



Welcome to the Presentation on Capacity Development for Disaster Information Management **BANGLADESH**



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Context analysis:

- Bangladesh, mostly by the virtue of its geophysical features, is a disaster prone country which coupled with the global climate change poses a major threat for its residents and their livelihoods.
- In the year 1988 or more recently the cyclone SIDR which affected almost nine million people.
- Bangladesh has three main rivers flowing through which forms the largest delta in the world, these rivers are the Ganges, the Meghna and the Brahmaputra (GMB). The delta has flat territory with many other rivers flowing through it, which along with the above three rivers bring a vast amount of water and sediments .
- This process of carrying sediments has been taking place since the Miocene age and this in turn helped in the growth of the Bangladesh .



Context analysis: continue

- Bangladesh is seismically active also because of the presence of quite a few major and minor faults near the country .
- In the last 100 years (that is since 1900) as many as 100 earthquakes, ranging from moderate to high, has been reported in Bangladesh .
- These areas are the geographic reason for the susceptibility of earthquake in Bangladesh as near these areas there are some active fault zones . The country is divided into three seismic zones where the third zone has the most risk of seismic activity and zone-1 has the least .
- Moreover there are some seismic fault lines that pass through or near Bangladesh and pose a threat possible earthquake in the country; some of these are- Bogra fault, Sylhet fault, Dauki fault, Kopili fault and Jamuna fault



RISK PROFILE

- First rank climate change **vulnerable nations**.
- Fifth rank in the **world risk index 2012**

Number of people exposed yearly

46 Million

DROUGHT - Affecting 8.3 million Ha of land.

24 Million

FLASH FLOOD –Unpredictable, recurring, uncertain.

71 Million

FLOOD - Inundates more areas, increases river erosion, breaches embankments, damages infrastructures.

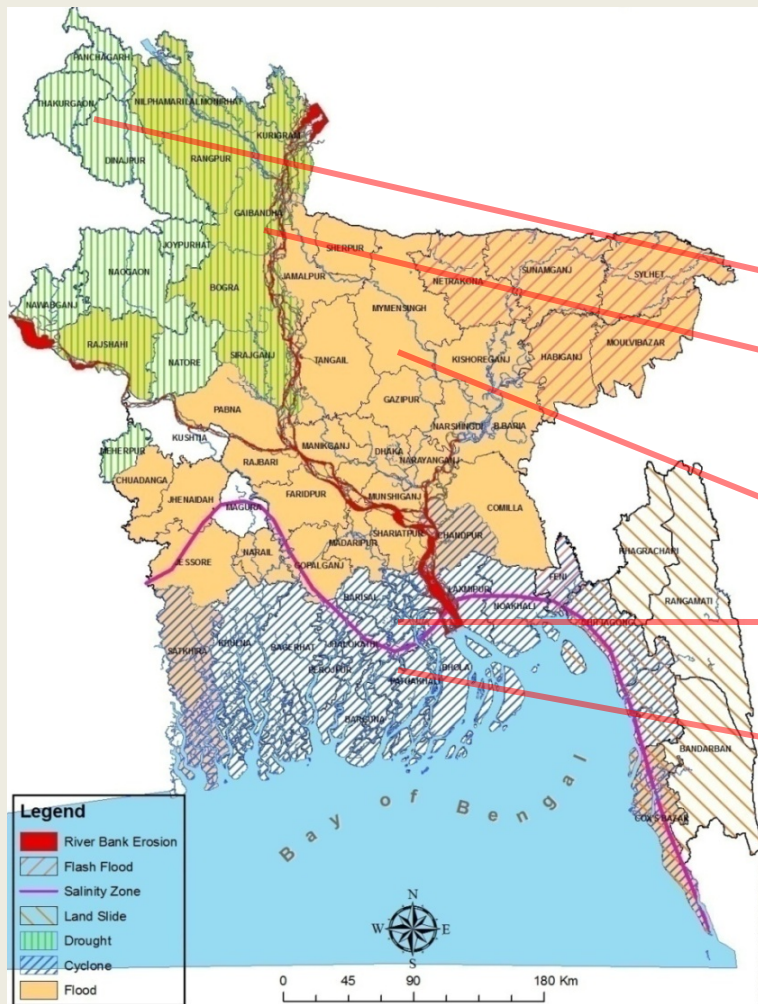
20 Million

SALINITY INTRUSION - Spreading from 1.5 to 2.5 Mha (2007).

7 Million

CYCLONE - The deadliest and most destructive hazard. It is recurring, with lingering aftermath, complex recovery.

