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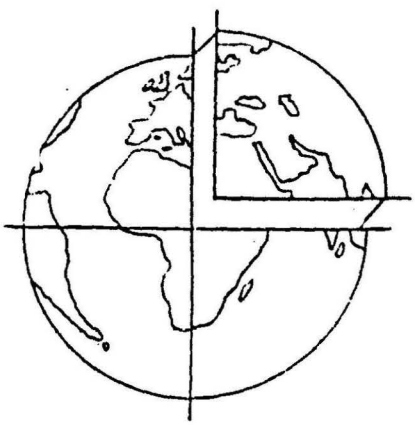

DISASTERS

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Contents

Basil Blackwell for the Relief and Development Institute

Contents

The 1987 Flood in Bangladesh: An Estimate of Damage in Twelve Villages

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INTRODUCTION

Bangladesh occupies the greater part of the Bengal Basin, flanked by the Rajmahal hills in West Bengal, India and the Shillong Plateau in Meghalaya, India. The country is poor and is known to the world community as a "perennial basket case", through the courtesy of the international media.

Bangladesh has a long history of natural disasters, such as cyclones, storms, surges, tidal bores and floods. Every year about a third of the country faces floods, which are associated with annual monsoon rains that pour into the entire Ganges–Brahmaputra–Meghna Basins between June and October. Such floods are normal and are taken as part of normal life. People do not face much difficulty as they adjust their lives to it, for example, by growing deep water rice and by building house structures on raised land. However, flooding has given rise to calamity a number of times and between 1954 and 1984, major disasters have occurred ten times (Hossain *et al.*, 1987) or once in every three years.

The most recent of such devastating floods occurred in 1987 and to many, it was the most disastrous calamity in the past 70 years. The damage due to this exceptionally deep flood was enormous. Nationally the cost has been put as high as 40 billion *taka* (or US$ 1.3 billion). To estimate the damage of the 1987 flood at the micro (household) level, the Research and Evaluation Division of the Bangladesh Rural Advancement Committee (BRAC) undertook a survey in twelve villages of two districts. This reports findings from that survey.

METHODS AND MATERIALS

The Research and Evaluation Division of BRAC has been carrying out a number of longitudinal studies in twelve villages since December 1986. Seven of these villages are situated in Manikganj district in central Bangladesh and five in Joypurhat district in north-west Bangladesh. All the villages were more or less affected by the 1987 floods, the Manikganj villages being most severely affected. Manikganj is close to Aricha where two large rivers, the Jamuna and Padma, meet. Besides, two other small rivers flow through it. On the other hand, Joypurhat is situated further away from the big rivers and is close to the 'Borendra' area which is characterised by shortage of water and higher land. The presence of research teams in these villages enabled a detailed study to be undertaken on flood damage and its impact. This report, however, deals with

the flood damage only. A structured questionnaire was administered to each household soon after the flood water receded, in which questions were asked about the damage caused by the flood. Separate questions were asked for each category of damage and information was recorded on the type of damage as well its values in *taka*.

It should be noted that such information on damage is often inflated by respondents. Measures were, however, taken to obtain reasonably accurate information. Since the research team had been staying in these villages for more than a year, and carrying out different in-depth research projects involving all households, this enabled them to know the households more closely than would have been possible for outside interviewers. The respondents were asked to specify losses in physical terms, which made it easier for our interviewers to cross-check with their own knowledge about the households. Information on physical losses were converted into their equivalent *taka* value by the interviewers, on the basis of local normal prices. Some over-reporting on the losses, however, cannot be ruled out and this may be disproportionately higher amongst the landowning households.

RESULTS

Number of Households Affected

Table 1 shows the number of households which, in some way or other, were affected by the floods, as reported by the heads of these households.

The table shows that a large proportion of households were affected by the flood and that this proportion varied between the unions. More households in Manikganj district were affected, rising to 90% in Baliakhora union.

Table 2 shows the number of households that sought refuge elsewhere because the floods made it difficult for them to live in their own houses. It shows that nearly 10 percent of households in the study villages of Manikganj district had to seek refuge elsewhere.

