives and neighbors was perceived to be very important by the adolescent girls.

It is therefore argued that adolescent girls, as a group with distinct development issues, constitute a particularly vulnerable group during disaster situations such as the 1998 floods in Bangladesh. Central to their experiences and coping during the floods were the notions of honour,

shame, purity and pollution, regulating their sexuality and gender relations. The social norms related to these notions are normally reinforced with greater emphasis during adolescence and profoundly influenced girls' attitudes and behaviour. In the context of the floods, these understandings were not significantly relaxed despite the difficulties encountered by the adolescents. Female adolescents' attempts and sometimes inability to follow these norms made them particularly vulnerable, and has far reaching implications on their health, identity, family and community relations.

RECOMMENDATIONS

Awareness needs to be raised among community members about the particular issues faced by adolescent girls, particularly unmarried adolescent girls. Community members could start problem solving in anticipation of the next floods. For instance, if harassment is an issue raised by the people in the community, sessions could be organized for different groups (such as school girls, women and men) during which they would be encouraged to discuss freely about their concerns and think of new solutions. Women and adolescent girls could also be targeted specifically to discuss taboo subject such as menstruation, with the intention of bringing the subject out into the open and therefore facilitating access to support for adolescent girls.

As we attempted to better address issues faced by adolescent girls in the context of the floods, two avenues of research are suggested. First, we need more information on adolescents' needs, perceptions, and practices. Secondly, more research can be carried out exploring their experiences during disaster situations.

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**VEGETABLE GROWERS OF BRAC AND FLOOD 1998:
A CASE STUDY OF A VILLAGE ORGANIZATION
IN GAIBANDHA DISTRICT**

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SUMMARY

This study aimed to know how the flood of 1998 affected the vegetable production of the members of BRAC's village organisation (VO) and how they coped with the situation. Six members of Sonaidanga Baikunthapur VO in Gaibandha were observed. On average they used 30 decimals of land for vegetable cultivation. Vegetable cultivation was an important source of income for the households. Due to flood the vegetable plots went under about 137 centimetre deep water. On average they lost Tk 3,188 due to the damage of their vegetable crops caused by flood. It seriously affected their regular income flow, thus their normal life. To cope with the situation they took some measures such as disposing of savings, starting new businesses, taking loans, reducing household consumption and expenditure, and selling stored paddy. To make up the losses members needed new loans from BRAC for vegetable cultivation after the flood.

INTRODUCTION

Vegetable production in Bangladesh falls far short of its requirement. Per capita per day production of vegetable in Bangladesh is only 31 grams, less than one-sixth of the daily requirement. Around 80% of Bangladesh population suffer from some degree of under-nutrition. The overall under-nutrition can partly be attributed to inadequate supply of vegetables. Thus, to increase vegetable supply BRAC initiated vegetable cultivation programme under the aegis of its Rural Development Programme. The objective of vegetable cultivation promoting is to improve the nutritional status of its VO members and also to provide them an additional source of income (1). It promotes vegetable cultivation among its members by providing them training, technical services, inputs and credit. There are 58,723 vegetable growers with a total 20,623

acres of land under vegetable cultivation. Most of the participants are women (2).

Flood in Bangladesh

Bangladesh, the low lying delta situated in the confluence of three great rivers of Asia – the Ganges, Brahmaputra and Meghna constitutes one of the largest active flood plains of the world (3). The flat deltaic topography of Bangladesh makes it prone to natural disaster, especially floods, droughts and cyclones (4). Floods are the most recurrent and devastating phenomena, occurring in the monsoon and sometimes around every year in Bangladesh (5). The vegetable cultivation activities of BRAC in many cases are not spared from this flood.

The most severe flood of this century taking place in this year has caused widespread damage to the agricultural production in large scale in Bangladesh. According to an estimate, 760,000 hectares of farmland were affected in varying degrees; and 425,000 hectares of this land under rice and other crops cultivation were totally damaged (6). The economic activities of BRAC VO members were not spared by the flood as it persisted for more than two months, wreaking havoc to all kinds of crops, but particularly to various kinds of vegetable cultivation.

Objectives

Realizing the importance of vegetable growing the study intended to know how severely flood affected the vegetable production of BRAC VO members and how they cope with the situation.

METHODOLOGY

Six vegetable cultivators i.e., VO members associated with *Sonaidanga Baikunthapur* VO under Mahimaganj RDP Area Office in Gaibandha were intensively observed. The observation was conducted on 22-24 August 1998. Data were collected from the VO members and their husbands through structured questionnaire and informal discussions.