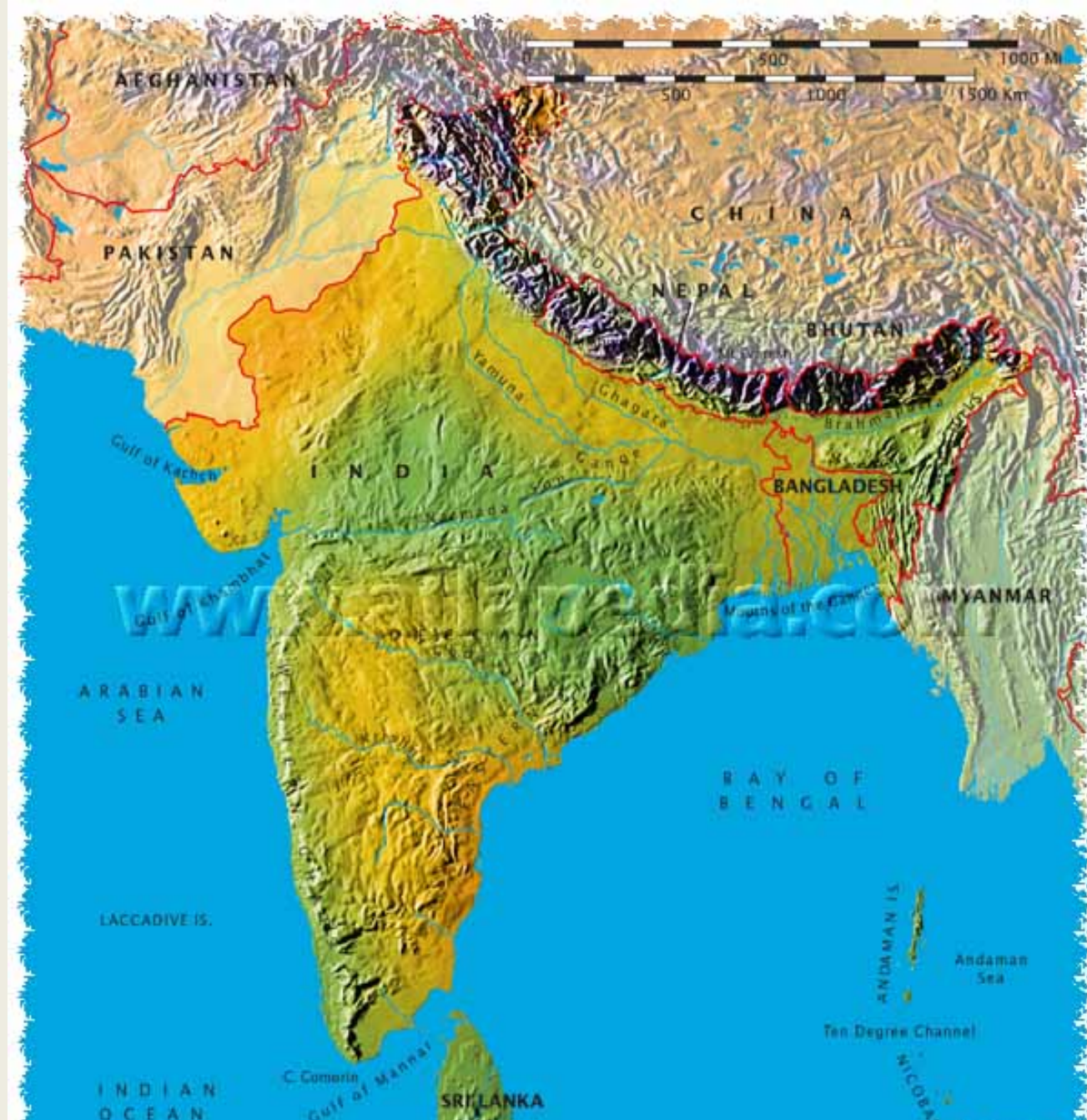
CLIMATE CHANGE HAZARDS, EARTHQUAKES, FIRE BREAKOUT, INFRASTRUCTURE COLLAPSE ETC.



Translated into annually 14% GNP exposure to disasters, the highest in the world...



