

Interim Report

Rapid Assessment of Flood 2004

conducted by
the Centre for Policy Dialogue (CPD)
under the programme
Independent Review of Bangladesh's Development (IRBD)

August 12, 2004



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CPD-IRBD: RAPID ASSESSMENT OF FLOOD 2004

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ACKNOWLEDGEMENT

The study team has benefited from the guidance and advice of *Professor Rehman Sobhan*, Chairman, CPD. The CPD study team would like to express its sincere gratitude to *Mr Zakir Ahmed Khan*, Secretary, Ministry of Finance, Government of Bangladesh for his feedbacks on the policy recommendations put forward in an earlier version of the CPD report. The CPD team has benefited enormously from the insights and comments of the participants of an Expert Group Dialogue held on August 09, 2004 to discuss the draft CPD report (*See Annex 1 for list of participants*).

The CPD team would also like to express its sincere gratitude to various individuals, communities, government officials, and NGO representatives who have shared their views with the CPD data collection and field survey teams and helped them with relevant data and information on flood situation, extent of damage, relief wave, coping mechanisms and what needs to be done in terms of policy response.

As part of its modest contribution to the ongoing relief effort in the country, CPD had created a fund from voluntary contribution of its staff and we would like to take this opportunity to express our sincere appreciation of the cooperation CPD has received from various organisations which have collaborated with CPD in the distribution of relief in some of the affected areas.

CPD alone is responsible for the views expressed in this report.

I. INTRODUCTION

Bangladesh's terrain, geographical location and climate – all together make the country a natural flood-prone area. Accordingly, floods of varying degrees of coverage and intensity had been a regular feature in the history of Bangladesh. However, the intensity of Flood 2004 has been more severe than what is usually the case and, as a matter of fact, this year's flood was the most severe since the 1998 flood. Flood 2004 has inundated a relatively large land area and caused significant damages to property and lives. In view of the severity of Flood 2004, and its possible impact on the economy and possible implications for policies to be pursued in the next few months in terms of post-flood rehabilitation, the Centre for Policy Dialogue (CPD) has decided to undertake a study on *Rapid Assessment of Flood 2004* under its Independent Review of Bangladesh's Development (IRBD) programme.

Objectives

The broad objective of this rapid assessment of the Flood 2004 is to have an understanding about the overall flood situation, its impact and consequences, and come up with a set of policy recommendation to address the attendant issues. Specific objectives of the rapid assessment were as follows:

- To develop an understanding of the effect of the Flood 2004 on the people and their livelihoods, damages in terms of agricultural crops, livestock, fisheries, industry, roads, culverts, embankments, houses, schools, hospitals, clinics, human health etc.;
- To gather knowledge on coping mechanisms of the affected people;
- To assess the relief programmes by government, non-government and community-based organisations (NGOs and CBOs);
- To come up with a set of policy recommendations in terms of immediate and short term measures which would be put before the government.

Methodology

In order to carry out the study CPD has adopted the following methodology:

- i. Generation of information from primary sources;
- ii. Collection of information from secondary and unpublished sources; and
- iii. Validation of the information and study findings through dialogues with policy makers, experts and knowledgeable persons.

Primary information was collated from field surveys. Secondary sources of information included: (i) media (both print and electronic); (ii) government ministries and agencies; and (iii) private sectors and trade bodies.

In order to generate primary information from flood affected areas, CPD sent three teams each consisting of two CPD researchers to a number of flood-hit areas. The CPD teams visited twelve Upazillas in nine districts. (Details of the survey and survey findings are presented separately in the document).

Secondary information for the CPD assessment were collected from (i) Ministry of Food and Disaster Management, (ii) Ministry of Agriculture, (iii) Ministry of Fisheries and Livestock, (iv) Ministry of Health, (v) Ministry of Transport and Communication, (vi) Ministry of Education, (vii) Directorate of Agriculture Extension, (viii) Directorate of Livestock, (ix) Directorate of Fisheries, (x) Directorate of Health, (xi) Disaster Management Centre, (xii)

LGED, (xiii) Directorate of Roads and Highways, (xiv) BWDB, (xv) Export Promotion Bureau, (xvi) City Corporation, (xvii) BGMEA, (xviii) BKMEA, (xix) BTMA, and (xx) BSCIC. A number of major national dailies were scanned for building a chronology of major events and developments in relation to Flood 2004.

To discuss and validate an earlier draft of the findings, CPD held an in-house dialogue on August 09, 2004 with a number of high level policymakers working with the government, top level former bureaucrats, NGO leaders, experts and academics. CPD has received important insights and information from this dialogue. This process of consultation will continue till the report is finalised.

The objective of today's meetings with the print and electronic media is to share and disseminate some of the preliminary findings as regards CPD's rapid assessment study, present rough estimates of the damage prepared by the CPD, and share some of the policy recommendations which have emerged from the study and dialogues with stakeholders.

Future Activities

CPD plans to carry forward the study through the following activities:

- Dissemination of the findings through media;
- Sharing of the findings and recommendations with the government; and
- Organisation of dialogues to discuss the relevant issues.

The policy package will be finalised very shortly and will be presented at a National Dialogue to be held during the third week of August, 2004.

II. SALIENT FEATURES OF FLOOD 2004

a. Causes of Flood 2004

□ *General Reasons: Distinctive Geographical Location of Bangladesh*

- Bangladesh's location in the downstream of Padma, Meghna and Jamuna river basins
- Sharp fall in elevation in the border region of Bangladesh
- Monsoon rainfall and melting of snow in hills in the upper basin area

These above factors make flood **Probable** in any year.

□ *Incremental Reasons*

- Deforestation and Sedimentation
- River Bank Erosion
- Unplanned construction of bridges and dams
- Encroachment of flood retention areas (for example, Ashulia in case of Dhaka)
- Obstacles in flood-flow zone (construction of various types, legal and illegal)

A combination of the general causes and incremental causes make flood in Bangladesh always a possibility. If any accentuating factor is added to this, flood becomes a reality.

□ *Accentuating Reasons that led to Flood 2004*

- Excessive monsoon rainfall in the upper stream of the Brahmaputra basin combined with high tide, that induced higher water level in rivers, particularly in Meghna, contributed to the initiation of the Flood 2004 [See Figure 1].

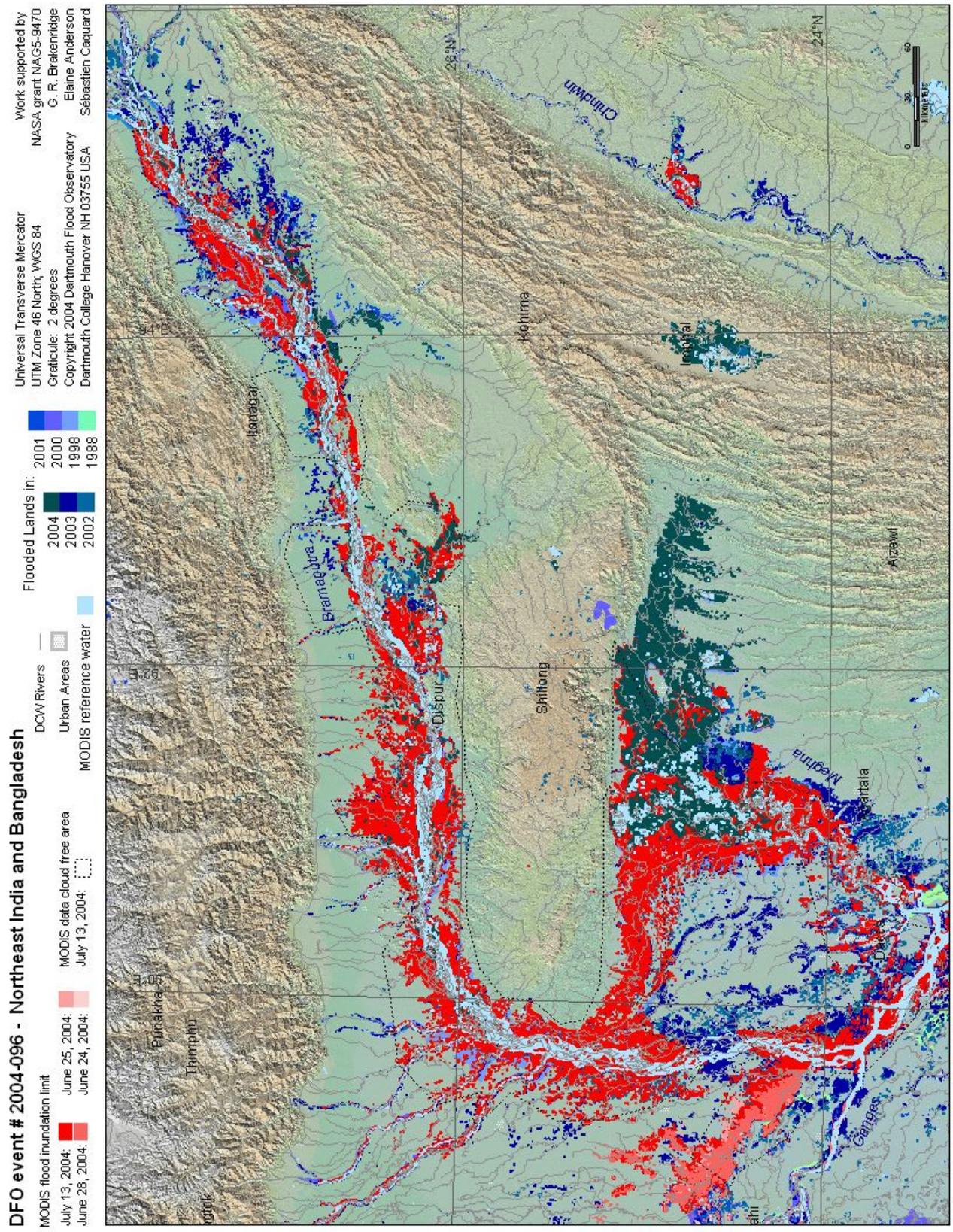
□ *Intensity in Particular Areas*

- Some areas where people have cut embankments were washed away, which added to the intensity of Flood 2004 in selected areas. Flood at Dhunat in Bogra is a case in point.

b. Phases of Flood 2004

- *Early Phase:* During mid-April 2004, there was incidence of Flash Flood for a short period around Zakiganj, Sunamgonj and nearby *Haor* region covering a limited area. However, this was not followed by other incidences and the water receded after some time. This flood damaged boro crops in these areas.
- *Initial Phase, June 23-28, 2004:* In Sylhet-Sunamgonj regions, water level crossed the normal level as usually seen during the normal years.
- *Aggravating Phase, July 08-14, 2004:* The flood situation begins to worsen by the second week of July 2004 – when water flow crossed the danger level at several river points.
- *Devastating Phase, July 15-28, 2004:* By mid-July the situation started to deteriorate and became more critical when flood was triggered by torrential rains and raging torrents cascading down from hills across the border, and water level crossed the danger level and reached the highest level at many river points.

