

Bangladesh: Current Challenges and Key Needs for Technical Assistance Related to Flood Management

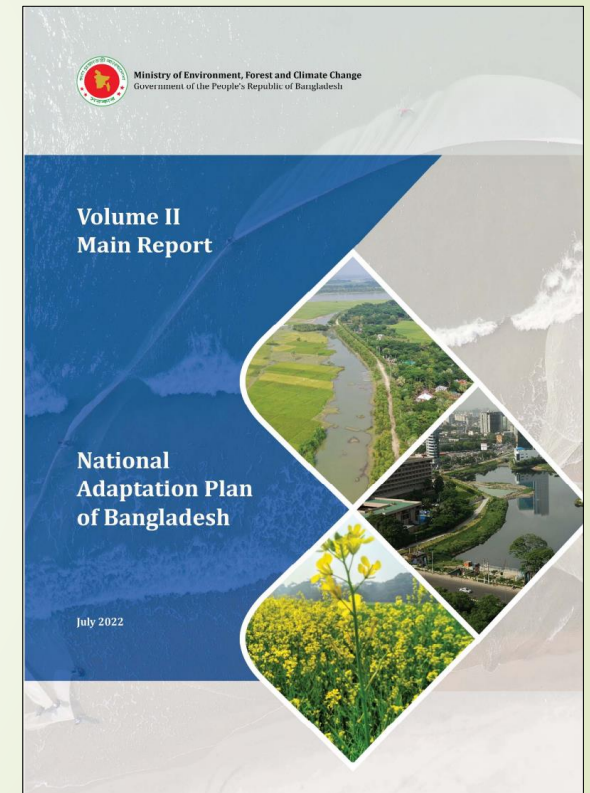
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Ministry of Environment, Forest & Climate Change



Formulation of National Adaptation Plan (NAP)

- Bangladesh formulated and submitted its National Adaptation Plan (NAP) to the UNFCCC on 31 October 2022.
- In the plan, 113 prioritized adaptation interventions (whereas 90 are high and 23 are moderate priority) have been identified under eight thematic areas.
- The total tentative budget for its implementation is worth 230 billion USD



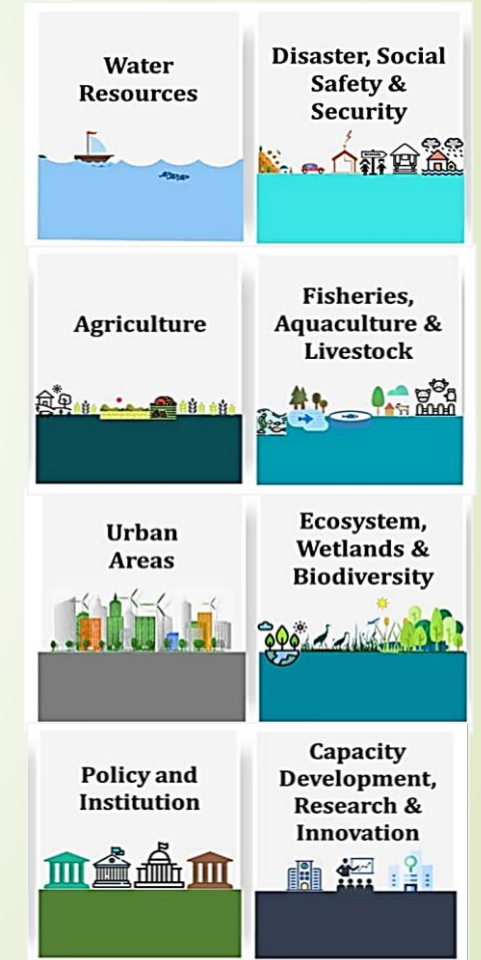
NAP: Adaptation Strategies & Interventions



National Adaptation Plan.....Contd.