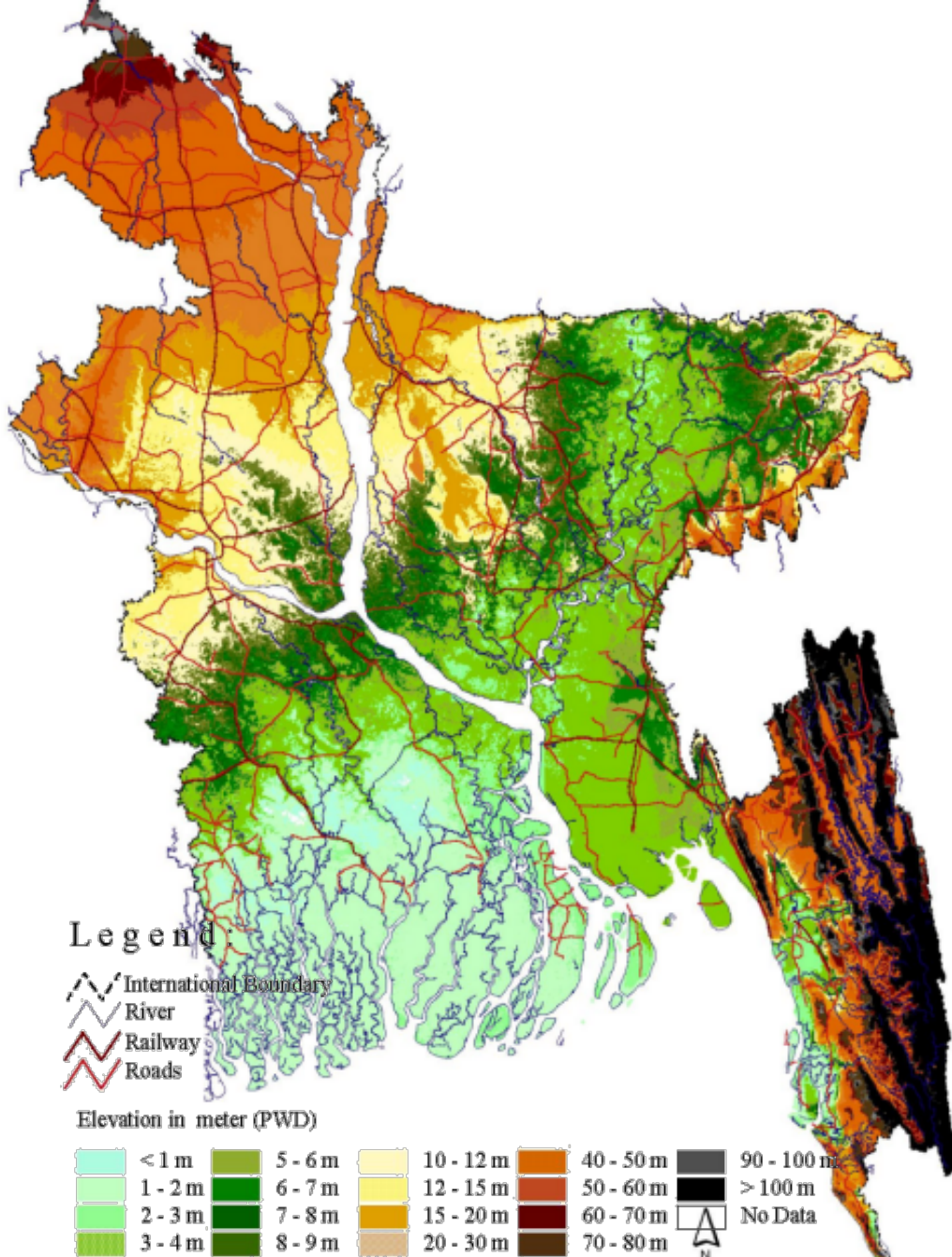
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Bangladesh is a flood prone country because of its typical geographical location and being placed in the delta formed by the Ganges, the Brahmaputra and the Meghna rivers



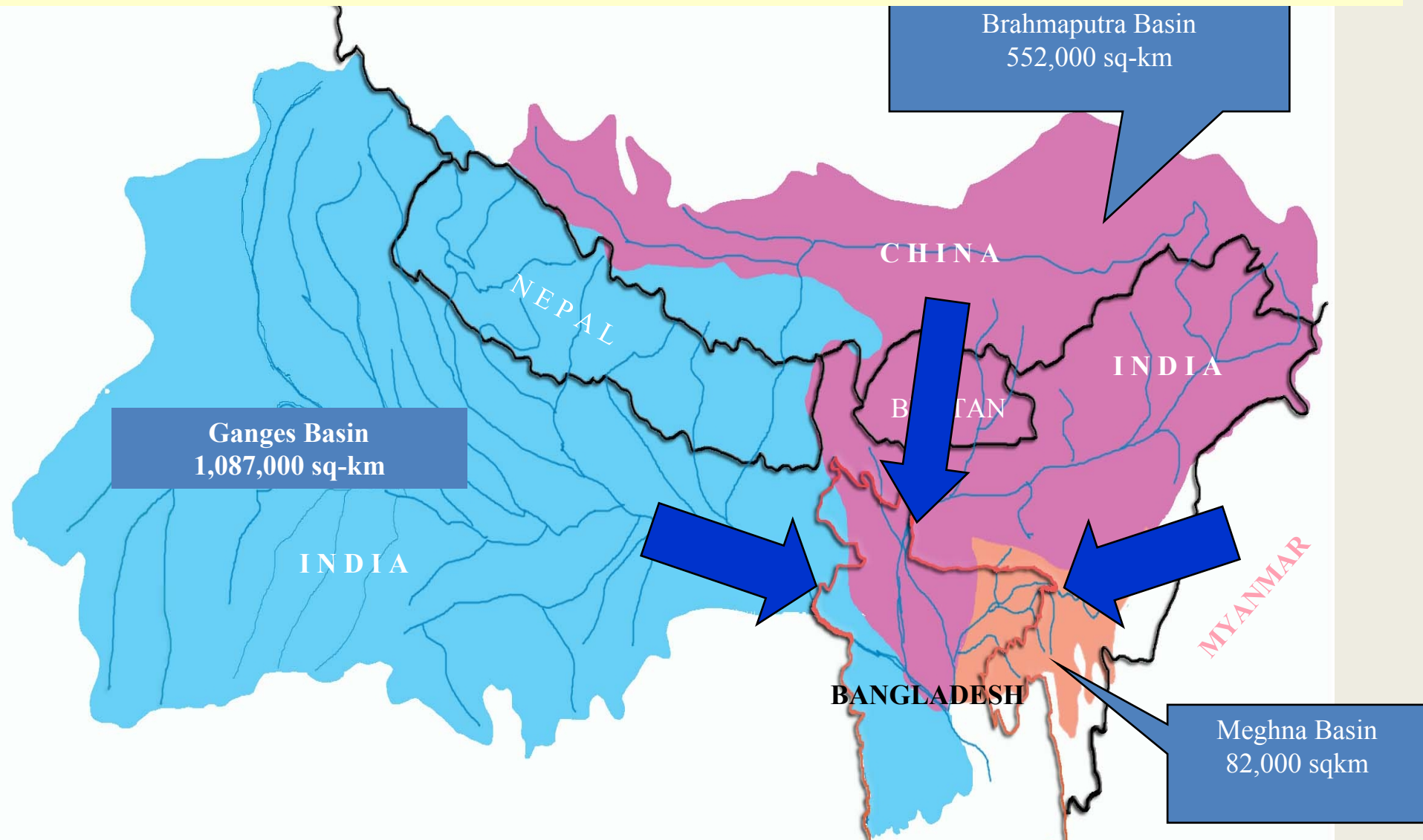
Topography of Bangladesh



- About 50% of the country is within 6-7 m of MSL.
- About 68% of the country is vulnerable to flood.
- 25 to 30% of the area is inundated during normal flood



