Overview of Disaster Management: Bangladesh Perspective

By

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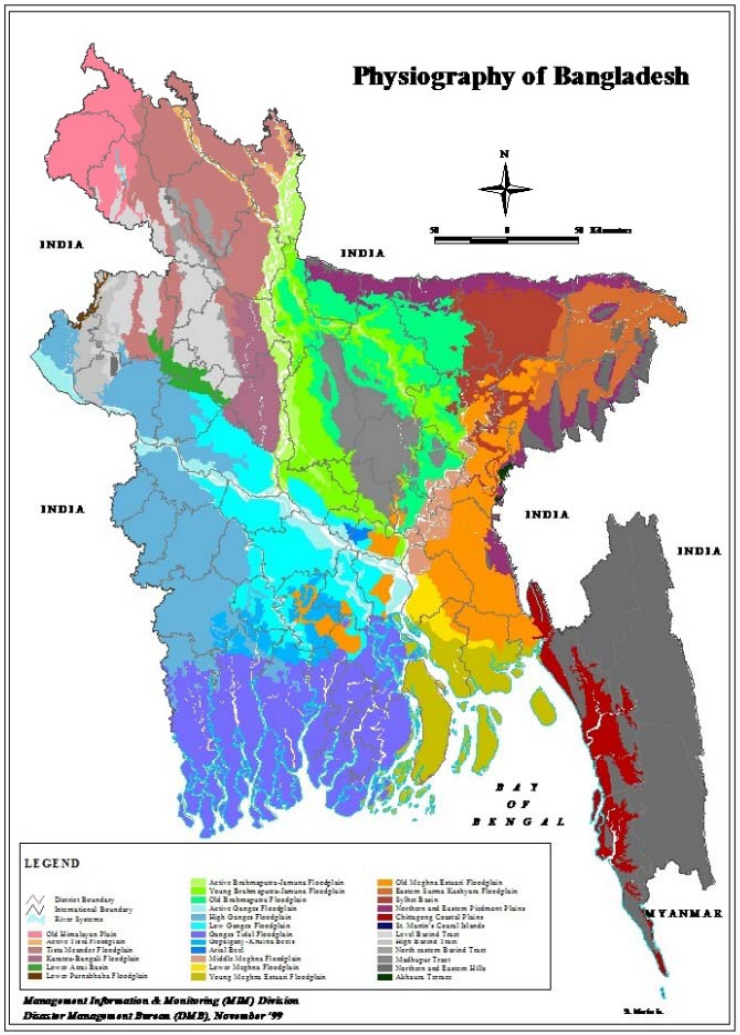
Country Profile: Bangladesh

- Total population : 165 million
- Total Geographic Area : 147,570 sqkm
- Population density in coastal areas : 1000/sqkm
- Flood plains: 80% of total areas
- Located at fragile deltaic flood-plain
- More than 300 rivers (57 Trans boundary rivers)
- High-risk country to recurrent natural disasters

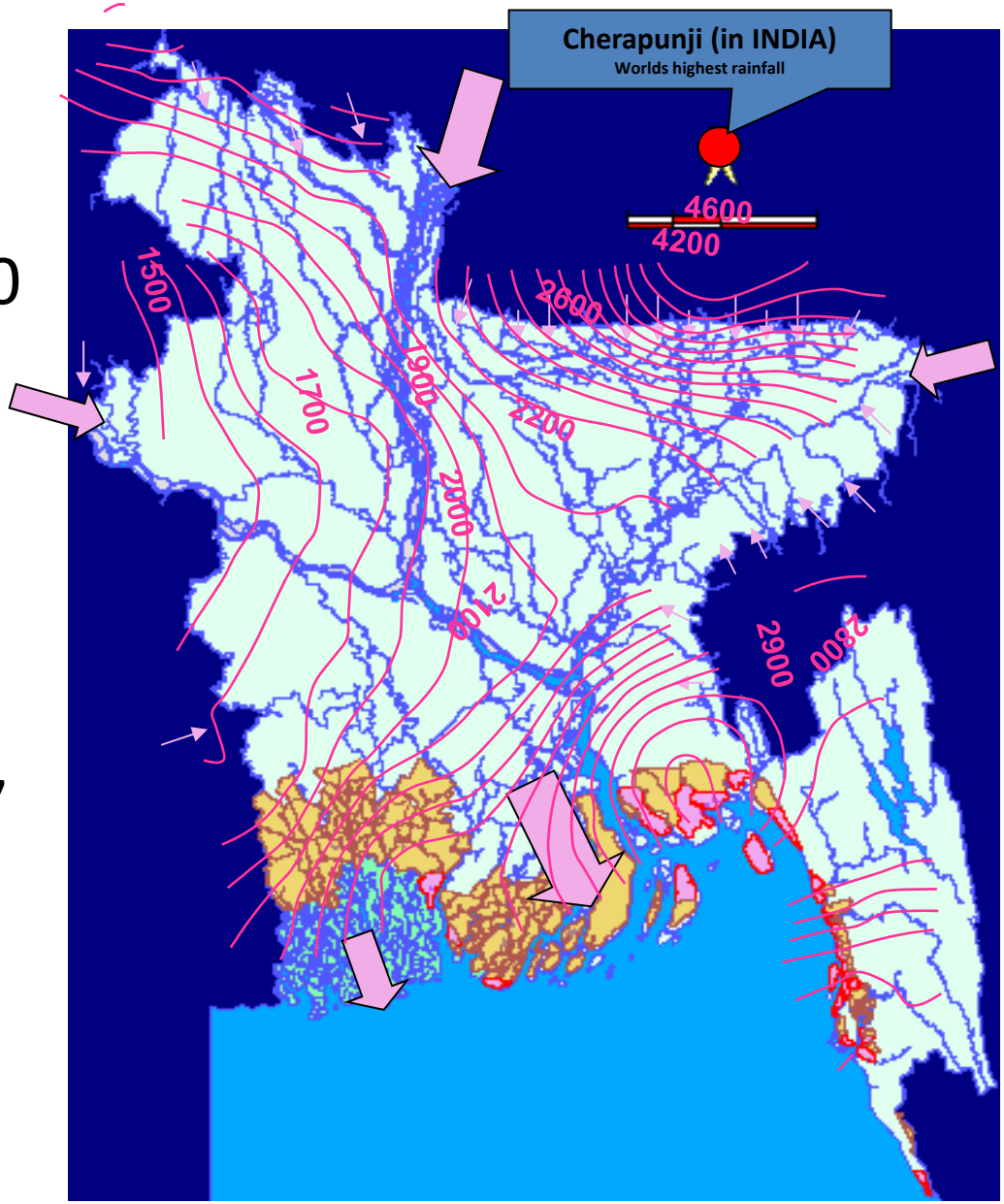
Physiography of Bangladesh

- Flood Plain
- Costal forest
- Hilly area
- High land forest



A riverine country with 310 rivers

- Total river length : 24,000 km
- Annual Ave. Rainfall: 1200mm in NW and 5500mm in NE
- Trans-boundary rivers-57
  - 54 from India
  - 03 from Myanmar



Key Factors of Vulnerability

Global Warming and Climate Change

Geographical location

Dominance of floodplains

Low elevation from the sea

High population density

High level of poverty

Disasters in Bangladesh

- Flood
- Tropical Cyclone
- Storm Surge
- Tornado
- River Bank Erosion
- Drought
- Earthquake
- Arsenic
- Fire
- Landslide