08 (Eight) Thematic Areas

- Water Resources
- Disaster, Social Safety & Security
- Agriculture
- Fisheries, Aquaculture & Livestock
- Urban Areas
- Ecosystem, Wetlands & Biodiversity
- Policy & Institution
- Capacity Development, Research & Innovation



Prioritization Criteria for NAP Interventions



Total 8 Criteria

*(following LEG
guidelines)*



**Time of action
based on the
emergence of
adaptation projects
by 2030s, 2041s, or
beyond.**



**Costs of
adaptation**



**Benefits of
Adaptation**



**Reduction
potential of
Climate
change risk or
effectiveness**



**Robustness or
flexibility of
adaptation**



**Participatory and
inclusiveness**



**Environment
friendliness**



**Co-benefits socially
and
environmentally**

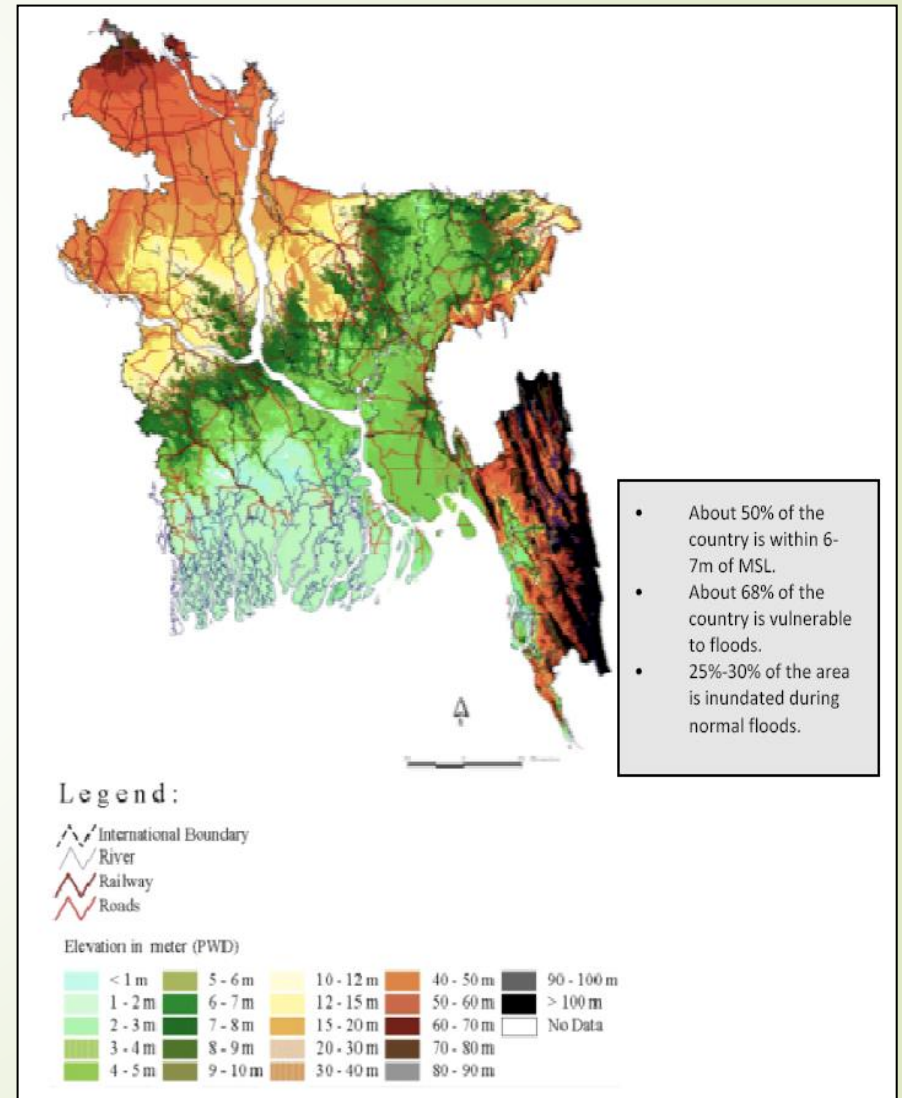
Interventions are prioritized based on the preferences of stakeholders and communities aligning with national development targets and through MCA using weighted aggregation techniques

National Adaptation Plan (NAP)....Contd.

