

Disclaimer

This report was compiled by an ADRC visiting researcher (VR) from ADRC member countries.

The views expressed in the report do not necessarily reflect the views of the ADRC. The boundaries and names shown and the designations used on the maps in the report also do not imply official endorsement or acceptance by the ADRC.

Disaster Management : Bangladesh Perspective

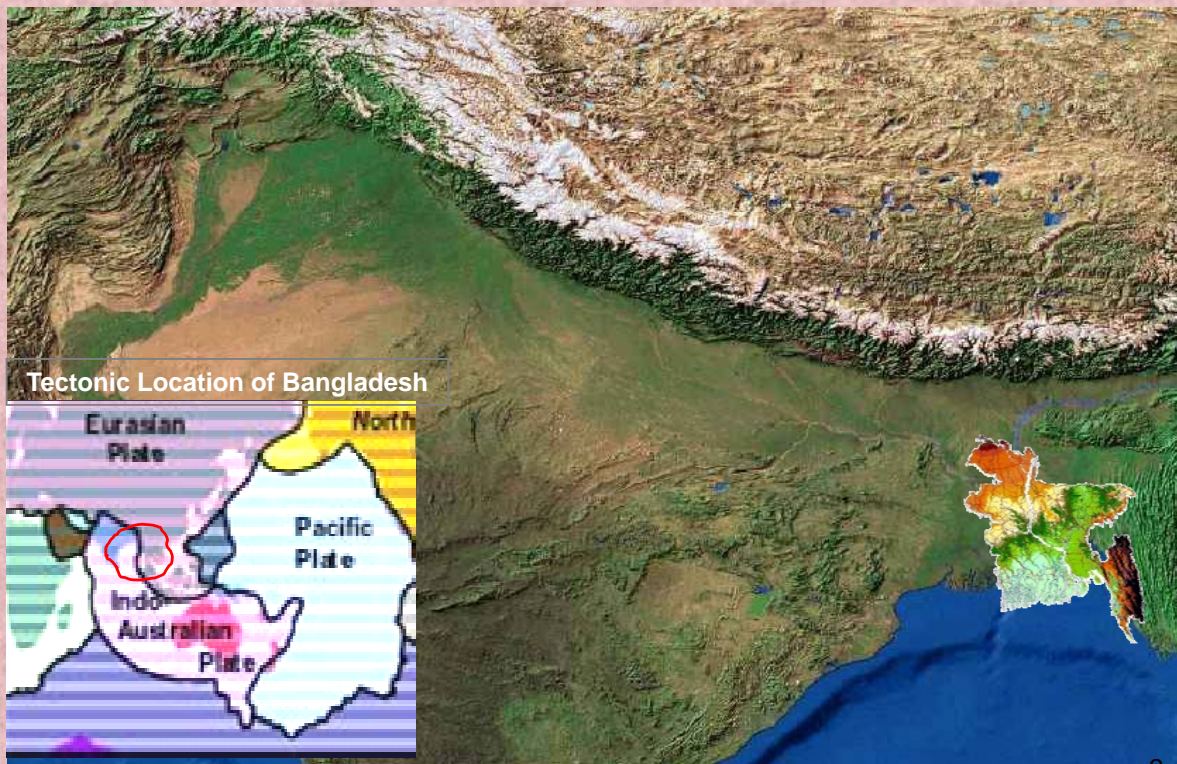
By

Md. Munir Chowdhury
Joint Secretary
Disaster Management
&
Relief Division

(ADRC VR FY2011B)

a1

Bangladesh: A south Asian country



a1

Bangladesh is in between Bay of Bengal and Himalya and its geographical position not only provides live giving monsoon but also make it hazard prone. Bangladesh discharges almost entre runoff of western Himalyan catchment. The amount of water Bangladesh discharges in te bay, 92-93% are coming from upper catchment. Being the lower riparian country of te mighty rivers, Bangladesh has a graet deal of dependence on the rainfall and runoff , the variation of what constitutes major hazards for Bangladesh. Cyclone land fall and storm surges originating in te Indian ocean and or in to the bay was always there. One third of te country is under tidal excursiona and there by salinity.

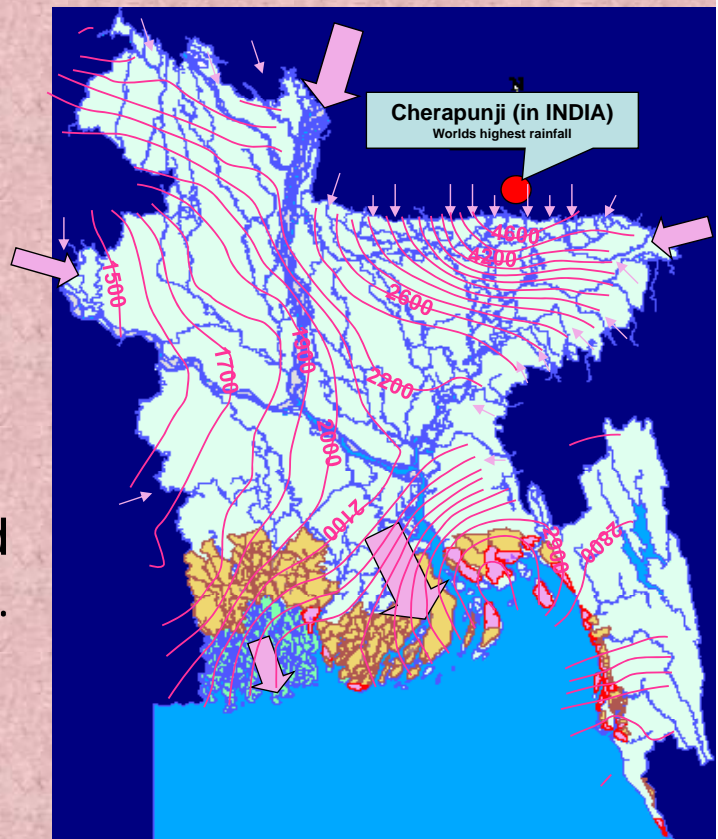
amkamal, 2010/02/03

Country Profile: Bangladesh

- Total population : 140 million
- Total Geographic Area : 144,000 sqkm
- Population density in coastal areas : 1000/sqkm
- Floodplains: 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

A riverine country with
310 rivers

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



Disasters and Bangladesh

Major Hazards

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

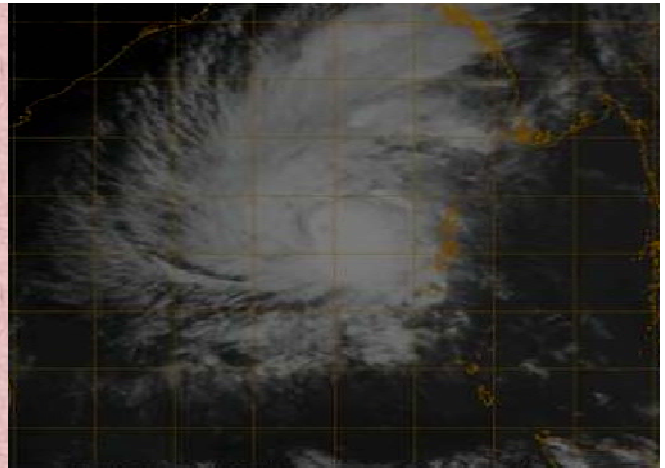
Major Disasters

Year	Disaster	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	Cyclone(SIDR)	3,406
2009	Cyclone ('alia)	190 (as on

06/06/2009)