Basic information of the member households

The average age of the members was 29 years and their husbands' was 39. On an average, there were 4.7 members in their households. Both members and their husbands were working to earn for the households. In the case of a household an adult son was contributing to the household income by working as a wage labourer. The husbands'

occupation was crop farming. They were involved with both on-farm and off-farm activities.

The members played a pivotal role for vegetable cultivation, which they did in addition to their household chores. They handed over the loan money and vegetable seeds bought from BRAC to their husbands. The vegetable cultivation was a collective household work. The husbands played a major role in preparing land for cultivation, seed broadcasting and planting, weeding, fertilizer and pesticide application and in hiring labourers. The members looked after vegetable crops from stealing and from eating by ruminant. All members and their husbands participated in irrigation, harvesting and selling of vegetables. The members participated in selling vegetables; they did it from their homesteads to the retail and wholesale buyers. They did not go to market for selling vegetables like their husbands.

On average, the member households owned 10.5 decimals of land for homestead and 26.7 decimals for crop cultivation. Besides, they also rented-in and mortgaged-in 48.2 and 6.3 decimals of land respectively for crop cultivation. The members, on average, employed 30.2 decimals of land under control for summer vegetable cultivation.

Vegetable cultivation

The leafy vegetables such as red amaranth and Indian spinach become ready for harvesting within a short period. So, starting from early part of summer respondents could harvest leafy vegetables. After full harvest of red amaranth members broadcast its seeds again. However, the other vegetables cultivated in summer by the members take a longer period for fruiting. Due to cultivating variety of vegetable simultaneously which became ready at different time of the year, the respondents could harvest vegetable everyday from field. Consequently they had a regular flow of income from selling vegetable.

According to two of the members vegetable production was more profitable than rice production. Its production cost was less than that of rice. It was possible for them to repay loan instalment with the return from two weeks' vegetable sale. Therefore, they engaged their total land (46 + 53 decimals) for vegetable cultivation.

The members cultivated vegetables both in summer (*kharij*) and winter (*rabi*). During summer (March-October) they grew okra, Indian spinach, egg plant, red amaranth, bitter gourd, ridge gourd and pointed gourd (Table 1) whereas during winter (October-March) they would cultivate winter vegetables like cabbage, cauliflower, radish, carrot, gourd, egg plant, red amaranth, spinach, chili, potato, bitter gourd, pointed gourd,

onion, Indian spinach and okra. They produced red amaranth throughout the year. These vegetables were commercially grown. But for their own consumption they produced gourd, sweet pumpkin, ridge gourd and vegetable marrow. These vegetables were grown in their homestead, creeping on the roof of their houses or on '*jangla*'.

Table 1. Vegetables grown in summer by the members.

Name of vegetables	Number of members (n=6)
Okra	5
Indian spinach	5
Red amaranth	2
Bitter gourd	2
Pointed gourd	2
Ridge gourd	1
Egg plant	1

Vegetable crops damaged by flood

The respondents mentioned that their summer vegetables got inundated from time to time, especially if water logging persisted up to 1-2 weeks. But in 1998, the flood persisted for more than two months (July-September). According to one of them their lands were inundated almost 22 days earlier compared to the floods in the preceding years. In the case of three members their vegetable plots got inundated gradually, whereas in the case of other three members it happened abruptly due to incessant rainfall in their areas. The depth of floodwater on their vegetable plots was on average 137 centimetres. There was no red amaranth in the field during the flood. Except red amaranth, all other vegetable crops were standing in the field. The members harvested vegetables partially due to inundation, some of which was sold at a cheaper price, a portion was distributed among the neighbours and the rest was kept for own consumption.

To save plots from the floodwater one of them made relatively higher *bundh* around vegetable plots, but she could not save her vegetables from the flood. Another respondent transplanted 8 to 10 Indian spinach plants in her homestead from the field as soon as she found her vegetable plot getting inundated. The homesteads were not inundated but floodwater was at the edge of homesteads during investigation. The flood not only damaged their vegetables but also delayed their *Aman* rice transplantation. Members used a portion of loan received from BRAC for rice cultivation, which in fact they received for vegetable cultivation. The

growers reported that they had prepared seedlings of *Aman* rice in their seedbed. For the prolonged flood they could not transplant the seedlings.

