

1st Workshop to Strengthen Scientific Advisory Capacities for Disaster Risk Reduction

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Gaps and Challenges of science based decision making: Bangladesh perspectives

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- Bangladesh is exposed to natural hazards - floods, river erosion, cyclones, droughts, tornadoes, cold waves, drainage congestion/ water logging, arsenic contamination, salinity intrusion etc.
- Impacts of climate change are visible in Bangladesh in the form of temperature extremes, erratic rainfall, and increased number of intensified floods, cyclones, droughts.



Socio-Economic Trends

- Growing populations;
- Rising wealth and improving health, but questions of inequality;
- Changing livelihoods and migration;
- Urbanization and infrastructure expansion;
- Intensification of agriculture;
- **Increasing demand for flood management;**
- Increased water demand.

Interventions

Polderization – Following Krug Mission report, Coastal Embankment Project (CEP) was initiated in 1961 and constructed **129 polders in tidal floodplains of Bangladesh coastal delta by the end of 1971.**

- Water logging appeared due to these polders, sluice gates and embankment and got escalated over the period since 1985.
- The whole floodplains of Southwest region of Bangladesh got affected by water logging and salinization.



SCIENCE AND TECHNOLOGY IN DECISION MAKING

- Ministry of Disaster Management and Relief's responsible for DRR activities in Bangladesh with **Disaster Management Bureau**.
- The Disaster Management Act, 2012 (hereinafter DMA), Disaster Management Rules, 2015 (hereinafter DMR) and Disaster Management Policy 2015, are the key legal and policy documents related to disaster management. Department of Disaster Management has been formed to implement the DMA (Articles 7-11 of DMA).
- National Disaster Management Council (NDMC) is the highest policy support body of the government (Article 4 of DMA). **Science, Technology and Academia (hereinafter STA) is excluded from this council.**
- Science Technology and Academia has representation in NDMAC, EPAC and NPDRR (Articles 9, 18 and 21 of 2015 DMR). However, **STA has no representation** in IMDMC, CPPPC, CPIB and DWPPIC (Articles 3, 12, 15 and 24 of 2015 DMR). As per Article 14 of DMA, National Disaster Response Coordination Committee (NDRC) has been formed; however, **STA has no representation in NDRC.**
- The representation of Science and Technology in DRR related decision making is **extremely weak** in Bangladesh. At this stage, Bangladesh is mostly dependent on **bureaucrats** for disaster related decision making.

SCIENCE-TECHNOLOGY and DRR (Gaps and Challenges)

Gaps

- Coordination and collaboration, and data and information sharing is very very limited
- Bangladesh Government provides very **limited financial support** to research and development through **Universities and Research Institute**.
- University Grants Commission of Bangladesh (UGC) and Ministry of Science and Technology provide **limited funding** for research.
- Lack of linkage among **science–society–governance** interfaces which hinders scientific innovation adapted by local people and implemented efficiently
- Indigenous knowledge** is often overlooked which could be modified and validate with **scientific knowledge**

Challenges and potentials

- Disaster Management issues guided by **political economy**
- Due to lack of **research funding**, retaining **quality scientists** in the country is a major challenge.
- University Grants Commission (UGC) is currently implementing the **Bangladesh Research and Education Network (BdREN)**: **Sustainability** of this network is a big challenge
- Climate Change Trust Fund of Bangladesh Government provides funding for projects aiming to address climate change risks that fall under the six thematic areas specified in Bangladesh Climate Change Strategy and Action Plan (2009).
- DMA (Disaster Management Act) provides provision for the establishment of national disaster management research and training institute.
- In recent years, several universities introduced disaster related postgraduate programs and research.

- Science based DRR needs to be promoted through investment in **public and private R&D institutions/universities**.
- Disaster risk resilience through **structural and non-structural measures** and development and revision of new or existing standards, codes, and rehabilitation and reconstruction practices should be encouraged.
- Investment for **data generation and management**, preparing hazard, risk and vulnerability maps, developing GIS databases, incorporating disaster risk knowledge in formal and non-formal education needs to be increased both at local and national level.

