

Coastal Towns Environmental Infrastructure Project

Climate Resilience Vulnerability Assessment in Project Design and Incorporating Climate Resilience Measures in Municipal Infrastructure Projects

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Elma Morsheda, BRM

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Objectives

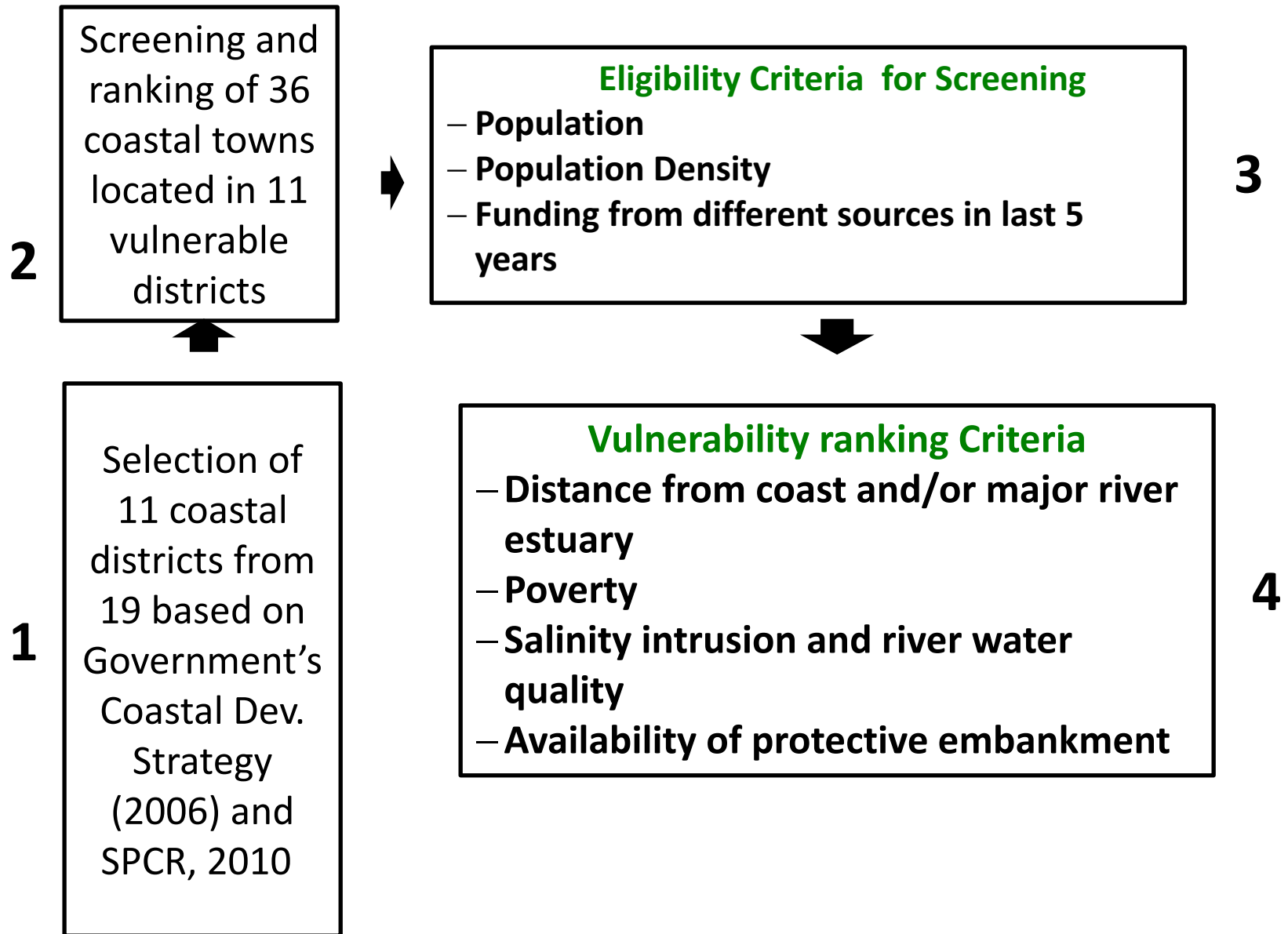
- Takes a holistic and integrated approach to urban development by providing climate-resilient municipal infrastructure
- Aims to improve climate and disaster resilience through the rehabilitation and construction of critical urban infrastructure in coastal towns.
- Infrastructures is designed considering climate change projections for the year 2040.
- Involves capacity building to strengthen institutional capacity, local governance, and public awareness for climate resilience, improved urban planning and service delivery.