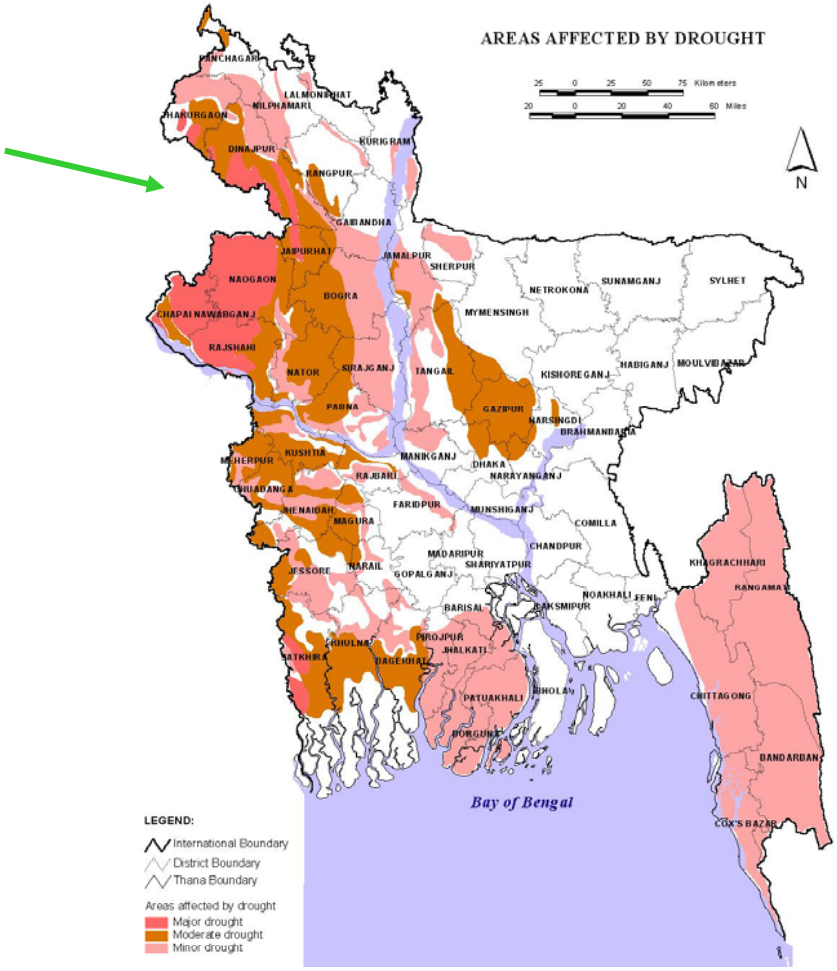
Disasters in Bangladesh

Year	Disasters	Death
1970	Cyclone	300,000
1988	Flood	2,373
1988	Cyclone	5,704
1991	Cyclone	138,868
1996	Tornado	545
1997	Cyclone	550
1998	Flood	918
2004	Flood	747
2007	Flood	1,071
2007	Landslide	129
2007	Cyclone(SIDR)	3,406
2009	Cyclone (Alia)	190
2012	Landslide	119
2013	Cyclone (Mahasen)	16
2015	Cyclone (Komen)	1

Floods

Cyclone Devastated Area

Drought



About 25% of the country suffer water stress in dry season

River Bank Erosion

Bangladesh looses 10,000 ha land annually during the last 30 years due to river bank erosion

Displacement about 68,000 population/yr

Building Collapses

Rana Plaza Experience

Fire Incidents

Landslide:

- In Bangladesh, landslides are mostly triggered by heavy rainfall.
- Underlying causes of landslide include deforestation, hill cutting, unregulated development work.
- Recently landslide has emerged as a major hazard.
- Large and small landslides occur almost every year.

Earthquake:

- The north and northeastern parts of Bangladesh are the most active seismic zones.
- The tectonic set-up of three converging lithopheric plates with the presence of seismogenic faults makes vulnerable to earthquake.
- Bangladesh faced major earthquakes and faced moderate shakes every year.

Sediment Deposition

Scarcity of surface water

Loss of Navigability

Less ground water recharge

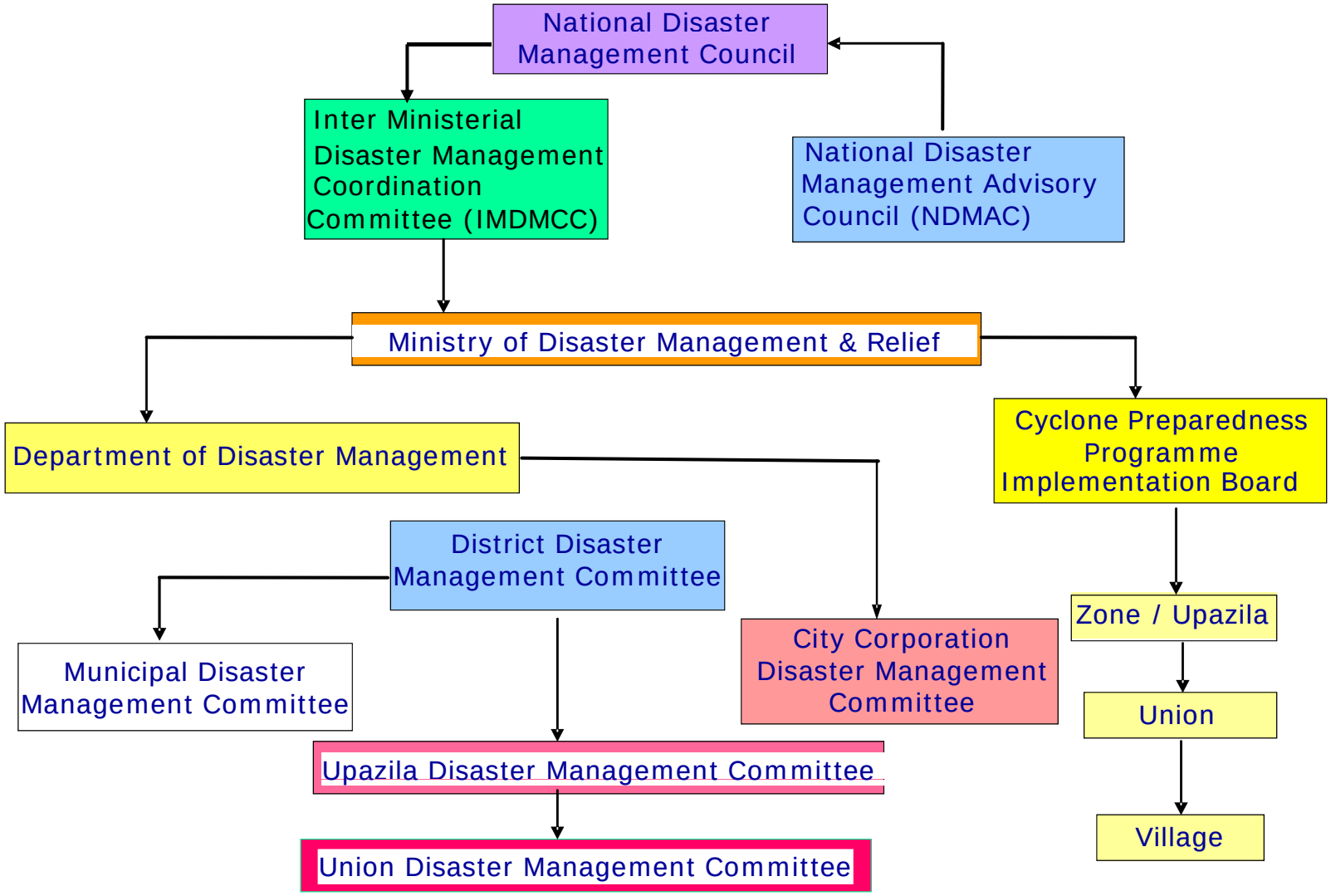
GoB Vision on Disaster Management

To reduce the vulnerability of people, especially the poor, to the effects of natural, environmental and human induced hazards to a manageable and acceptable humanitarian level.