FIGURE 1
WATER FLOW FROM BRAHMAPUTRA BASIN



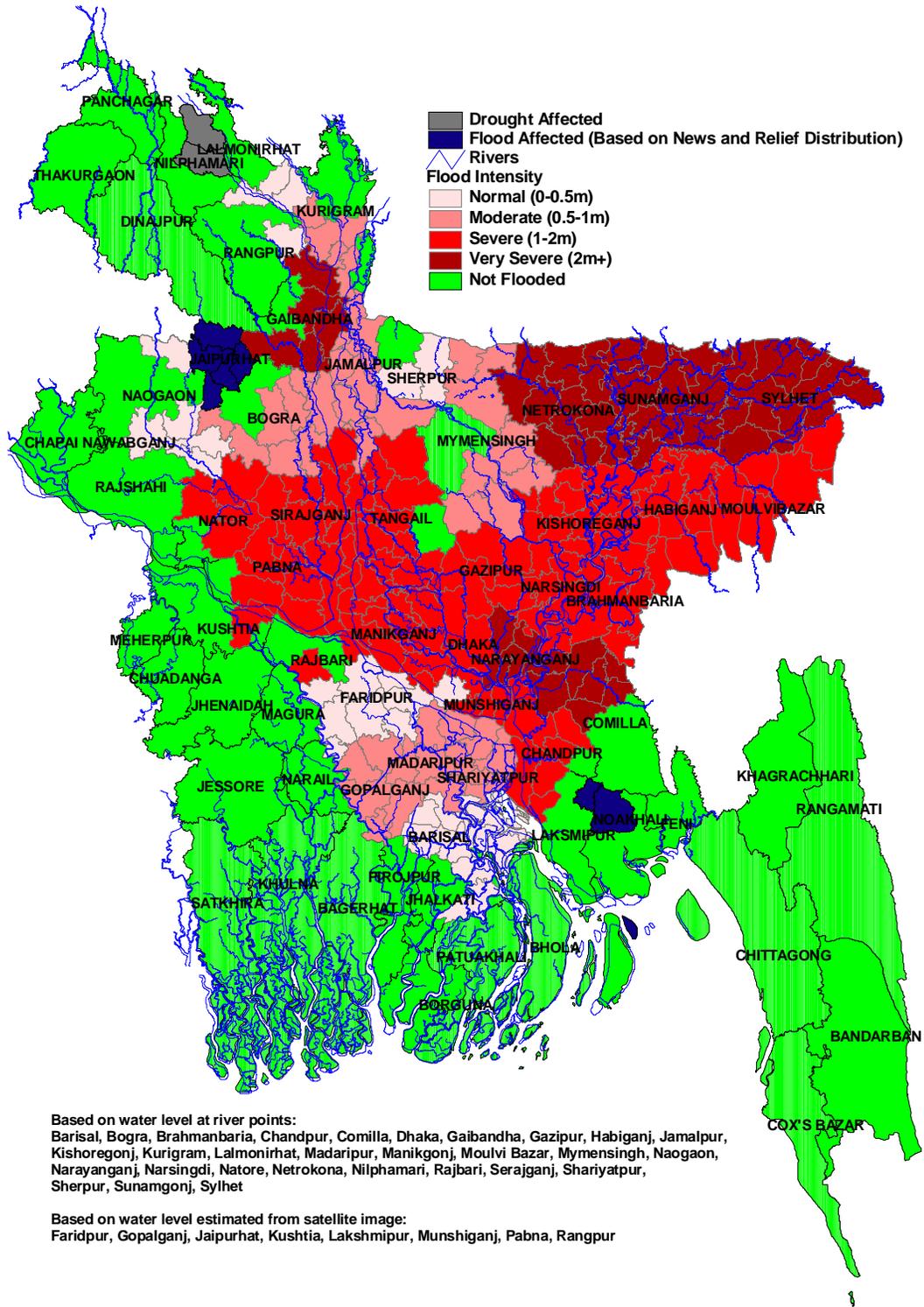
- *Receding Phase*, July 28 – as of now: Flood water starts to recede from the northern and central regions; this resulted in the rise of water levels in some of the southern and coastal districts.
- *A next Phase?:* Hydrologists are forecasting that there is a strong possibility of another phase of Flood 2004 starting from mid-August 2004. However, this will depend on the amount of rainfall during the next few days.

Although the number of official flood affected districts is 39, a distinctive feature of Flood 2004 is that there is drought in Nilfarmari and Lalmonirhat districts (included in the government list). Thus the number of flood affected districts, of varying degrees is actually stands at 38.

c. Flood 2004 in a Comparative Perspective

- Flood 2004 (as of August 04, 2004) appears to have affected almost the same number of people as the flood of 1998 (approximately about 25% of the total population).
- The flood this year has already persisted for 45 days. However, in 1998 the duration of the flood was over 65 days.
- The area submerged in the flood of 1998 was about 100,000 sq. km. (67.76 percent of Bangladesh's total land area), which was much higher than the Flood 2004 that covered an area about 30582 sq. km till August 04, 2004 (about a-third of Flood 1998 inundated area, i.e. 20.72 percent of Bangladesh's total land area).
- Mortality as percentage of total affected people was 0.003% in 1998 and 0.002% in 2004 (total mortality was reported to be 918 in 1998 and 638 in 2004, as of 04 August 2004, according to the Ministry of Food and Disaster Management).
- In 1998 most of the districts were “moderately” affected (approximately 44% of all districts under flood) while in the flood of 2004, though the area under flood was only one-third of Flood 1998, most of the districts were “severely” affected (approximately 51% of all districts under flood) [See Figure 2].
- In terms of total damage, the flood of 2004 appears to be more devastating than 1998 in absolute term.
- The cost of total damage in the Flood 2004 was estimated to be 42.0 thousand crore taka by the WFP as of August 04, 2004 or 12.81% of current GDP, while in 1998 the total damage was estimated to be 10.2 thousand crore taka or 4.66% of current GDP by Chowdhury et al.

**FIGURE 2
FLOOD INTENSITY BASED ON WATER LEVEL**



Data Source: Flood Forecasting and Monitoring Centre, Bangladesh

**TABLE 1
FLOOD 2004 IN A COMPARATIVE PERSPECTIVE**

Indicators		Flood 1998	Flood 2004 (as of 04 August)
Duration		Early July – Mid September (IRBD ⁱ , 1998-99)	20/25 June – till date (25 June, NASA Satellite Image)
Type of Flood		Rainfall	Rainfall / Flash Flood
Affected People		31.05 million: 24.55% of total (MOFDM) (Total population 126.5 million)	33.75 million: 24.96% of total (MOFDM ⁱⁱ) (Total population 135.2 million)
Mortality	People	918 (MOFDM)	638 (MOFDM)
	Domestic animals/ Cattle	26,590 (MOFDM)	20,805 (MOFDM)
Affected Areas	Area	100,000 sq. km (IRBD, 1998-99)	30,582 sq. km (MOFDM)
	Number of Thanas	370 Thanas (MOFDM)	263 (MOFDM)
	Number of Districts	52 (IRBD, 1998-99)	39 (MOFDM)
Intensity	Normal	11 Districts (Chowdhury, et al, 1998)	08 Districts
	Moderate	23 Districts (Chowdhury, et al, 1998)	11 Districts
	Severe	18 Districts (Chowdhury, et al, 1998)	20 Districts
Cost of Total Damage		Taka 102282.2 million (Chowdhury et al, 1998)	WFP ⁱⁱⁱ : Taka 420,000 million (US\$ 7 billion) (DS, FE, 4 August)
Total Agricultural Damage (Crop, Livestock, Fisheries)		Taka 34,830 million (Ahmad, et al, 2000)	DAE ^{iv} : Taka 16,940 million (losses in financial terms for 43 districts) (NA, 04/08)
Industry and Export		Taka 50,000 million (damage and loss of industrial output) (Ahmad, et al, 2000)	BKMEA: Taka 10000 million (export loss) (DS, 05/08) BGMEA: Taka 2916 million (export loss) (DS, 05 August)

Sources:

- Centre for Policy Dialogue. (2000). *Trends in the Post-Flood Economy: A Review of Bangladesh's Development 1998-99*. Dhaka: Centre for Policy Dialogue and University Press limited.
- Chowdhury, O., Islam, K., and Bhattacharya, D. (1998). *Flood 1998: A Rapid Economic Appraisal*. A Report Prepared for the Asian Development Bank.
- Ahmad, Q., Chowdhury, A., Imam, S., and Sarker, M. (2000). *Perspectives on Flood 1998*. University Press limited

ⁱ IRBD – Independent Review of Bangladesh's Development

ⁱⁱ MOFDM – Ministry of Food & Disaster Management

ⁱⁱⁱ WFP – World Food Programme

^{iv} DAE – Department of Agriculture Extension

III. DAMAGE, RELIEF AND RESPONSE

III.1. Damage Estimation

CPD carried out an exercise to arrive at a preliminary estimate of damage due to the flood 2004. The CPD estimate of total damage due to Flood 2004 stands at Tk. 11418.6 crore or \$1.9 billion [detailed methodology of estimation is presented in Annex-2]. This amount is equivalent to 3.4% of the current GDP of Bangladesh (FY2004). A large part of the damage, about 34% of total damage was due to damage done to infrastructure. Damage to infrastructure stands at Tk. 3870 crore. Residential damage was estimated at Tk. 3706 crore while damage to agriculture sector stands at Tk. 2920 crore (about 26% of the total damage). Damage to Industry, Education and Health sectors stands at Tk. 531.7 crore, Tk. 345.4 crore and Tk. 48.5 crore respectively. CPD estimates show that of the total damage, damage to public sector was equivalent to Tk. 4303 crore (US\$ 717.2 million) or 37.7% of total damage while damage to private sector was estimated to be Tk. 7115.6 crore (US\$ 1.2 billion) or 62.3% of total damage (Table-2).

TABLE 2
SUMMARY OF CPD'S INITIAL DAMAGE ESTIMATES DUE TO FLOOD 2004

Sector	Estimated Damage (Crore Taka)	Share (%) of Total Damage (as of August 4, 2004)
Agriculture	2920.0	25.6
Infrastructure	3867.0	33.9
Residential	3706.0	32.5
Industry	531.7	4.7
Education	345.4	3.0
Health	48.5	0.4
Aggregate	11418.6	100.0
	(US\$ 1.9 bln)	
Public Sector	4303.0	37.7
	(US\$ 717.2 mln)	
Private Sector	7115.6	62.3
	(US\$ 1.2 bln)	
GDP (2003-04)	332567.0	
Damage as % of GDP	3.4	

Note: 1. Agriculture sector includes crops, fisheries and livestock. Infrastructure sector includes roads, bridges and culverts, railways, embankments and irrigation canals.
2. Income loss due to flood is not considered. Private sector Industry data is partial.

Memo:

1. Estimated Damage of 1998 flood was 4.7% of the GDP of 1998-99. (Chowdhury, Islam and Bhattacharya (1998))
2. The upper bound of CPD's initial damage estimate is predicted to be Tk. 15,000 crore (i.e. 4.5 % of GDP)

A break down of the damage incurred to the private sector reveals some interesting features. Private sector damage included damage to agriculture, residential and industries. Damage to residential and agriculture sectors was the highest 52 and 41 percent of total private sector damage respectively (Table-3). If we consider the damage estimation for the public sector, damage to infrastructure accounted for almost 90 percent of the total damage of the public sector. Other components of the public sector such as industry, education, health and agriculture accounted for relatively smaller shares. However, damage to education and health sector may potentially have long term negative impact on the economy.

TABLE 3
BREAK DOWN OF PRIVATE SECTOR DAMAGE

Components of Private Sector	Estimated Damage (Crore Taka)	Share (%) of Total Private Sector Damage
Agriculture	2916.1	41.0
Residential	3706.0	52.1
Industry	493.5	6.9
Total	7115.6	100.0

TABLE 4
BREAK DOWN OF PUBLIC SECTOR DAMAGE

Components of Public Sector	Estimated Damage (Crore Taka)	Share (%) of Total Public Sector Damage
Agriculture	3.9	0.1
Infrastructure	3867.0	89.9
Industry	38.2	0.9
Education	345.4	8.0
Health	48.5	1.1
Total	4303.0	100.0

III.2. Damage Intensity versus Relief Intensity

In order to estimate the total amount of government relief distributed among the flood victims of Flood 2004, all the relief distributed in cash and kind were converted into monetary value (Tk). For this, we have used Tk. 13,950 as the price of one metric ton of rice provided under “khairati” and VGF programmes. Prices of Saree and Lungi distributed were taken as Tk. 200, and Tk. 100 per piece, respectively. In case of Biscuits, we considered Tk. 200 per Tin as the price. The value of each bundle of corrugated iron (CI) sheets, was taken to be Tk. 3,000 [see Annex-3 for detailed methodology]. Thus, our estimates show that monetary value of relief distributed by the government through the Ministry of Food and Disaster Management was Tk. 69.45 crore in 39 districts (Table-5). Due to lack of availability of data, information and estimation of relief provided by the Prime Minister’s Office is not included in CPD estimates. Also the private sector relief activities have not been considered. These two components together will perhaps considerably increase the total amount of relief actually made available to the flood affected people.