DISASTERS



DISASTERS



Cyclone Devastated Area



8



DISASTERS



9



DISASTERS



Bangladesh DM History

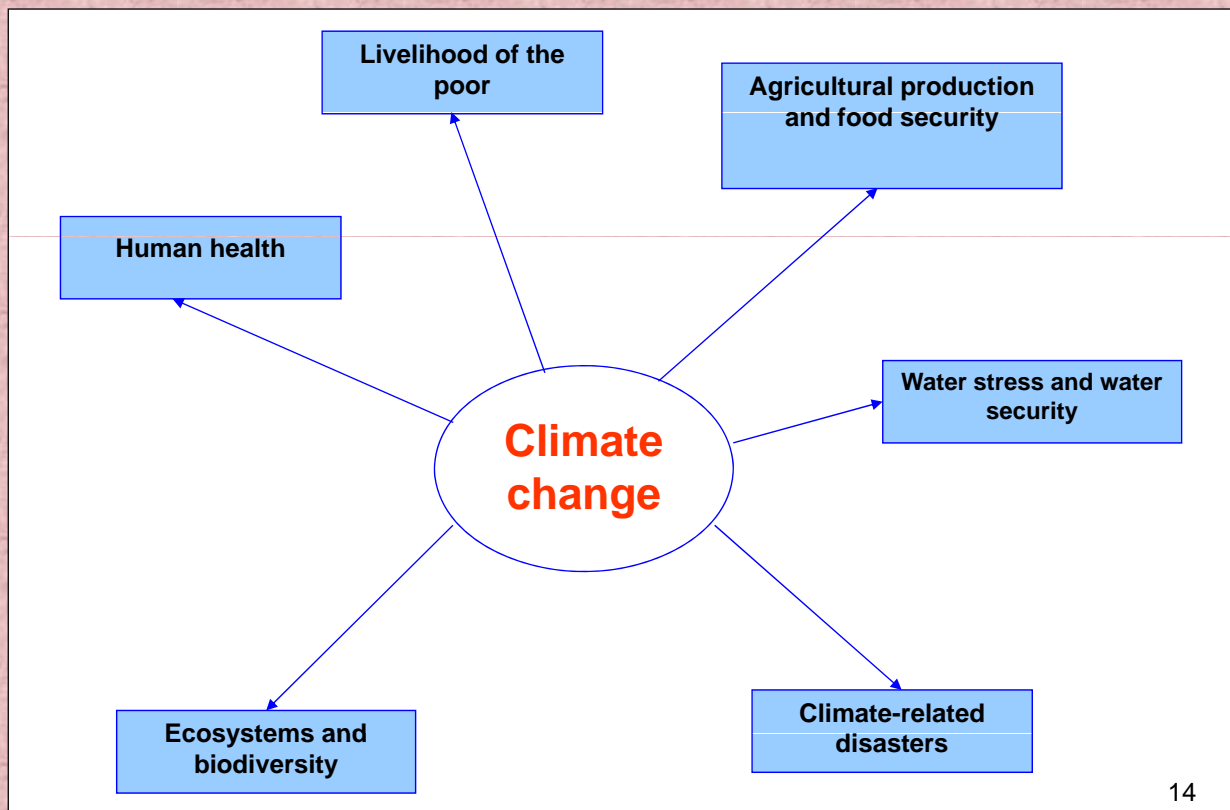
- ❑ Soon after 1991 cyclone which caused huge damage and loss, the country has realized that the reactive response to disaster is no longer an option for Bangladesh
- ❑ The country has adopted a paradigm shift from reactive response to comprehensive DM approach that includes a number of strategies and mechanism/policy decision
- ❑ DMB was created in 1993
- ❑ SOD formulated in 1997 – SOD recognized every bodies roles and responsibilities in DM and those are spelt out in the document. SOD also created and institutional
- ❑ CDMP was formulated in 2000 and launched in 2004
- ❑ MoFDM has been created in 2005
- ❑ Government also adopted a new DM vision
- ❑ A Bangladesh DM model has been created/developed and adopted – the model gave main emphasis on disaster risk reduction

12

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

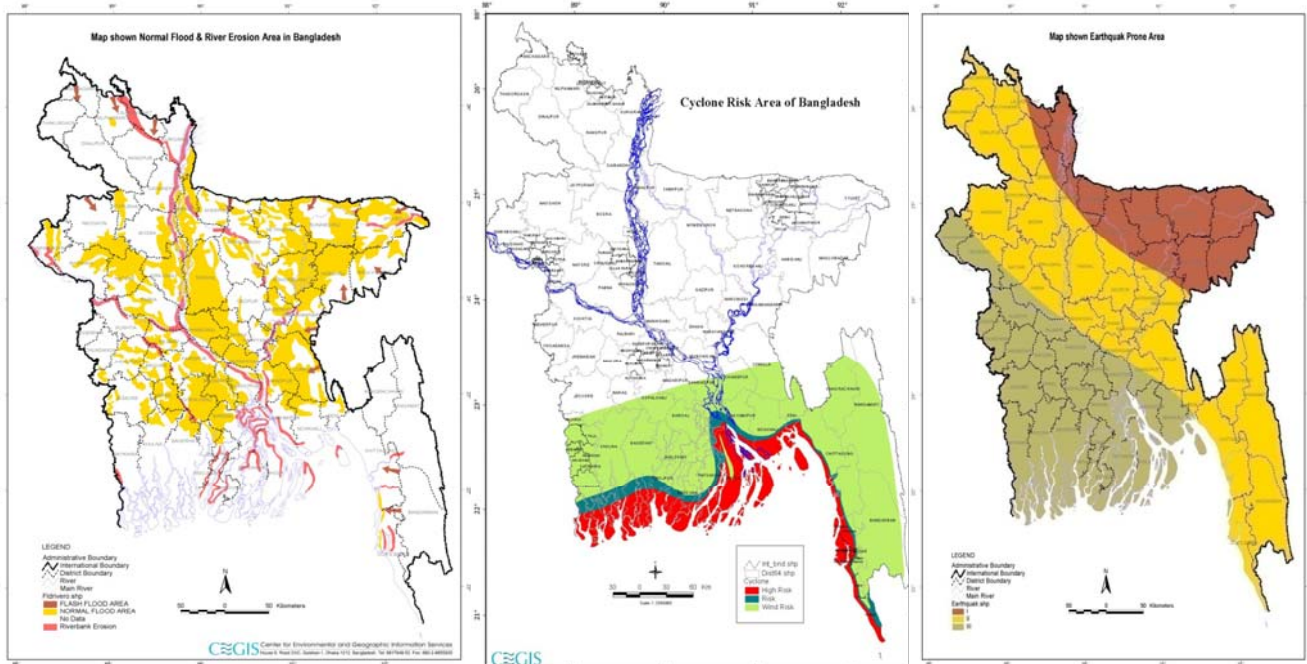
Affects of Climate Change



NATIONAL DISASTER CONTEXT

- Frequently hit by various natural disasters like Cyclones, Storm surges, Floods, Tornadoes, Droughts and other calamities.
- Monsoon flooding is an annual occurrence shaping lives and livelihoods.
- Almost 200 disaster events have occurred causing more than 500,000 deaths and leaving prolonged damage to livelihoods, infrastructure and the economy.
- Climate change is likely to cause significant impact in the form of severe floods, cyclones, droughts, sea level rise and salinity affecting agriculture, livelihoods, natural orders, water supply, health etc.
- The disaster vulnerable people demonstrates strong coping capacity to face the disaster challenges.

Flood – River Erosion, Cyclone and Earthquake Hazard Maps



Drought



Cyclone



Storm surge, salinity

Hazards Bangladesh faces



Flood



Water logging



Bank erosion

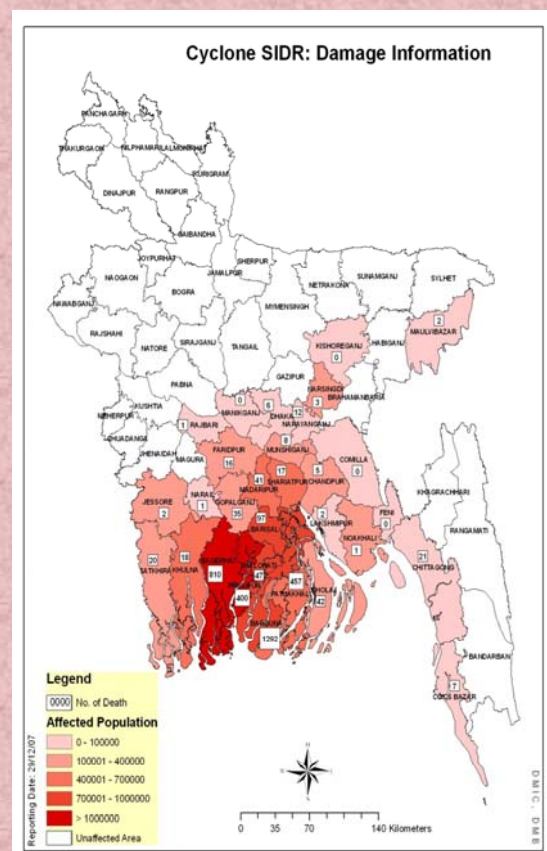
POVERTY DISASTER INTERFACE

- Adverse long-term impact on economic and social activities
- The poor are more vulnerable to any kind of disaster
 - Depletion of assets
 - Income reduction due to loss of employment
 - Increase indebtedness
 - Increase migration
- Cost to cope with disaster disproportionately higher for the poor

18

Cyclone Sidr, November 15, 2007: Damage and Loss

Ser	Event	No
1.	Death Toll	3,406
2.	Missing	1001
3.	Wounded	55,282
4.	Crops Damaged Area	2.4 Million Acres
5.	Affected People	8.9 Million
6.	Loss of Livestock	1.7 Million
7.	Affected Educational Institution	16,954



Cyclone Aila, May 25, 2009: Damage and Loss

Ser	Event	No
01.	Affected District	11
02.	Death Toll	190
03.	Wounded	7,103
04.	Crops Damaged Area (Fully)	67840 Acres
05.	Affected People	4826630
07.	Affected Educational Institution/mosque	357 (fully) 2769 (partially)
08.	Affected Roads	1319 km (fully)

Source: MoFDM/MoFL/MoWR

Comparison

Item	Category	Population Death
1970	4	>300,000
1991	4	>140,000
SIDR 2007	4	3,406

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 MoFDM

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.