Mission of The MoDMR

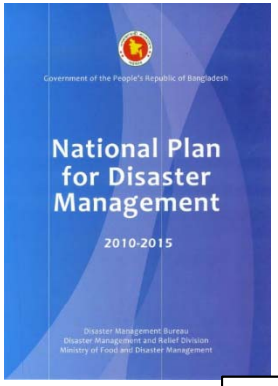
To bring a paradigm shift in disaster management from conventional response and relief to a more comprehensive risk reduction culture and to promote food security as an important factor in ensuring the resilience of the community to hazards.

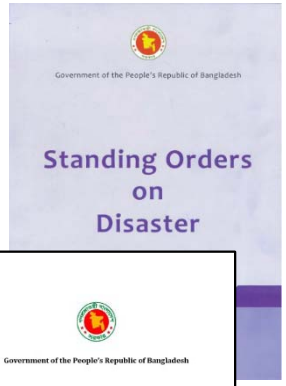
Disaster Management Institutions in Bangladesh

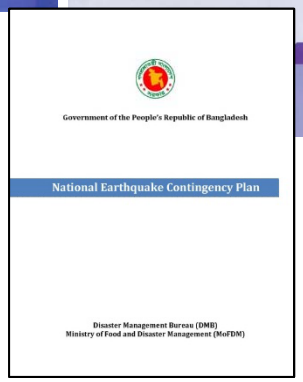


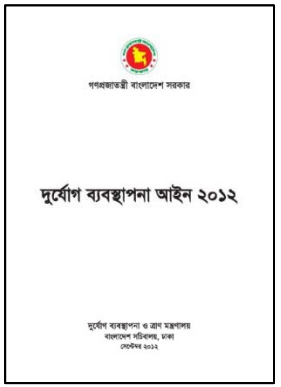
Legal Framework for Disaster Management

- Disaster Management Act 2012
- Disaster Management Policy
- Standing Orders on Disaster
- National Plan for Disaster Management
- Earthquake Contingency Planning

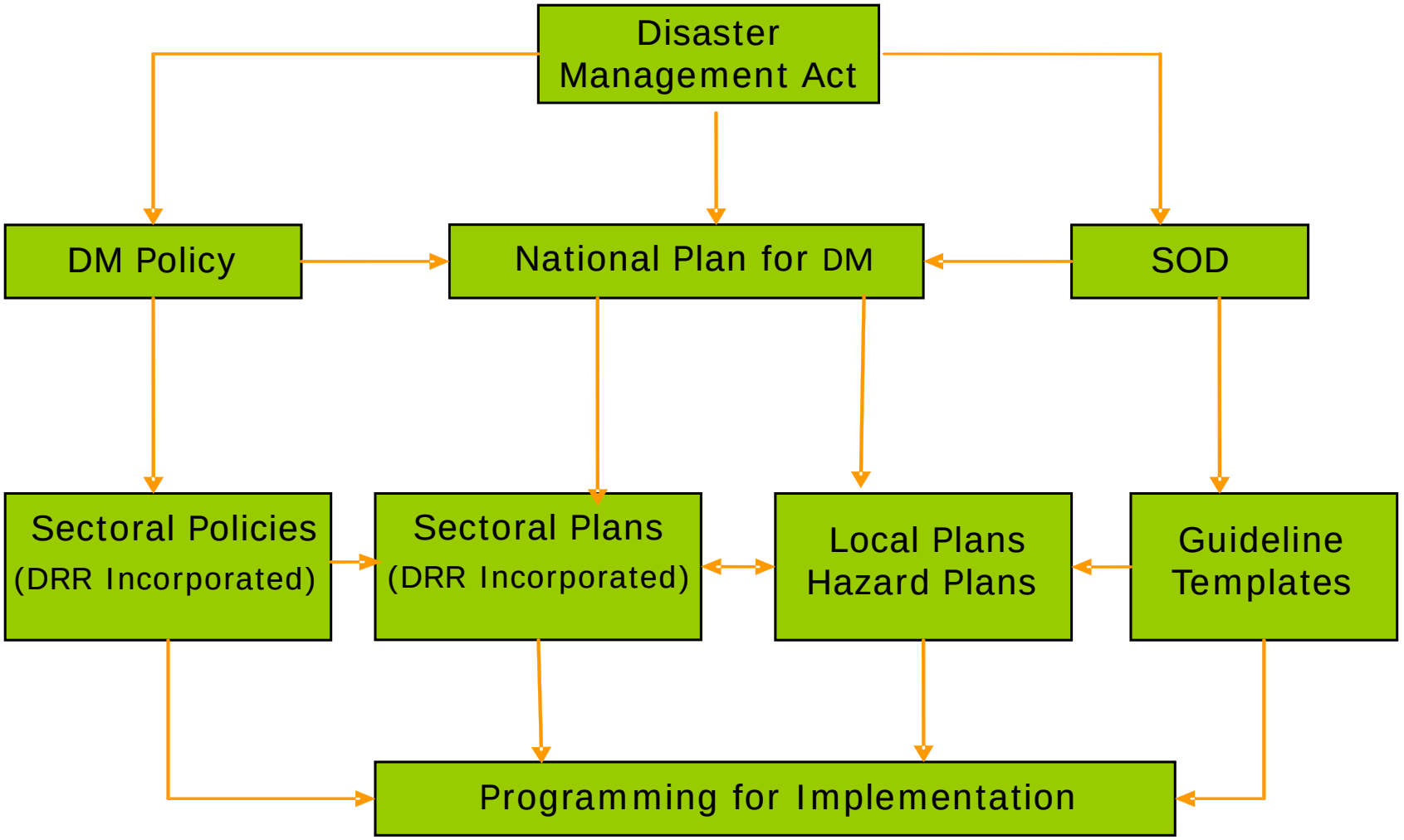








Disaster Management Regulative Framework



Early Warning Dissemination

BMD and FFWC generates Early warnings

Ensure receipt of warning signals of imminent disasters by all concerned officials, agencies and mass communication media

Publish daily bulletins during disaster period for foreign embassies and UN Missions

CPP plays vital roles disseminating EW to community level

Committees under SOD ensure EW dissemination at all level

Immediate Assistance & Needs

- Search and rescue operation
- Supply of instant food
- Humanitarian Assistance Programme
- Temporary shelter for displaced people
- Restoration of livelihoods
- Safety Net Programmes- GR, VGF, GR Cash and Blanket