CPD has constructed a Relief Distribution Intensity Index (RDII) as follows:

1. *Low* if per head relief availability was less than Tk. 15.00
2. *Medium* if per head relief availability was in between Tk. 15.01 – 30.00
3. *High* if per head relief availability was than Tk. 30.00

TABLE 5
NUMBER OF FLOOD AFFECTED PEOPLE AND AMOUNT OF RELIEF
DISTRIBUTED, BY DISTRICTS

District	No. of Flood Victims (000 people)	Total Relief (Lakh Taka)	Per Capita Relief (Tk.)	Flood Intensity	Flood Damage Intensity Index	Relief Distribution Intensity Index
Gaziur	197	15.00	7.60	Severe	Moderate	Low
Sunamganj	2429	286.40	11.79	Very Severe	Severe	Low
Kishoreganj	1812	216.70	11.96	Severe	Severe	Low
Barisal	831	104.40	12.56	Low	Severe	Low
Sirajganj	2087	266.80	12.78	Severe	Severe	Low
B.Baria	2191	316.90	14.46	Severe	Severe	Low
Habiganj	1308	196.80	15.04	Severe	Severe	Low
Chandpur	1664	250.30	15.05	Severe	Severe	Low
Tangail	1456	221.10	15.18	Severe	Severe	Medium
Narayanganj	1329	201.80	15.19	Very Severe	Severe	Medium
Narsindi	1220	206.40	16.92	Severe	Severe	Medium
Sylhet	2291	392.10	17.11	Very Severe	Severe	Medium
Madaripur	681	119.60	17.58	Medium	Severe	Medium
Moulvibazar	972	175.20	18.04	Severe	Severe	Medium
Jamalpur	1211	223.30	18.45	Medium	Severe	Medium
Mymensingh	1343	249.30	18.56	Medium	Severe	Medium
Shariatpur	993	192.80	19.43	Medium	Severe	Medium
Kurigram	865	168.70	19.5	Medium	Moderate	Medium
Comilla	1297	262.40	20.24	Very Severe	Severe	Medium
Manikganj	929	209.20	22.53	Severe	Severe	Medium
Naogaon	246	61.30	24.97	Low	Moderate	Medium
Natore	219	55.90	25.46	Severe	Moderate	Medium
Dhaka	2595	703.90	27.13	Severe	Severe	Medium
Bogra	684	189.20	27.68	Medium	Moderate	Medium
Noakhali	98	28.80	29.51	Not Affected	Low	Medium
Munshiganj	791	233.90	29.57	Severe	Severe	Medium
Netrokona	666	198.60	29.82	Very Severe	Moderate	Medium
Sherpur	577	179.40	31.13	Low	Moderate	High
Gaibandha	476	181.60	38.13	Very Severe	Moderate	High
Faridpur	405	157.40	38.82	Low	Severe	High
Jaipurhat	125	50.90	40.82	Drought affected	Low	High
Pabna	308	143.40	46.64	Severe	Moderate	High
Rajbari	238	134.20	56.4	Severe	Moderate	High
Gopalganj	36	22.40	62.95	Medium	Moderate	High
Lalmonirhat	94	64.10	68.22	Low	Low	High
Rangpur	62	56.20	90.91	Low	Low	High
Nilphamari	11	18.00	171.16	Drought affected	Low	High
Kushtia	26	72.40	283.82	Severe	Low	High
Lakshmipur	19	119.30	628.09	Severe	Low	High
All 39 Districts	34776	6945.90	19.97			

* The correlation coefficient between no. of flood victims and total relief is 0.86 which is significant at .01 level of significance

* The rank correlation coefficient between per capita relief and flood damage intensity is – 0.64 which is also significant at .01 level of significance.

CPD's analysis revealed that in case of allocation of the government relief, there was a strong and significant positive correlation (0.86) between the amount of relief allocated for distribution and the number of flood affected people in the districts. In other words, government has been successful in allocating higher amount of relief for districts where larger number of people were affected. However, some extreme situations were also observed. For example, per capita relief distribution was very high in Laxmipur (Tk. 628.09), and Kushtia (Tk. 283.82), high in Rangpur (Tk. 90.91), and very low in Gazipur (Tk. 7.60), compared to the national average per capita distribution (Tk. 19.97) (Table-6).

It is justified that for the purpose of allocation and distribution of relief, the number of affected people is perhaps the most appropriate criteria and the government relief distribution has rightly followed this criteria. However, we should also consider the severity of flood in the distribution of relief since this has a direct correlation with the duration of the suffering of the flood-affected people. This would help allocate more relief to those who may suffer for longer duration as a consequence of flood and they would accordingly need more relief. Since government has not categorized flood affected districts and upazillas in terms of severity of flood, it was not possible for the government to allocate higher amount to the most severely flood affected areas. The CPD study categorised flood affected districts into four groups considering the flow of water above the danger level. These are: (i) Low (up to 0.5 m), (ii) Medium (0.5-1.0 m), (iii) Severe (1.0-2.0 m), and (iv) Very Severe (above 2.0 m). We then calculated the amount of relief distributed to these four types of affected districts by the government (as mentioned earlier, this estimate does not include the relief distributed by the Prime Minister's Office). Our analysis revealed that there is an inverse relationship between the amount of per capita relief distributed and the severity of flood. The highest per capita amount of relief (Tk. 28.13) was distributed to the "Low" flood affected districts while lowest per capita relief (Tk. 17.94) was distributed to the "very severe" flood affected districts (Table-6).

TABLE 6
SEVERITY OF FLOOD AND PER CAPITA RELIEF DISTRIBUTION AMONG AFFECTED PEOPLE

Severity of Flood (Water flow above the danger level)	Affected Districts	Per Capita Relief (Tk.) in	
		All Affected Districts	Excluding Extreme Districts*
Low (up to 0.5 m)	Barisal, Faridpur, Lalmonirhat, Naoga, Rangpur, and Sherpur	28.13	26.32
Medium (0.5-1.0 m)	Bogra, Gopalganj, Jamalpur, Kurigram, Madaripur, Mymensingh, and Shariatpur	20.06	20.06
Severe (1.0-2.0 m)	Brahman Baria, Chandpur, Dhaka, Gazipur, habigonj, Kishoregonj, Kushtia, Lakshmipur, Manikgonj, Moulvibazar, Munshigonj, Narsingdi, Natore, Pabna, Rajbari, Siranjonj, Tangail	19.62	18.72
Very Severe (Above 2.0 m)	Narayangonj, Netrakona, Sylhet, Sunamgonj, Gaibndha, Comilla	17.94	17.94

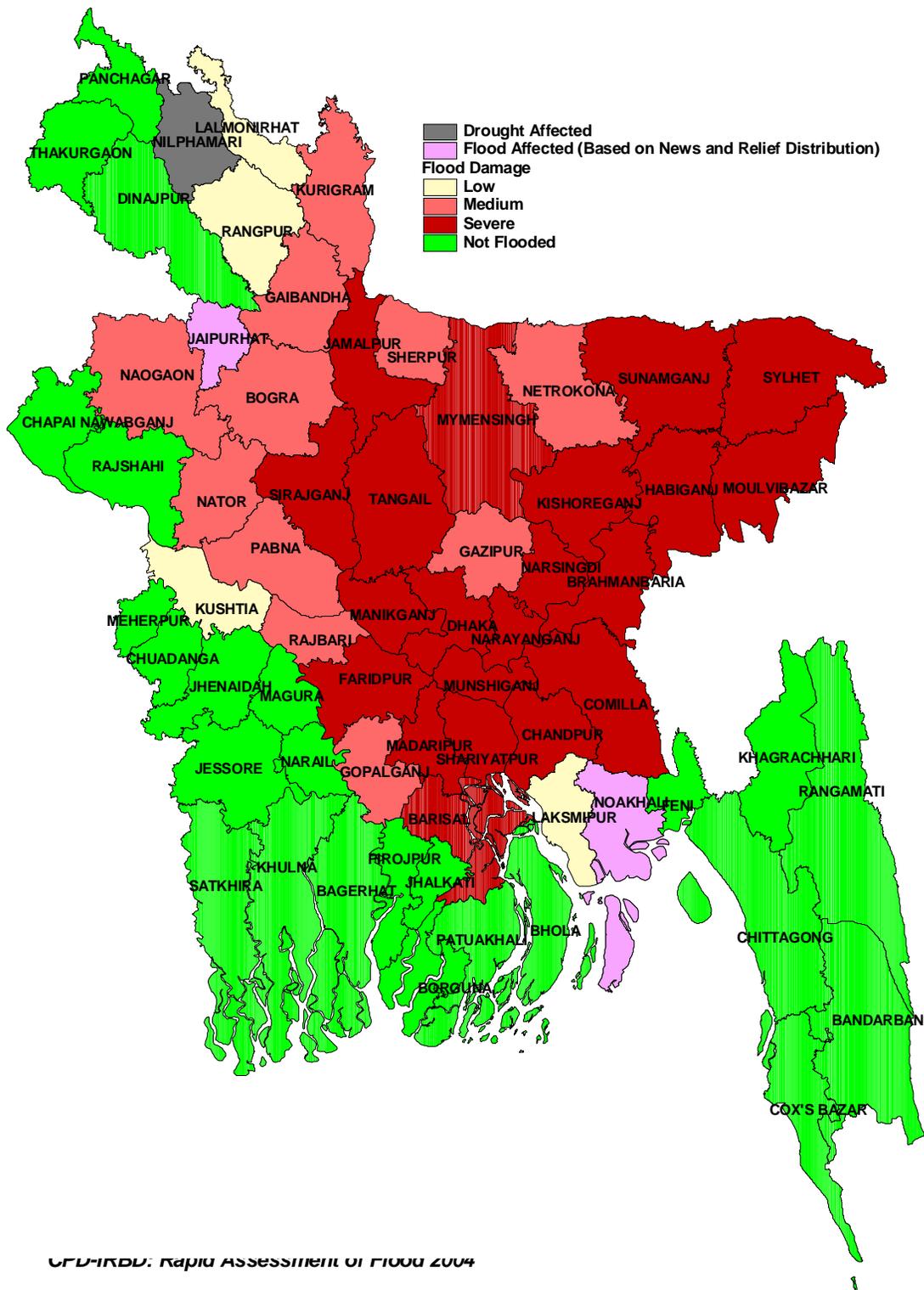
* Per capita relief distribution was very high in Laxmipur (Tk. 628.09), and Kushtia (283.82); high in Rangpur (Tk. 90.91), and very low in Gazipur (Tk. 7.60), compared to the national average distribution (Tk. 19.97).

Note: Three districts (Nilphamari, Joypurhat and Noakhali) were not included in this estimation since those districts were not flood affected, though relief was distributed to these districts too.

Source: Daily Bulletins of Flood Damage and Allocation for Relief, Ministry of Food and Disaster Management.

To be more comprehensive, we have developed a Flood Damage Intensity Index (FDII) which includes four variables rather than the only variable of water flow above danger level. Based on the FDII we have categorised the 39 districts as low, moderate and severely damaged [see Annex-4 for detailed methodology]. Our analysis shows that there was a strong and significant negative rank correlation (-0.64) between flood damage intensity and the amount of per head relief availability. In order to address the above-mentioned anomaly and ensure that relief is distributed according to the revealed need of the flood-affected people, it is crucially important that the issue of severity of flood is factored-in into the relief distribution mechanism. Future relief distribution should be informed by this revealed trend to correct any anomaly and in the rehabilitation stage this is an issue should be addressed adequately.