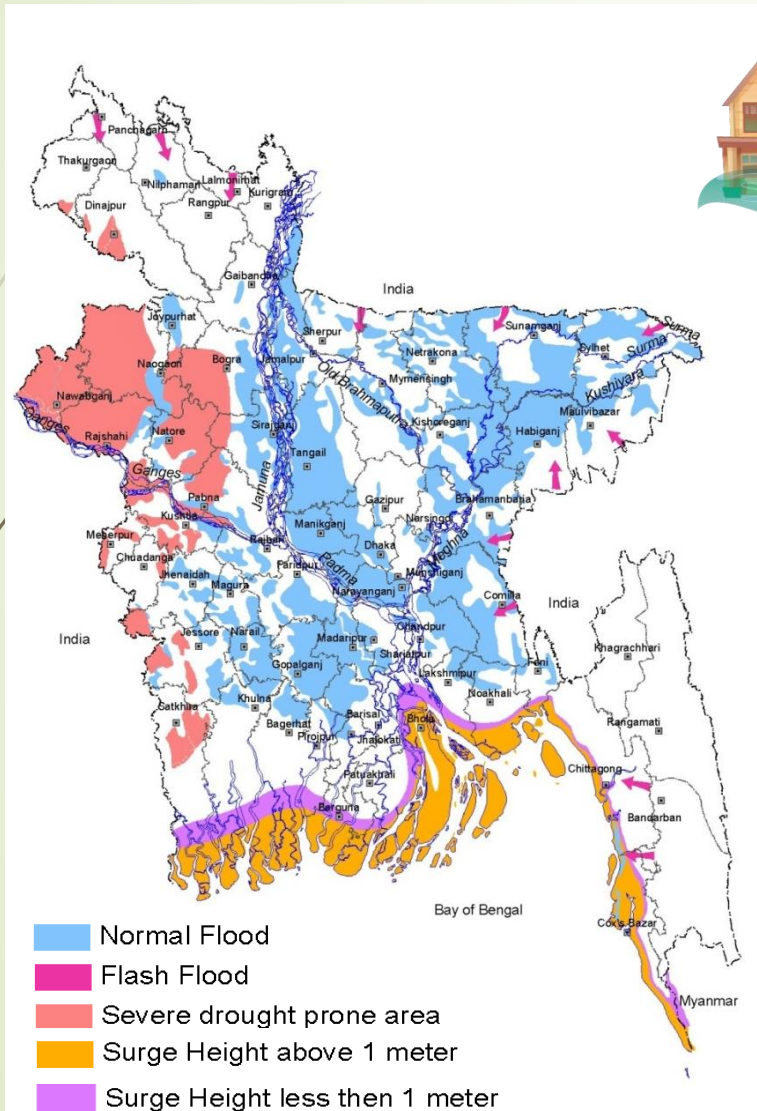


Key Challenges: Highly Vulnerable to Flood

- Geographical Location
- **Deltaic landscape**, 80% **floodplain**; Vast River Network and Floodplains; About 68% area is vulnerable to flood; 3 major rivers of the globe drain their water through Bangladesh;
- About **50%** of the country is within **6-7 meters of MSL**);
- Coastal area is about **32% of the total land area**; 30-year Trend Analysis shows per year SLR is **3-6 mm**.
- 39 million people (approx. **25% percent of the total population** of 160 m) live in the coastal area;