Structural Intervention

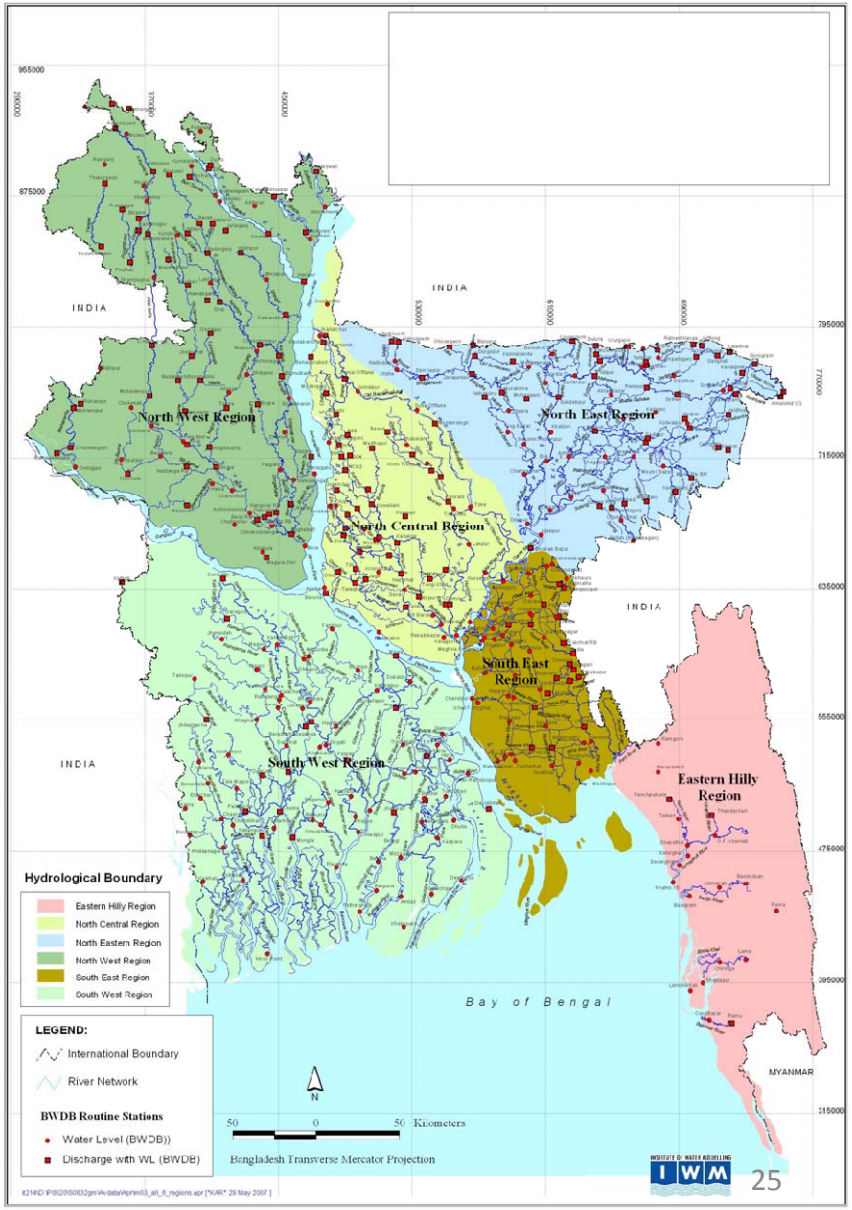
- Rural Infrastructure Development
- Rural Infrastructure Maintenance
- Employment Generation Program for the Poorest
- making of rural roads
- Bridge & culverts
- Cyclone & flood shelters
- embankments and polders

Non-Structural Intervention

- Capacity Building of 14 ministries and DRR organizations
- Development Early Warning system
- Development of CPP and Urban Volunteers
- Community & civil society mobilization
- Earthquake Contingency Plan
- Incorporation of Disaster issues in the curriculum
- Earthquake and Cyclone drill
- Building resilience nation
- Preparing multi-hazard map
- Awareness raising activities

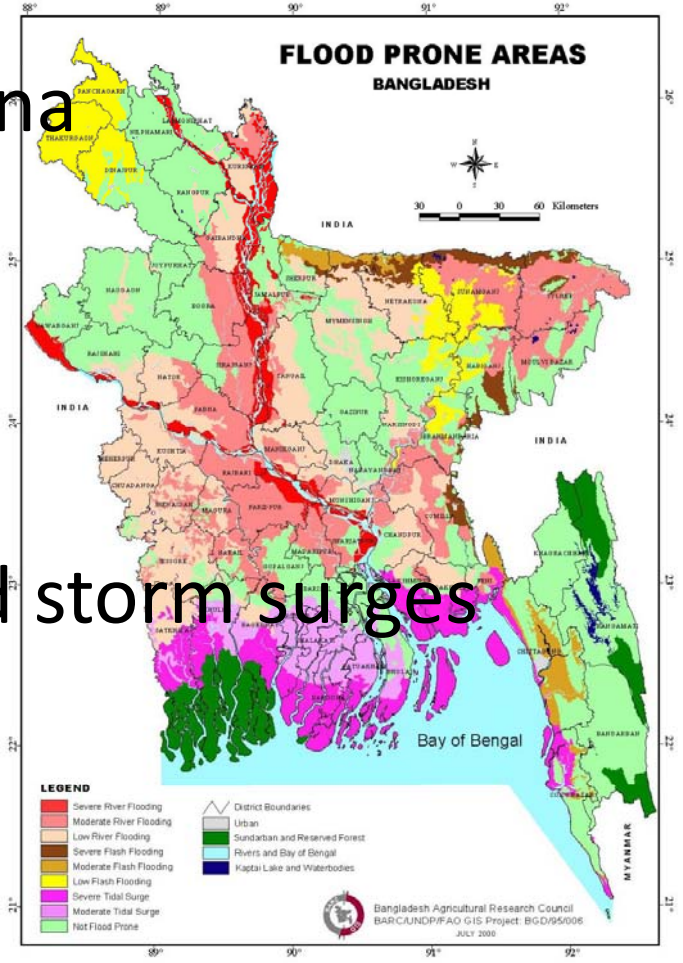
HYDROLOGICAL REGIONS IN BANGLADESH

- For ease of hydrological management BWDB follows 6 regions considering SW and SC as one region.
- For practical convenience, IWM too uses 6 hydrological regions for region models considering SW and SC as one region. Thus, 6 (six) hydrological regions
  - North West Region
  - North Central Region
  - North East Region
  - South West Region
  - South East Region



Flood

- Floods are annual phenomena
- Flash flood
- Rain flood
- Monsoon flood
- Flood caused by cyclone and storm surges