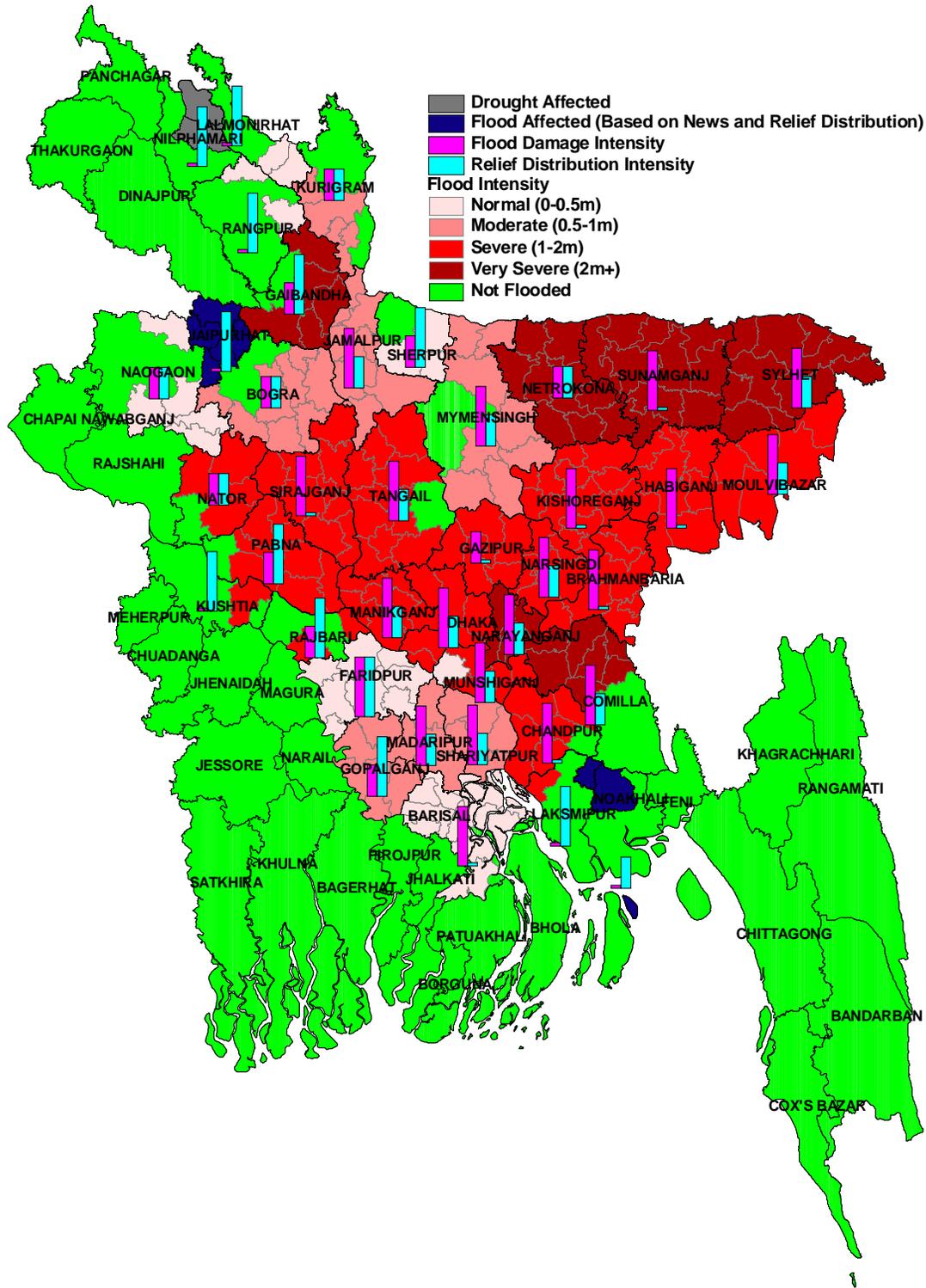
FIGURE 3
DAMAGE INTENSITY OF FLOOD 2004



CPD-IRBD: Rapid Assessment of Flood 2004

Data Source: Based on CPD Calculation

FIGURE 4
FLOOD DAMAGE AND GOVERNMENT RELIEF DISTRIBUTION SCENARIO OF FLOOD 2004



Data Source: Based on CPD Calculation

III.3. Response to Flood: Evolution of Government's Thought Process in the Context of Flood 2004

At the initial stage, the government was under the impression that Flood 2004 would not be as devastating as it turned out and that the media was somewhat overplaying. Events developed at a fast pace, subsequently the government had to take into cognisance, particularly in view of the nature (flash flood) and the severity of Flood 2004. Flood water started to rise in early July; government's relief work began in the second week of July. The National Disaster Management Council met one week later on July 22, 2004. The meeting decided that Bangladesh would not seek external assistance for relief since it had 'adequate stock of foods'. However, the meeting decided that donor assistance would be sought for post-flood rehabilitation. It was decided also that the government would not declare Flood 2004 a national emergency.

Initially, the government was also reluctant to invite NGOs for relief programme. The government first met the NGOs (fifty six in number) on July 26, 2004, almost four weeks after the flood had started. The government invited the NGOs to start relief programmes and asked them for "informing the government" about their relief related activities. The government did not call for joint coordination of relief and shelter programmes, seen in 1998.

The government's attitude towards the international assistance was also shifting and went through three stages:

- a. Assistance not required for relief (July 22, 2004)
- b. Assistance required for post-flood rehabilitation (July 27, 2004)
- c. Call for comprehensive international assistance (July 28, 2004)

Such cautious attitude of the government was informed by several reasons. One was the nature of flood, since in many areas the water began to rise at an unexpectedly fast rate. An early warning system in place would have allowed the government to assess what was coming. However, this was not there. The decision not to declare the Flood 2004 as a national emergency and not to seek food relief was perhaps informed by government's perception that flood damage would not be extensive, and its confidence that it would be able to tackle the problem with its own reserves of food and through domestic efforts. Demonstration of the government's ability to address the immediate concerns was also perhaps linked with the "image" it wanted to project at home and abroad as a government in control. It was perhaps thought that declaration of a national disaster or a call for international help would perhaps prevent buyers and investors from doing business with Bangladesh, at least in the immediate future, with consequent negative impact on the economy. The government's confidence was also perhaps bolstered by the fact that Flood 2004 came at a time when FY2004 budget has just been announced about a month back and there were relatively large sum of money in the various sectors (under such headings as bloc allocation, repair and maintenance etc.) which could be diverted for relief and rehabilitation purpose. The decision not to declare a state of emergency was perhaps right, specially in view of the fact that flood water started to recede in most places by the end of July. However, it is to be noted that this year's flood got widely covered by the global media. They called for massive international support and many leading newspapers of the world reported that an estimated 20 million people would require immediate food assistance.

As the international media acted on its own, the government could side by side launch a media campaign that despite the flood, the export oriented industries continued export and the government was providing support for coping with the flood damage.

III.4 Flood and Response of NGOs and CBO

The NGO response in the context of Flood 2004 was surprisingly late. In some areas the NGO response came after the government programmes were initiated. CPD field surveys also confirmed this observation. The distinguishing features of this year's flood was that individual level and community level philanthropic and relief operations were extensive in many areas, and in many instances actually filled the vacuum left by the late response of the government and the NGOs.

The UN system in Bangladesh took an active interest in Flood 2004. They initiated a mechanism to estimate flood damage on their own and coordinated with major international NGOs. A team from Geneva arrived on July 31, 2004 for conducting damage estimation and sent its report to Geneva for an international appeal for help.

IV. GROUND LEVEL REALITY: SUMMARY FINDINGS OF FIELD SURVEY

Areas Covered

Zillas (9): Bogra, Natore, Gaibandha, Sirajganj, Pabna, Mainkganj, Sylhet, Sunamganj, Habiganj
Upazillas (11): Fulchhari, Shaghata, Dhunat, Shingra, Nabiganj, Balagnaj, Chhatak, Sylhet Sadar, Shibalay, Santhia, Sirajganj

Methodology of Field Selection: Annex 5

Pre-survey visit: Munshiganj, July 30, 2004

Overall Survey Features

Number of flood affected and local people interviewed: 800- 900

Number of FGDs conducted: 19

Number of Government Officials Interviewed: 17 [UNOs, Magistrates, and others]

Number of Journalists Debriefed: 2

Number of NGO Activists Debriefed: 4

Survey Design

Flood affected areas in the country were divided into three broad regions according to depth of the flood water in the inundated areas:

- a. Severely Affected
- b. Moderately Affected
- c. Low Flooded

Three geographically dispersed regions were selected for carrying out the survey. In each of the regions three types of flooded areas were selected: (i) one Upazilla which was affected severely, (ii) one Upazilla which was affected moderately, and (iii) one Upazilla which was low flooded.

Severity of Flood and Damage

- People in the affected areas confirmed that this year's flood was short in duration in comparison to the flood of 1998, but severe in terms of damage impact in particular areas, especially in areas adjacent to the major rivers. Most of the areas of Gaibandha, Sirajganj, Manikganj, Bogra and Sunamganj have been severely affected by flood.
- Many habitat areas in the flood affected regions have been washed away and now have disappeared into the river. River erosion was comparatively more devastating this time. Many areas have become uncultivable due to sedimentation. Livelihoods were lost both in case of farmers and non-farmers. The survey team found one individual, who had 28 shops on both sides of the approach road to Gosaibari Bazar bridge in Dhunat, Bogra, lost all his possessions along with another 6 bighas of cultivable land. Another businessman in the same area lost his saw mill as well as timber worth Tk. 3-4 lacs.
- Damages to trees, houses, infrastructure, agriculture and business, and loss of domestic animals, poultry and fisheries were found to be more severe in the North Bengal and in some areas of Sylhet.
- Most of the people mentioned that there was no warning of flood. Many people found themselves surrounded by flood water all of a sudden. People of Fulchhari in Gaibandha and

Dhunat in Bogra found flood water entering their houses at around 2:00 am in the morning. No evacuation could be organised due to the lack of warning. People found rescue shelters in various places on their own including places along rail lines, embankments, relatives' houses on high grounds, educational institutes etc.

Coping Mechanism

- During the flood, many of the affected people left their homes and took shelter in their relatives' houses in the proximity which were relatively less affected. In some cases, local rich people gave shelter to them. Those villagers, who did not leave their home, managed to live by making *machang* (platform at a higher level, usually made of bamboo) in their houses to stay on, or they raised the height of their beds by tightening it with bamboo poles or wooden poles. They managed to cook their food by putting the mud-stove on the tables or *machangs*. It was found that more than half of the population in the affected survey areas in North Bengal stayed in their houses surrounded by the flood water.
- The flood affected people changed their professions/occupations depending on the need and availability of jobs; however, most of the people in the remote villages didn't have any income earning activity. They were found to be solely dependent on relief for their food supply.
- The law and order situation was under control in the affected areas. No case of theft or robbery was reported during the field surveys.

Flood Shelter and Relief

- Flood shelters were not equipped with the required sanitation infrastructure. People were compelled to defecated in open places. As a result, there was a serious threat of outbreak of disease in the affected areas. Although some educational institutions were opened as shelters for the flood victims, the toilets in such shelters were found to be under lock and key. This was particularly evident in Fulchhari and Shaghata in Gaibandha. In Chhatak, some of the flood shelters have gone under water, and people had to suffer from the absence of proper facilities for toilets and cooking.
- Lack of access to safe drinking water was a recurrent phenomenon in the survey areas. In some instances, people were able to manage pure drinking water from the tube wells which had not been submerged by the flood water. Those who could not fetch drinking water from the distant places because of the force of the current of the water, had to drink unsafe water and were subsequently suffering from diarrhoea and other water borne diseases. Uses of water purifying tablets were found to be negligible due to lack of availability. The situation of Nabiganj, Balaganj and Chhatak regions were, however, comparatively better in terms of availability of safe drinking water and spread of water borne and other diseases.
- In places where diarrhoea and other water borne diseases were frequent, there was an urgent need for supply of medicine. The stock of medicine was found to be quite inadequate in view of the increasing demand. The officials at some of the local health complexes complained that they did not receive fresh supply of medicines from their headquarters.