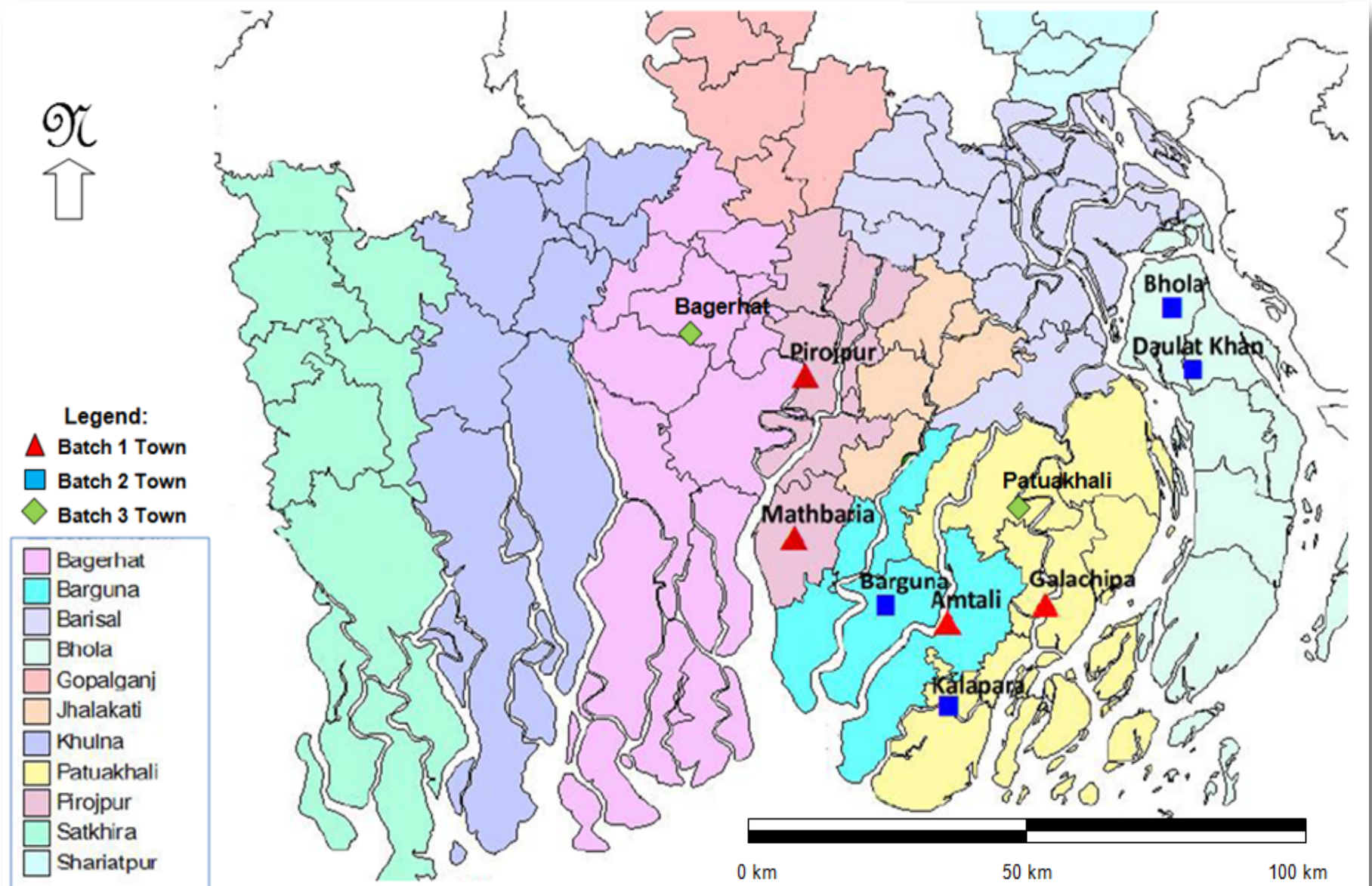
Financing

- ADB Special Funds (loan) - \$52.0 million
- Strategic Climate Fund (loan) - \$30.0 million
- Strategic Climate Fund (grant) - \$10.4 million
- Sanitation Financing Partnership Trust Fund - \$1.6 million
- Urban Climate Change Resilient Trust Fund - 6.0 million
- Government - \$24.3 million