Bangladesh rivers receive runoff from a catchment of 1.72 million sq-km, around 12 times its land area



Common Hazards/Disasters in Bangladesh

- | | |
|--------------------------------|--------------------------|
| 1. Cyclone | 7. Earthquake |
| 2. Flood, Flash Flood | 8. Arsenic Contamination |
| 3. Storm surge, Tidal surge | 9. Salinity |
| 4. Tornado | 10. Water logging |
| 5. Drought and desertification | 11. Cold wave |
| 6. River erosion | 12. Landslide |
| | 13. Tsunami |



Hazards and Risk Profile

Hazard	Flood	Flash Flood	Drought	Cyclone, tidal surge, salinity	Earthquake
	%	%	%	%	%
Vulnerable land area	61	23	46	32	70
Vulnerable population	71	24	46	27	80



Major Hazards

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

Major Disasters

<u>Year</u>	<u>Disaster</u>	<u>Death</u>
1970	Cyclone	300,000
1988	Flood	2373
1988	Cyclone	5704
1989	Drought	800
1991	Cyclone	138,868
1996	Tornado	545
1997	Cyclone	550
1998	Flood	1050
2004	Flood	747
2007	Flood	1071
2007	Cyclone SIDR	3406
2009	Cyclone AILA	190
2013	Cyclone Mohasena	17



EVOLUTION OF DISASTER MANAGEMENT IN BANGLADESH

70's	<p>Response oriented disaster management:</p> <ul style="list-style-type: none"> • 1970 Gorkey Cyclone, 300,000 people killed • 1972 Cyclone preparedness program established
80's – 90's	<p>Emerging DM approaches:</p> <ul style="list-style-type: none"> • 1987 -88 huge flood, FAP formulated • 1991 cyclone, 138000 people killed, shifting from disaster response to preparedness • 1993 constitution of Disaster Management Bureau • 1997 Drafting of standing order on disasters (SOD) • 1998 prolonged flood
2000 +	<p>Forward towards a comprehensive system including Risk Reduction</p> <ul style="list-style-type: none"> • 2000 Comprehensive Disaster Management program formulated and launched in 2004 • 2005 Ministry of Food and Disaster Management renamed with new DM vision • 2006 Revised AoB for MOFDM • 2010 Revised SOD, National Plan for Disaster Management



Disaster Management Institutions in Bangladesh



GoB Capacity in Disaster Management

- Specialized **Ministry for Disaster Management & Relief**
- Creation of Department of Disaster Management (DDM): shifting focus from relief to disaster management specially to risk reduction culture.
- **CPP (Cyclone Preparedness Programme)**: building a network of 49,500 trained volunteers across coastal belt
- Issuance of **SOD (Standing Order on Disaster)**: establishing mechanisms and procedures for effective response at all levels during disaster emergency
- Established Disaster Management Information Centre (DMIC) down to Upazilla level to support info management & Coordn.
- Initiate formulation of '**Comprehensive Disaster Management Framework**' involving all disaster stakeholders including donor community
- The presence of **vibrant NGO communities**, disaster vulnerable people demonstrates strong coping capacity to face the disaster challenges



Status of Disaster Management Information System in Bangladesh

The following organizations have a good spatial and non-spatial Information Management System:

- **Survey of Bangladesh (SOB)**
- **Space Research and Remote Sensing Organization (SPARRSO)**
- **Flood Forecasting and Warning Center (FFWC)**
- **Bangladesh Meteorological Department (BMD)**
- **Department of Disaster Management(DDM)**
- **Bangladesh Bureau of Statistics (BBS)**
- **Local Government Engineering Department (LGED)**
- **Institute of Water Modeling (IWM)**