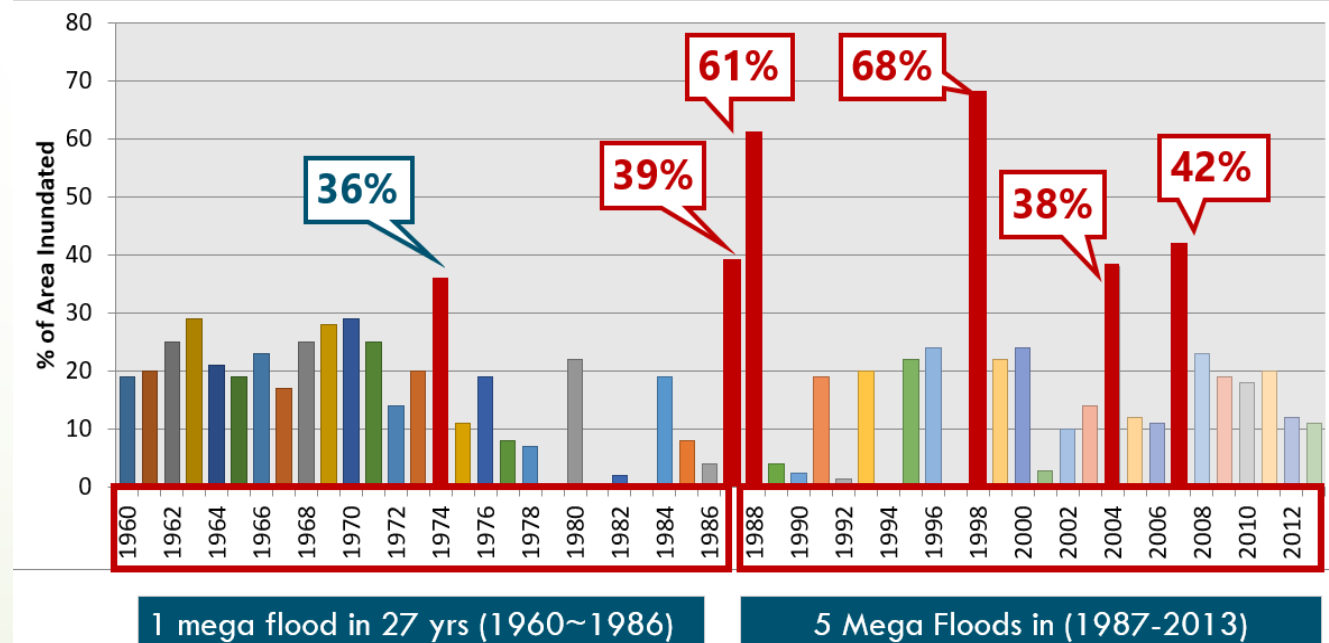
Major Flood Disasters of Bangladesh



Almost once in **every 4~5 years**, a severe flood **inundates 40~70% land** of Bangladesh, causing severe damage to our lives and livelihood

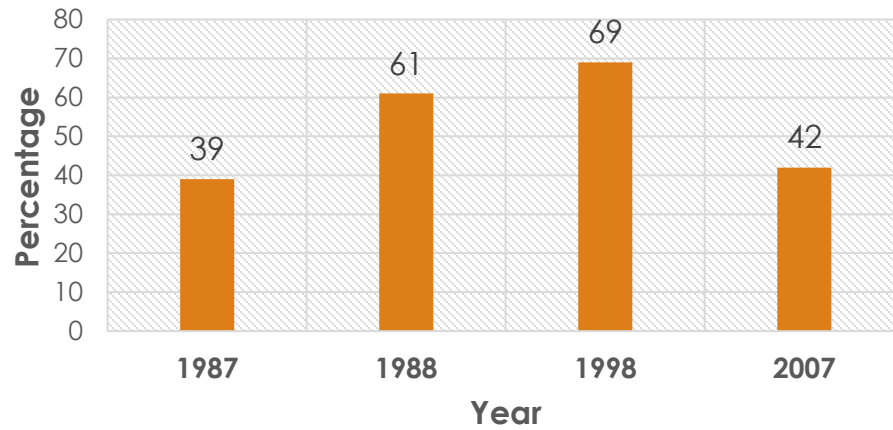


Climate change impacts the **frequency and extent of monsoon rainfall**, causes increasing frequency and extent of mega floods