The Poor are the Prime Victims

- In general, the poorer sections of the society were particularly affected by the severity of this year's flood. In the survey areas more than 70 per cent were found to be day labourers. The rest included small farmers, traders etc. Since flood resulted in large-scale damages to the infrastructure and agriculture, these people had no jobs and were depended primarily on relief since they did not have any savings. In many areas such as Sirajganj and Gaibandha, opportunity for immediate employment was not there also because the cropped land was covered with siltation. The supply of relief in those areas has to be prolonged.
- Despite the country-wide network of micro-credit, *Mahajans* were still found to operate in many of the survey areas (Sirajganj, Shibalay). Since most of the Micro Finance Institutes (MFIs) stopped their loan programmes during the flood period, the needy people went to the *Mahajans* for loan. As a result, people have been forced to take loans at a very high interest rate, ranging from 5-10 per cent per month (60% - 120% on an annualised basis) (Shibalay, Ratankandi of Sirajganj). On the other hand, people having no collateral could not get even the "*Mahajani*" loan. Those who have taken loans are afraid that if the flood persists for a long period, they will be unable to repay the loans.
- Some NGOs and MFIs suspended loan repayment for 3 weeks (Ratankandi). As flood water started to recede, the MFIs are now pressurising the micro-borrowers for loan repayments. New borrowers who could not spend the borrowed money, were found to be paying instalments from the principals. Old borrowers had no options for such re-payments.

Relief Activities

- NGO participation in relief was found to be infrequent. Flood victims reported that NGO activities have been less during this year's flood compared to the 1998 flood. Relief distributed by the local NGOs were mostly concentrated in their localities. In remote villages of Chhatak, Balaganj and Nabiganj which were visited by one of the CPD's survey teams, NGO activities were found to be almost non-existent.
- In North Bengal, CPD's survey team found that some of the NGOs, which were not membership-based, distributed full package of relief in an organised manner. However, they were not able to distribute relief to all people who were in need for such support. Some NGOs in Shibalay surveyed the entire inundated area for identification of the affected families who needed relief and distributed relief which could sustain them at least for two weeks.
- In most of the cases, it was the government which responded first with relief activities. Others came later. This, of course, does not mean that the government responses were timely. In some areas, local MPs were found to play a very proactive role as they came forward on their own with relief for distribution among the flood victims. The amount of government relief was found to be much less than required in some areas as the distributing authorities wanted to maximise the numbers of families covered. Remote villagers often did not receive adequate relief from the Government.
- Initiatives taken by individuals were noticeable during Flood 2004. Some explained this by saying that poor responses from the NGOs and government at the initial stage induced philanthropic individuals to fill the vacuum. In Chhatak and Balaganj, expatriate

Bangladeshis provided significant help to the affected people. However, such support from expatriates was not observed in the North Bengal.

- Flood affected people were of the view that relief activities lacked proper management. Favouritism, pilferages, and politicisation were reported in a number of cases. In Gosaibari of Dhunat Upazilla the army was found to be deployed to monitor the overall distribution of the government relief.
- Government allocation of rice, cash and clothes for the flood victims was not adequate compared to the number of affected people. It was observed that nobody received the whole package of essential items required for survival. Some of them received only saline, when they had nothing to eat, while some received rice and pulses, but did not have salt, oil or onion for cooking. In many cases people did not have any pans or pots for cooking. In Fulchhari and Gosaibari, people living on the banks of the rivers Brahmaputra and Jamuna could not save even a single household utensil. In Sylhet, people could not cook as no firewood was available.
- Children were found to be suffering from lack of baby food. No baby food relief was seen to be distributed.
- Health services from the local health complexes were found infrequent and insufficient. They could not provide adequate services to the affected people due to shortage of medicine and saline.
- Outreach of the relief was poor and disorganised in some of the survey areas. Access of the affected people in the remote areas to the relief programme was less than that of the people along the roadside and those who had taken shelter on the embankments. Government reliefs are mainly being distributed to the people who have taken refuge in flood shelters. People residing outside shelters were not getting adequate relief from the Government. The Upazilla administration does not have the required facilities to deliver relief through water and air. In North Bengal, UNOs and other officials tried to reach maximum number of flood victims but logistics were a problem.
- In case of government relief distribution some irregularities were observed. In most cases enlistment process of the affected people was not done in a transparent manner; people working for the local chairman's made the list without consulting the affected people. Most of the affected people were found to have strong feelings against many of the elected members. A number of the affected people were not included in the lists drawn up by local leaders which were often done in a hurry. In Chhatak, distribution of relief under the VGF programme was suspended since June. In July, the local administration did not receive any relief under VGF programme from the central Government.

What Flood Victims Need Most Right Now

- In areas where flood water started to recede the need of the flood affected people still remained acute; at the same time they were in need of some cash and materials for reconstruction of their damaged houses. Since the infrastructure and agricultural damages are huge, the affected people also need government help in the form of VGF and VGD at least for the next three months when no work opportunity will perhaps be available. They were also in need of seeds, seedling and fertilisers.

Other Observations

- Location specific early warning system should be developed for giving adequate time to the people for evacuation.
- Individual philanthropic initiatives are not adequate for the full outreach of relief. Coordination between GOB and other actors is required for ensuring maximum outreach and full package of relief should be provided.
- Evacuation and shelter system is sporadic and unorganised which added to the sufferings of the victims. Identification of the location of shelters and proper preparation of the shelters to deal with the possible number of flood victims are essential. Make-shift sanitary toilets are a must for reducing health hazard during flood.
- Lack of adequate preparations of the Government machinery and delay in the official process were limited. This was experienced in Chatak.

V. A POST-FLOOD PUBLIC POLICY PACKAGE

The present section seeks to evolve a public policy package for addressing the post-flood situation during the fiscal year 2004-05 (FY05). The policy recommendation have been derived from revisiting the experience of the earlier floods, taking note of the recent macro-economic parameters and performance of the real economy, as well as reviewing the emerging trends in the global economic environment.

The policy package advocated in the following paragraphs contains both short term (August-October 2004, i.e. till *aman* is harvested) and medium term (August-June 2004 i.e. till end of the fiscal year) measures. The short term measures overlap more with the “relief phase”, whereas the medium term measures coincide with the rehabilitation and reconstruction phase. The recommendations put forward below are discussed in four groups within a macro-economic approach. Having elaborated the changes anticipated in the macro-economic framework, the policy suggestions are grouped as under public finance, external sector, real economy, and safety net.

It needs to be emphatically pointed out that CPD’s policy package is not at all an exhaustive post-flood relief and rehabilitation and reconstruction plan. For example, one of the obvious missing components in the package relates to measures to mitigate post-flood health and sanitation hazards. Thus the policy recommendations are made in the areas where CPD has some competence.

A. Macro-economic Framework

1. What are the macro-economic implications of flood 2004? Given the property and income losses, the government should take measures to boost aggregate demand, particularly by energising its domestic component. The two major vehicles for this will be (a) enhanced public investment and (b) greater flow of credit (both industrial and agricultural) to the private sector. This will imply accelerating the currently pursued accommodating monetary policy. Precisely this moderately expansionary approach was undertaken during the post-flood period in FY98 with good results. However, there is a need for caution in this regard. Experience shows that an incremental expansionary approach pursued on a sustained basis (as was done during FY2000 and FY2001) may weaken macro-economic fundamentals, particularly by way of widening fiscal deficit underwritten by government borrowing. This apprehension remains potent as the national elections are once again looming in the horizon. On the other hand, as the floods in 2004 have come at an early stage of the fiscal year, there is a scope to substantively revisit the fiscal and public expenditure programmes to locate budgetary resources for meeting the post-flood needs.

B. Public Finance

Resources for Reconstruction

2. Within the public expenditure portfolio, activities and projects related to rehabilitation and reconstruction should get priority. For this a transparent and accountable process identifying flood-damaged dams and embankments, bridges and culverts, various types of roads and

other physical infrastructures need to be identified. It is well known that such public works remain one of the major sources of corruption in Bangladesh. A closer look at the allocations made under both the Revenue Budget and Annual Development Programme (ADP) reveals that the government has at its disposal (either unallocated or earmarked for use of physical infrastructure development) at least Tk. 3426 crores. If one can tap into the Block Allocation for other sector, (and not fully utilise the Unexpected Allocation), total amount of available resources may go as high as upto Tk. 4944 crores. One may recall in this context, the total cost of damage in the public sector, as estimated by CPD, is about Tk. 4303 crores. That is the country with its own domestic resources can by and large finance the reconstruction work.

TABLE 7
AVAILABLE BUDGETARY RESOURCES FOR FLOOD REHABILITATION

<i>High Case Scenario:</i>		<i>(Tk in crore)</i>
Sources		Allocation in Budget FY05
Development Budget		1278.57
Sectoral Block Allocations*		983.57
Unallocated Block Allocations		295.00
Revenue Budget		3666.00
Repairs, Maintenance and Rehabilitation		2001.00
Block Allocations**		1665.00
<i>Unexpected</i>	<i>1202.00</i>	
<i>Others</i>	<i>463.00</i>	
Total		4944.57

Note:

* Including all sector

** Including the unexpected allocation possibly for the Pay Commission.

<i>Low Case Scenario:</i>		<i>(Tk in crore)</i>
Sources		Allocation in Budget FY05
Development Budget		962.03
Sectoral Block Allocations*		667.03
Unallocated Block Allocations		295.00
Revenue Budget		2464.00
Repairs, Maintenance and Rehabilitation		2001.00
Block Allocations**		463.00
Total		3426.03

Note:

* Sector includes: agriculture, rural development, water resources, industry, transport, communication, infrastructure and water supply, and health population and family planning.

** Excluding the unexpected allocation possibly for the Pay Commission.

Restructuring ADP

3. The government has taken the decision to reallocate 10% of the ADP for rehabilitation and reconstruction activities, i.e. about Tk. 2200 crores. On the other hand, ministries have been directed to use the Operation & Maintenance (O&M) flood-already provided under the revenue budget. Both these steps, taken quite promptly, are in the right direction. However, a mechanism has to be established within the Finance Ministry (as well as within the Planning Commission) for coordination of these two lines of financing.
4. While revisiting the ADP for locating resources for post-flood activities, the following guidelines may be used.
 - i. Implementation of all foreign aided projects should not be disturbed, particularly because of non-availability of local funds.
 - ii. A moratorium may be imposed on all new projects (domestically financed) included in the ADP for FY05 which are yet to incur expenditure.
 - iii. Projects incorporated in the ADP as a part of implementation of the PRSP have to be protected. Poverty alleviating projects should not be traded off.
 - iv. If non-debt creating (both domestic and foreign) resources are available, the government may also consider revising the size of the ADP upward (taking note of its overall implementation status). In fact, in FY99, in the post-flood situation, size of the ADP was increased by 3 percent.

Revenue Budget

5. There is a high probability that the revenue budget for FY05 is going to overshoot its aggregate target. Apart from accommodating flood related demands, the government is committed to provide a new pay scale to the government employees from January 2005. Although, provision has been made in the Revenue Budget for FY05 for such “Unexpected” (Anticipated ?) expenditure – about Tk. 1200 crores, but the said allocation will now face competing demand. The government will have to take note of the evolving financing situation while declaring the Pay Commission’s award.

