Flood 2017: Assessing Damage and Post-flood Management

Md. Zafar Sadique, **Senior Research Associate**
&
Estiaque Bari, **Senior Research Associate**

Centre for Policy Dialogue (CPD)
19 October 2017

- **Study Team**
  - ✓ Md. Zafar Sadique, Senior Research Associate, CPD
  - ✓ Estiaque Bari, Senior Research Associate, CPD
  - ✓ Asif Mustakim Niloy, Field Associate, CPD
  - ✓ Moumita Zarin, Field Associate, CPD

- The Team would like to express its deep gratitude to Dr M. Asaduzzaman, Professorial Fellow, Bangladesh Institute of Development Studies (BIDS) for his valuable advice and guidance in conducting the study

- The Team would like to register its deep appreciation to Dr Debapriya Bhattacharya, Distinguished Fellow, CPD and Professor Mustafizur Rahman, Distinguished Fellow, CPD for their insightful comments and suggestions in preparing the report

- This study has been carried out as part of CPD's flagship Independent Review of Bangladesh's Development (IRBD) Programme
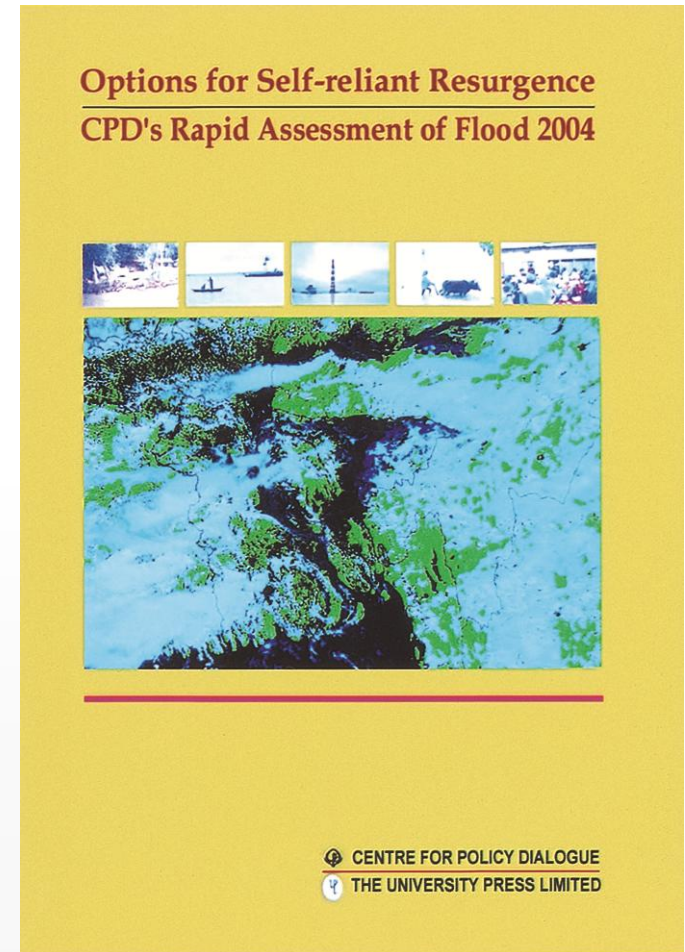
Acknowledgements

- The Team would like to acknowledge the valuable support extended by the concerned officials from Oxfam in Bangladesh and Hilfswerk der Evangelischen Kirchen Schweiz (HEKS) in organising the field visits

- The Team would like to gratefully recall the support of individuals and concerned officials from the following local partner organisations during the field visits:
  - ✓ Association for Rural Cooperation (ARCO), Naogaon
  - ✓ Effort for Rural Advancement (ERA), Sunamganj
  - ✓ Gana Unnayan Kendra (GUK), Gaibandha
  - ✓ Manab Mukti Sangstha (MMS), Sirajganj
  - ✓ Palli Sree, Dinajpur
  - ✓ Society for Social Service (SSS), Tangail
  - ✓ Mr Md. Sohel Rana (Manikganj field visit)

- The Study Team is indebted to a number of concerned government and non-government organisations and individuals for their valuable cooperation