Stage 1: CRVA Screening and Selection of Towns



Location of CTEIP Towns



Project Components

Infrastructure Sub-projects

- Cyclone Shelters
- Roads
- Drainage (drains, canal and other water body rehabilitation, green area development):
- Water Supply (Water Treatment, Storage and Distribution)
- Sanitation and Septage Management
- Solid Waste Management
- Jetty (Boat) landing Station/Market Development

Non-structural Components

- Urban Planning
- UGIAP Implementation and Improvement of local governance
- Community awareness on disaster risk and climate resilience

Stage 1 (priority) investments for inclusive access to infrastructure

Stage 2 investments for promoting local economic activities.

Estimating Incremental Costs of Adaptation

- Engineers and climate experts worked closely together on engineering designs considering climate change impacts.
- Depending on the type of infrastructure, the incremental adaptation costs ranged from around 15%-30%.

Structural Measures

- **Roads**

- Crest level raised by 200 mm with additional embankment protection in flood areas and with improved drainage considering increased rainfall
- Need for larger culverts also assessed

- **Cyclone Shelters**

- Base level of first floor raised to avoid higher storm surges
- Structures strengthened to withstand stronger wind forces
- Sands sourced from non-coastal areas to avoid saline contamination and therefore prolong life of structure

- **Drainage and flood control**

- New and existing drains built with enhanced capacities considering 2040 rainfall projections
- Restoration/rehabilitation of natural water bodies

Structural Measures (2)

Water Supply

- Deeper tube wells to explore non-saline sources. Location of surface water intakes based on salinity tests and assessments considering sea level rise
- The upper well casing of production tube wells to be vertically extended for protection from flooding and storm surges.
- Provision for power backup to keep water supply system operational during storms
- Protection measures (embankment with block pitching) around water treatment plants to protect from cyclones and storm surges

Sanitation

- Septic tanks and superstructures of public /community toilets constructed above flood level to keep protected from inundation during monsoon flooding
- The pit of the latrine will be placed above the flood level

Non-structural Measures

- Review and update urban master plans and engineering design standards to incorporate climate change and disaster resilient measures
- Implement of water safety planning and groundwater level and quality monitoring
- Establish disaster management standing committees in each town, and deliver appropriate training for the members of such committees

Additional Town Selection for UCCRTF Financing

CTEIP uses a phased investment approach which allows to accommodate more towns beyond the ones included under the ongoing project

- UCCRTF is supporting Bagerhat and Patuakhali towns with \$6 million in investment grant
- Towns selected by stage 1 CRVA
- Selected infrastructure sub-projects emerged from the urban resilience planning process (integrated, iterative and inclusive) based on localized CRVA
- The Cluster Regional CDTA (RETA 8913) funded by UCCRTF supported the planning and project preparation.



Approach followed for UCCRTF Towns

- A step-by-step integrated and consultative urban resilience process was followed
- Involved ward level CRVAs and screening of infrastructure requirements for the most vulnerable people
- Prioritize infrastructure sub-projects
- Improvements of emergency access, integrated drainage and flood control, and waste management were identified as the most critical interventions to improve the climate resilience of the two towns
- Additional financing will be utilized for cyclone shelters and emergency access roads with improved drainage for the most vulnerable people
- Integrated drainage and waste management plans to be developed for future financing

Challenges and Lesson Learnt

- Low capacity of municipalities for efficient O&M of infrastructure.
- Low capacity of urban planning staff and lack of support
- Central government needs to provide continuous support to improve climate resilience of the coastal towns
- Involvement of private sector for municipal service delivery

Thank you