22

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)**
- **Cyclone Preparedness Programme (CPP) having 60,000 volunteers.**

23

- **Paradigm shift from a relief centric approach to a more holistic, multi-disciplinary DRR approach.**
- **Community based disaster preparedness**
- **Disaster Management Committee's are playing active and leadership role in the national, district, upazilla and union level.**
- **Increased resilience of the vulnerable communities.**

24

GoB Capacity in Disaster Management

- Specialized **Ministry for Food and Disaster Management**
- Creation of **Disaster Management Bureau (DMB)**: shifting focus from relief to disaster management specially to risk reduction culture.
- **ECNEC Decision as part of Mainstreaming of Disaster Risk Reduction.**
- Issuance of **SOD (Standing Order on Disaster)**: establishing mechanisms and procedures for effective response at all levels during disaster emergency
- Initiate formulation of '**Comprehensive Disaster Management Framework**' involving all disaster stakeholders including donor community
- From 2000 onwards – introduction and **mainstreaming of risk reduction**

25

CDMP

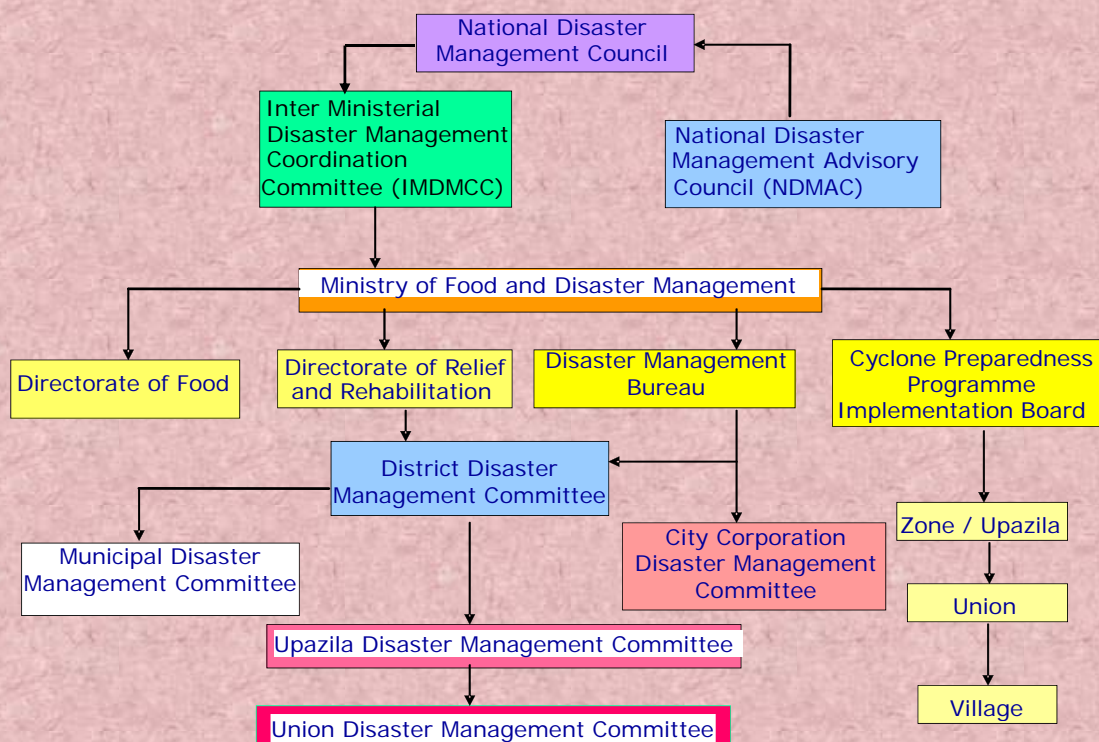
CDMP is a strategic institutional and programming approach that is designed to optimize the reduction of long-term risk and to strengthen the operational capacities for responding to emergencies and disaster situations including actions to improve recovery from these events.

CDMP is now implementing programmes:

- ❑ Capacity building
- ❑ Partnership development
- ❑ Community empowerment
- ❑ Response management through its 12 components

26

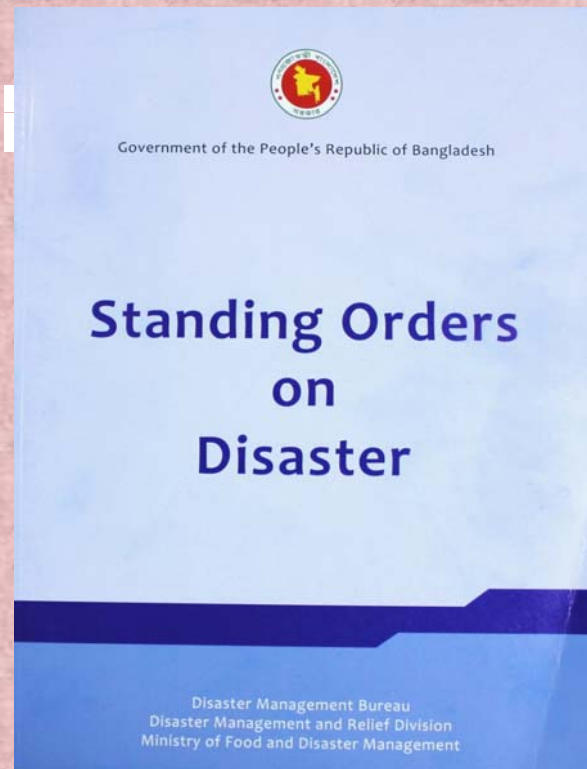
Disaster Management Institutions in Bangladesh



27

Standing Orders On Disaster

- The standing order creates the opportunity to establish disaster management committee at every level.
- The standing orders for disaster management provide ample scope for the Government, NGOs and private sectors to think locally and plan need based program involving the community.



28

Committees under SOD

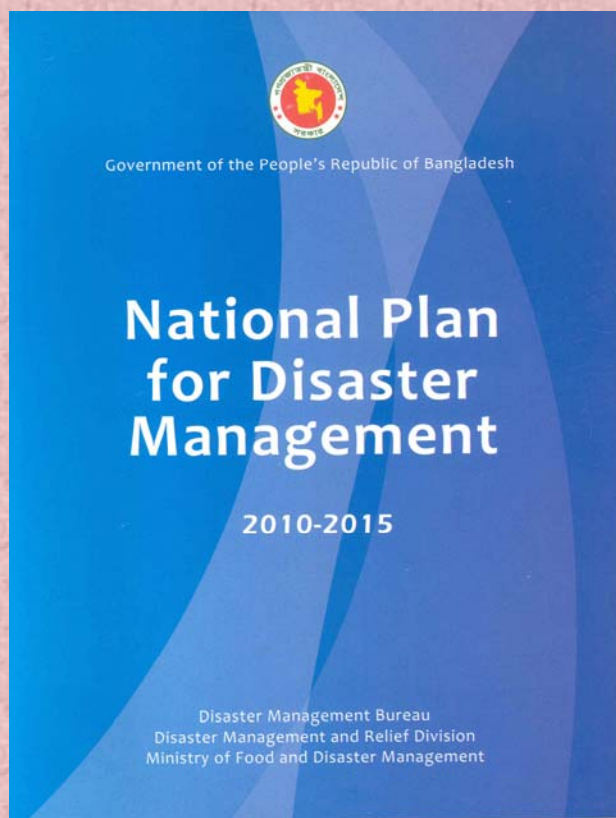
- **National Disaster Management Council (NDMC)**
- **Inter-Ministerial Disaster Management Co-ordination Committee (IMDMCC)**
- **National Disaster Management Advisory Committee (NDMAC)**
- **Cyclone Preparedness Program Implementation Board (CPPIB)**
- **Disaster Management Training and Public Awareness Building Task Force (DMTATF)**
- **Focal Point Operation Coordination Group of Disaster Management (FPOCG)**
- **NGO Coordination Committee on Disaster Management (NGOCC)**
- **Committee for Speedy Dissemination of Disaster Related Warning/ Signals (CSDDWS)**