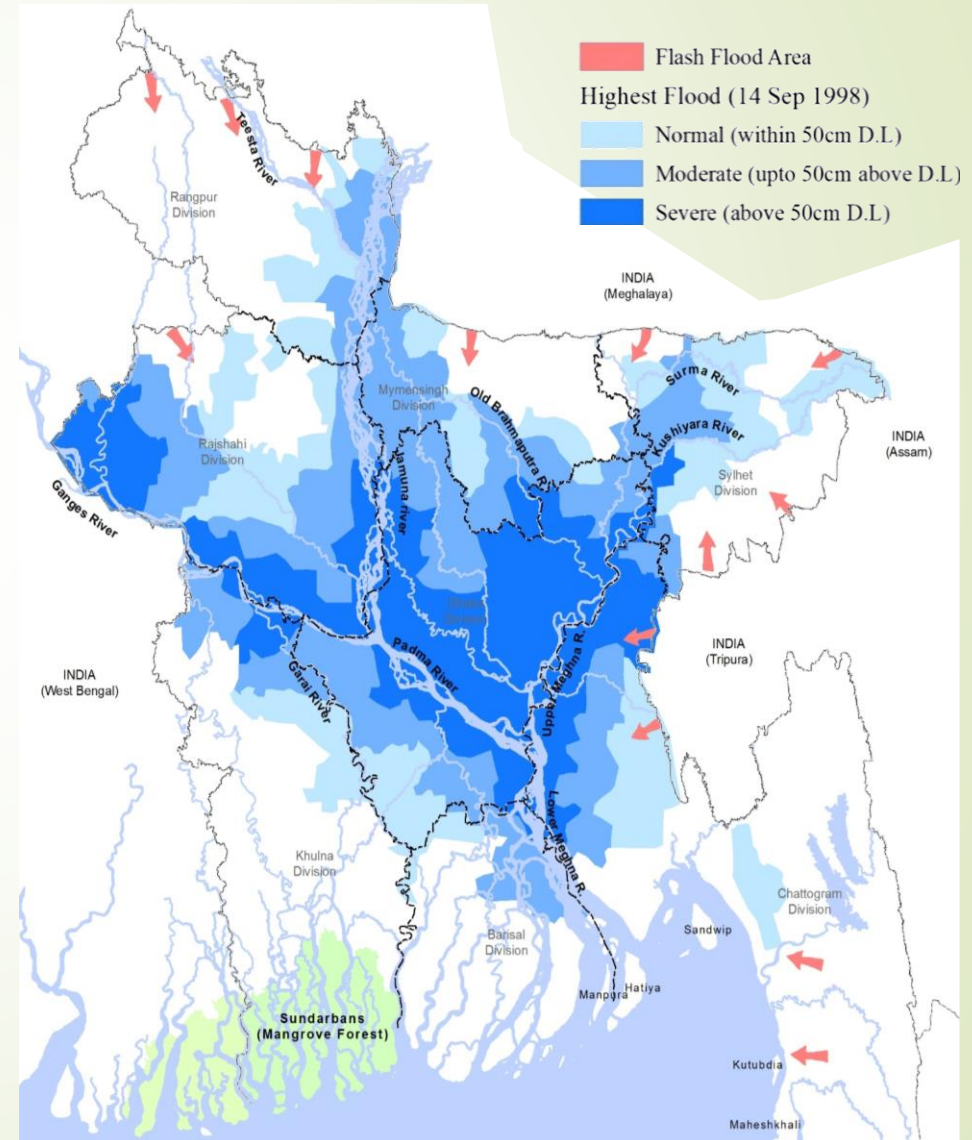
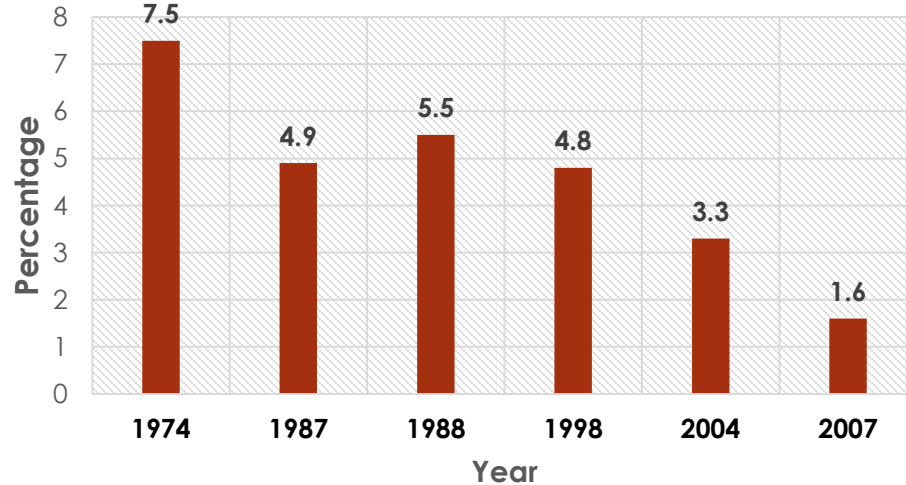


Floods in Bangladesh

Inundated Area



Asset losses as % GDP



Floods: Risks, Vulnerabilities, and Challenges

Risk and Vulnerabilities



Frequent River Flood

- 💧 Sediment problem
- 💧 Prolonged waterlogging
- 💧 Damage to infrastructures and properties
- 💧 Damage to agriculture, fisheries and livestock
- 💧 Injuries, fatalities and deaths