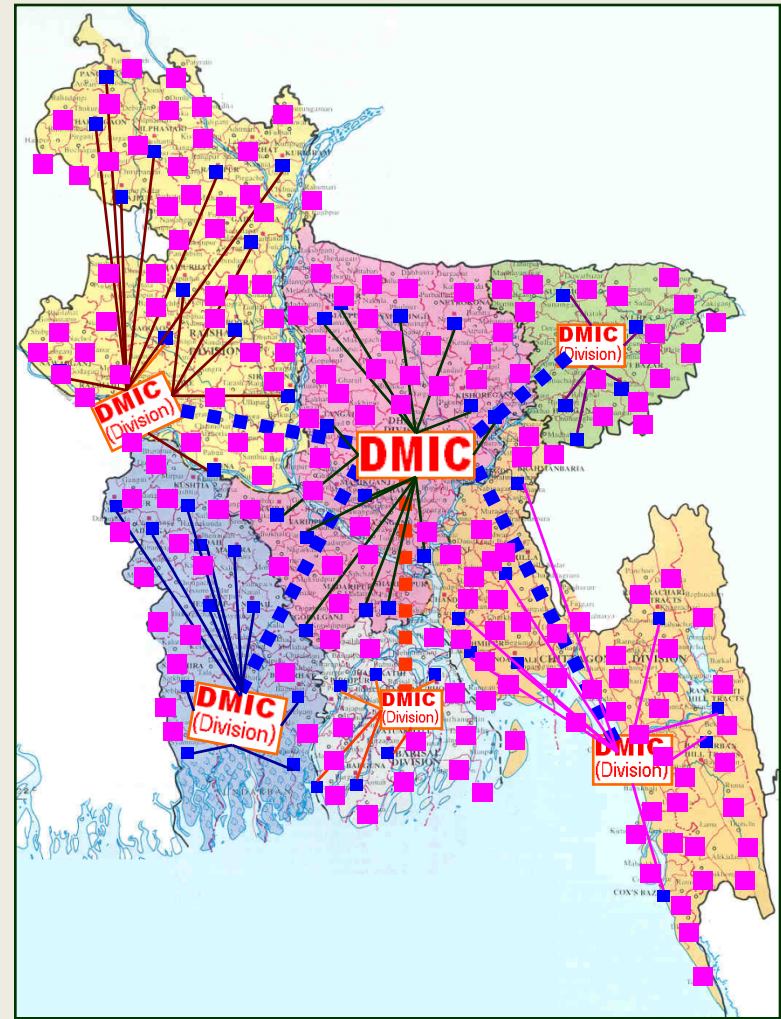
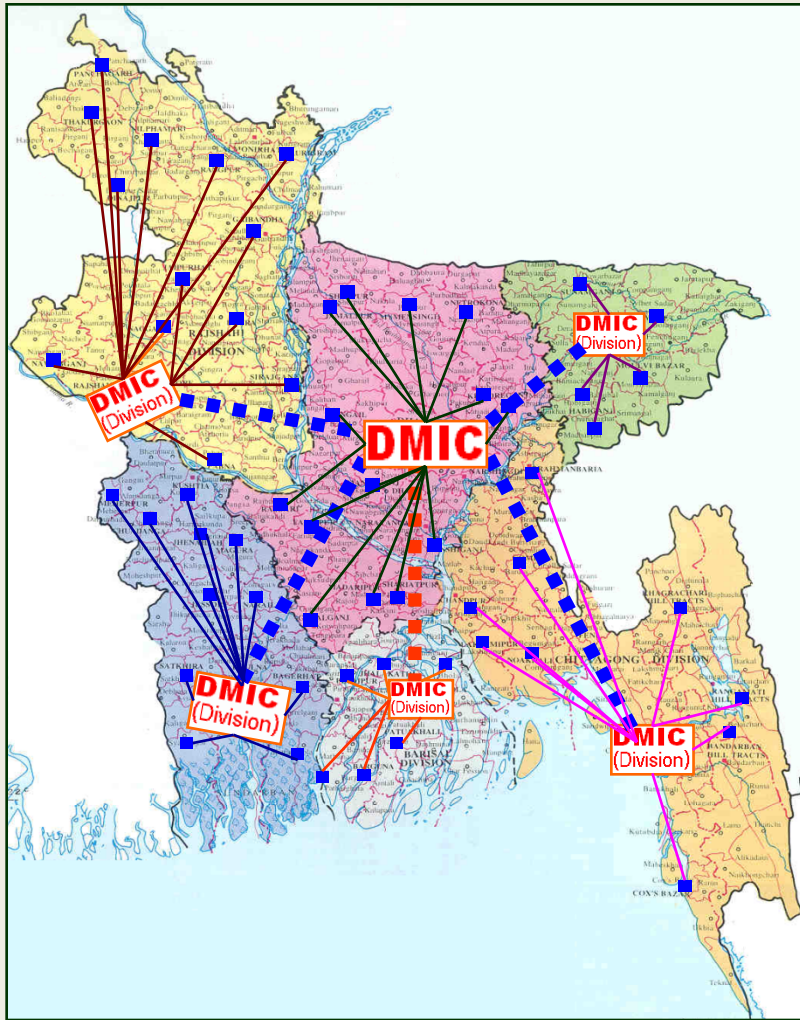


Status of Disaster Management Information System in Bangladesh

The following organizations have a good spatial and non-spatial Information Management System:

- **Center for Environmental and Geographic Information Services (CEGIS)**
- **Water Resources Planning Organization (WARPO)**
- **Bangladesh Agriculture Research Center (BARC)**
- **Soil Resource Development Institute (SRDI)**
- **Roads and Highways Department (RHD)**
- **Bangladesh Forest Department (BFD)**
- **Directorate of Land Records and Surveys (DLRS)**
- **Dhaka Water Supply and Sewerage Authority (WASA)**