Contents

- **Section 1: Study Objectives and Methodology**

- **Section 2: Distinctive Features of Floods 2017**

- **Section 3: Damage Estimates and Field Observations**

- **Section 4: Review of Post-flood Management**

- **Section 5: Recommendations**

Section 1: Study Objectives and Methodology

Context

- Bangladesh has experienced two floods, one after the other, in 2017

  ✓ Flash flood, during April, affected people living in the *haor* and low-lying areas of North-Eastern region

  ✓ Monsoon flood, beginning from late June, affected 32 districts of Bangladesh

- The last time that this type of natural disasters afflicted Bangladesh was in 2007 when the country was hit by extensive flood and also by cyclone Sidr

- Flood 2007 was preceded by Flood 2004 when the economy incurred significant losses

  ✓ CPD carried out financial loss/damage estimate of flood in 2004

Options for Self-reliant Resurgence
CPD's Rapid Assessment of Flood 2004

CENTRE FOR POLICY DIALOGUE
THE UNIVERSITY PRESS LIMITED
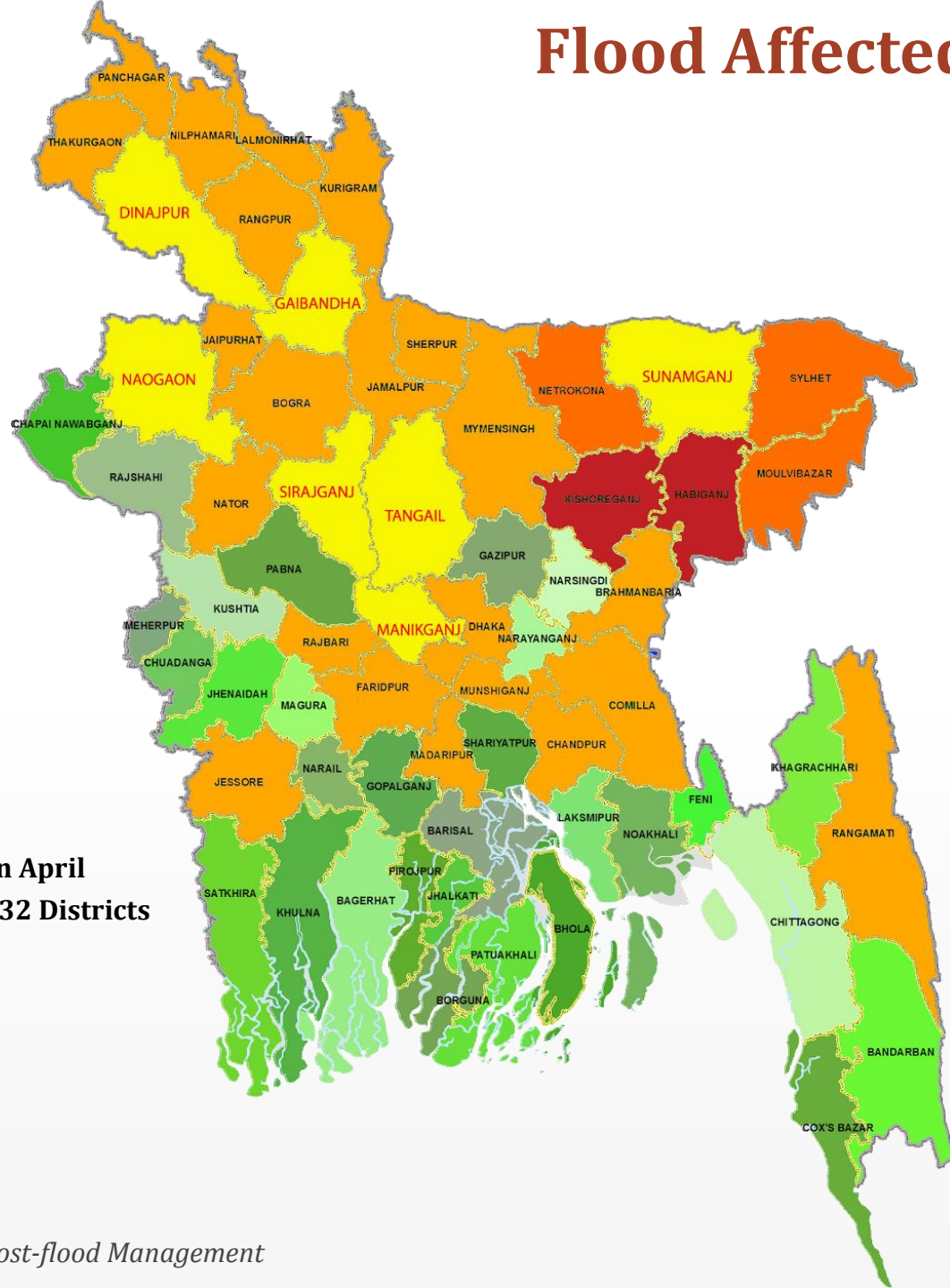
Section 1: Study Objectives and Methodology