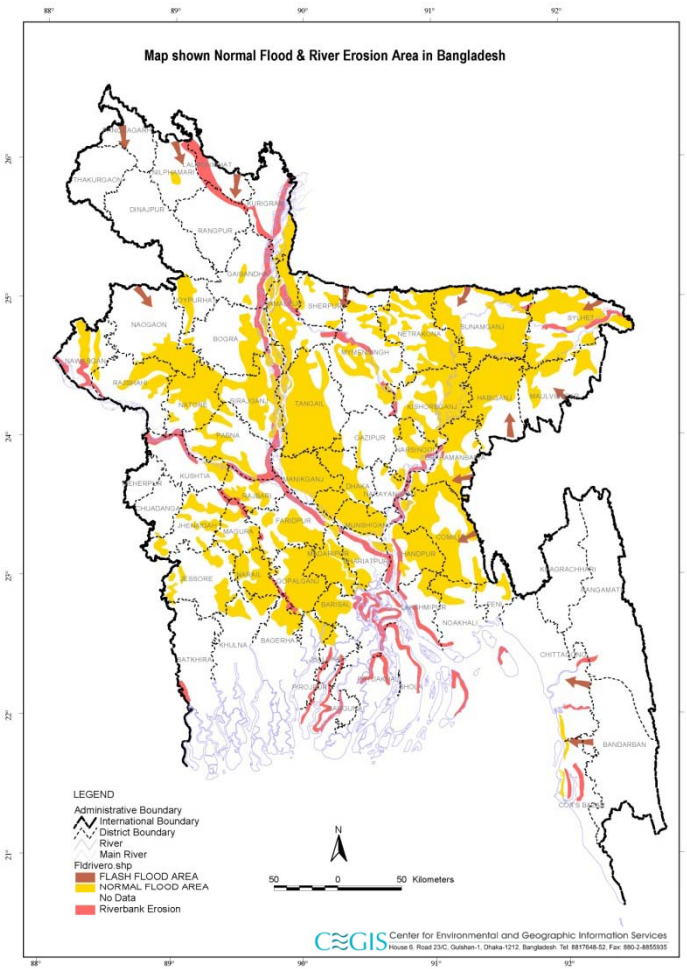


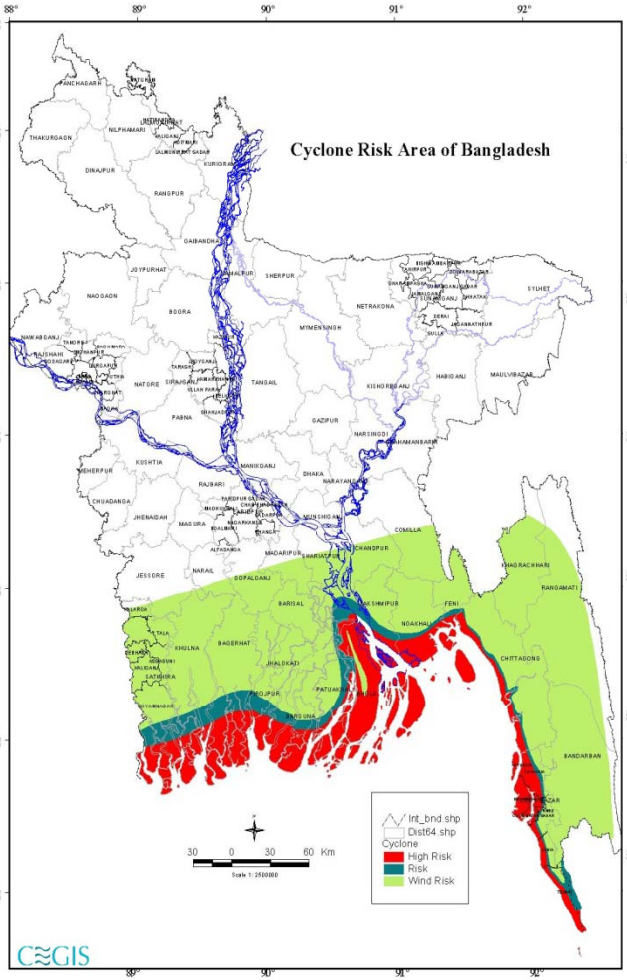
Preparing Flood Maps: Flood Zones in terms of Flood Depths

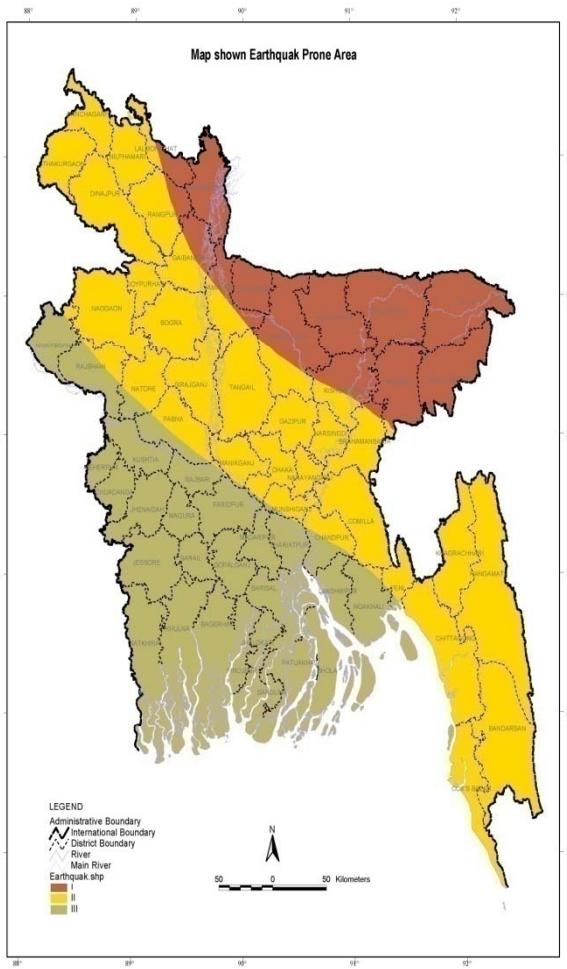
For practical use, Master Plan Organisation (MPO) developed *flood depth* classification scheme, given below:

MPO Flood Depth Categories [MPO, 1987]			
Serial	Symbol	Flood Category	Flood Depth (m)
1	F0	Nonflood	0 - 0.3
2	F1	Shallow flood	0.3 - 0.9
3	F2	Medium flood	0.9 – 1.8
4	F3	Deep flood	1.8 – 3.6
5	F4	Very deep flood	> 3.6

Flood/River Erosion, Cyclone and Earthquake Hazard Maps







RETURN PERIOD-WISE OUTPUTS

Flood Assessment, Modelling and Mapping being done *return period-wise*

- 25-year return period
- 50-year return period
- 100-year return period
- 150-year return period

Ultimate output will be union-wise/upazila-wise maps on flood prone areas of Bangladesh