Revenue Earning

6. Whilst there will be an increased demand on public expenditure, revenue in-take may take a beating in the post-flood situation. One may recall that after the flood of 1998-99, the post-flood economy of the country also experienced a revenue shortfall of (-) 5.2 percent in relation to the target. The early signals of FY05, as expressed by July 2004 collection of NBR, portends such a trend (12% growth but short of target). What are the backstopping mechanisms for covering the possible shortfalls in the collection target. Will enhanced imports cover some of the anticipated shortfall? It seems the government will have to slowdown a bit the VAT (local) expansion effort, particularly in the peri-urban and rural activities.

Fiscal Deficit

7. If revenue falters and expenditure increases, fiscal deficit may widen. Should low fiscal deficit be accepted as a non-negotiable policy constraint? In that case, expenditure restraint will be an option. In FY04, fiscal deficit was 4.2% of GDP which was less than the target. This year (FY05), the target is 4.3% of GDP of which 2.4% will be foreign financed. However, fiscal deficit may be increased provided the incremental part is financed by flood-related foreign assistance. The government may also negotiate with the IMF/World Bank regarding relaxation of the cap on domestic borrowing in the face of post-flood need to spur economic growth.

C. Credit Expansion and Inflation

Credit Expansion

8. Credit expansion has to be spearheaded by rural credit growth. In FY99, agricultural credit growth was more than 63% (net flow Taka 1103 crores). In FY04, amount of agricultural credit growth disbursed was about Tk. 3279 crores resulting in a net outflow of Tk. (-)237 crores. Thus, in FY05, at least Tk. 5000 crores have to be disbursed and recovery may be suspended till harvesting of *aman* crop with a special programme for *boro* crop has to be also undertaken.
9. Special mechanism has to be devised for channelising funds to the SMEs, particularly without fixed assets collateral.
10. Increase flow of funds to the NGOs through PKSF, NGO Foundation and commercial banks. As mentioned later, a large part of the funds allocated under various micro-credit programme of the government may be contracted out to selected NGOs and PKSF.

Inflation

11. Inflation rate, on the rise during 2002 and 2003, had been stable around 5.8% during the recent months. There is high possibility that it may rise in the coming months. Major challenge will be to keep the food price index down till the *aman* harvest. The food inflation is still on a high rate (6.81%), specially in the rural areas (8.66, moving average as of May '04). One may recall that the inflation rate took a sharp upturn in FY99 as the national inflation rate increased from 6.99 percent in FY98 to 8.91 percent in FY99 and also the food inflation increased on a relatively higher pace and crossed the double digit mark with 11.76 percent inflation in FY99, while it was only 7.14 percent in FY98. In view of this experience, the government needs to monitor the situation very carefully, resort to OMS if necessary. The current low (7.5%) tariff on rice import may be reviewed in the light of high global price, large advance purchase by China and ongoing drought in India.

12. The other factor which may drive the price index up is the rise in global price of oil and upward revision of domestic prices of gas and electricity. The government has increased the subsidy for electricity used for irrigation from 15% to 20% - but this would cover only 17% of the irrigation equipments as the rest is operated by diesel. The government should consider an ad hoc relief for farmers using diesel operated irrigation.

D. External Sector

Exports

13. The immediate impact of flood 2004 on the country's external sector was felt in several ways, and there would be also certain long-term implications. Production in many of the export-oriented units, particularly in the RMG factories in Dhaka and Narayanganj, were disrupted for upto three weeks. Fisheries and shrimp sectors also suffered. Workers were unable to come to the factories for several days; some factories went under water, shipments of some of the exportables could not be made in due time, resulting in stock-lots in the RMG, and import of raw materials were disrupted in some cases. It helped that the Dhaka-Chittagong high way was functional throughout the flood.
14. Because of the international media coverage and publicity, flood 2004 received wide attention overseas and as a result some of the buyers of RMG, leather and shrimp were apprehensive about placing orders in Bangladesh. Although most of the export-oriented factories were successful in negotiating deliveries of their products with their buyers, some buyers felt concerned. The apprehension that producers may not be able to honour orders may have short and medium term negative impact on the export prospect over the next few months. Some of Bangladesh's competitors are also trying to persuade buyers not to come to Bangladesh. Orders of RMG for spring season, due in September, may suffer as a result. Though the cumulative impact is unlikely to be of high significance, the government, through its missions abroad, particularly in the major export markets of Bangladesh such as the USA and EU, should try to project the true picture about the flood situation and its aftermath and assure the buyers that Bangladeshi entrepreneurs are in a position to produce and make the required shipments. In the mean time the government should take appropriate measures to support the export sector in coping with the aftermath of the flood and keep their production process running.
15. The government has recently increased the Cash Compensation Scheme (CCS) support to agricultural and agro-processing goods from 25% to 30% and taken an initiative to release Taka 150 crores for the knit-sector from the CCS fund. This a good step.
16. In view of the production loss, stock lot, derailment of shipment due to flood 2004, the government may consider the followings:
 - Support for air cargo shipment of exportables (including RMG); if required, charter cargo planes.
 - Take expeditious steps towards timely release of funds under the CCS initiative.

- Advise banks for deferment of loan recovery for 3-6 months from export-oriented units which have been affected.

Import Sector

17. It is expected that import growth will be particularly robust this year because of relief and reconstruction activities. Post-flood rehabilitation may require import of selected products, particularly construction materials (CI sheet, cement). Imports of these may be facilitated through reduced duties (through SROs), temporary withdrawal of surcharge (if any). Requirement of L/C margins for these importables may also need to be relaxed.
18. In view of the crop damage, and in light of the estimates of production shortfall, import of foodgrains by the private sector/GOB will need to be facilitated (L/C margins etc.).

Remittance

19. During July '04 remittance has gone up by 11%. It has been observed in the past that remittance flows tend to increase during the time of disasters. It is expected that overseas Bangladeshis will be inclined to send higher amount of remittance in view of flood back home. As such the remittance scenario will remain steady.

Balance of Payments

20. There may be some export shortfall in July and August paralleled by import surge because of rehabilitation-related imports during the next few months. This possibility, coupled with the impact of MFA phase-out which would be felt from January 2005, should induce the policymakers to keep a sharp eye on balance of payment (BoP) position. However, as was seen following flood 1998, the amount of aid, particularly commodity aid, may increase in response to flood 2004. This is also likely in view of the appeal by World Food Programme (WFP) and the UN for food relief. International assistance for rehabilitation work may also bolster the reserves to some extent. It is however difficult at this point of time to foresee what the net impact on BOP will be. The government will need to monitor the dynamics of the BOP position, on a continuing basis, particularly over the next few months.

E. Real Economy

Agriculture

21. Agriculture will be the priority sector, after reconstruction of physical infrastructure, performance of which will largely define the final outcomes of FY05. It may be recalled that agriculture growth rate declined to 2.7% in FY04 against 3.1% in FY03. Due to early flood in 2004, there is possibility of recovering and even increasing agricultural production this year, if the suggestions mentioned below are implemented in an efficient manner. It may be recalled that agriculture sector recorded a growth rate of about 4.1% in FY99 and foodgrain production showed 3.1% growth.

22. Crop Sector

- CPD welcomes the government's announcement of providing 5 kg seed of *aman* rice and 25 kg fertilizer per farm to 19 lakh marginal farmers. However, it is maintained that we need to plan beyond *aman* season and only these interventions would not deliver the desired results. Provision for seed, fertilizer and irrigation for both *aman* and *boro* season at free of cost to the marginal farmers and at subsidized rate to other farmers are needed.
- Immediate actions are necessary for distribution of seedling/seed and for seedbed preparation of late *aman* varieties like BR22, BR23, Binashail, BRRRI Dhan 34, BRRRI Dhan 37, and BRRRI Dhan 38. For coastal areas of Barguna and southern regions, BRRRI Dhan 40 and BRRRI Dhan 41 would be useful. Immediate distribution of late variety *aman* seeds would enable farmers to grow and plant 25-30 days old seedlings by mid-September. Availability of late variety *aman* seeds in required quantity may also be a major concern. Government may augment this situation and expedite the process and actions of farmers and private sector by announcing guaranteed purchase of late variety *aman* seedlings up to mid-September. During the 1998 flood, *aman* variety seeds were imported from India. Probably, we have lost such scope this year since no action has yet been taken in this regard.
- Government may also plan for distribution of maize seeds for cultivation where adequate amount of late variety *aman* seed can not be made available. Considering the ready domestic market of maize for poultry feed, it would have beneficial impact also for the poultry sector.
- Distribution of seed potato, and seeds of vegetables, mustard and other *rabi* crops to the farmers of flood affected areas would be beneficial. Import of potato seeds need to be encouraged both by the public and private sector.
- Many farmers have lost their seed for *boro* rice and wheat. Therefore, supply of *boro* rice seed and wheat seed to the flood affected areas would cater to the needs of the farmers and also encourage them to increase area under wheat and *boro* rice.
- Supplementary irrigation in transplanted *aman* rice need to be encouraged by providing subsidy for diesel for irrigation in October, if rainfall is not adequate. Subsidy for diesel during *boro* season would reduce the production cost and increase *boro* production which will ultimately reduce pressure on rice import and also ensure food security of marginal farmers. It may be noted that during the winter season, 40% of all diesels used are used for irrigation of *boro* rice fields. On the other hand, 83% of total irrigation in Bangladesh is done through diesel operated engines.
- The government need to ensure agricultural loan for the farmers. For tenants, collateral free loan may be provided through NGOs and other channels.
- An arrangement for warehouse facilities for agricultural input, hatchery for fishing, seedling, poultry houses and dairy farming may be developed in flood free areas so as to

ensure supply of such items to the areas vulnerable to floods during the post-flood periods.

23. Fisheries and Livestock

- Fish farmers have lost their investment in many cases. Provide “fingerlings” to the fish farmers of flood affected areas at a nominal price.
- Provide vaccines for poultry and dairy farms and ensure availability of supply of day old chicks and quality poultry and cattle feed.
- Livestock diseases may break out after the flood. Adequate preparation for this is necessary. Provision for vaccines and other medicines to combat possible livestock diseases is necessary.

24. Industry

As yet there is not dependable damage estimate for the manufacturing sector, it is difficult to define the scope of policy intervention at this point. Media scan, field survey and debriefing of knowledgeable informants suggest that some of the most affected sectors include knitting, handloom and some agro-based industries. The government will be well advised not to create any new financing facility, rather should improve the efficiency of the existing ones. The other approach would be to encourage flow of fund to small and medium enterprises (SMEs). Some of the specific measures are mentioned below:

- Small and cottage industries should be given financial support to start production. Experience suggests that cottage industry owners have indigenous expertise to re-start production through quick repair work, sometimes even without government assistance.
- Fixed asset and inventory may be accommodated through bank loan repayment rescheduling the next 2/3 years.
- Cash incentives for the export-oriented industries (i.e. RMG, Agro-processing, leather and shrimp) should be released properly.
- Stock lots created in the export oriented RMG factories in FY99 continued to haunt the banks for years together. This needs to be avoided by the banks.
- Demurrage and fines charged to importers who have not been able release goods during the flood period need to be reviewed.
- Commercial banks may disburse wholesale credit to traders and group borrowers.
- Loss of income of industrial workers may be compensated through a social security network.