64 district and 485 upazilla are connected with DMIC

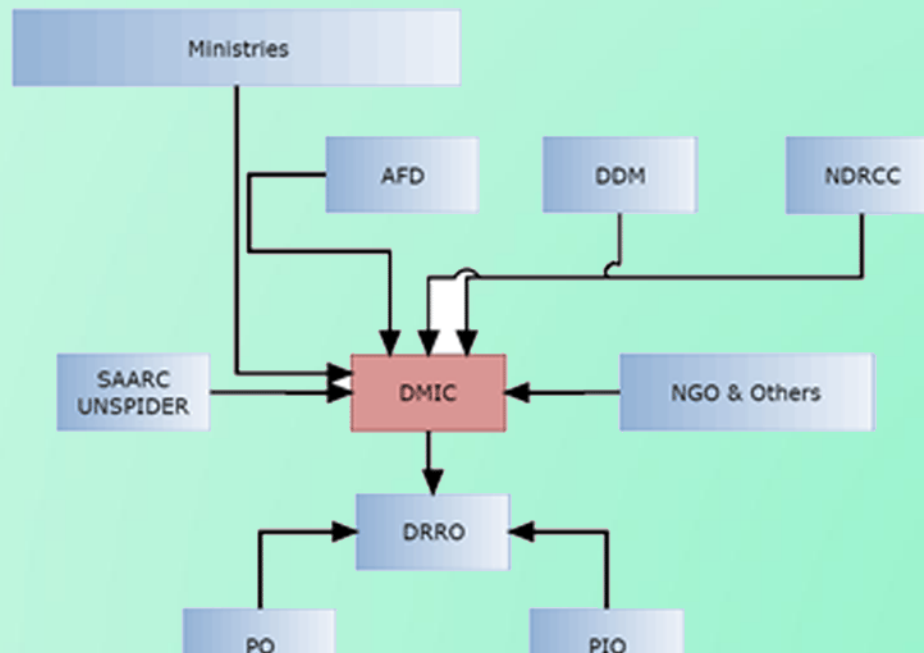


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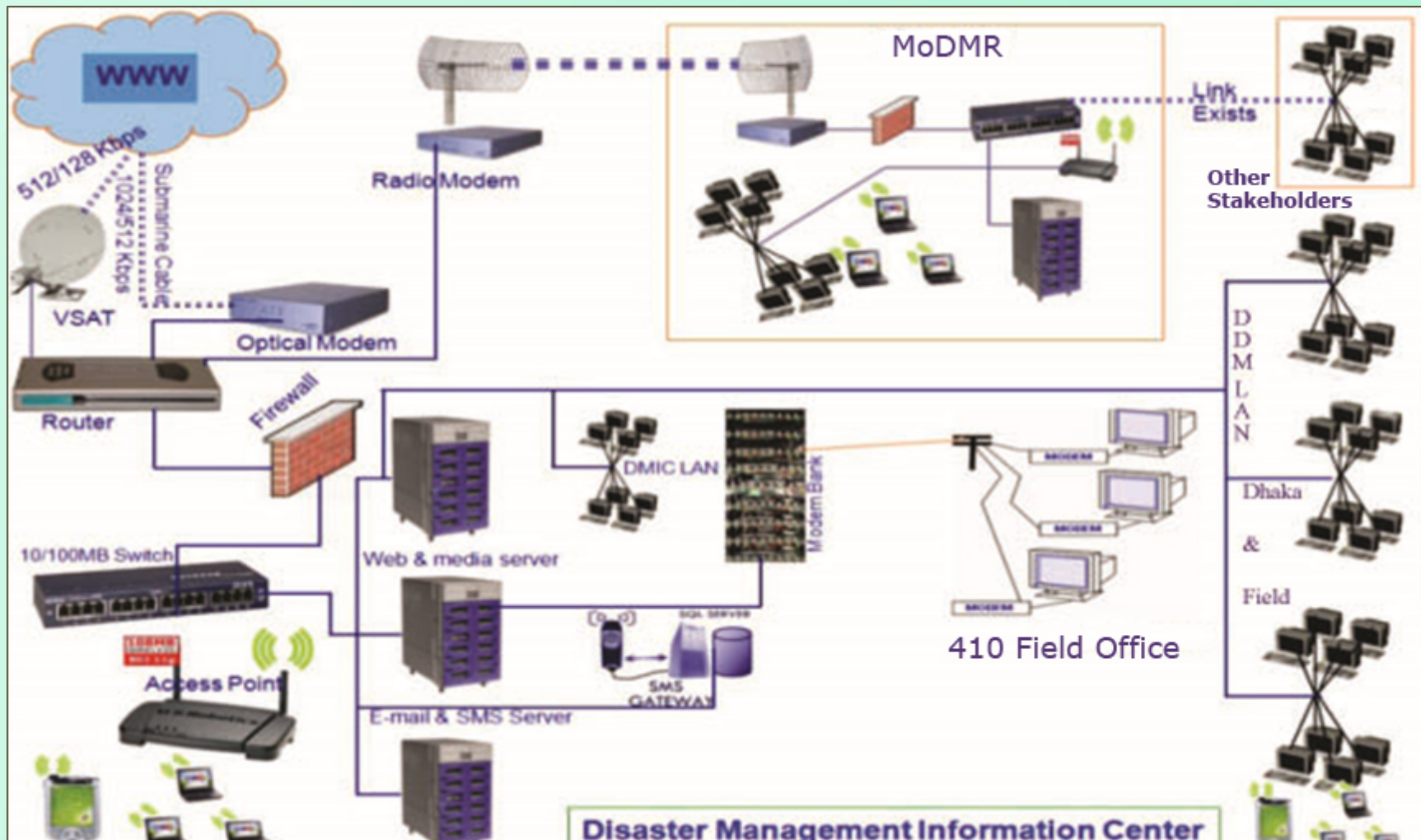
What is DMIC?