All members mentioned that they became economically losers due to the inundation of vegetables. According to them the tentative income loss occurred from inundation of vegetables was on average Tk 3,188. It reveals that if there were no flood they would have earned Tk 3,188 more from their vegetable sale in July-October 1998. It is, however, evident from Table 2 that before inundation of vegetables the members earned Tk 3,277 from vegetables produced in the season.

Table 2. Cost and return from vegetable production before flood.

Total cost (Taka)	Quantity harvested (Kg)	Gross return (Taka)	Net return (Taka)
1	2	3	3-1
1,749	1,425	5,026	3,277

Coping mechanism

Since the source of income of the member households were farming and a little less than one-third of their land (including rented-in and mortgaged-in) was used for vegetable cultivation, it played an important role in their livelihood. Therefore, the flood tremendously hit their economic condition. It affected the expenditure and consumption of households as their regular flow of income from the vegetable cultivation was stopped. To cope with this situation they took the following measures:

1. **Looking for work and disposing of savings.** Members' husbands and adult sons tried to work as wage labourer but except for one, they could not employ themselves as flood also affected labourers' job market. The exceptional one was the son of a member who went elsewhere and got a job as a wage labourer. After some days he came back home as the work was terminated due to excessive rainfall and flood. Due to lack of work some members disposed of their savings for family maintenance.
2. **Starting new business.** Business includes grocery shop and selling of rice and cloth. One of the members had a small grocery shop. Before flood her son maintained the shop in the *hat (weekly market)* day once in a week. During flood her husband worked in the shop with his son. Others invested their savings for new business i.e., rice and cloth business.

3. **Receiving loan.** The growers mortgaged-out their lands and/or borrowed from non-institutional sources as they needed money for starting small business.
4. **Reducing household consumption and expenditure.** The members reported that they reduced their food consumption to some extent but they tremendously reduced buying non-food item such as soap, hair oil, etc.
5. **Selling of stored paddy.** Paddy stored for household consumption was also sold to cope with the situation.

Table 3. Members' coping mechanism during flood.

Mechanisms	Number of members (n=6)
Business	4
Disposing of savings	4
Loan receiving	3
Reducing consumption	3
Selling of stored paddy	1

The households adopted these coping strategies to: i) meet basic needs of their family, and ii) repay loans received from BRAC. It may be mentioned that BRAC staff simultaneously distributed relief materials to the flood-affected members and collected loan instalment from them during the period when the study was conducted.

The members desired that the collection of loan instalments be temporarily suspended during the flood as they had a little or no income. They were facing difficulties in managing money for loan repayment, even though they repaid their loan instalments regularly. The BRAC field staff felt pity for the victims but could do nothing until there was a change in policy by the central authority of BRAC. It is worth mentioning that this study was conducted before the changes had already been made in the RDP loan policy considering the devastation of flood.

BRAC offers subsequent loan to members with good repayment record. If members fail to refund their weekly instalments they are warned that they will not be extended new loan during the next vegetable-growing season. As such, the respondents did not want to default in repaying loan instalments. The members were very much concerned about new loan for their forthcoming vegetable cultivation in winter (*rabi*) since by then they had not yet completed repaying the loans. On the other hand, they had no capital of their own, as they could not make profit from vegetable cultivation due to flood. In this context, if they are not provided

with new loan they would not be able to cultivate winter vegetables. Members felt that in any case they would need fresh loan for the cultivation of winter vegetables. They were in economic hardship at that time.

Members reported that they had no preparation for winter vegetable cultivation. After recession of floodwater it would take 30 days to cultivate vegetables in medium high land with sandy loam soil.

CONCLUSION

On the basis of findings it may be concluded that the prolonged flood of 1998 affected the vegetable growers severely. It hit them in the middle of the cropping season and persisted almost up to the end of the season. Therefore, the growers lost almost all of their vegetable crops. Growers could not produce red amaranth throughout the year. The growers will not be able to cultivate winter vegetables because floodwaters have persisted for so long. After the water recedes, it will take one month for soil to get back to suitable condition for vegetable cultivation. The members had no savings, so they could not derive maximum profit from vegetable cultivation. They spent their savings during flood. It is understood that realizing the damage occurred from flood and difficulties of the members. BRAC took some measures, to offer subsequent loan to members with good repayment records.

Future implications

The leafy vegetables like red amaranth, spinach, and Indian spinach require shorter periods for production. As such it can give some early return. Moreover, the vegetable production will help reduce nutrition deficiency of the community at large. Comprehensive vegetable production will be complementary to the cereals, much of which is imported from abroad. To cope with the situation the growers need financial support rehabilitation.

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