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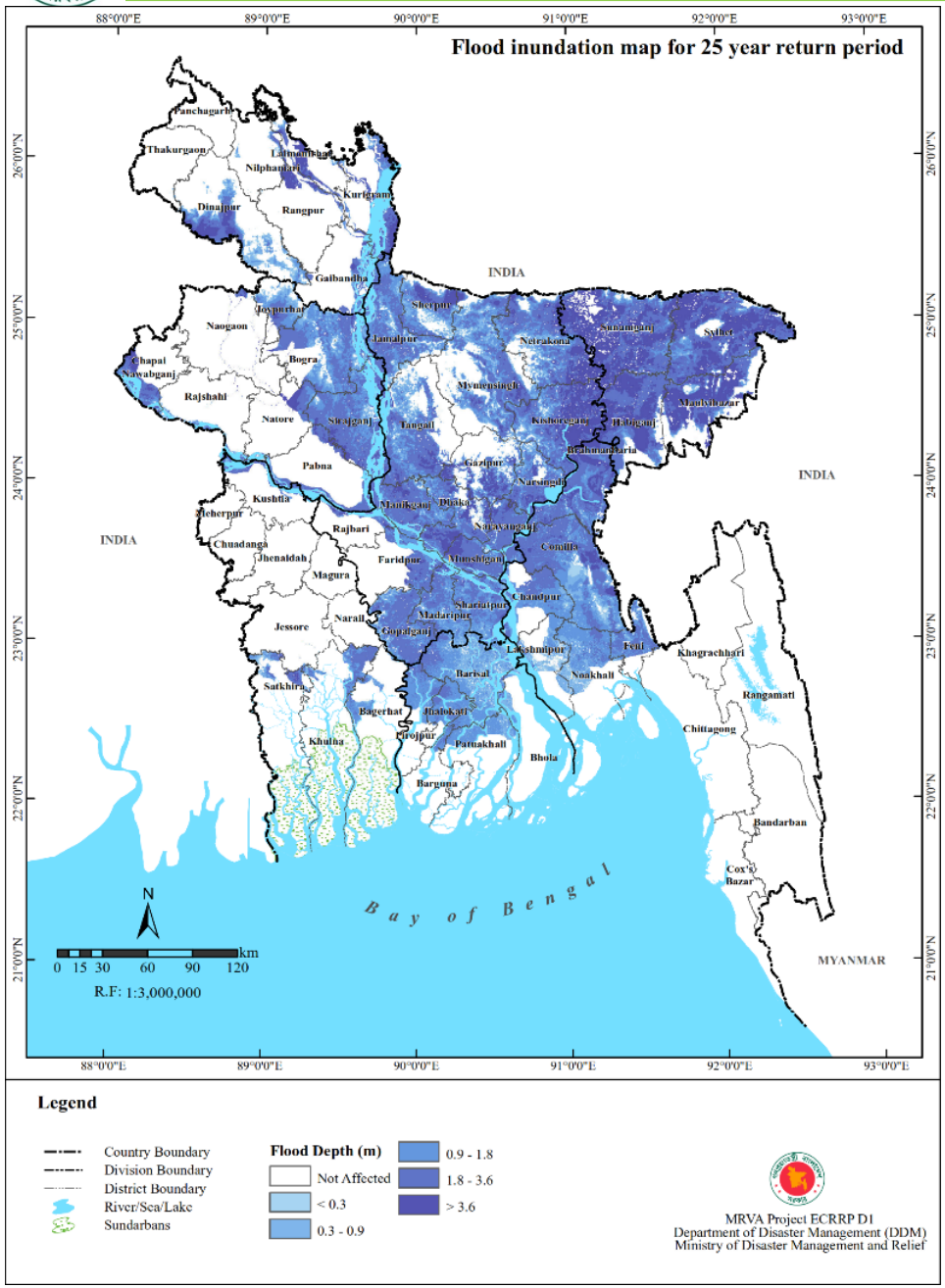

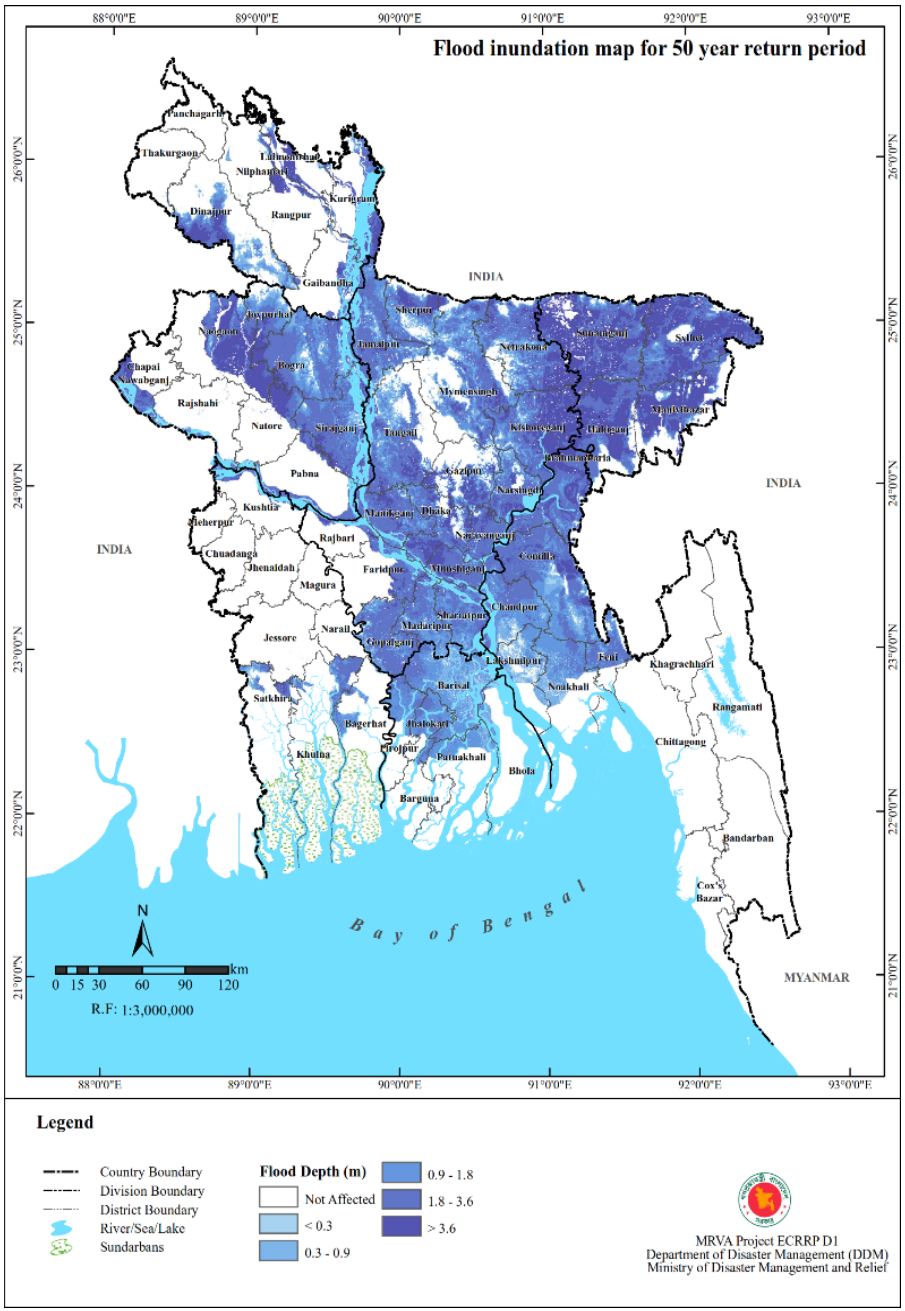

Legend

- Country Boundary
- Division Boundary
- District Boundary
- River/Sea/Lake
- Sundarbans

Flood Depth (m)