Objective of the present study

▪ The broad objective of the CPD study is to assess the impact of Floods 2017, to assess post-flood management and to come up with a set of recommendations

▪ Specific objectives of the study were as follows:

✓Assessment of damage incurred in 2017 floods

✓Review of government's relief activities and rehabilitation programmes in view of their adequacy and efficacy

✓Assessment of needs of the flood-affected people

Flood Affected Areas

Legend

🟥	**Haor Flash Flood in April**
🟧	**Monsoon Flood in 32 Districts**
🟨	**CPD Sample Areas**

Section 1: Study Objectives and Methodology

Methodology

- The study is based on both quantitative exercise and qualitative judgement

- CPD has conducted in-depth interviews of concerned officials of the local administration, local eminent persons including school teachers, businessmen, journalists.

- **12 focus group discussions (FGDs)** were carried out in affected areas.

- **Seven districts (out of the affected 32 districts) were covered** by the CPD
  - o Dinajpur
  - o Gaibandha
  - o Manikganj
  - o Naogaon
  - o Sirajganj
  - o Sunamganj
  - o Tangail
  - ✓ The districts were randomly selected considering the major river basins

- The study analysed the following information to estimate the losses/damages
  - o District-wise preliminary physical data on loss/damage from 32 affected districts
  - o Disaggregated sample data from 13 Districts
  - o Disaggregated sample data from 132 Upazillas

Methodology *(cont.)*

- Assess various relief activities and rehabilitation programmes carried out by various government agencies, the study has reviewed a number of Government Orders (GOs) and budget documents

- Support measures and programmes undertaken by various non-state organisations remained outside of the study scope

Sources of data

- ✓ Ministry of Disaster Management and Relief (MoDMR)

- ✓ Department of Disaster Management (DDM)

- ✓ Bangladesh Bureau of Statistics (BBS)

- ✓ Department of Food (DoF)

- ✓ Department of Agricultural Extension (DAE)

- ✓ Deputy Commissioners' (DC) Offices

- ✓ Upazilla Nirbahi Officers' (UNO) Offices

- ✓ FGDs

- ✓ Key Informant Interviews (KIIs)

Section 2: Distinctive Features of Floods 2017

Comparable Scenarios Concerning Recent Floods

Particulars	Flood 2004	Flood 2007	Floods in 2017	
			Flood April 2017	**Flood August 2017**
Affected districts	39	39	6	32
Affected upazilas	265	256	60	208
Affected unions	NA	2,057	450	1,324
Affected pourshavas	NA	67	NA	64
Affected households (Full/Partial)	74,68,128	22,86,564	1031405	17,34,384
Affected people	3,63,37,944	1,06,55,145	4667623	82,02,025
Death (Drowning, snake bite etc)	747	554	10	147

Source: MoDMR and BBS Statistical Yearbook various issues.

- Early flash flood

- Less extensive spatial coverage

- Less number of people affected

- Death toll has significantly dropped

Section 2: Distinctive Features of Floods 2017

Floods in 2017 at a glance

- In the *haor* areas of North-Eastern region, flood caused wide ranging damage of *boro* crop

- During the August flood, some areas were newly inundated after a long period

- The two floods inspite of their distinctive features, have caused significant damage to affected areas. Damage was incurred in the form of:
  - ✓Loss of lives, dwelling houses and livelihood
  - ✓Crop damage
  - ✓Physical infrastructure damage

- The two rounds of floods have caused serious miseries for people in affected areas, particularly for the lowest income groups

- Spontaneous relief work was carried out by government and private institutions as well as individuals as part of emergency response. However, in terms of adequacy, coordination and channel of distribution there were significant weaknesses