LINK OF SCIENCE AND TECHNOLOGY TO PEOPLE IN DRR

Department of Disaster Management, Bangladesh Water Development Board and Bangladesh Meteorological Department currently provides real time disaster related information by using IVR (Interactive Voice Response) technology and short message service.

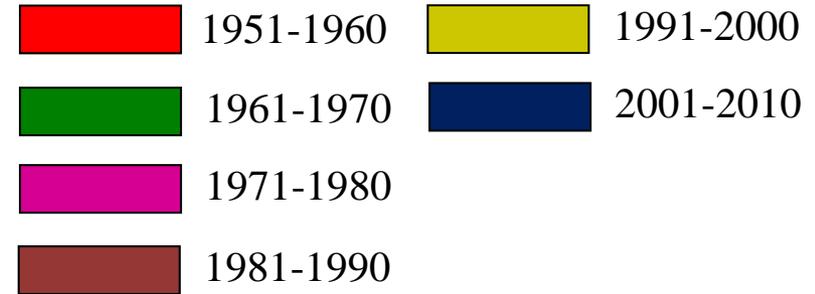
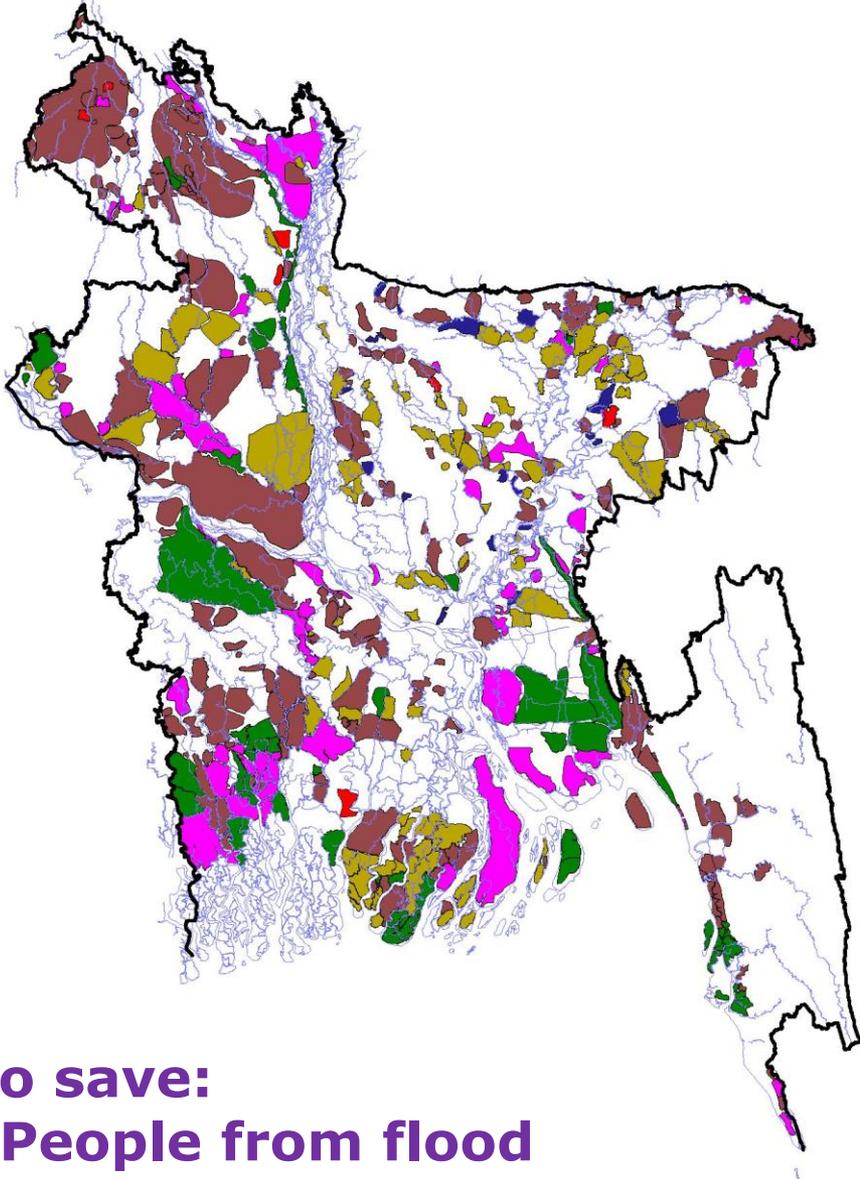
Flood Forecasting and Warning Center (FFWC) provides real time water level data for all major rivers; however, the grass root level people have limited knowledge to access this database.