- Not Affected
- < 0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

MRVA Project ECRRP D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

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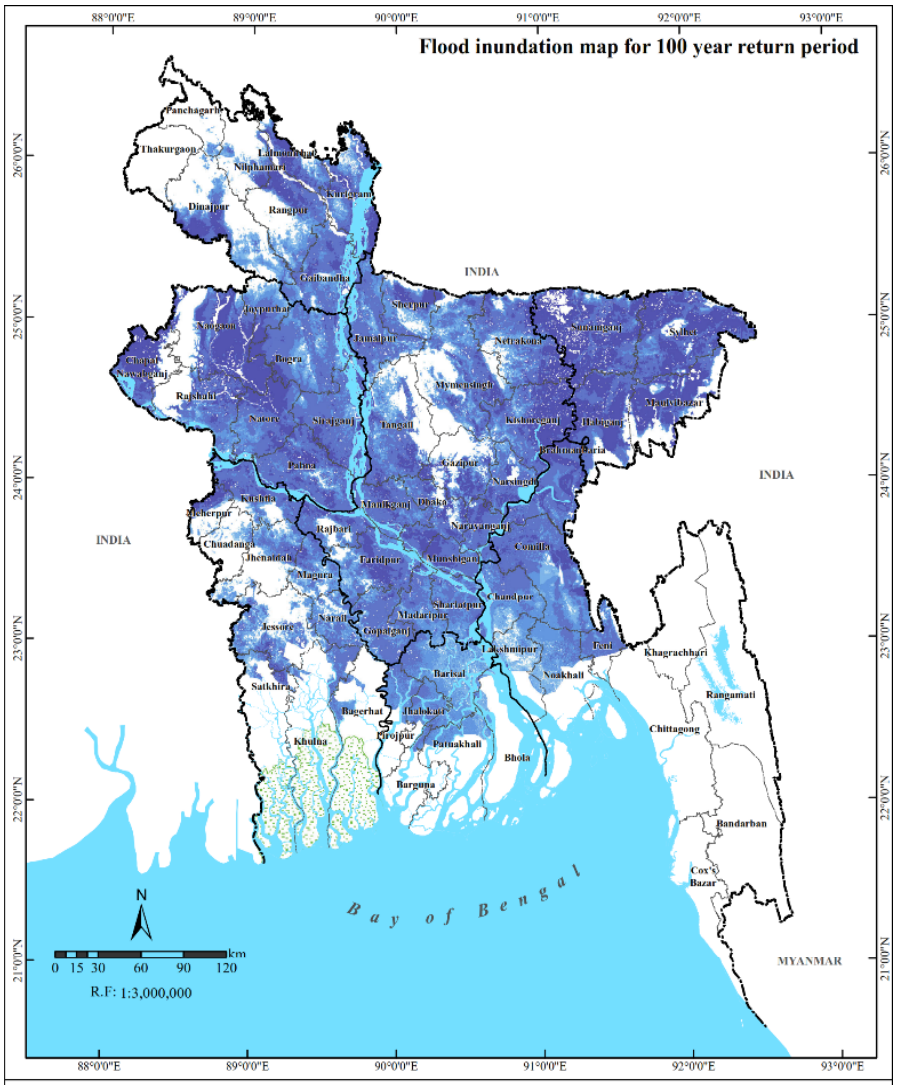
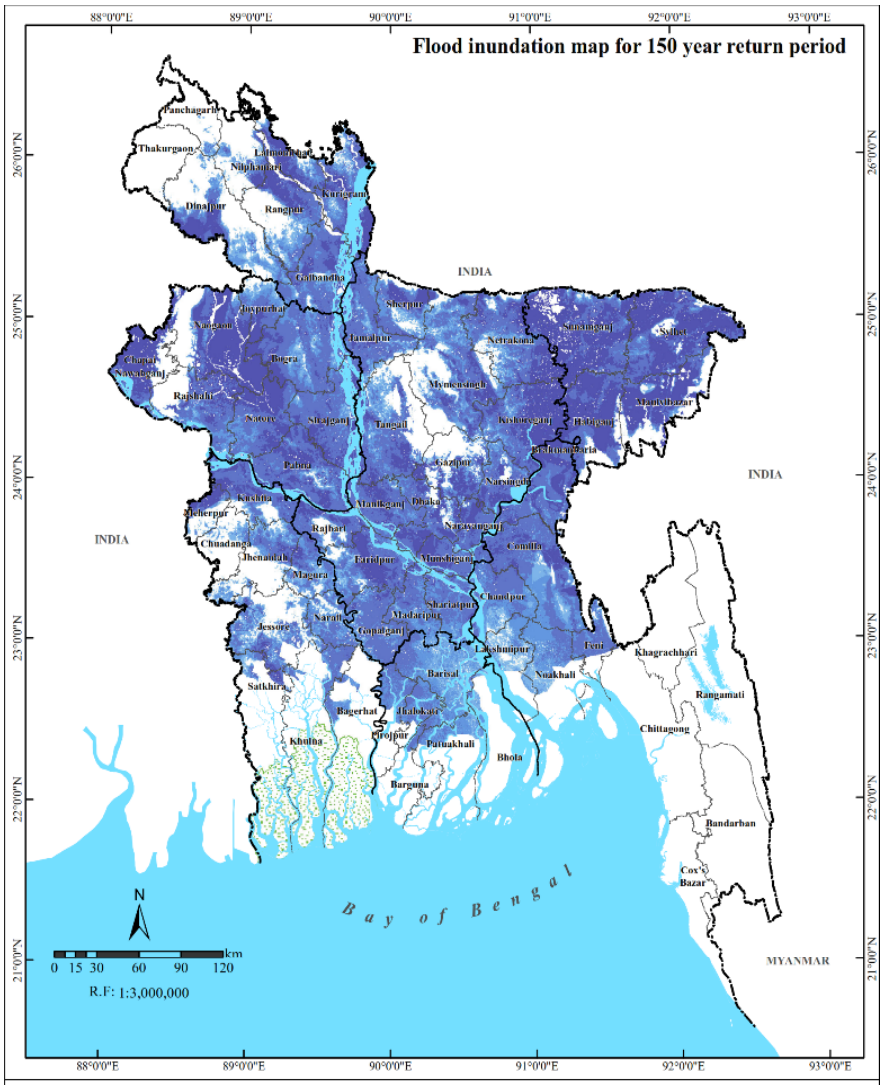
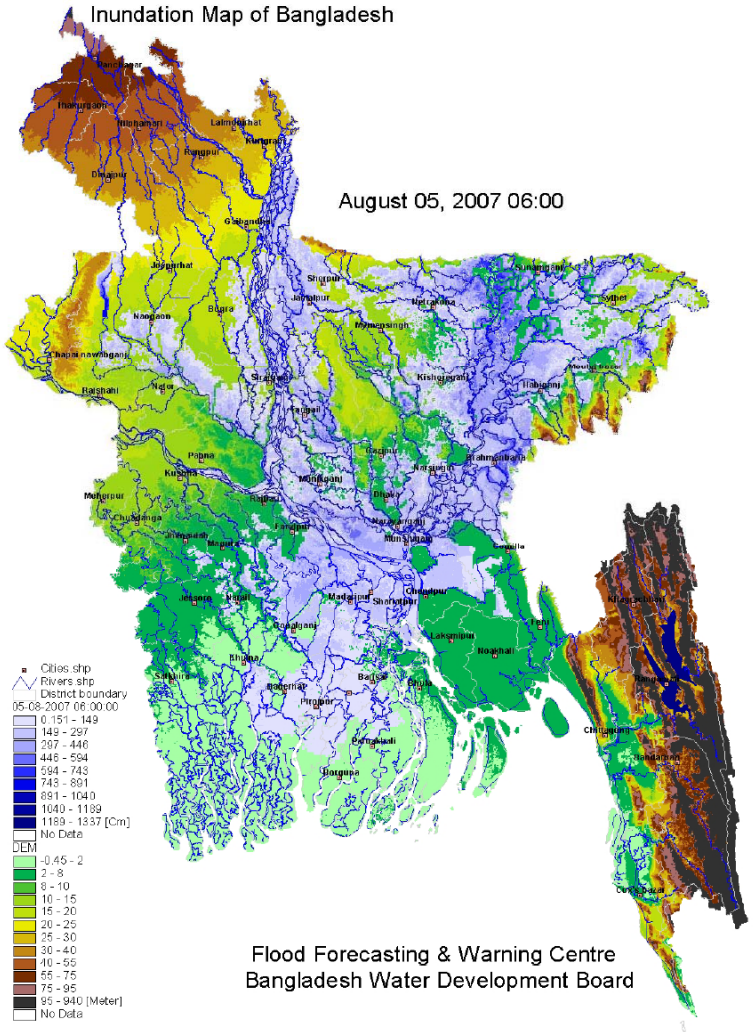