- Government has set out incentive packages for affected farmers

Section 2: Distinctive Features of Floods 2017

Causes of floods

- **Flash flood in *haor* and low-lying areas**
  - ✓ Six districts in the *haor* and low-lying areas (Habiganj, Kishoreganj, Moulavibazar, Netrokona, Sunamganj and Sylhet) were affected
  - ✓ Flood started to affect since the end of March 2017, at least a month earlier than the regular flood season
  - ✓ Early and heavy rainfall along with sudden rush of water from upstream were the primary causes of the flood
  - ✓ In addition to these, as per the statement of the local people, delayed start of the annual repair of the embankment by relevant authorities was equally responsible in exacerbating the adverse effects of the flash flood

- **Monsoon flood in 32 districts**
  - ✓ Excessive rainfall which resulted in significant rise in the water level in various rivers in the northern part of the country, above the danger level, caused the monsoon flood
  - ✓ Continued rainfall since late June and excessive flow of water from upstream in mid-August have aggravated the situation and contributed to prolong the flood for nearly 20 days
  - ✓ Excessive water flow above the danger level in some cases severely damaged the town protection embankments and flooded the town areas (e.g. Dinajpur, Naogaon, etc.)

Section 3: Damage Estimates and Field Observations

Assessment of *haor* region flood

- The flash flood affected about 46.7 lac people from 10.3 lac households
  - ✓ This is about one-fourth of total population of the six affected districts
  - ✓ 85% households were farming households

- CPD has estimated the loss of *boro* rice production to be to the tune to 15.8 lac MT
  - ✓ The loss is equivalent to 8.3% of national average of *boro* production
  - ✓ This is about 52.2% of total *boro* rice production of the concerned six districts

- In monetary terms, estimated loss was about Tk. 5,300 crore
  - ✓ This is equivalent to 3.7% of agriculture crop sector gross domestic product (GDP)

- According to the MoDMR (12 May 2017) another 460 hectares of vegetable cultivation areas were damaged by the flash flood

Section 3: Damage Estimates and Field Observations

Assessment of monsoon flood in August

- Number of affected people: about 82 lac
  - ✓ This was about 8% of total population living at the 32 affected districts

Estimated loss and damage

- Estimated cost of repairing and rebuilding of dwelling houses to pre-flood state was about Tk. 2,600 crore

- Cost of repairing and rebuilding of roads, culverts and embankments was about Tk. 4,500 crore

- About 9% cultivated crop land was damaged
  - ✓ Gross value of foregone production was about Tk. 2,700 crore
  - ✓ Estimated loss of rice production was about Tk. 700 crore to Tk. 1,800 crore, taking into account the possible replantation of *aman* crops in the range of 80%-40%

- Financial cost of monsoon flood is likely to be **about 0.35-0.44% of FY2017-18 GDP**

Section 3: Damage Estimates and Field Observations

Estimation of damage/loss concerning the followings could not be made due to lack of reliable data

- ✓ Loss of livestock (e.g. cow, buffalo, sheep, goats, duck, chicken, etc.)
- ✓ Loss to fisheries sector
- ✓ Restoration cost of sanitation and tubewell
- ✓ Damage of educational and religious institutions
- Additional cost of treatment
  - ✓ Mostly prevalent in post-flood period

Other associated costs that remained outside the scope of the study

- Purchase of rice from market, especially in the mono-crop based *haor* areas
- Additional cost of purchasing cooking fuel particularly in low-lying areas
- Additional costs incurred in construction of temporary walls to protect dwelling houses from being completely washed away

Section 3: Damage Estimates and Field Observations

- Loss of productive work hours and limited opportunities to field jobs

- Loss in schooling

- Loss in cultural values

Associated vulnerabilities

- Reduced purchasing power

- Additional burden of loan repayment

- Higher cost of agricultural inputs for replantation

- Distress sale

Section 3: Damage Estimates and Field Observations

Summary of observations (1)