People use **indigenous knowledge** to deal with natural hazards. **Scientific validation of the indigenous knowledge is essential.**

Traditional “product focused education and research” should be reformed towards “process oriented education and research” or “**product-process linked education and research**”.

The **curricula** of primary and secondary level education need to be reviewed, and modified through high level STA committees to ensure disaster risk knowledge among future generations. Non-formal education and training for local people should also be promoted.

735 BWDB Projects from 1951 to 2010



Project Type	1951-2010	
	No	Area in sq km
Flood Control	30	6795
Drainage	40	3043
Flood Control & Drainage	193	22541
Flood Control Drainage/ Irrigation	333	38933
Irrigation & Drainage	42	3084
Irrigation	76	10197
Bank Protection	21	139
Total Project	735	84732

To save:

- People from flood
- Crop from flood and saline water

FAP- Flood Action Plan

- After devastating floods of 1987 and 1988 the Flood action Plan was created.
- Initial Estimates: More Than \$155 Billion in Constructing Costs
- Costs of Maintaining Could Cost \$5-\$10 Billion
- FAP the Largest Development Project in Bangladeshi History.
- Funded by 15 Donors, Including the World Bank
- World Bank Served as Coordinator of Funds (Megan Visk, Casey Leslie, Kristian Nikolic, Gary Barkauski)



“...use of the Independent Panel of Experts is effective.”
“...international competitive bidding procedures are highly advantageous.” (World Bank Conclusion).

Bangladesh Delta Plan 2100: A mega plan in the making

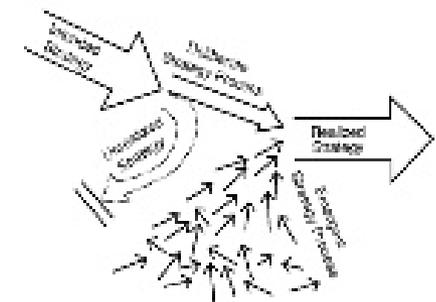
BDP 2100 challenges in achieving national goals

Challenges:

- ✦ Facing water resources problems, related issues e.g. climate change
- ✦ Need for long term holistic vision / strategy / plan / investments for better future water and land management
- ✦ Institutional and governance setting, making BDP 2100 approach possible and implementable

Key points:

- ✦ Long term (50 to 100 year) Delta Vision
- ✦ Holistic approach with 19 themes
- ✦ Scenario based adaptive strategies and interventions
- ✦ Climate change one of the main drivers
- ✦ Widespread socio-political support
- ✦ Input for 7th Five Year Plan early 2015
- ✦ Governance ensuring an implementable BDP 2100
- ✦ Coordinated action for short term investment and implementation



I. BDP 2100 Challenges

Conclusion

- Interventions in Bangladesh 'Disaster Management' issues have always been guided by political economy.
- Decisions were constructed in consultancy works (consultancy work is not research work).
- Gaps between policy process and science explicitly exist.
- Decisions need to be embedded in empirical knowledge.
- Knowledge institutions, especially the universities, are to play role and responsibilities in filling up the gaps of science and policy.

Thank you so much