29

DRR Institutions

- DMRD
- DMB
- DRR
- DOE
- BMD
- CPP
- FFWC
- IWM
- SPARRSO
- SOB
- BARC
- DAE
- CEGIS
- AFD

30



31

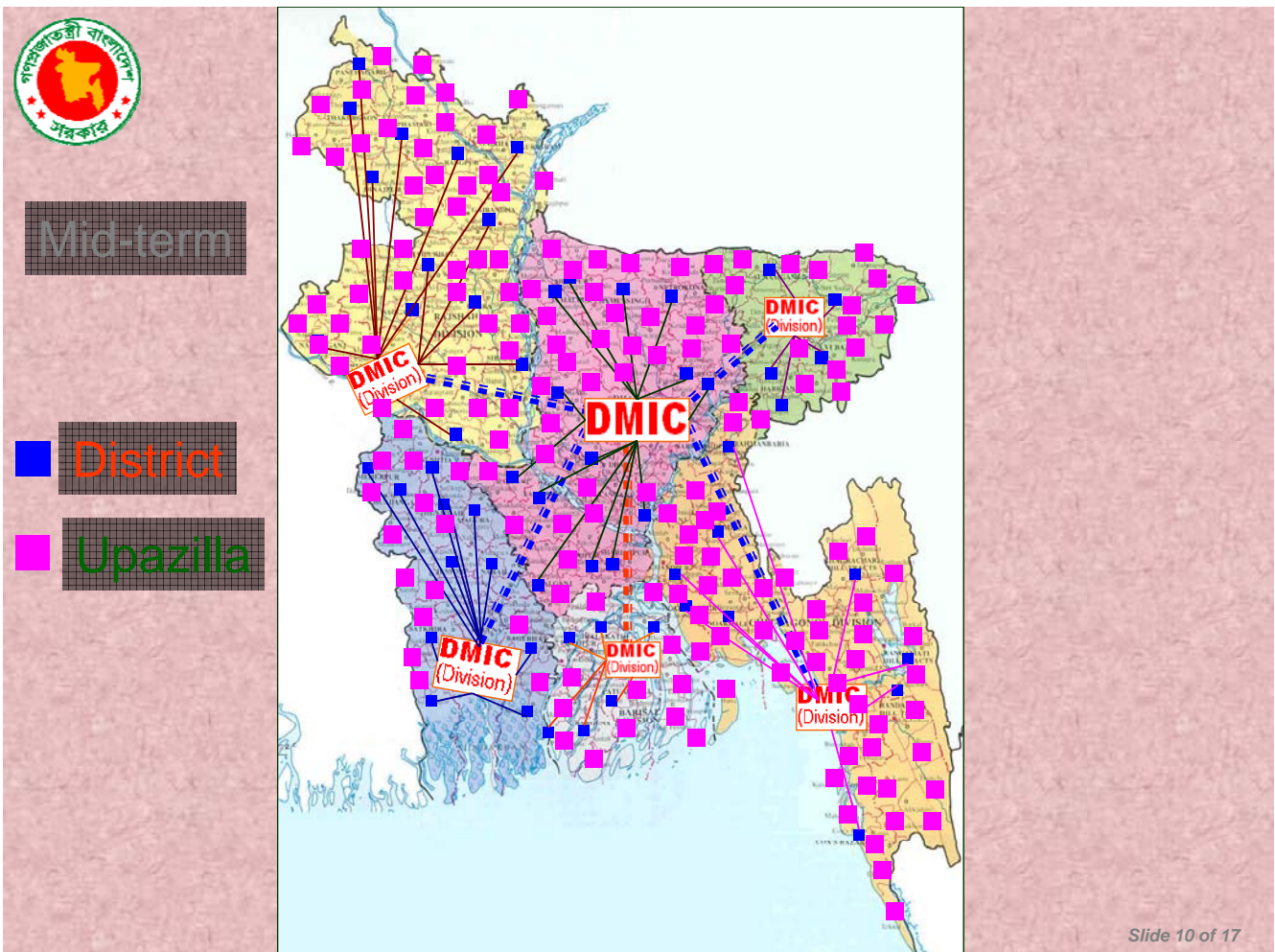
INFORMATION MANAGEMENT FOR COORDINATION

Disaster Management Information Centre (DMIC) has been established to support information management and coordination.

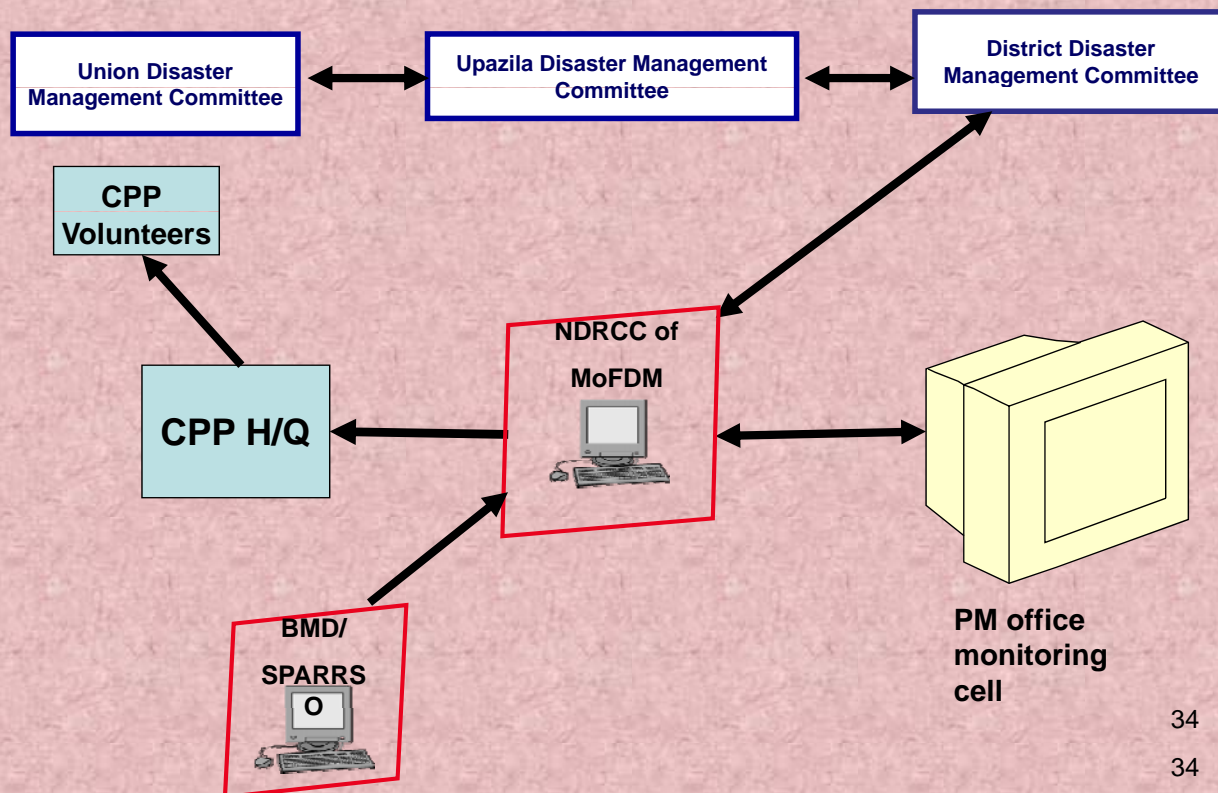
Objectives:

- Enhance disaster management coordination through improved facilities and information sharing capacities of DMIC during normal and emergency periods
- Improved capacity of information sharing during normal (non-emergency) periods
- EOC more effectively and efficiently coordinated during disasters