DMIC is a facility and common platform for the organization of and control over the structure, processing and delivery of information pertaining to the disaster and climate change risk reduction by the government authorities, its development partners, member of the civil society, other stakeholders, and the disaster and/or climate change - affected populations.

Conceptual
Information
flow of
DMIC



Network Infrastructure of DMIC



Ministry of Disaster Management and Relief

The DMIC is the information hub of the Ministry of Disaster Management and Relief (MoDMR)

For

- Risk reduction
- Hazard warnings
- Emergency response
- Recovery activities

early

Initially

DMIC stationed at the Bangladesh Secretariat, administered by the concerned personnel.

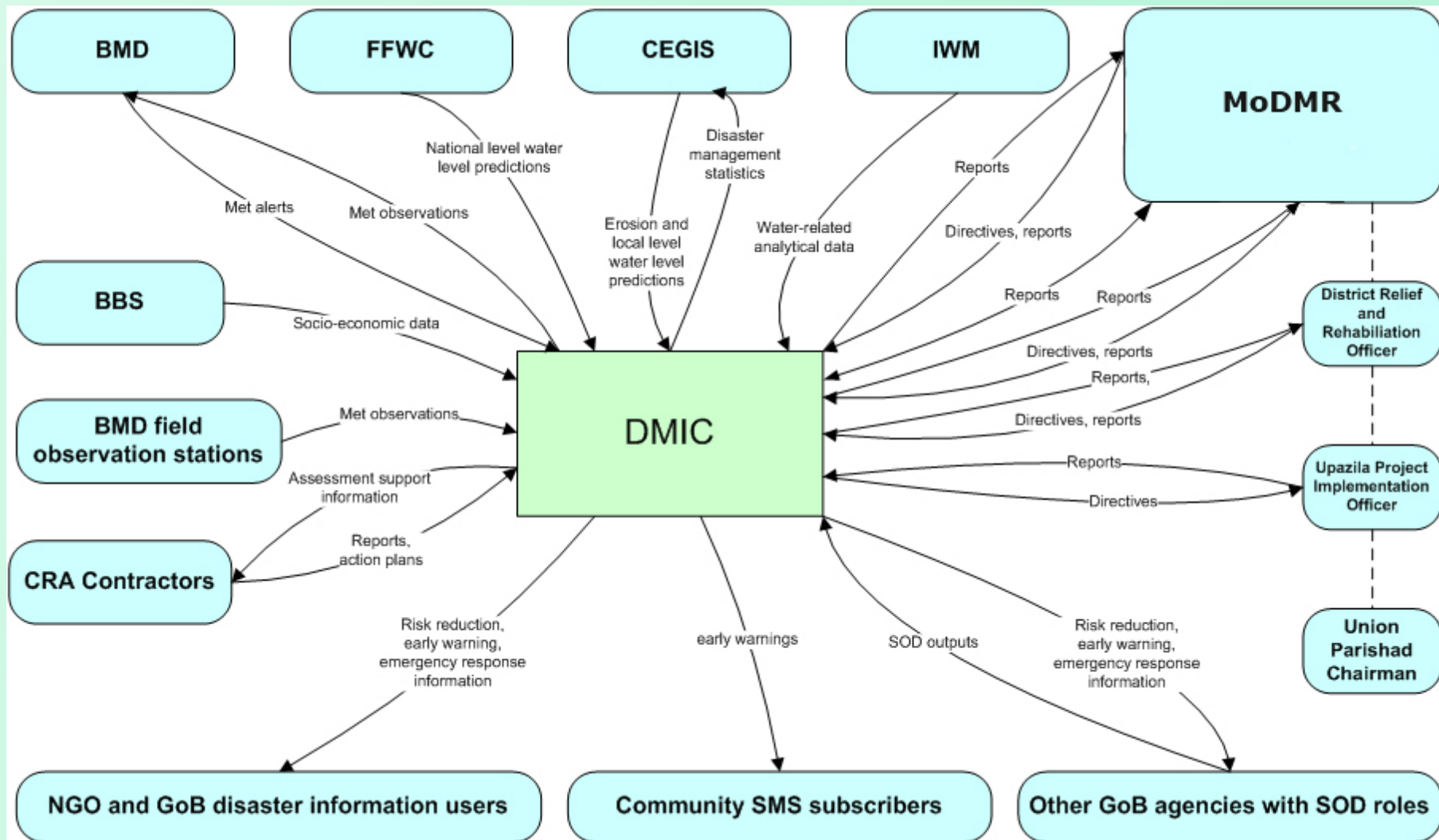
Now

DMIC Stationed at Department of Disaster Management with the Technical Assistance of CDMP.



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Information Flow Focusing SOD



Products/Services



Cell Broadcasting (CB)

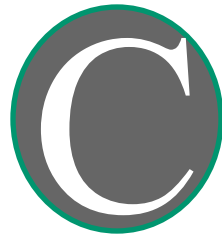
Piloting of early warning dissemination in flood prone Sirajganj and cyclone prone Cox's Bazar through Cell Broadcasting (CB) has been Successful.



