

Water Related Disaster Management in Bangladesh: Roles of BWDB

Bangladesh Water Development Board




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Bangladesh Setting

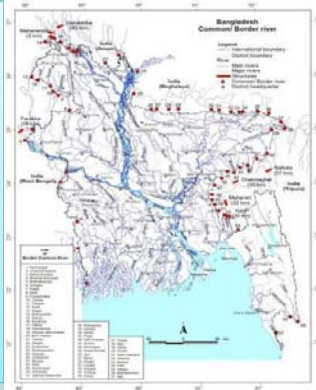


Ganges Basin		Brahmaputra Basin		Meghna Basin	
Catchment Area (Sq. Km)	1087000	Catchment Area (Sq. Km)	552000	Catchment Area (Sq. Km)	82000
Avg. Annual rainfall (mm)	1200	Avg. Annual rainfall (mm)	1900	Avg. Annual rainfall (mm)	4900
Avg. Annual Discharge (m ³ /s)	11000	Avg. Annual Discharge (m ³ /s)	20000	Avg. Annual Discharge (m ³ /s)	4600
Max. Discharge (m ³ /s)	78000	Max. Discharge (m ³ /s)	100000	Max. Discharge (m ³ /s)	20000
Sediment transport (m ton/yr)	550	Sediment transport (m ton/yr)	590	Sediment transport (m ton/yr)	13

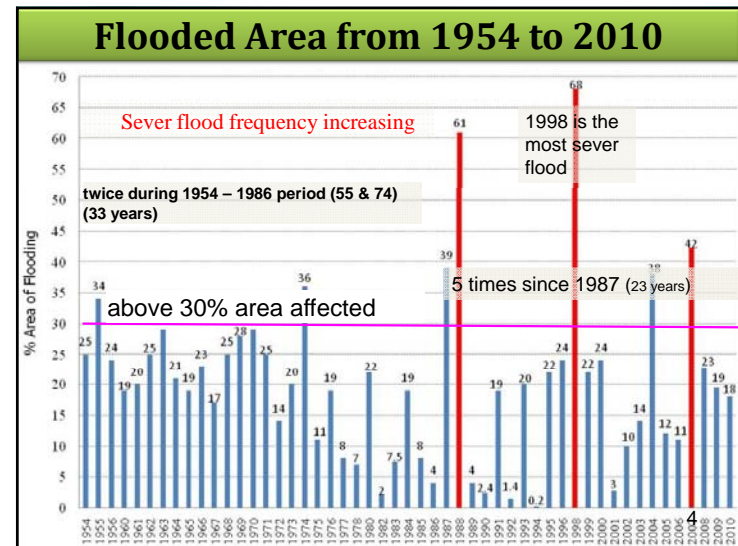
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Bangladesh: River System

- Largest delta in the world, 405 rivers of which 57 Trans-boundary
- 93% catchments lies outside Bangladesh
- Abundance of water in wet season & scarcity of water in dry season
- Annual Sediment load 1.0 to 1.4 billion tons
- 710 km coastline



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Damages from Major devastating floods

Flood Event	Return period (years)	Asset losses (million US\$)	Fatalities	Affected (million)	Affected area ('000 sq km)	Houses damage ('000s)	GDP current (million US\$)	Asset losses as % GDP
1998	90	2128	918	31	100	2647	44092	4.80%
1988	55	1424	2379	47	90	2880	26034	5.50%
2007	40	1067	1100	16	70	1085	68228	1.6%
1987	13	1167	1657	30	57	989	23969	4.90%
2004	12	1860	285	33	56	895	55900	3.30%
1974	9	936	28700	30	53	-	12459	7.50%
1984	2	378	1200	30	-	-	19258	2.00%

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River Bank Erosion

Total Length of River: 24000 km

1200 km bank line under active erosion

500 km bank line under severe erosion

Annual Rate of River Bank Erosion: 6,000ha

Annual Displacement : 50,000 person

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Cyclone and Storm Surges

- Occurs almost every year
- 1970, 1991, 2007 and 2009 were worst and devastating

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Historical Cyclone Damage

Date and Year	Maximum Wind speed (km/hr)	Storm Surge Height (meter)	Death Toll
11 May, 1965	161	3.7-7.6	19,279
14 Dec, 1965	217	2.4-3.6	873
01 Oct, 1966	139	6.0-6.7	850
12 Nov, 1970	224	6.0-10.0	300,000
25 May, 1985	154	3.0-4.6	11,069
29 Apr, 1991	225	6.0-7.6	138,882
19 May, 1997	232	3.1-4.6	155
15 Nov, 2007	223	6.1-9.1	3,363
25 May, 2009	120	6.5-7.5	190

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Climate Change Scenario in the Coast of Bangladesh