32



Information Flow during Emergency Response



CYCLONE PREPAREDNESS PROGRAMME - CPP

CPP

Covered coastal area of
Bangladesh

District- 13

Upazila- 37

Union- 321

Unit- 3281

Volunteer- 49,215

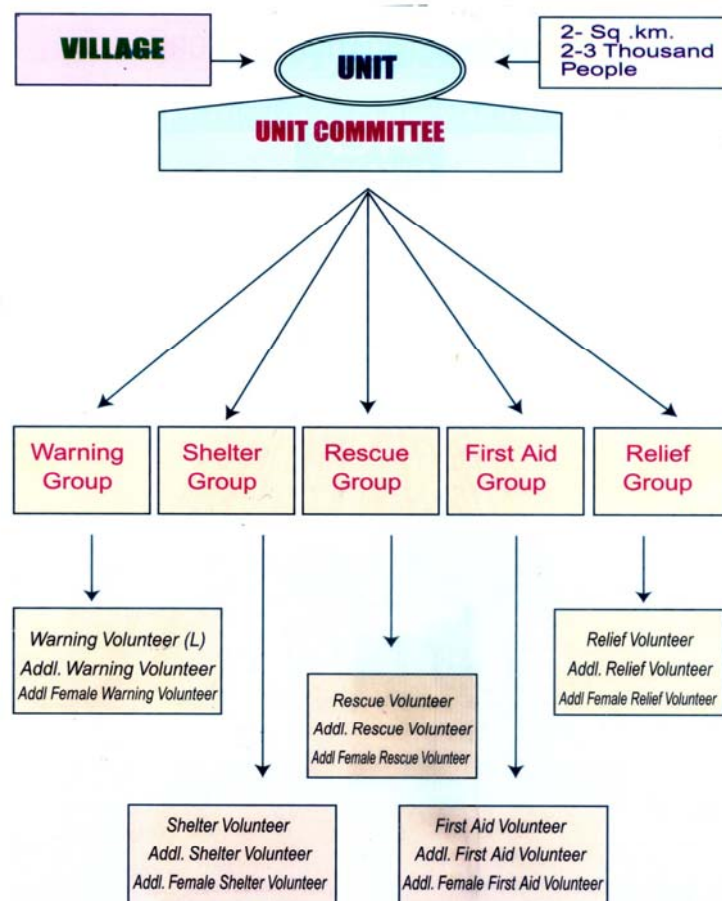


The Main activities of Cyclone Preparedness Programme

- Disseminate cyclone warning signals to local residents;
- Assist people in taking shelter.
- Rescue victims affected by a cyclone.
- Provide first aid to people injured by a cyclone.

CPP is now a worldwide renowned organization for its' dedicated volunteers and effectiveness in emergency response during disaster especially in cyclone.

36



37

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

Lines of Defense

- Structural
 - Cyclone shelters
 - Embankments
 - Polders, evacuation routes, *killahs*
 - Houses and building retrofitting (cyclone resilient)
- Non structural
 - Institutional preparedness
 - Warning system
 - Response preparedness
 - Community & civil society mobilisation

Evacuation and Rescue Operation

- Instruct local authorities for evacuation and rescue operations
- Undertaking evacuation measures in risk areas by Local DM Committees
- 42000 CPP Volunteers and the Community Leaders in the risk areas play important roles in evacuation to shelters
- AFD, CPP and DMC members take part in rescue operation
- Emergency Responses by GO, NGOs and Others

Immediate Assistance Needs

- Search and rescue operation
- Supply of instant food
- Medicare
- Water and sanitation
- Temporary shelter for displaced people
- Restoration of livelihoods



Resource Mobilization System

MoFDM



DRR



DC Offices

UNO Offices and
Union Parishad



FIELD

42

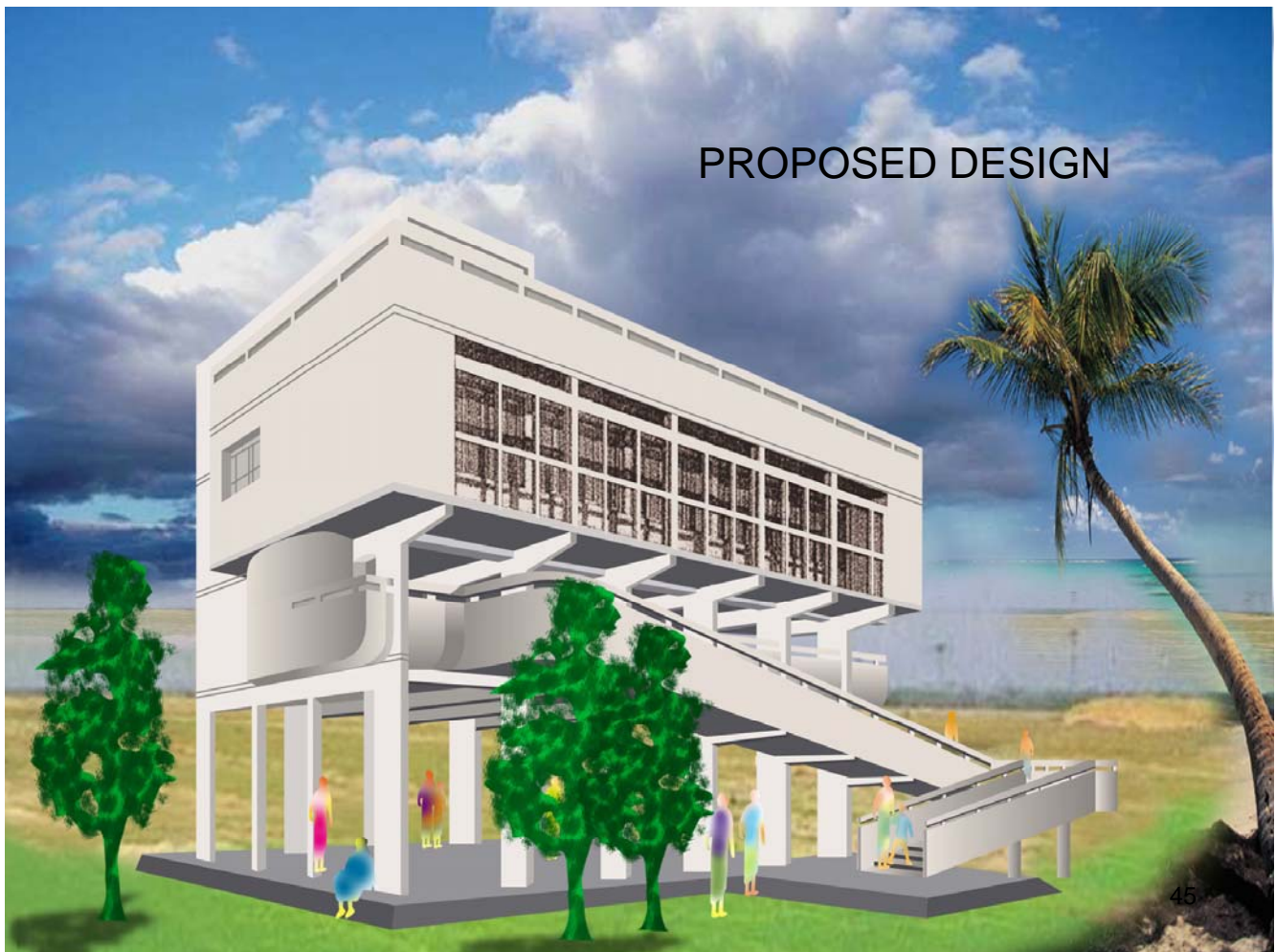
- **Local Level DM Committee**
- **District Disaster Management Committee (DDMC)** headed by the Deputy Commissioner (DC) to co-ordinate and review the disaster management activities at the district level
- **Upazila Disaster Management Committee (UZDMC)** headed by the Upazila Nirbahi Officer (UNO) to co-ordinate and review the disaster management activities at the Upazila level
- **Union Disaster Management Committee (UDMC)** headed by the Chairman of the Union Parishad to co-ordinate, review and implement the disaster management activities of the concerned union
- **Pourashava Disaster Management Committee (PDMC)** headed by Chairman of Pourashava (municipality) to co-ordinate, review and implement the disaster management activities within its area of jurisdiction
- **City Corporation Disaster Management Committee (CCDMC)** headed by the Mayor of City Corporations to co-ordinate, review and implement the disaster management activities within its area of jurisdiction.