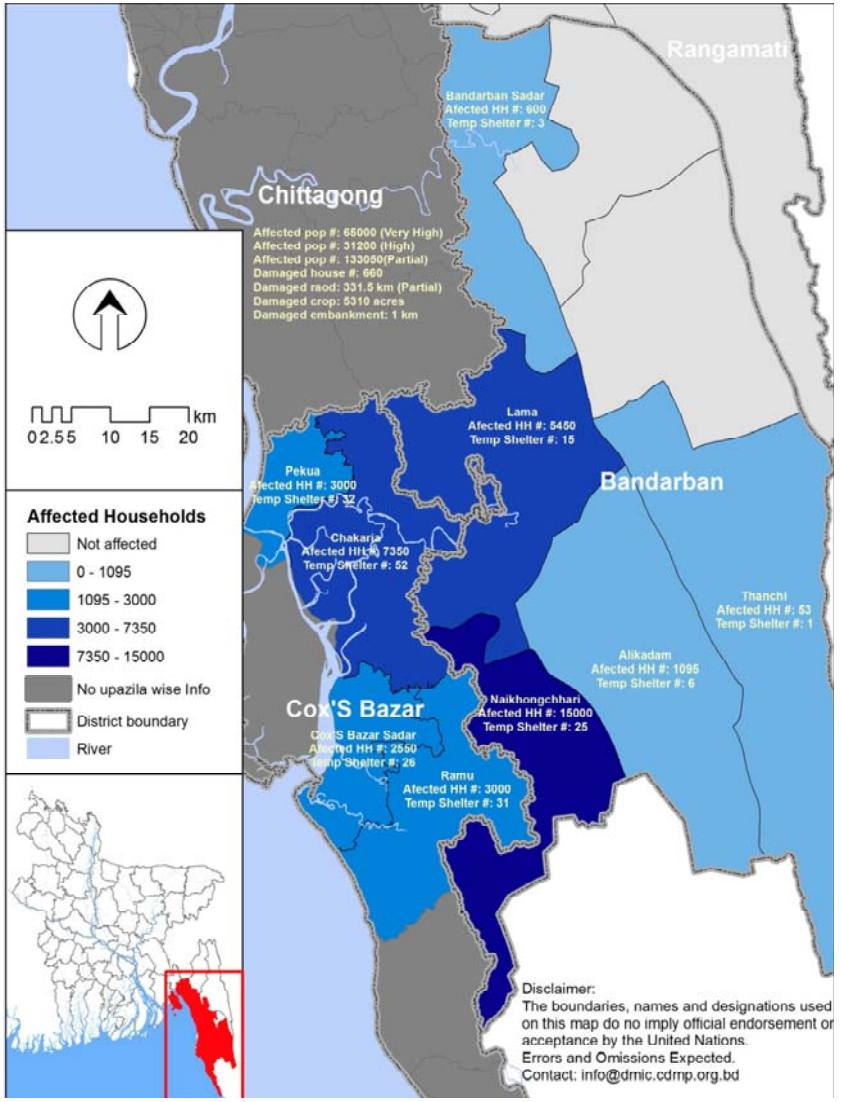
Flood Experience 2007



Affected District	39
Affected Upazila	256
Families affected	22,86,564
Affected People	1,06,55,145
Death (drowning, snake bite etc)	554
Households (Full)	62,956
Households (Partial)	8,81,922

South-Eastern Flood 2015

- Since 21 June, torrential rains have set off flash floods and landslides in the low-lying areas in the south-eastern districts of Cox' Bazar, Bandarban and Chittagong.
- Since 29 July, cyclone Komen induced rains floods and landslides in the coastal districts of Cox' Bazar, Feni, Chittagong, Bhola.



South-Eastern Flood 2015

- 38 people killed caused by drowning and landslide
- Total affected people-1.2 million
- Major affected sectors: Households, Roads, Infrastructures, livestock, agriculture, fisheries, salt field, shrimp cultivation.

Intervention to Address Flood 2015

- Early warning dissemination through media, cell broadcasting system & Cyclone Preparedness Programme (CPP)
- 2.1 millions people have been evacuated to the shelter
- Emergency food and cash assistance
- Provide medical services and Safe drinking water
- Vulnerable Group Feeding (VGF)
- House building/repairing support for the poorest
- Special Allocation for affected area
- Sector wise rehabilitation program

What Made the Difference

- ✓ **Improvement of disaster risk reduction measures including early warning system.**
- ✓ **Active leadership role in the field level Disaster Management Committees**
- ✓ **Coastal afforestation projects**
- ✓ **Cyclone and Flood shelters**
- ✓ **Embankments in Coastal Belts(3433km)**
- ✓ **30000 Urban Volunteers.**
- ✓ **Cyclone Preparedness Programme (CPP) having 50,000 volunteers.**

Bangladesh: The Best Practices

- Established the DM Regulatory Framework – identified the actors and their roles related to DRR and Emergency Response
- Professionalizing the DM system – inclusion of disaster and climate risks in education curricula at primary, secondary and tertiary levels
- Introduction of a bottom up approach in development planning (CRA and RRAP)
- Seismic vulnerability mapping and contingency planning (ADPC acted as a technical partner)
- Information sharing through DMIC network from central to community level (ADPC acted as a technical partner)
- Promoted volunteerism both in urban and rural

National Priorities for 2011-2020

- Implementation of the National Plan for Disaster Management (2015-2020)
- Strengthen institutional capacity of all actors as per the revised SOD
- Coordinated social safety net to reduce vulnerable population
- Strengthen mechanisms for sectoral and local level implementation of DRR/CCA measures

Regional Priorities for 2011-2020

- Coordination of regional agendas for global representation and national level leveraging
- Establishing/utilization of common resources/mechanisms for enhancing national risk reduction coordination
- Establishing a regional response plan/mechanism for catastrophic disasters

Achieving the Cultural Shift

- Mainstreaming Disaster Risk Reduction
- Developing medium to long term milestones
- Developing broad and logically sequenced PPRR strategies that target all levels
- Capacity Building
- Policy Reform
- Legal Framework

Challenges

- Early warning with adequate lead time in community language.
- The capacity of coordination and making relationship between emergency responders.
- The capacity to produce the appropriate information timely.
- Integrated framework for incident management and communication.
- Resilient embankment, green belt along the coast.
- Expansion of regional and global networks for real time data/ information sharing.
- Mainstreaming disaster risk reduction and climate change adaptation in development process.
- Strengthening linkage with regional and international organizations involved in DRR in line with HFA and MDG.

Thank You All