Early or Frequent Flash Floods

- 💧 Drainage problems
Navigation, Sediment problem
- 💧 Damaged Infrastructures, crops and fisheries
- 💧 Embankment breach
- 💧 Loss of livelihoods
- 💧 Climate migration
- 💧 Safe WASH crisis



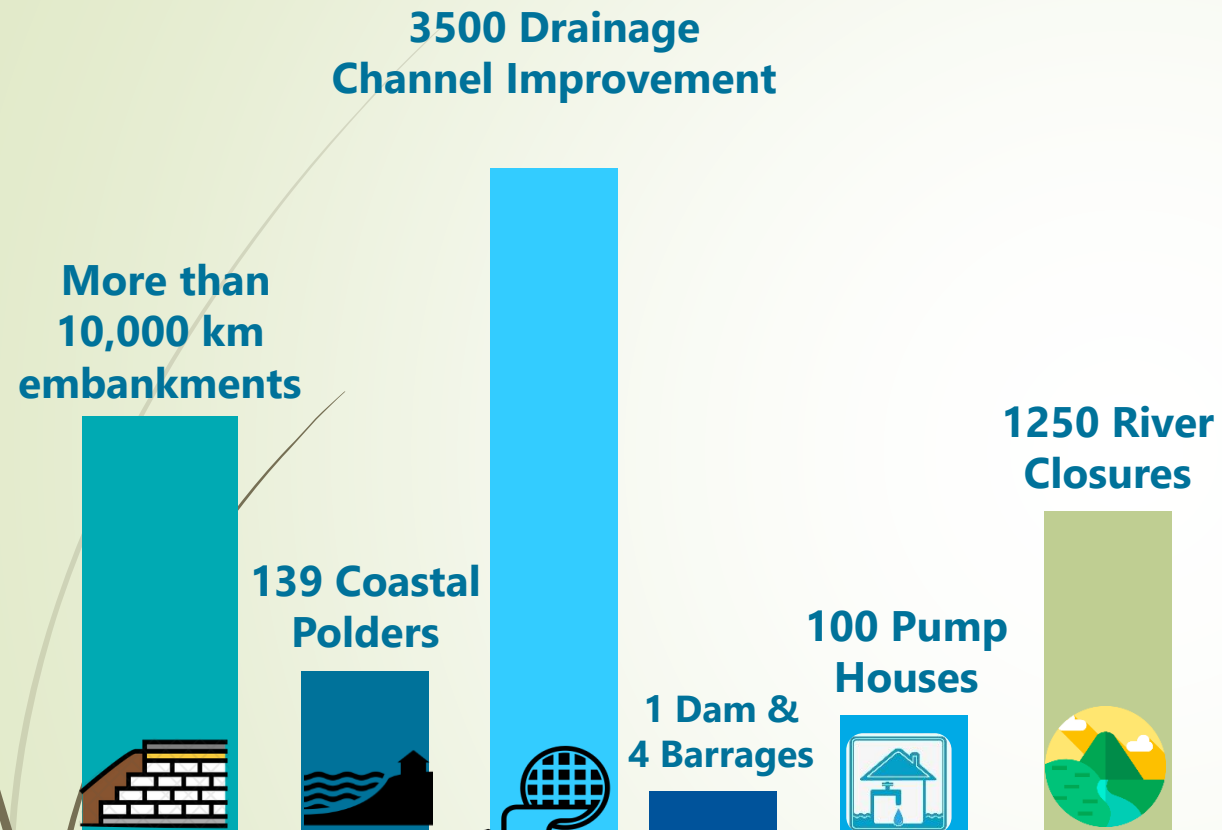
Urban Floods

- 💧 Urban drainage problems
- 💧 Damaged drainage, road and communication infrastructures
- 💧 Outbreak of vector and water borne diseases
- 💧 Traffic congestion
- 💧 Disrupted urban economy