43

Cyclone Shelter

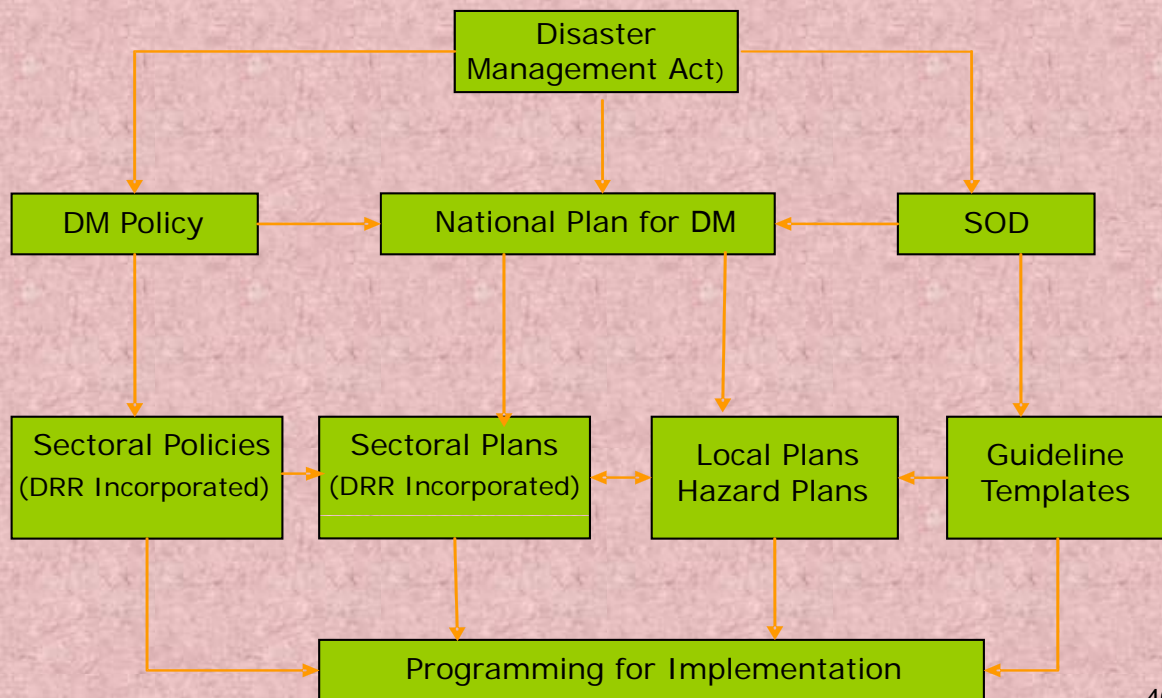
- Total Number of existing Cyclone Shelters:2975**
- Total Number of Existing Killas: 137**
- Required Cyclone Shelter 25,00 (approximately)**

44



45

Disaster Management Regulative Framework

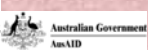


46

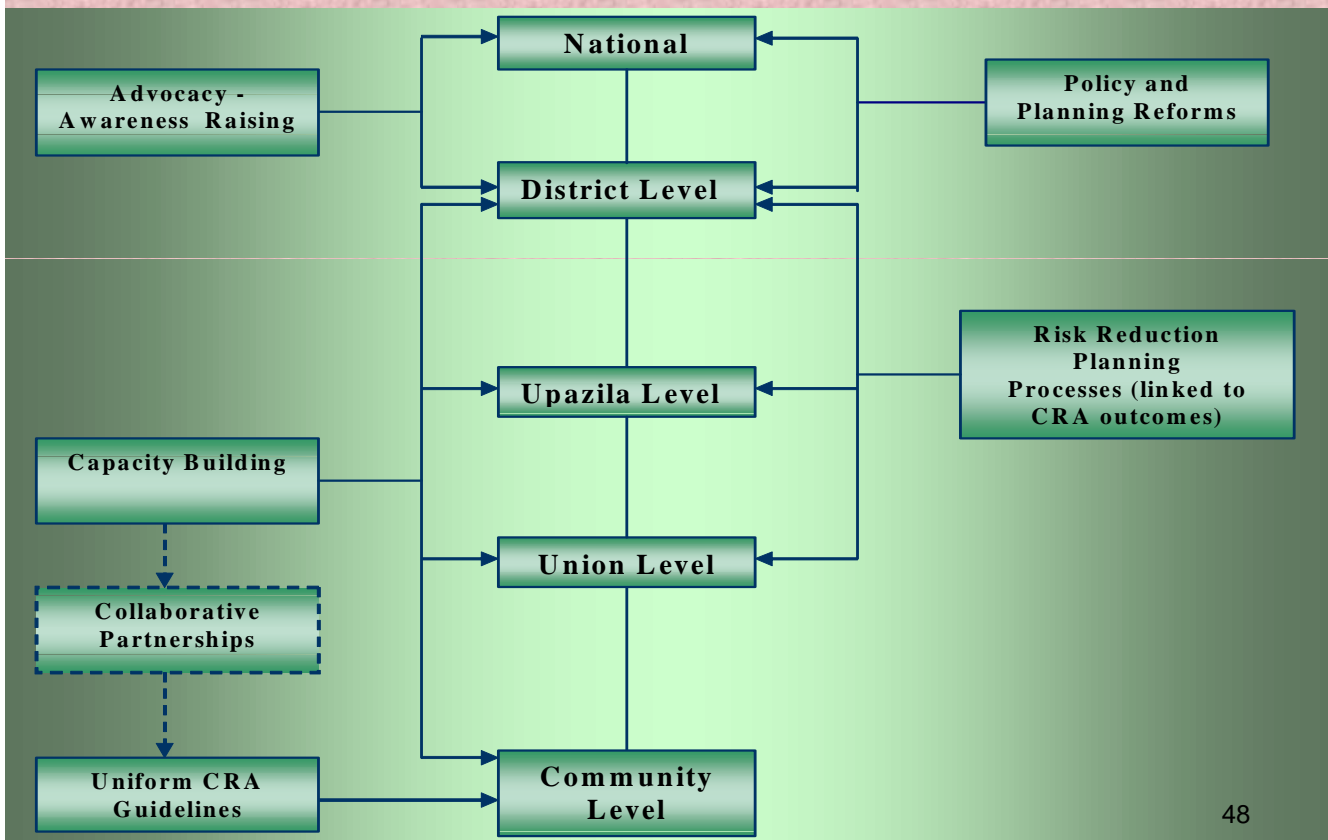


Disaster Management Legal System-Guidelines

1. Disaster Impact and Risk Assessment Guideline
2. Local Disaster Risk Reduction Fund Management Guidelines
3. Emergency Fund Management Guidelines
4. Indigenous Coping Mechanism Guidebook
5. Community Risk Assessment Guidelines
6. Damage and Needs Assessment Methodology
7. Hazard Specific Risk Assessment Guidelines
8. Emergency Response and Information Management Guideline
9. Contingency Planning Template
10. Sectoral Disaster Risk Reduction Planning Template
11. Local Level Planning Template
12. National Risk Reduction Fund Management Guideline
13. National Disaster Reduction & Emergency Fund Management Guideline
14. Local Disaster Management Fund Guideline
15. Guideline for road and water safety
16. Guideline for industrial safety
17. Guideline for Disaster Shelter Management
18. Monitoring and Evaluation Guideline for the Implementation of the Plan
19. Guideline for international Assistance in disaster emergency



Mainstreaming Strategies



INTERNATIONAL COOPERATION WITH DMB

- Chair, SDMC (SARRC Disaster Management Centre).
- Focal Point, HFA Progress Monitoring and Reporting.
- Development of close collaboration with Asian Disaster Preparedness Centre (ADPC) of Thailand, Asian Disaster Reduction Centre (ADRC) of Japan, Federal Emergency Management Agency (FEMA) of America, Institute of Disaster Risk Management (IDRM) of Philippines, Emergency Management of Australia etc.

