



Netherlands Enterprise Agency

Summary report

Establish a Shared Agenda for Addressing the “Build, Neglect, and Rebuild” Cycle in the Water Sector in Bangladesh



**PARTNERS
FOR WATER**
CO-CREATING IMPACT

OPERATION AND MAINTENANCE: SETTING AN AGENDA FOR THE WATER SECTOR IN BANGLADESH

1 The need for preserving assets in Bangladesh's water sector.

In Bangladesh's water resources sector, operation and maintenance (O&M) is not always prioritized, and an adequate system for asset management is not in place or is ineffective. This leads to what some describe as a repeating cycle of rebuilding, whereby the lack of adequate asset management leads to premature deterioration of assets and below-optimal operation. This cycle has significant implications for cost-effectiveness in asset management, with the lack of timely minor repairs leading to costly premature rehabilitation in the future. It also manifests itself in inadequate sustainable services from the water system. Four root causes have been identified jointly with the key stakeholders, worked out in more detail in Figure 1:

1. Insecure and insufficient funding for O&M
2. Delayed emergency responses
3. Lack of an asset management system
4. Inadequate management of river sedimentation

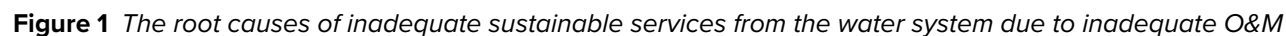
This repeating cycle is, for example, illustrated by embankments that were able to give protection in the short term, but then became debilitated over time because of a lack of regular maintenance, with recurrent floods and moderate storm surges weakening or causing breaches in the embankments. Other examples are the reportedly large number of drainage *khals* (canals) silted up, irrigation systems that underachieve, and gated structures that are not in operation. The same applies to equipment, such as dredgers, not being kept operable. Whereas the asset base in the water sector significantly increases, its upkeep is not keeping a similar pace. This has significant implications for realising and sustaining SDGs.

Amongst stakeholders from the water and agriculture sector, including government organizations, financiers and NGOs, there is an acknowledgement of the need to put O&M higher on the agenda. This is, for example, reflected in the [Bangladesh Delta Plan 2100](#) (BDP2100), which mentions that – to make the BDP2100 a reality - the total O&M budget of water infrastructure would need to be raised to 0.5% of GDP, which would equal 2.3 Billion USD ([World Bank, 2022](#)), whereas the actual current amount hardly touches 0.1% of GDP.

The neglect of O&M is not only a matter of unavailability of financial resources, but also a matter of organisation. Going beyond the common explanation of “lack of funds” is important: there is a need for better stock-taking, better prioritisation, better planning, clearer roles and responsibilities and more efficient and timely procedures.

With the goal of establishing a shared agenda to address this repeating cycle in the water sector in Bangladesh, the Institute of Water and Flood Management Bangladesh University of Engineering and Technology (IWFM BUET), and MetaMeta – supported by the Partners for Water Program of the Netherlands Enterprise Agency (RVO) – conducted a literature review (on root causes), held stakeholder

1 This summary also serves as the public report (final draft version, to be approved by key stakeholders)



consultations and guided the co-creation of a shared agenda (for O&M) and ways forward. The stakeholder consultations included interviews with key stakeholders, a special session on “Reactive O&M to Asset Management of Water Infrastructure in Bangladesh” at the 9th International Conference on Water and Flood Management 2023 (ICWFM-2023) in October 2023, and a workshop, co-organised by the Bangladesh Water Development Board (BWDB), in November 2023, to confirm interest in, reach consensus on the analysis and finetune the shared agenda and action plan for the coming years (2024-2027).

The starting point of the shared agenda and way(s) forward, is a sound analysis of the root causes of the inadequate sustainable services from the water system. Four root causes have been identified jointly with the key stakeholders, worked out in more detail in Figure 1.

2 Agenda

The identified root causes lead to the following shared agenda:
Asset management should be a central consideration.

- A coherent strategy should be observed to link water infrastructural asset planning, budgeting, (performance) delivery, operation, and monitoring with broader planning objectives – see Figure 2.
- As examples from Bangladesh show, automation and innovation can be helpful, for instance, in the operation of sluice gates.
- Medium-term rolling maintenance plans should be prepared based on updated system inventories per existing guidelines.
- The realistic roles and responsibilities of Water Management Organisations (WMOs) in O&M should be clearly defined and collectively agreed on.
- WMOs should be part of and deeply engaged in the overall operation of the water system, including in in-polder water management.
- Design and construction need to align with the long-term importance of the water infrastructure in a changing climate. Designs and construction standards need to increasingly be based on a ‘life cycle’ approach, whereby long-term reliability of the infrastructure is served, and overall maintenance costs are reduced, albeit at maybe higher initial investment costs.
- To increase accountability, three-yearly engineering and maintenance audits should be done.