Impact on Population in the High Risk Areas

High Risk Zone will increase

Coastal Zones	High Risk Area (Sq Km)								
	Existing	SRES A2 Scenario				SRES B1 Scenario			
		2020s		2050s		2020s		2050s	
Zone 1 (Tocknaf to Cox's bazar)	2,031	2,349	2,250	2,519	2,335	2,407	2,315	2,444	2,314
Zone 2 (Cox's bazar to Chittagong)	3,722	5,235	4,999	5,646	5,203	5,376	5,155	5,465	5,153
Zone 3 (Chittagong to Neokhali-Bhola)	1,472	2,261	2,157	2,441	2,247	2,322	2,226	2,362	2,225
Zone 4 (Bhola to Barangia)	500	629	620	676	624	644	619	655	618
Zone 5 (Barangia to Symnagar)	1,178	1,810	1,254	1,408	1,303	1,298	1,184	1,365	1,291
Total	8,903	11,783	11,260	12,690	11,712	11,957	11,498	12,291	11,601
Change in percentage		32%	26%	43%	32%	34%	29%	38%	30%
Population Density ('000/sq km)	0.93	1.22	1.22	1.63	1.63	1.22	1.22	1.63	1.63
Population Exposed (million)	8.3	14.00	13.00	20.00	19.00	14.00	13.00	20.00	18.00

Note: The population in the coast area (39,436 sq km) 36.83 million, 47.92 million and 64.35 million in the year 2001, 2020 and 2050 respectively, as estimated by ICZMP/WARPO (2005).

Special Report on Emission Scenarios (SRES)

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Adaptive Protection and Permanent Wave Protection: an example

Stocking of Geo-bags at Bera

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Monitoring and Continuous Development

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Cyclone Disaster Management

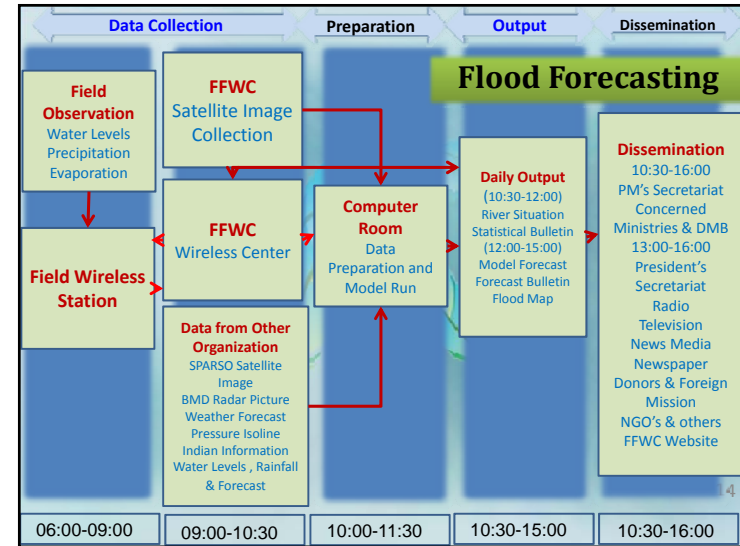
Ayla affected Homesteads & Infrastructures

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Rehabilitation of Ayla damaged BWDB Structures

- Mass involvement of local people
- Inter-agency coordination
- Livelihood promotion

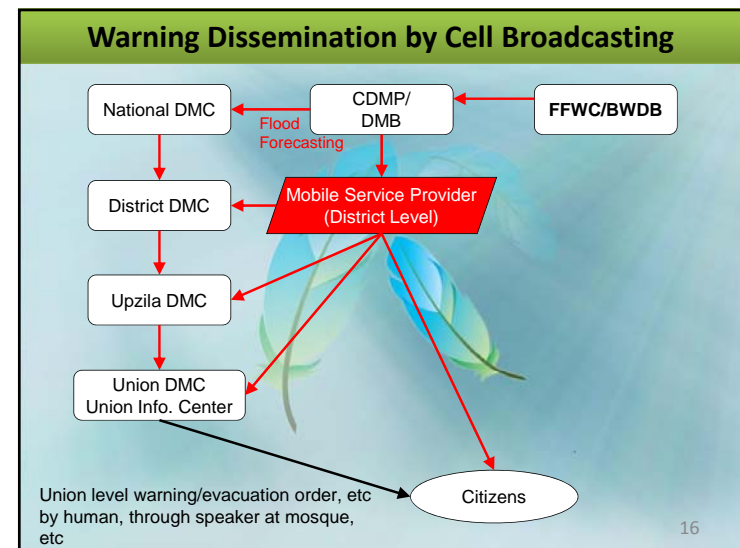
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FFWC Output

- Daily Rainfall Situation
- Rainfall Surface Map
- Daily River Situation
- Flood Inundation Map
- Dhaka City Flood Inundation Map
- Daily Situation Summary & Warning Message
- 24, 48 & 72 hrs. Forecast
- Experimental 10 days forecast of certain places
- Reports, Study and Evaluation


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Dissemination of FF Information