Bangladesh

National progress report on the implementation of the Hyogo Framework for Action (2009-2011)

Priority for action 1

“Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation”

PROGRESS:

- A new division established to deal with disaster management affairs exclusively named Disaster Management & Relief Division (DMRD)
- National Disaster Management Plan (2010-2015) approved in April, 2010 linked with Vision 2021 and 6th Five Year Plan
- Revised Standing Orders on Disaster (SOD) , which explicitly outlined the DRR & CCA business for GO, NGO, public representatives & citizens
- National Disaster Management Act has already approved by the cabinet

Priority for action 02

“Identify, assess and monitor disaster risks and enhance early warning”

- Updating of the risk assessment 12 guidelines in revised SOD
- Specific Sectoral Disaster Risk Reduction guidelines develops by CDMP
- Detailed risk assessment mapping for earthquake and tsunami for three cities Dhaka, Chittagong & Sylhet prepared and planned for new eight cities
- DRR budget now 4.5% of national Budget
- Climate Change Fund (CCF) US \$ 100m/Year
- Bangladesh Climate Change Resilience Fund (BCCRF) US \$ 110m
- Resource allocation increased to all line ministries towards DRR
- Development Partners support increases towards national DRR initiatives 51

Priority for action 03

“Use knowledge, innovation and education to built a culture of safety and resilience at all levels”

- Bangladesh DM Education Research and Training (BDMERT) established
- Key ministries, research institutions and civil society organization established website for sharing of disaster related knowledge
- DMIC established network with 64 Districts HQ and planned to expand to all 483 upazilas by 2012
- BMD, FFWC, CPP, BTV, Radio, mobile phone companies & Other electronic and print media contributing significantly in dissemination of early warning and disaster Messages
- Disaster & climate risk information are included in text book from elementary to higher secondary level
- DRR education & special course in universities, institutions, armed forces div, civil service college etc

52

Priority 04

“ Reduce the underlying risk factors “

- National Adaptation Program of Action (NAPA) & Bangladesh Climate Change Strategy & Action Plan has already prepared
- Bilateral & multilateral donors exploring the possibilities of creating multi-donor trust fund to accelerate financing for research and adaptation
- Climate change Cell established and focal points identified for each ministries
- DRR & CCA link developed with the introduction of various program launched by different ministries i.e sustainable land management program, climate resilience crop varieties, cyclone resistance house etc
- Strong institutional arrangement for implementing social protection program
- National committee for updating national building code, land use plan
- Disaster risk reduction & EIA for all development projects

53

Priority for action 05

“strengthen disaster preparedness for effective response at all levels”

- National Plan for DM, DM Act, SOD mentioned tasks for all sectoral safety preparedness
- For existing structure, retrofitting techniques are being introduced to combat earthquake
- Mock drill guidelines for school and hospitals safety
- Earthquake contingency developed for AFD, FSCD, DGHS & DRR
- 30,000 members of local DMCs imparted training on comprehensive DM
- DMB established damage, loss and need assessment cell
- 60,000 volunteer are working 13 cyclone prone district
- Search and rescue equipment
- Adequate reserve of relief materials in each district

54

Constraints

- Historical centralized planning
- Difficult to implement in a holistic way
- Need clear executive direction for DRR at the national level
- The capacity of local government elected bodies is a great challenges
- Empowering local communities
- Adequate resources
- Governance of the implementation of HFA
- Setting indicators for better monitoring

55

Risk Reduction Challenges

- Early warning with adequate lead time in community language;
- Expansion of the operation areas of the Cyclone Preparedness Programs (CPP). Develop similar program for flood prone areas. Develop Urban Volunteers for post-Earthquake response.
- Ensure Cyclone/flood shelters for all vulnerable people;
- Resilient embankment, green belt along the coast;

Continued

56⁶

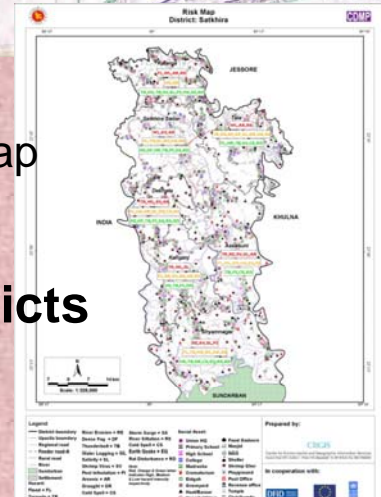
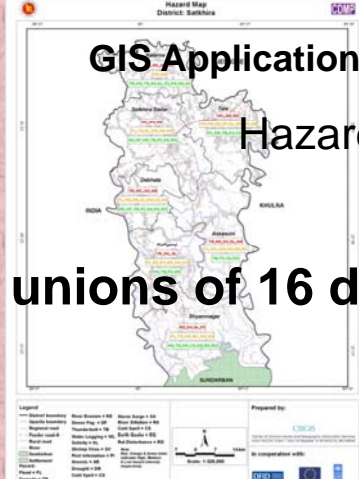
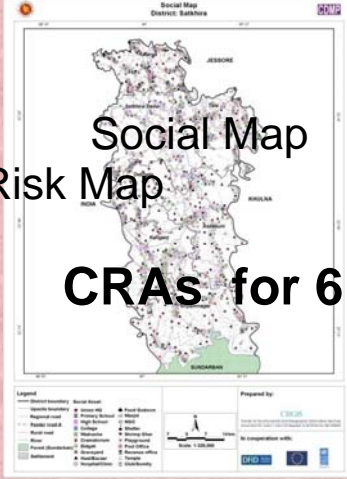
Risk Reduction Challenges

Continued

- Expansion of disaster management information network
- Mainstreaming disaster risk reduction and climate change adaptation in development process
- Poverty reduction, increase resilience, shifting risks (e.g. insurance)
- Strengthening linkage with regional and international organizations involved in DRR in line with Hyogo Framework for Action.

57⁷

Community Risk Assessment (CRA) Process



GIS Application

Social Map

Risk Map

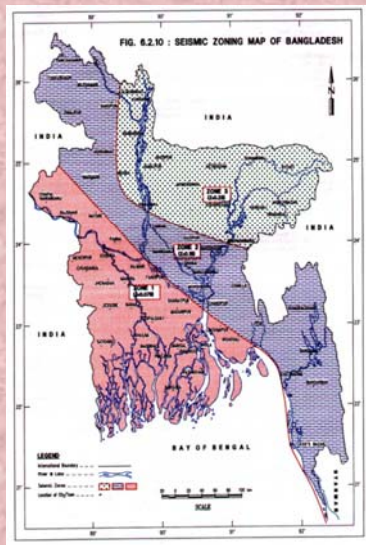
Hazard Map

CRAs for 612 unions of 16 districts

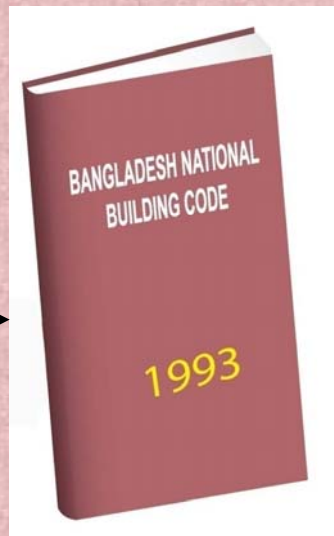
Risk Reduction Interventions Come-out through CRA



Vulnerability Mapping for Earthquake



Seismic Zoning Map of Bangladesh

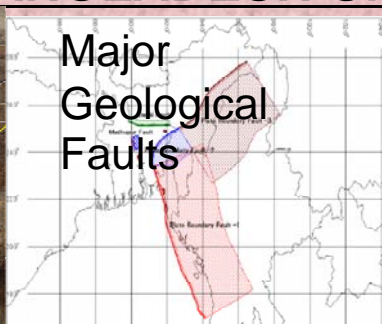
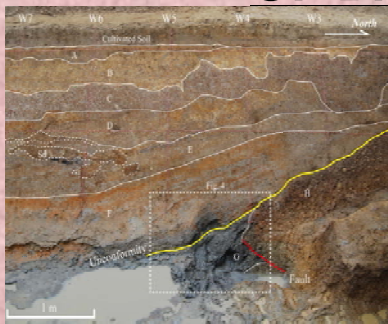


National Building Code



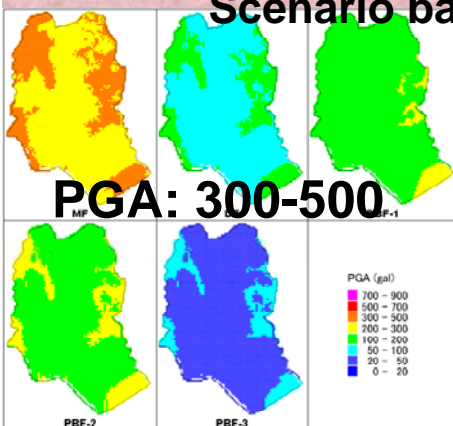
Regulations endorsed by parliament on Nov. 2006 for implementing building code