- The maximum loss was evident in the crop sector followed by damages in embankments, roads and culverts
  - ✓ After the August flood, a large number of *kancha* dwelling houses were found to be washed away
- Many of the dams/embankments have exceeded their operational lifetime and need to be constructed anew
  - ✓ A number of embankments/dams were at risk due to inappropriate maintenance
- Some areas which were affected after a prolonged period, lacked adequate preparedness to manage the flood situation
- Sector-specific listing of damaged assets were not done in a timely manner except for 'damage listing of dwelling houses'
  - ✓ Lack of coordinated approach on the part of various involved local government institutions
- Rural people are exposed to high cost of borrowing

Section 4: Review of Post-flood Management

Relief activities
✓Gratuity relief (cash) ✓Gratuity relief (rice) ✓CI sheets

Appropriation of Relief Allocation

Particulars	Flash flood in *haor*		Monsoon flood in 32 districts			
	GR Rice (in MT)	GR Cash (in crore Tk.)	GR Rice (in MT)	GR Cash (in crore Tk.)	CI Sheet (bundle)	Cash for Reconstruction of House (in crore Tk.)
Allotment (1)	4,544	2.4	27,207	8.9	-	-
Distributed (2)	3,287	1.9	17,721	5.7	31,980	9.6
Budget (3)	138,000[a]	522[a]	125,000[b]	488.8[b]	80,000	24[b]
Coverage (as % of Budget) (4=2/3*100)	**2.4**	**0.4**	**14.2**	**1.2**	**40.0**	
Adequacy of relief activities for flood affected households in 2017						
% of total affected families [c]	14.9	1.7	51.1	3.3	-	-
% of completely damaged houses	-	-	-	-	30.8	-
% of partially damaged houses	-	-	-	-	5.0	-
% of total affected houses	-	-	-	-	4.3	-

Note: a/Revised budget figure for FY17; b/Budget figure for FY18; c/ Calculated assuming each household had received 20 kg GR rice or Tk. 1000 in GR cash.   Source: Authors' estimation.

- Under utilisation of relief allocation for both cash and rice
  - ✓Capacity constraint in terms of service delivery
- Mistargeting (listing/overlapping)
- Smaller clusters did not receive relief
- Government relief did not reach to the remote areas

Section 4: Review of Post-flood Management

- **Rehabilitation and support programmes**

- **Government Vulnerable Group Feeding (VGF) programme in the *haor* region**

  ✓ Under the VGF programme, government has provided rice (30 kg per month) support to 3.8 lac families in *haor* areas for six months

  ✓ Total amount of rice allocated was 66.5 thousand MT (which is 19% of total budget for VGF Programme in FY2016-17)

  ✓ This is equivalent to 36.8% of the total number of flood-affected households (10.3 lac) in corresponding areas

  ✓ To support remaining flood affected poor households, **additional 62.9 thousand MT** rice would be required

Section 4: Review of Post-flood Management

- CPD has also reviewed a number of GOs issued to provide assistance to affected farmers

- **Scheme 1: Seed support to farmers for *aman* replantation**

  ✓Announced: on 21 August 2017

  ✓Allocation: Tk. 90.86 lac from the agriculture rehabilitation assistance budget of Tk. 100 crore

- *CPD comments*

  ✓Adequate to provide support to only 52,000 farmers to cultivate one *bigha* land

  ✓This covers seed support to replant *aman* in 2.5% of total flood-affected *aman* land

Section 4: Review of Post-flood Management

- **Scheme 2a: Seed, fertiliser and cash support to farmers for 10 *kharif-2, robi* and next *kharif-1* crops**

  ✓ Announced: on 10 September 2017

  ✓ Allocation: Tk. 58.8 crore from the agriculture rehabilitation assistance budget of Tk. 100 crore

  ✓ Target group: small and marginal farmers

  ✓ Ten crops: wheat, maize, mustard, *kheshari*, groundnut, *till*, *mug*, *maskhalai*, felon, brinjal

- **Scheme 2b: Seed, fertiliser and cash support to farmers from flood affected areas for 6 *robi* crops**

  ✓ Announced: on 2 October 2017

  ✓ Allocation: Tk. 19.9 crore from the incentive management programme (only 0.22% of agricultural subsidy budget of Tk. 9,000 crore)

  ✓ Crops: *boro*, wheat, maize, mustard, *kheshari*, groundnut

Section 4: Review of Post-flood Management

- *CPD comments as regards Scheme 2a and 2b*

  - ✓ A number of support measures went to non-targeted areas:
    - for wheat, 11.8% of the total support went to non-flood affected areas
    - for *boro:* it was 6.1%
    - for maize: it was 29.2%