25. Infrastructure

- Rebuilding infrastructure should be of highest priority during the post-flood period as this sector increased the highest damage. Some of the guiding principles in this regard would be the following.
 - As regards post-flood strategies, government should prioritise rehabilitation over reconstruction.
 - Reallocation of ADP will be a well-thought measure for repairing and reconstructing roads, culverts, small bridges, educational institutes, and health care centres. Such allocations must be based on dependable damage estimations in respective sectors.
 - Keeping in mind that there is always a tendency to inflate damages to infrastructure, strategically sketched methodological survey should be conducted to avoid any over reporting and to get the real picture of actual damage.
 - Proper steps need to be taken up with a view to ensure coordination between various agencies within the government machinery. This will expedite the reconstruction work.
 - Besides supplying building materials such as bamboo, CI sheets etc. to the flood victims, government should create avenues to provide them loans at low interest rates for purchasing these materials.
 - Sylhet could have been spared from the devastating affect of this year's flood had the Kali Kushian project been implemented in due time.
 - Implementation of the Garai River Programme will put Bangladesh on a much safer side against the threats of floods from the Ganges.
 - All reconstructions must be ensured with high durability to avoid national loss in the future.

26. Issues related to Dhaka Metropolis

- It is now obvious that filling up of drainage canals, faulty and unplanned sewerage system have contributed greatly to water stagnation in the Dhaka city during the monsoon season, WASA and BWDB have to have some action oriented strategies in place.
- In order to facilitate pumping out water from the water logged areas, WASA and WDB must work together.
- Solving the drinking water problem in Dhaka city is a must. Government should take considerable measures to exploit the possibilities of solving these problems by bringing water into the city from Buriganga and Brahmaputra and setting up water treatment plants.

27. *Issues related to reconstruction of flood shelters*

- Educational institutions in the flood prone areas should be constructed/ reconstructed with a view to use these as shelters during floods. Such schools should be made at least two storied for the purpose. ADP allocation should have such provisions incorporated.

28. *Roads, Culverts and Bridges*

- Higher allocation of funds is a must for reconstruction and repair of roads.
- Reconstruction of damaged roads, culverts and bridges must be prioritised depending on extent of damage, their usefulness, and impact on economic growth.
- While reconstructing/ rebuilding/newly constructing roads and bridges, government must not compromise with the quality. Instances are there that such infrastructures of high quality, built after the 1988 flood, were not affected by the 1998 flood.

F. Safety Net

Food Security

29. Very careful program is needed to ensure food availability and food security of marginal families. Repair, reconstruction and maintenance of flood damaged rural roads through Food for Works programming have been always useful in this regard.
30. There is a need to increase the amount of foodgrains to be distributed through VGD, VGF, FFW, TR and GR from the planned level of 7.44 lakh metric tons. More important is to ensure its full and faithful utilization. This is also pertinent to ensure planned distribution of Tk. 168 crore through other non-monetized channel which has been budgeted for FY05.
31. However, monitoring of these programmes is very important at this level as we see a tension among the UP chairmen, government and opposition political leaders regarding the distribution and implementation process of the programmes.

Special Funds

32. Mechanism for operation of the Special Funds which are earmarked in the budget need to be developed. The government must ensure full utilization of *Old-age Allowance* and *Widowed and Deserted Women Allowance* allocated to 18 lakh beneficiaries at the rate of Taka 165 per month.
33. *Fund for Mitigating Risk Due to Natural Disaster* should be disbursed and if required should be increased from the current level of Tk. 150 crore. In addition, Tk. 100 crore allocated to the Ministry of Food and Disaster Management as *Block Allocation* to meet sudden natural disaster management may be utilized under this programme. *Fund for the Housing of the Homeless* may be utilised and should be increased from the current level of Taka 148 crore.

Government Micro Credit

34. Micro-credit and employment generation by various ministries should be recasted. The budget for FY05 proposed a combined allocation (development and non-development) of Taka 5850 crores for various kinds of programmes related to expansion of micro credit programme by the NGOs and six ministries. Through its *Abashan* Programme the government planned to rehabilitate 65,000 landless and homeless families for self-employment. This would be the best time to use these resources for the rehabilitation of landless flood victims.
35. Government can further expand the micro credit programme through the NGOs. The increased allocation for PKSf for micro-credit programme, fund for NGO Foundation, Special Fund for employment generation of the hard-core poor and fund to create micro enterprise in the rural areas through the PKSf which were proposed in the budget for FY05 can be of better use at this moment. The proposed allocation of Taka 100 crore for the promotion of agro-based industries may also help the rehabilitation programme.

G. Foreign Aid

36. The government has already gone for an international appeal for flood assistance. The donor community coordinated by the UNDP is also preparing a “Flash Appeal”. Some NGOs, particularly the BRAC has also launched an international drive to raise fund for relief and rehabilitation activities. In view of this it is expected that the government will receive a sizeable amount of foreign aid during FY05.
37. In FY99, Bangladesh received more than US\$ 1536 million as foreign aid, i.e. about 23% more than that of in FY98. More importantly, receipt of food aid was to the tune of 821.6 thousand metric ton, recording an increase of 90%. On the other hand, the World Bank (IDA) provided a prompt credit of US\$ 202.40 million under the “Emerging Flood Recovery Programme”.
38. In view of the above, the government will be well advised to receive as much as possible food aid for remaining the safety net programmes including the VGD & VGF. Although the government has recently received a budgetary support of about \$200 million from the World Bank under the Development Support Credit Two (DSC II), it will still worthwhile to negotiate expeditiously a quick-disbursing budgetary-cum-BOP support of another \$200 million. Project aid, with its low off-take record, can only be entertained for dealing with medium to long term problems related to flood.

ANNEX 1
EXPERT GROUP DIALOGUE ON FLOOD 2004
August 09, 2004

List of Participants
(in alphabetical order)

<i>Md. Hossain Ali</i>	Deputy General Manager (DGM), Grameen Bank
<i>Dr A. M. Shawkat Ali</i>	Former Secretary, Ministry of Agriculture & Managing Partner, Shawkat & Associates
<i>Mr Sayed Alamgir Farrouk Chowdhury</i>	Former Secretary, Ministry of Health and Family Welfare
<i>Mr. Abdul Mueyed Chowdhury</i>	Executive Director, BRAC & Former Member, Caretaker Government
<i>Professor Jamilur Reza Chowdhury</i>	Vice Chancellor, BRAC University & President, Bangladesh Paribesh Andolon & Former Member, Caretaker Government
<i>Mr. Syed Manzur Elahi</i>	Chairman, APEX Group of Industries & Former Member, Caretaker Government
<i>Dr A T M Shamsul Huda</i>	Former Secretary, Water Resource Ministry
<i>Mr M Mujibul Huq</i>	Former Cabinet Secretary, Government of Bangladesh
<i>Mr Zakir Ahmed Khan</i>	Secretary, Ministry of Finance, Government of Bangladesh
<i>Mr M Hafizuddin Khan</i>	Managing Director, Social Development Foundation (SDF) & Former Member, Caretaker Government
<i>Dr. Ainun Nishat</i>	Country Representative, International Union for Conservation of Nature (IUCN)
<i>Dr M Rahmatullah</i>	Programme Director, CPD & Former Director, UN-ESCAP
<i>Mr. Quamrul Islam Siddique</i>	Executive Director (Secretary) Dhaka Transport Co-ordination Board (DTCB)
<i>Professor Rehman Sobhan</i>	Chairman, CPD
<i>Mr M Syeduzzaman</i>	Chairman, Bank Asia & Former Finance Minister

**ANNEX 2
METHODOLOGY OF DAMAGE ASSESSMENT**

Introduction

The CPD study on rapid assessment of Flood 2004 covers five major affected sectors for an estimation of the total amount of damage caused by the flood. These broad sectors are (1) Agriculture, (2) Infrastructure, (3) Industry, (4) Education, and (5) Health. Given the time and resource constraints and in view of the fact that the damage related information are being updated on a continuous basis, the assessment performed at the Centre is only a preliminary one and subject to further revision to ensure more precision. Furthermore, absence of reliable and adequate information did not allow us to undertake estimation of losses in certain areas beyond the six abovementioned sectors.

Data sources

For assessing the damage of Flood 2004, we have used information from secondary sources. The data was mostly gathered from different government agencies (ministries, directorates, etc) while information regarding losses incurred by the private sector were generated from relevant sources in the private sector (please see table below).

**TABLE A1
COVERAGE OF SECTORS, AND SOURCES OF INFORMATION**

Sector/ Sub sector for which full or partial information available	Source	Comments
Agriculture		Forestry Sector excluded
Crop	DAE	
Fisheries	MOFL, DOF	
Livestock	MOFL, DOL	
Infrastructure		
Road	R&H, LGED, MOFDM, M/O Communication	
Railways	M/O Communication	
Bridges and culverts	R&H, LGED, MOFDM	
Embankments	MOFDM, BWDB	
Irrigation Canals	MOFDM, BWDB	
Residential Sector	MOFDM	
Industry		
Public sector	MOI	
Private sector	EPB, BGMEA, BTMA, BKMEA	Preliminary estimates of RMG and Agro based Industries only
Health		
Number of health centres damaged	MOH	
Allocation of Medicine	MOH	
Education		
Number of educational institution	MOE, LGED	

Methodology

After getting the information about the number of damaged units, we have estimated per unit damage cost due to flood, where possible. This estimation was made mainly on the basis of damage assessment estimated by Islam et al (1998). The estimated per unit damage has been updated using appropriate price deflator. In some cases, we have taken the GoB estimate of losses since adequate information was not available to validate the GOB figures.

The Aggregate Damage (AD) has been estimated by adding up the sectoral damages, i.e.

$$AD = TD_{Ag} + TD_{Infra} + TD_{Ind} + TD_{Edu} + TD_H$$

Where

TD_{Ag} = Total Damage for Agriculture Sector

TD_{Infra} = Total Damage for Infrastructure Sector

TD_{Ind} = Total Damage for Industry Sector

TD_{Edu} = Total Damage for Education Sector

TD_H = Total Damage for Health Sector

Estimating TD_{Ag} :

The damage to agricultural sector was evaluated by estimating three subsectors: Crops, Fisheries and Livestock, i.e.

$$TD_{Ag} = TD_C + TD_F + TD_L$$

Where

TD_C = Total Damage for Crop Sector

TD_F = Total Damage for Fisheries Sector

TD_L = Total Damage for Livestock Sector

The equations that have been employed to estimate TD_C , TD_F and TD_L are as follows:

Crop sub-sector

$$TD_C = \sum_i (Q_i * P_i) + \sum_{i'} D_{i'} \quad i = 1, \dots, n \quad i' = 1, \dots, n'$$

Where,

Q_i - Quantity of crop damage for i-th crop in metric ton

P_i - Wholesale price of the i-th damaged crop per metric ton in Taka

$D_{i'}$ - Lump sum damage estimate for i' th crop in Taka (crops for which data is available in groups and loss of seedbeds)

Fisheries sub-sector

$$TD_F = \sum_j D_j \quad j = 1, \dots, m$$

Where,

D_j Lump sum damage for fisheries in j-th region (which includes loss of fishes, fingerlings and infrastructure)

Livestock

$$TD_L = \sum_i \sum_j (Q_{ij} \times P_i) + \sum_j (Q'_j \times P') + \sum_i \sum_j (Q''_{ij} \times P''_j) + \sum_j (Q'''_j \times P''')$$

where, $i = 1, \dots, n$; $j = 1, \dots, m$

- Q_{ij} number of i-th type of livestock death in j-th region
- P_i Per head Price of i-th type of livestock
- Q'_j Loss of pasture land in j-th region, in acre
- P' Price of fodder produced per acre
- Q''_{ij} Number of i-th type of livestock (dairy and poultry) farms damaged in j-th region
- P''_j Cost of repair for one farm in j-th region
- Q'''_j Quantity of feed damaged in j-th region, kg
- P''' Price of feed per kg

Estimating TD_{Infra} :

The damage to Infrastructure sector was evaluated by estimating six infrastructure components: Roads, Bridges and culverts, Railways, Irrigation Canals, embankments and residential sector separately and then adding them up i.e.

$$TD_{\text{Infra}} = TD_{\text{Ro}} + TD_{\text{Bc}} + TD_{\text{Rw}} + TD_{\text{Ic}} + TD_{\text{Em}} + TD_{\text{Rs}}$$