- **Printed Copy and Fax:** Limited, policy makers and top officials
- **E-mail:** Over registered 600 address in different groups, BWDB, Disaster agencies, NGO, Research Organization, Development partners, DC, Media
- **Web-site:** www.ffwc.gov.bd
- **Phone:** Continuous response
- **Cell Phone Broadcast:** Started from July, 2011, dial 10941 from Teletalk, Banglalink for Voice Message (charge applicable)

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Government of the People's Republic of Bangladesh

**Standing Orders
on
Disaster**

Ministry of Food and Disaster Management
Disaster Management & Relief Division
Disaster Management Bureau

April 2010

- Role & responsibility of Ministry of Water Resources (MoWR) described in pages 81 & 82 (Chapter 4)
- Role & responsibility of Bangladesh Water Development Board (BWDB) described in Pages 82 to 88 (Chapter 4)
- www.dmb.gov.bd

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National Mechanism for Policy Guidance and Coordination

National Disaster Management Council (NDMC)

Inter-Ministerial Disaster Management Coordination Committee (IMDMCC)

National Disaster Management Advisory Committee (NDMAC)

**BWDB
is
involved**

Local Level Coordination


City Corporation Disaster Management Committee (CCDMC)

District Disaster Management Committee (DDMC)

Upzilla Disaster Management Committee (UzDMC)

Union Disaster Management Committee (UDMC)

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Government of the People's Republic of Bangladesh

National Plan for Disaster Management

2010-2015

Disaster Management Bureau
Disaster Management and Relief Division
Ministry of Food and Disaster Management


Strategic Goals:

- Goal-1: Professionalizing the Disaster Management System
- Goal-2: Mainstreaming Risk Reduction
- Goal-3: Strengthening Institutional Mechanism
- Goal-4: Empowering at Risk Community
- Goal-5: Expanding Risk Reduction Programming
- Goal-6: Strengthening Emergency Response System
- Goal-7: Developing and Strengthening Networks

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দুর্যোগ ব্যবস্থাপনা নীতি ২০১২
খসড়া

**Disaster Management Policy 2012
Under preparation**



দুর্যোগ ব্যবস্থাপনা ও ত্রাণ বিভাগ
খসড়া ও প্রমোদন ব্যবস্থাপনা মহাপর্ষদ
গণপ্রজাতন্ত্রী বাংলাদেশ সরকার


- Three Chapters
- Chapter-1: Background of Policy Preparation
- Chapter-2: Description of Disaster Management Policy
- Chapter-3: Monitoring and Evaluation

- Roles and Responsibilities of all Relevant sectors defined
- Considered almost all the relevant policies
- Conflict among policies avoided

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বন্যা মোকাবেলায়
জনসাধারণের করণীয়


Flood Booklet/ Flood Preparedness at Community Level




দুর্যোগ ব্যবস্থাপনা দপ্তর
গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

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Raise the foundation




Teach Swimming




Tree plantation




Store dry food




Oral Saline Preparation



Bamboo Fencing and secure drinking water



Go to Shelter



Increase Coping Capacity

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Future Structural Programme

- Coastal Embankment Improvement (CEIP) under Emergency Cyclone Recovery and Restoration Project (ECRRP)
 - Upgrading the height of the coastal embankment considering Climate Change for protecting cyclone damage, adaptation to climate change
- Capital Dredging with River Training work for revival of River System
 - River narrowing, deepening, land reclamation, sediment management, quick drainage and drought protection
- Continuation of Tidal River Management in Coastal Area
 - Restore the river conveyance capacity naturally
- Main River Flood and Bank Erosion Management
- Expansion of Surface Water Irrigation by FCDI Project, Barrage etc.

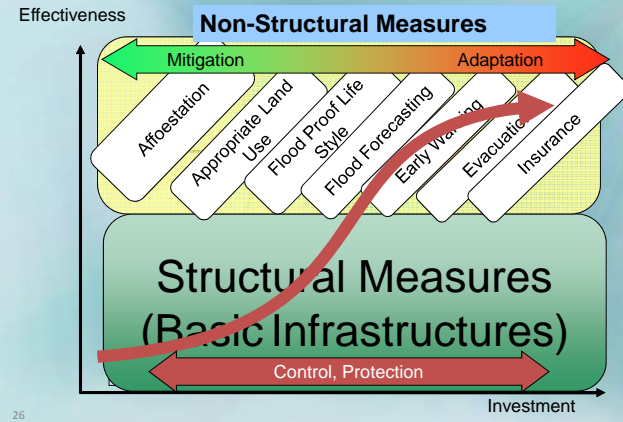
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Future Non-Structural Programme

- Extending the lead time of forecast
- Expanding flood forecasting in the coastal zone of Bangladesh
- Upgrading collection and transmission of rainfall and water level data
- Developing and implementing flash flood forecasting tool
- Establishing network of key stakeholder for disseminating information
- Establishing monitoring, evaluation and feedback system
- Developing people centered flood warning dissemination

Multilateral cooperation and collaboration are required in these areas

Combination of Structural Measures and Non-Structural Measures



Thank you