Key Challenges

- 💧 Mobilisation of adequate resources on time
- 💧 Ensure safe WASH services during and post-disaster period
- 💧 Coordination among multi-level stakeholders
- 💧 Introducing risk recovery mechanism
- 💧 Engagement of the private sector for flood risk management
- 💧 Alternative livelihoods generation
- 💧 Strengthening early warning services
- 💧 Risk-informed planning and implementation at the local level
- 💧 Uncertainties of climate change
- 💧 Conservation of wetlands & illegal encroachments of floodplains

Flood Risk Management



Embankments



Dams



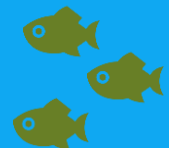
Submersible Embankments



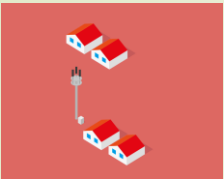
Flood Wall

735+ flood management systems

5.4 million ha under flood protection

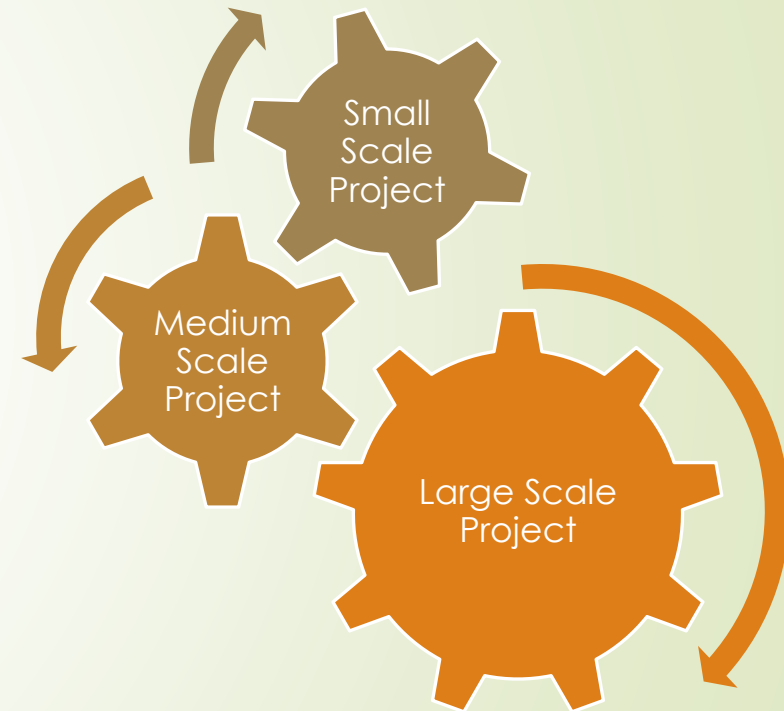


Structural Measures for Flood Management



Bangladesh has developed an impressive number of flood management and/or irrigation infrastructure development projects, which have accounted for about **one half of the funds** spent on **water development projects** since **1960**

- At present, there are over **1000 flood control, drainage and irrigation (FCDI) schemes** in the country, **covering more than 6 million ha** area.
- **4 barrages** across the rivers Teesta, Tangon, Buri-Teesta, and Manu, have been constructed as diversion structures for irrigation purposes

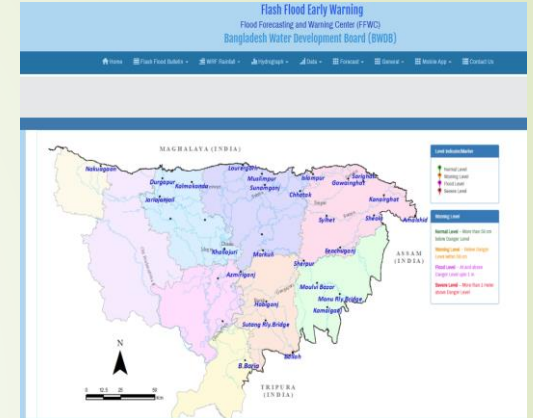


Non-Structural Measures for Flood Management

- Established FFWS of BWDB predicts **water level in 39 locations**
- A **flood forecast model for the NE flashy region** has been developed and operated
- Introduction of **Community Flood Risk Level**
- Flood Proofing and Flood Fighting**
- Flood Evacuation and Shelter Management**