  - ✓ Some flood-affected areas have remained outside of the support programme even though the concerned districts had significant areas covered under respective crop cultivation
    - flood-affected district Faridpur accounted for 7.2% of wheat cultivation area
    - flood-affected district Mymensing accounted for 5.5% of *boro* cultivation area

Section 4: Review of Post-flood Management

✓Inadequacies in the support measures were evident

o in case of wheat, the support covers cultivable land which is about 4.4% of total damaged cultivable land

o In case of *boro*, this support covers cultivable land which is about 26.8% of total damaged cultivable land

o In case of maize, this support covers cultivable land equivalent to 39.4% of total damaged cultivable land

✓Both the programmes targeted the same crop in the same areas (wheat in 9 common districts and maize in 15 common districts) through the same operational channels

o This could possibly be due to selection bias and operational inefficiency

✓Basis for proportional distribution of crop inputs was not logical

o Differently affected districts received same amount of support

o Districts with higher cultivable areas received same amount of support (e.g. Comilla and Thakurgaon)

Section 4: Review of Post-flood Management

- **Scheme 3: *boro* crop incentives for six low-lying *haor* districts**

  ✓ Announced: 2 October 2017

  ✓ Allocation: 6 lacs farmers are to receive the support to cultivate one *bigha* of land each, irrespective of their flood loss

- *CPD comments*

  ✓ Support coverage was 68.4% of the total number of farmers affected by the flash flood

  ✓ In terms of area coverage, government incentive covered 19.2% of the total area of cultivable land affected by the flash flood

  ✓ In terms of cost of *boro* production, government incentive is equivalent of 4% of the total production cost equivalent to the total production cost incurred due to the flash flood

Section 4: Review of Post-flood Management

Summary of observations (2)

▪ Support measures for next crop season are inadequate in view of the affected areas and also in terms of farmers under the schemes

  ✓ Is there any policy for providing/allocating agricultural incentive and support?

▪ Unlike the crop sector, no support measure was announced for fisheries and livestock sectors

  ✓ Fishermen who lost investment and in need of urgent fingerlings, didn't receive any support

  ✓ Many households lost livestock in the flood but in absence of proper data, it remains difficult to design incentive programmes for actual affected farming households

  ✓ High market price of animal food are forcing households to sell their livestock at reduced rate

▪ Significant increase in rice price has exacerbated the condition of flood-affected people

▪ Limited use of digitisation in the flood management process

▪ NGOs have adopted extensive relief works and rehabilation programmes. However, these are mostly targeted to their client base

Recommendations

- *Short term*
  - ✓Improve of service delivery for proper utilisation of relief allocation
  - ✓Government could have reached the remotest and farthest through more effective collaboration with NGO networks
  - ✓Adequacy and coverage of rehabilitation programmes can be extended through better use of agriculture subsidy budget
  - ✓Raise efficiency of the public food stock management system
  - ✓Affected fishermen are in urgent need of fingerlings to start fish culture anew
  - ✓Participation of local people should be raised in project implementation committees

Recommendations *(cont.)*

- *Medium term*

  ✓ Projects need to be undertaken on a priority basis to repair damaged road networks

  ✓ Structural flaws of road, bridge and culvert networks in many rural areas adjacent to farm lands, which cause water logging, need to be corrected

  ✓ Rebuilding and repairing of embankments and dams need to be carried out in a timely and coordinated manner

  ✓ A joint workplan needs to be chalked out by the Ministry of Water Resources, R&HD and LGED with support from other local institutions

  ✓ Undertake project to establish protection walls at haor areas

  ✓ Periodic dredging of rivers

  ✓ A special financing mechanism is required for rural (affected) people to get access to low cost formal credit

Concluding remarks

✓ Some resilience were observed in terms of limiting losses/damages caused by flood

✓ In terms of flood damage, it is likely to be 0.35-0.44% of GDP. In the macroeconomic context, it has its impact on economic growth and development of the country

✓ Government relief activities were timely, but not adequate

✓ Damage of a number of embankments were due to weak maintenance work programme

✓ Crop sector incentive programmes have scopes to use more funds to ensure coverage (i.e. area, farmer and cost)

Thank you