IVR (Interactive Voice Response)

Initiative have been taken to weather, flood forecasting and early warning for river port through IVR. The Service is available through all mobile subscribers.

IVR Hot Line - 10941



SMS service to disseminate disaster early warning during and after disaster instruction will be circulated to officials of relevant disaster



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Reports Disseminate From DMIC



Situation Report (Sitreps)

Prepare “Situation Report” based on review and analysis of the disaster information management and dissemination with particular emphasis on emergency response and operations.



Disaster Report

Prepare other disaster report which includes detail analysis of a specific disaster including lesson learned.

Capacity Building of Departments & Field Offices



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Web Applications driven by Databases

- Disaster Management Information Portal (www.dmic.org.bd/dmin)
- Cyclone Shelter Database (www.dmic.org.bd/csdb)
- Disaster Incident Database (www.dmic.org.bd/didb)
- Disaster Management Committee Contact/ Union Map (www.dmic.org.bd/dmccdb)
- Union Factsheet (www.dmic.org.bd/factsheet)
- Hazard Map (www.dmic.org.bd/inmap)

Tools Used for mapping

GIS Setup

Software – ArcGIS/ ENVI

Databases – Different layers including administrative boundaries, River, Sea, School, shelter etc.

Administrative District Map Upazila/Union/ Natural (River)

Hazard Map – Flood, Cyclone, Salinity, Response Map



Impact of DMIC

Pre Disaster

Early Warning

❑ 5000 fishermen will received early warning up to 225 nautical miles (Economic zone of Bangladesh) by April, 2014 through Bangladesh Meteorological Department (BMD)

- **IVR** – 2,12,125 hits until Dec'13, 70,000 hits just in 4 days of MAHASSEN
- **Bulk SMS** – 10,000 at MAHASSEN to Disaster Management Committee (DRRO, PIO, UNO, DC, UP Chairman), still in hand 90,000 Bulk SMS
- **Email** – PIO/DRRO (487) and other stockholders' To communicate Early Warning Advisories
- **CPP** – Early Warning Recipient for wider dissemination



Impact of DMIC

During Disaster

- DMIC remain open 24 / 7 during disaster.
- Regular situation report disseminated during disaster.
- Other reports related to disaster disseminated according to the instruction of Director General, Department of Disaster Management.

Post Disaster

- Disaster Reports
- Assessment reports Upload to the Website from different clusters.
- Disseminate disaster reports to other stakeholders for uploading in their web sites.



Multi Hazard Risk and Vulnerability and Assessment Modeling and Mapping (MRVA)

Strengthening and Enhancing DDM capacity for the Systematic Identification, Quantification and Monitoring of Multi-Hazard Risks and Vulnerabilities

- ☐ Department of Disaster Management (DDM) is the national body for multi-sectoral coordination of Disaster Management activities within the country
- ☐ DDM is going to establish a 'Multi-Hazard Vulnerability Mapping Cell' under project supported by World Bank
- ☐ ADPC, Thailand is providing consultancy service
- ☐ MRVA's Capacity Building and strengthening for consolidating and maintaining hazard risk information at central (national) and disaggregated (district) levels.



SCOPE OF WORK

Main Components

1. Hazard Assessment and Mapping
2. Vulnerability Assessment
3. Exposure and Risk Assessment and Mapping
4. Training and Capacity Building

Types of Hazard Covered in this Work:

Flood, Cyclone & Storm Surge, Tsunami, Drought, Salinity, River Erosion, Earthquake, Landslide, Health Hazard and Technological Accident



ESTABLISHMENT DAMAGE AND LOSS ASSESSEMENT CELL

- ☐ **To Establish Damage and Need Assessment Cell in DDM**
- ☐ To facilitate recovery mechanism from the damage to livelihoods and community infrastructure caused by disaster
- ☐ To develop a web based application for collecting, processing and analysing damage information from field level
- ☐ To provide emergency relief, rehabilitation and reconstruction for victims of natural disaster through standardized to implement post-disaster damage and needs assessment policy and guild line by establishing a Damage-loss and Needs Assessment (DNA) cell



Key Challenges

- Cultural gap, traditional paper base work vs. ICT
- Poor/inadequate nationwide infrastructure
- Providing Scientific Information Services is very critical (availability, data validation, data ownership, procedures, cost)
- Lack of Uses of risk reduction information by District Disaster Management Committee



RECOMMENDATION

- ☐ Providing access to satellite-based information and solutions during emergency
- ☐ Regional Cooperation Should promote the establishment of a regional spatial Data Infrastructures (RSDI) to develop regional standard/protocol for sharing regional DRM information
- ☐ Offering opportunities to strengthen participation in existing networks and communities of practice.
- ☐ Contributing to the enhancement of disaster management plans and policies by mainstreaming the use of space-based information in all stages of disaster management;
- ☐ Country should take up the policy stand to adopt a strong regional and international cooperation among data providers and end users



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Conclusion

- South and South-West Asian countries could focus on several priority areas for developing disaster risk reduction strategies and implementation over the short- to medium-term. Given the sub region's simultaneous and high disaster risk and economic vulnerability, there is significant scope for countries to consider improved methods and policies that can address disaster risk reduction in the context of multiple shocks. Both immediate and longer-term policy actions to increase resilience to disasters compounded by other external shocks should be considered and mainstreamed into national disaster risk reduction action plans.



THANK YOU