Flood forecasting and early warning system



Flash Flood forecasting and early warning system



Community Flood Risk Level

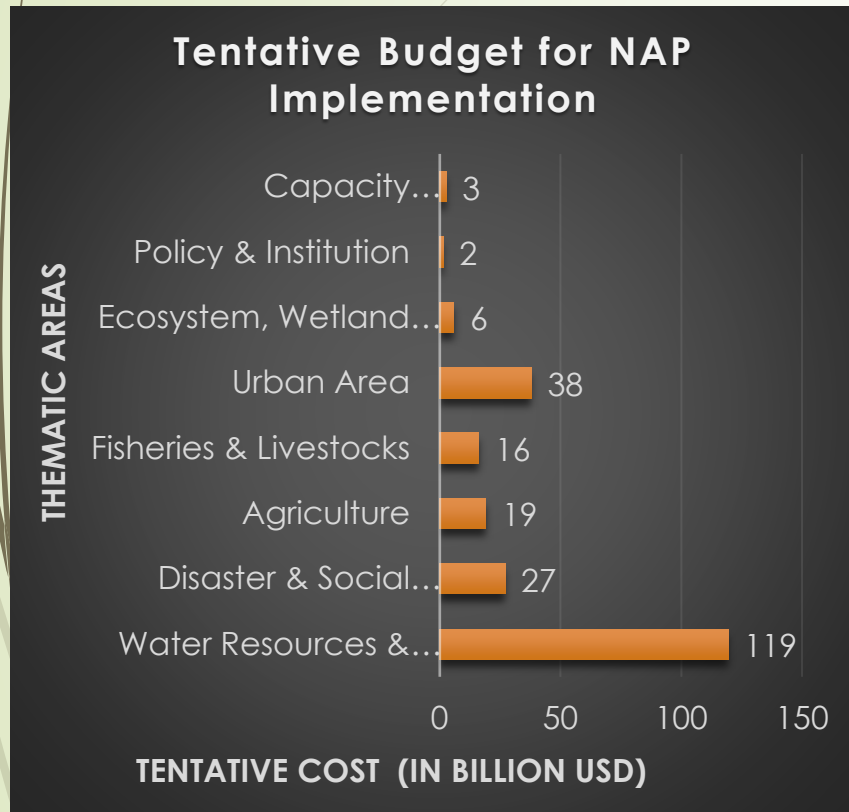
Major Achievements

Major Achievements

<p>Flood control, drainage and irrigation facilities have been introduced for about 6 million ha of land through implementation of over 800 projects</p>	<p>85 million people are being protected and benefitted from 11,500 km flood protection & coastal embankment</p>	<p>23 economically important towns are now protected from river erosion through 265 km river-bank protection works</p>	<p>1020 sq. km of land has already been reclaimed from the estuary in coastal zone</p>	<p>Approximately, 16 sq.km land has been reclaimed in Brahmaputra river through Capital Dredging</p>	<p>139 polders have been constructed in the coastal areas for protection of 30 million of people</p>	<p>Bangladesh Delta Plan and NAP in place to combat climate change impacts on floods and ensure safety</p>
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Major NAP Interventions for Flood Management



Protection and management of potentially vulnerable areas

Dredging of rivers for accommodating and smooth drainage of excess floods

Construction and rehabilitation of flood and drainage management measures

Protection against flash floods, wave action, erosion and sedimentation

River management through bank stabilization and other ancillary works

Ecosystem-based sediment management in coast and estuaries

Trans-boundary river basin management and basin level cooperation

Remodeling of water regulating and cross drainage structures

Strengthen early warning system

Development of climate resilient houses, health and educational facilities

Improvement of stormwater drainage networks for reducing vulnerabilities of urban flood and drainage congestion

Needs for Technical Assistance for Flood Management

Capacity Building: Capacity building at various levels, from field workers to developing the institutional capacity of government agencies responsible for flood management.

Flood Monitoring and Early Warning Systems: Setting up more effective flood monitoring and early warning systems.

Infrastructure Development: developing infrastructure to manage floods more effectively, such as constructing flood shelters, embankments, and drainage systems.

Climate Resilience: building climate resilience into its flood management strategies.

Partnerships Building: partnerships with other countries and organizations to share knowledge and resources related to flood management.

Data Collection and Analysis: improving its data collection and analysis capabilities related to floods.



**Thank You for Your
Kind Patience**