Flood Damage

Total loss. Table 3 shows the total loss due to flood in the surveyed households, in *taka* equivalents. It shows that average

TABLE 1

Number and % of households affected by floods in twelve villages, by union and district

District	*Union**	*No. of villages surveyed*	*Total No. of household (HH)*	*No. of HH affected*	*% of HH affected*
Manikganj	Betila	2	223	95	42.6
	Jagir	1	229	156	68.1
	Baliakhora	2	198	178	89.9
	Gopinatpur	1	154	122	79.2
	Ramkrishnapur	1	146	129	88.3
Joypurhat	Bhadsha	2	220	93	42.3
	Dholahar	2	211	95	45.0
	Baratara	1	214	82	38.3
Total	8	12	1595	950	59.6

*A union is an administrative unit with a population of approximately 10,000 people or 3,000 households.

TABLE 2
Number of households which sought refuge elsewhere because of flood, by district

District	*Total HHs surveyed*	*No. seeking refuge elsewhere*	*% seeking refuge elsewhere*
Manikganj	950	91	9.6
Joypurhat	645	8	1.2
Total	1595	99	6.2

TABLE 3
Total loss (in *taka* equivalents) in all surveyed households as well as average loss per household, by districts

District	*No. of HHs surveyed*	*Total loss (taka)*	*Average loss per household (taka)*
Manikganj	950	6,228,399	6,556
Joypurhat	645	2,351,607	3,682

loss per household was 80 percent more in Manikganj villages than in Joypurhat.

Total loss by landholding categories. Table 4 examines the total flood losses by different landholding groups. For convenience, we have divided the households into two types of households – landless and landowners. Households having no or up to 49 decimals of land have been categorised as landless and households having 50 decimals or more have been categorised as landowners. It shows that a landless family lost an amount of *taka* 2,540 in Manikganj and *taka* 1,644 in Joypurhat. Compared to this the landowners lost *taka* 14,389 and *taka* 7,024 respectively in Manikganj and Joypurhat.

TABLE 4
Total flood losses and average household losses (in *taka* equivalents) by landholding categories*

Landholding category (in decimals)	*Manikganj*		*Joypurhat*	
	Total (taka)	*Av. per HH (taka)*	*Total (taka)*	*Av. per HH (taka)*
0–49	1,545,068	2,540	665,828	1,644
50+	4,633,311	14,389	1,685,779	7,024

*Some households whose landholdings could not be determined have been excluded.

Loss by categories of damage. We now examine the losses by looking at individual categories. Table 5 shows the losses due to damage to standing crops, sustained by the two landholding categories. It shows that although the difference in crop damage between Manikganj and Joypurhat was substantial for the landowning class, it was not so for the landless. Standing crop loss for the landless is related to the crops which were sharecropped by them. It was the *Aman* season and most damage was caused to this crop. Other crops which were affected included aush, jute, vegetables, etc., much of which were partially damaged.

Table 6 shows the losses due to damage to house structures. Two things are revealing here. There appears to be little difference between the two districts with respect to damage to house structures, and the difference between the landholding groups is negligible compared to others such as damage to standing crops.

Table 7 shows the losses due to damage to poultry and livestock. Average loss per household is greater in Manikganj, as found previously with other types of losses.

TABLE 5
Loss (in *taka* equivalents) due to damage to standing crops

Landholding category (in decimals)	*Manikganj*		*Joypurhat*	
	Loss due to crop damage	*Average loss per HH*	*Loss due to crop damage*	*Average loss per HH*
0–49	586,678	996	333,076	861
50+	3,612,298	11,218	1,257,010	5,237

Table 8 shows the losses due to damage to other categories (vegetables, trees and fisheries).

DISCUSSION

This paper sought to report results from an investigation of damage done by the floods of 1987 in twelve villages of Manikganj and Joypurhat districts of Bangladesh. The investigation, through a structured questionnaire, was carried out soon after the flood waters receded.