Where

- TD_{Ro} = Total Damage for Road
- TD_{Bc} = Total Damage for Bridge & Culvert
- TD_{Rw} = Total Damage for Railways
- TD_{Ic} = Total Damage for Irrigation Canals
- TD_{Em} = Total Damage for Embankments
- TD_{Rs} = Total Damage for Residential Sector

The equations that have been employed to estimate Infrastructure damage are as follows:

Road

$$TD_{\text{Ro}} = \sum_i L_i * C_i \quad \text{where, } i = 1, \dots, n$$

- L_i Length of damaged roads under i-th institution
- C_i Cost of repair per km under i-th institution in Taka

Bridges and Culverts

$$TD_{\text{BC}} = \sum_i L_i * C_i \quad \text{where, } i = 1, \dots, n$$

- L_i Length of bridges and culverts in meters under i-th institution
- C_i Cost of repair of bridges and culverts per meter under i-th institution

Railways

$$TD_{RW} = ST_{RW} + LT_{RW}$$
$$= \sum_{j=1}^2 (L * C_j) + \sum_{j=1}^2 (N * C'_j)$$

ST_{RW}	Short term repair cost
LT_{RW}	Long term repair cost
L	Length of railways in km
N	Number of damaged railway bridges
C_1	Per KM repair cost in short term
C_2	Per KM repair cost in Long term
C'_1	Cost of repair per bridge in Taka in short term
C'_2	Cost of repair per bridge in Taka in long term

Irrigation Canal

$$TD_{IC} = LxC$$

L	Length of irrigation canal damaged, km
C	Cost of repair of canal in Taka, per km

Embankment

$$TD_{EM} = LxC$$

L	Length of embankment damaged, km
C	Cost of repair of damaged embankment in Taka, per km

Residential Sector

$$TD_{RS} = \sum_i \sum_j H_{ij} * C_j + \sum_i \sum_j H_{ij} * I_i$$

where, $i = 1, \dots, n$; $j = 1, \dots, m$

H_{ij}	Number of Houses of i-th type in j-th region
C_j	Cost of Repair of per Houses of i-th Type
I_i	Cost of inventory loss of per house of i-th Type

Estimating TD_{Ind}

The Industry sector damage has two broad components: private sector and public sector. Therefore TD_{Ind} has been estimated by

$$TD_{Ind} = Ind_{Pub} + Ind_{Pvt}$$

Where, Ind_{Pub} is the damage in Public Industry Sector and Ind_{Pvt} is the damage in Private Industry Sector

Estimating TD_{Edu}

The damage to Education sector TD_{Edu} has been estimated by

$$TD_{Edu} = \sum_i N_i * C_i$$

where, $i = 1, \dots, n$;

- N_i Number of damaged educational institute of ith category
C_i Cost of repair in Taka of damaged educational institute of ith category

Estimating TD_{HS}

The damage to Health sector TD_{HS} has been estimated by

$$TD_{HS} = C \sum_j H_j + \sum_i \sum_j P_{ij} * T_j$$

- H_j Number of Damages of Health Centres in j-th region
C Cost of repair per centre
P_{ij} Number of population affected by i-th disease in j-th region
T_j Cost of Treatment per Person of i-th disease

ANNEX 3
METHODOLOGY FOR CONSTRUCTING FLOOD DAMAGE INTENSITY INDEX (FDII)

For constructing district-wise *Relief Distribution Intensity Index (RDII)*, we have used only the government relief information as provided by Ministry of Food and Disaster Management. The statement regarding district-wise allocated cash and relief contains the following nine columns:

1. Rice (Khairati)
2. Rice (VGF)
3. Saree (number)
4. Lungi (number)
5. Biscuit (Tin)
6. Deutin (Bundle)
7. Cash (Khairati)
8. Cash for reconstruction of houses
9. Cash for Saree

These items can easily be divided into two broad components – one is cash and other is commodity. For construction of RDII, the commodity items have been monetised with appropriate per unit value (see the following table) and then add them with the cash to get the total district-wise relief allocation of the government.

TABLE A2
PER UNIT PRICES THAT HAVE BEEN UTILISED TO MONITISE THE RELIEF COMMODITY

Variable Name	Unit	Per Unit Price
Rice (Khairati)	MT	13950 Taka
Rice (VGF)	MT	13950 Taka
Saree	Piece	200 Taka
Lungi	Piece	100 Taka
Biscuit	Tin	200 Taka
CI Sheet	Bundle	3000 Taka

The calculated total relief allocation (in taka) for each district then divided by the number of flood affected people (as provided by Ministry of Food and Disaster Management) to get the per head relief allocated for that district.

Three threshold values have been selected to define relief distribution intensity in terms of low, medium and high. Finally, the districts have been grouped according to their per head relief allocation which has led us to the *Relief Damage Intensity Index (RDII)*.

ANNEX 4
METHODOLOGY FOR CONSTRUCTING RELIEF DISTRIBUTION INTENSITY INDEX (RDII)

For constructing district-wise *Flood Damage Intensity Index (FDII)*, we have used four variables, namely:

10. Number of flood affected people (AP)
11. Maximum Water Depth between the time period of 10th July to 4th August (WD)
12. Area inundated as % of Total area of the district (AI)
13. Weighted damaged cropland of the district (WC)

The variable WC is defined as,

$$WC = \text{District specific Damaged Cropland} * (\text{District specific Achieved Area} / \text{Total Achieved Area})$$

The data are collected from various sources. The data sources are given in the following table:

TABLE A3
DATA SOURCES FOR CONSTRUCTING FDII

Variable Name	Data Source
AP	Disaster Management Control Room
WD	Flood Forecasting and Monitoring Centre, Bangladesh
AI	Calculated from Flood Forecasting and Monitoring Centre, Bangladesh and MODIS image of Aqua Satellite of Rapid Response System of NASSA
WC	Directorate of Agriculture Extension

The *principal component technique* has been employed to the natural logarithm of these variables in order to calculate the weight of these variables and then find the value *Flood Damage Intensity (FDI)*.

Three threshold values have been selected to define flood severity in terms of low, moderate and severe. Finally, the districts have been grouped according to their FDI value which has led us to the *Flood Damage Intensity Index (FDII)*.

ANNEX 5
METHODOLOGY OF FIELD SURVEY FOR FLOOD 2004

Flood Severity Mapping (as of 1st August)

Data Source

1. Water level data at 96 river points of Bangladesh Water Development Board
2. Flood forecasting maps of Flood Forecasting and Warning Centre, Bangladesh
3. Moderate Resolution Imaging Spectroradiometer (MODIS) image of Aqua and Terra Satellite of Rapid Response System of NASA
4. Thana level administrative boundary maps of Bangladesh

Methodology

Differentiation of Flood Severity Level

The flood affected Thanas/Upazillas were identified by using the flood forecasting maps and Aqua and Terra Satellite Images for the period between 24th July to 1st August, 2004. Flood severity of affected thanas/upazillas was reported under three categories:

- Severely Affected,
- Moderately Affected, and
- Low Flooded.

This classification was based on the water level at 96 river points (which is monitored and reported 3 times a day by Bangladesh Water Development Board) from 25th July to 1st August, 2004.

Selection of areas for field survey

Three sets of Thanas/Upazillas were selected for identification of survey areas.

Following considerations informed the selection of areas for survey:

- a. Areas should be geographically dispersed;
- b. Areas under all the three levels of flood should severity be covered; and
- c. Access to road network was considered for travel to and between survey areas.

TABLE A4
SELECTED THANAS/UPAZILLAS SURVEYED BY CPD TEAM

Upazilla	Zone	Level of severity
Fulchhari, Gaibandha	Gaibandha-Bogra	Severe
Dhunat, Bogra	Gaibandha-Bogra	Moderate
Shingra, Natore	Gaibandha-Bogra	Low Flooded
Nabiganj	Sylhet-Sunamganj	Low flooded
Balaganj	Sylhet-Sunamganj	Moderate
Chhatak	Sylhet-Sunamganj	Severe
Shibalay	Manikganj-Sirajganj	Moderate
Santhia	Manikganj-Sirajganj	Low Flooded
Sirajganj	Manikganj-Sirajganj	Severe

To facilitate the process of gathering the required information a checklist was prepared at CPD which was used by the field team for the purpose of debriefings, FGDs and interviews. Some of the discussions were also recorded, and photographs of flood affected areas and relief activities were taken for record and documentation.

ANNEX 6
CHRONOLOGY OF FLOOD 2004 RELATED EVENTS

Date of Announcement/ Publication	Major Events
25/06/04	Torrential rain results in flooding of the north and northeastern parts of Bangladesh.
28/06/04	Floods in Gaibandha, caused by the Bharamputra, Ghagot and Korotia rivers.
1/07/04-2/07/04	Flood situation improves as water level of most rivers fall.
04/07/04	Bhola, Potuakhali and Barguna are affected by flood water because of rise of the Meghna
09/07/04	Floods triggered by torrential rains and raging torrents cascade down from hills across the border of Bangladesh. 15 northeastern and southern districts are severely affected by the flood.
11/07/04	Rail links cut off between northern and northeastern districts and the capital
12/07/04	Inter district road links in the northern and northeastern districts are snapped
12/07/04	Flood and Disaster Management meeting held and relief and post disaster house building grants are approved.
14/07/04	Cutting of the Brahmaputra flood control embankment on the Jamuna river leads to the flooding of the Dhunat upazila in the Bogra district.
15/07/04	Army is engaged to protect the flood control structures
20/07/04-21/07/04	Khewai, Kushiara and Surma rivers cause the highest recorded water level in the Sylhet-Habiganj region.
22/07/04	Prime Minister declines US offer for flood relief assistance.
24/07/04	Meghna river causes the highest recorded water level of Chandpur (1.1 meters over the danger level).
25/07/04	Government rules out the possibility of declaring a state of emergency
26/07/04	Government meets with 56 NGOs to discuss flood. It asks the NGOs to take an active part in the relief efforts, and to keep them informed of their actions.
27/07/04	Army deployed to safeguard the DND dam.
27/07/04	PM says, in an interview with the BBC that foreign aid for relief is not necessary, for the time being, though foreign assistance for rehabilitation will be required.
28/07/04	PM seeks international assistance
29/07/04	Minister for Food and Disaster Management estimates that flood damages may rise to Tk. 40,000 crore.
29/07/04	Finance Minister says that the government will suspend loan recovery from flood-hit sectors including garments, textiles, poultry and shrimp and give them additional loans for post-flood rehabilitation.
31/07/04	Forecasts for another flood spell in mid August made in press
31/07/04	Six-member UN team from the Office of Coordination for Humanitarian Assistance arrives in Dhaka to estimate flood damage
02/08/04	PM reiterates call for international help
03/08/04	WFP estimates flood damages at \$7 billion.
03/08/04	Food and Disaster Management Minister announces it will feed 20m flood-hit people until December
03/08/04	UN meets with donors and NGOs to assess flood damage
04/08/04	World Food Programme announces massive emergency relief to be launched on the third week of this month
04/08/04	Heads of UN Agencies hold a planning meeting for post-flood assistance
05/08/04	Government plans to divert 10% of ADP funds for post-flood rehabilitation
05/08/04	Finance Minister decides to immediately launch post-flood rehabilitation programme with a Tk 1,500 crore fund, redirected from ADP
05/08/04	PM directs Agriculture Ministry to provide 5kg of seeds and 25 kg of fertilizer to marginal farmers free of cost within a week, under the first phase of the Agriculture Rehabilitation Programme of 2004
10/08/04	UN calls for \$238 million assistance to Bangladesh
11/08/04	The government decides to distribute four lakh tones of food to forty lack families under the Vulnerable Group Feeding programme from the last week of this month.

ANNEX 7
SURVEY AREAS FOR RAPID ASSESSMENT OF FLOOD 2004