Figure 2 A framework for asset management, showing its different aspects
(<https://www.assetmanagementbc.ca/framework/>)

Asset management should align with the needs for the functionality of the water system: funding should be certain and sufficient.

- Repairs should not only be done in response to emergencies but also based on the identified priority lists for routine and periodic maintenance.
- O&M should be adequately financed based on well-documented priority submissions by the Bangladesh Water Development Board (BWDB) to the Planning Commission.
- The capacity – both human resources and funds – in BWDB - should be adjusted to the increasing need for O&M.
- Asset management should be given financial importance as defined in the BDP2100 – the Government of Bangladesh (GoB) Annual Development Budget (ADB) and Revenue Budget should be aligned in this regard.
- Development partners should not focus only on new investments, but should factor in adaptive measures, O&M, and consider system and governance improvement programmes.
- Opportunities for user fees and other revenue generation from water systems should be explored.

Emergency responses need to align with the urgency of the emergencies.

- If emergency response is delayed, lives/livelihoods are jeopardised, and recovery and rehabilitation costs increase significantly.
- Addressing emergency response is vital – emergency systems should ensure that response is done almost immediately and prepared for in advance.
- There is a need for a dedicated plan for future emergency repairs based on an overview of the system, learning from BWDB and Local Government Engineering Department (LGED) local offices and data analysis – predicting priority lists of expected emergencies.
- The emergency response procedures and related preparedness and funding arrangements should be reviewed and modified.
- Delegated funds and standby arrangements with contractors should be explored.
- The overall budget for emergency work needs to increase – from the current very low levels – covering less than 20% of emergency needs.

River management needs to be effective and align with the sedimentation challenge.

- An overall framework for sediment management in the river system, defining what should be done, where and how, should be developed and agreed upon with all main stakeholders under the leadership of the Planning Commission.
- Given the large interest, the knowledge basis for sediment management, including bathymetrical surveys, should be strengthened within BWDB and the Bangladesh Inland Water Transport Authority (BIWTA).
- There needs to be systematic coordination between the different sediment operations in the river system – for river management, for sand mining and new land development.
- The financial benefit generated by land development and sand mining should fund part of the river management activities.
- A system for maintaining and sustainably deploying publicly owned dredgers needs to be in place.

3 Immediate next steps

Promising immediate activities that can set in motion medium-term change, addressing the different root causes, include the following:

- ▶ **Streamlining procurement processes for emergencies** – There is an urgent need to reconsider procurement processes and make them more flexible and responsive. This includes assessing whether the emergency procurement methods of the Public Procurement Rules (PPR) cover all aspects of emergency procurement, and whether a separate budget can be earmarked for emergency procurement, with a short notice call off option. It may be explored whether a direct procurement method can be deployed in an emergency, with BWDB having a list of local sources of goods and services that might be needed in an emergency and information on rates and charges established and agreed upon in advance. This element is strongly connected to the comparative analysis of emergency repair mechanisms.
- ▶ **Moving towards life cycle management** - Reviewing designs (embankments, canals, gates) to come to low maintenance and reasonable cost options, doing full costing analysis (with BWDB and Monetary Financial Institutions (MFIs) - starting with composite gates. This would help to come to low maintenance systems; assessing cost and benefits of asset management with the Planning Board and Ministry of Finance to come to developing pathways from a 'structure inventory system' to an asset management system, building it up in steps.
- ▶ **Developing cooperative frameworks** - Between BWDB, WMO, DoA, DAE, and LGIs, to also address the full potential of in-polder water management.

The different activities should be ground-truthed in Polder 31, which is designated to lead in shaping the **Polder of the Future**. However, given the status of Polder 31 and the relatively long time needed to assess the benefits of the activities in this polder, it would also be worthwhile to start activities in comparable polders. An adaptive set-up will help to reach most benefits.

Finally, and importantly, the process should be anchored in a **high-level panel** supported by a number of activities – identified above - that pursue the discussion and dialogue on the different parts of the root cause analysis. This working group is to include key stakeholders and (emerging) champions in Bangladesh and is foreseen to closely link to the BWDB governing board with invitees. Important stakeholders are the Planning Commission, the Ministry of Finance, the Department of Agricultural Extension, the Local Government Engineering Department, representatives of Water Management Federations and other Water Management Organizations, as well as independent experts from universities and technical institutes.



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