SEISMIC MICROZONING MAP OF MAJOR CITIES OF BANGLADESH UNDER CDMP

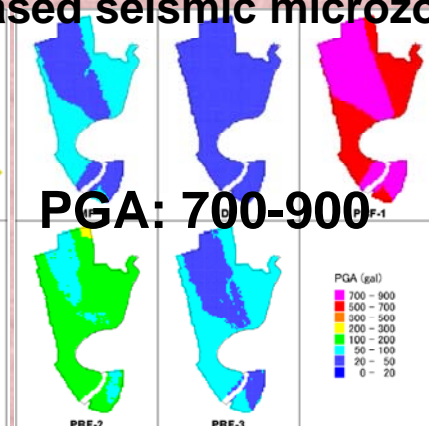


Fault	Mw	Depth to top of fault (km)	Dip (degree)	Down-dip rupture width (km)	Fault Type
Madhupur Fault (MF)	7.5	10	45	42	Reverse
Dauki Fault (DF)	8.0	3	60	43	Reverse
Plate Boundary Fault -1 (PBF-1)	8.5	3	20/30	337	Reverse
Plate Boundary Fault -2 (PBF-2)	8.0	3	20	137	Reverse
Plate Boundary Fault -3 (PBF-3)	8.3	3	20/30	337	Reverse

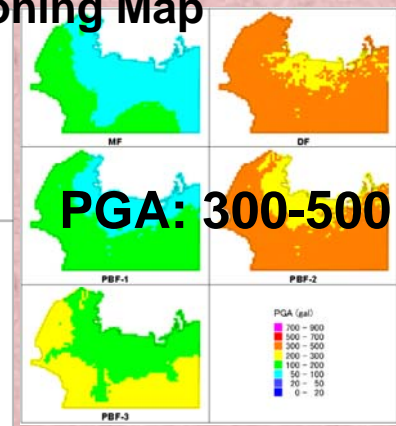
Scenario based seismic microzoning Map



Seismic microzoning, Dhaka

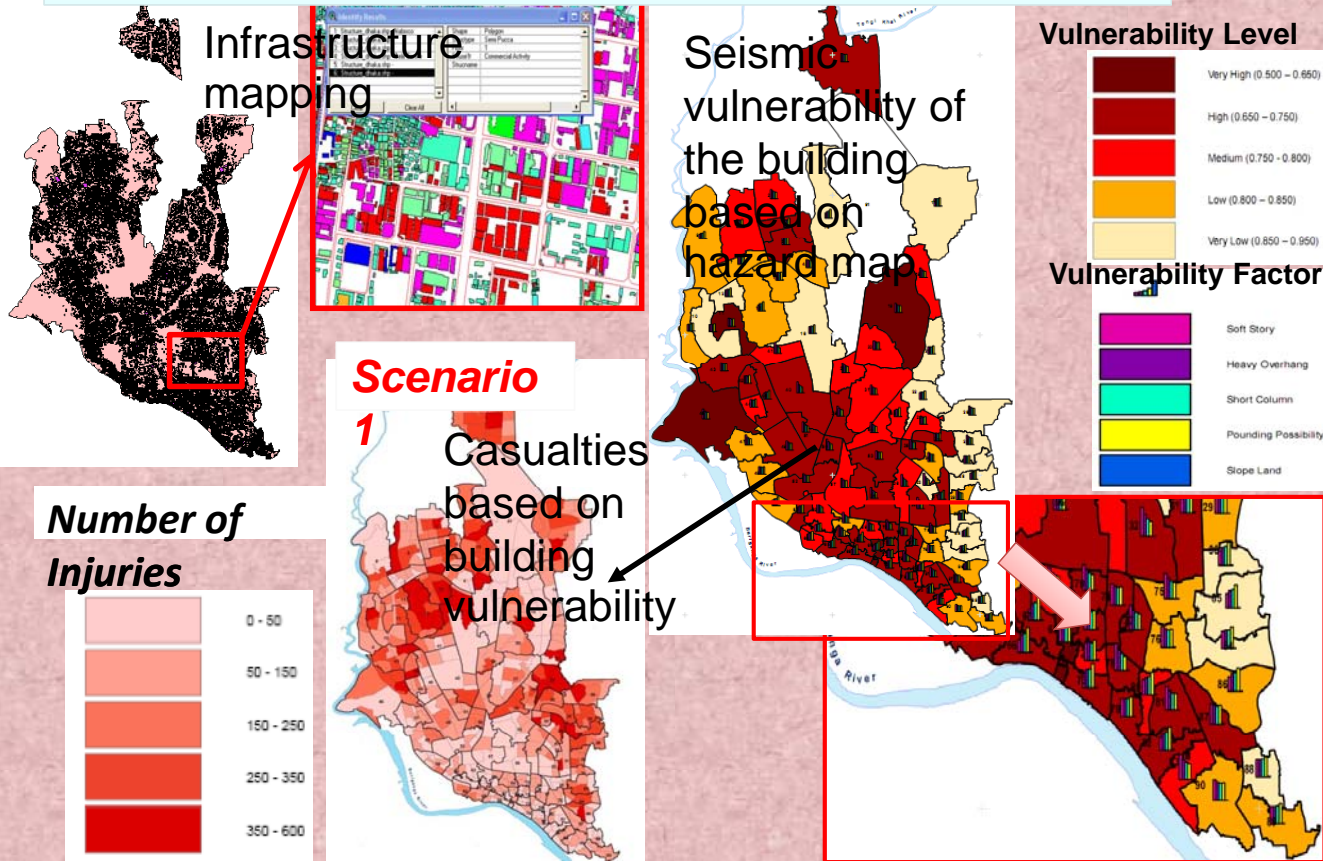


Seismic microzoning, Chittagong



Seismic microzoning, Sylhet

Seismic Vulnerability of Buildings: Case Study of Dhaka City

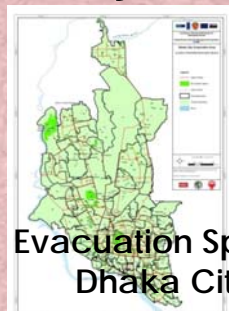


Application of Earthquake Vulnerability Map

- Preparation of earthquake contingency plan for national, city corporation and major agencies based on vulnerability map
- Preparation of spatial plans (maps) for search, rescue and evacuation
- Capacity building of major responding organizations based on risk assessment through training, advocacy and awareness activities



Possible Evacuation Route, Dhaka City



Evacuation Space, Dhaka City



Urban Community volunteers training



School Safety training

Bangladesh: The Good 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 (ADPC acted as a technical partner)

Lessons Learned and the Challenges

- Government ownership is the key to sustain the results
- Institutional reform and capacity building is a continuous process
- Partnership frameworks can help to accelerate policy development with action on the ground
- Need to expand the programme across other development sectors – coordination is a challenge
- Investing more in policies & knowledge
- Working through & with GoB, DMCs
- Reaching more people at-risk
- Being more comprehensive
 - *All hazards*
 - *All settings (rural, urban)*
 - *All sectors & actors*
 - *All phases of DM*

Strategic Goals of the Disaster Management Policy

- GOAL-1: PROFESSIONALISING THE MANAGEMENT SYSTEM
- GOAL-2: MAINSTREAMING RISK REDUCTION
- GOAL-3: STRENGTHENING INSTITUTIONAL MECHANISMS
- GOAL-4: EMPOWERING AT RISK COMMUNITIES
- GOAL-5: EXPANDING RISK REDUCTION PROGRAMMING
- GOAL-6: STRENGTHENING EMERGENCY RESPONSE SYSTEMS
- GOAL-7: DEVELOPING AND STRENGTHENING NETWORKS

66

National Priorities for 2011-2020

- Implementation of the National Plan for Disaster Management (2010-2015)
- 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

A Comprehensive Approach???

Three Key Elements:

1. Getting the PPRR balance right
2. Mainstreaming risk reduction within whole of government systems
3. Empowering stakeholders partners and communities

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

70

"There may be times when we are powerless to prevent disaster, but there must never be a time when we fail to manage it."

- Elie Wiesel

71

A large rectangular area with a textured, reddish-pink background, resembling recycled paper or a book cover. The texture is fibrous and uneven. In the center of this area, the words "Thank You" are printed in a bold, black, sans-serif font.

Thank You