The damage done by this flood was monumental, and has been reported quite

TABLE 6
Loss (in *taka* equivalents) due to damage to house structure

Landholding category (in decimals)	*Manikganj*		*Joypurhat*	
	Loss due to house damage	*Average loss per HH*	*Loss due to house damage*	*Average loss per HH*
0–49	348,513	592	215,730	557
50+	235,132	780	145,810	607

TABLE 7
Loss (in *taka* equivalents) due to damage to poultry and livestock

Landholding category (in decimals)	Manikganj		Joypurhat	
	Loss due to damage to poultry and livestock	Average loss per HH	Loss due to damage to poultry and livestock	Average loss per HH
0–49	65,951	112	21,269	55
50+	50,403	156	11,604	48

TABLE 8
Loss (in *taka* equivalents) due to damage to standing vegetables, fruit and other trees and fisheries

Landholding category (in decimals)	Manikganj		Joypurhat	
	Loss due to damage to vegetables, trees and fisheries	Average loss per HH	Loss due to damage to vegetables, trees and fisheries	Average loss per HH
0–49	593,926	1,008	95,753	247
50+	735,478	2,284	271,349	1,131

extensively in the national and international press. "More than 24 million people of Bangladesh – a fifth of the country's population – are either homeless or without food after the worst floods in the country's history. Two million of the region's bamboo and mud homes have been destroyed by waters, 5 ft. or 6 ft. deep in places, which lie over vast areas of the north-west and central southern regions", reported *The Times* of London.

However, there has not been much reporting on the damage at micro (household) level – the damage to individual households and the impact of this flood on the income and employment situation of the poor. This report has presented some information on the flood losses to households. Nearly 10 percent of households in Manikganj had to seek refuge elsewhere as the flood waters made it difficult for them to live in their own houses.

The flood was more devastating in the Manikganj villages than in Joypurhat and this was clearly shown in the figures for losses. On average, each household lost *taka* 6,556 in Manikganj and *taka* 3,682 in Joypurhat. The flood losses have also been examined by landholding categories. While the losses in Manikganj are double those in Joypurhat for landowning households, they are 50% more in the case of landless households.

Flood losses for each landholding category have also been calculated for different types of loss. The major difference between landowning and landless households occur in losses due to damage to standing crops, which is natural as the landless possess no or very little arable land.

The differences in other categories are not great. Losses in respect of damage to house structures may be mentioned, where the loss has been 20% of the total for the landless. There is hardly any difference between the two areas and the difference between the landholding groups is not very prominent. This is because of the nature of the structures in which the poor and well-to-do people live. The poor people's structures are more dilapidated, allowing them to be destroyed more easily by calamities, including flood waters. In comparison, the houses of the richer sections are strongly built with brick and corrugated iron sheets, making them less vulnerable to floods. The similarity between the two areas in losses due to damage to house structures is also explained by the type of houses built. Because floods are less frequent and less damaging in Joypurhat, the houses, particularly those belonging to the poor, are built on low-level land, and the walls are made entirely of clay. The houses in Manikganj, on the other hand, are built on higher ground and use straw along with clay in their construction. A shelter is an immediate need and the poor or near-landless go on borrowing from money lenders by mortgaging whatever they have, including any land. Such a process hastens the differentiation between the classes and increases landlessness. The conclusion from this is that agencies undertaking post-calamity relief and rehabilitation should pay particular attention to housing for the poor.

Although the overall losses sustained by the landless in absolute figures appear to be small compared with those of the landowners, this has to be considered in relation to their total capacities. In Manikganj, the average loss per household has been *taka* 2,540 which is approximately *taka* 500 per capita. In Bangladesh, reliable information on income is hardly available. A study done in 1984 found that the annual per capita income in households having less than 50 decimals of land was *taka* 1,114 (BRAC, 1984). Another study found it to be *taka* 1,346 (Hossain, 1984). If these are close to the true situation, then the loss incurred by poor families in Bangladesh during the 1987 flood was very substantial – nearly 50 percent of a year's income. An aftermath of such floods is usually a famine which further exacerbates the helpless condition of the poor of rural Bangladesh.

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