



INITIATIVE ON

Asian Mega-Deltas

Water Management Challenges in Coastal Polders of Bangladesh: *Rethinking Institutional & Policy Issues*

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Summary

For effective water management in coastal polders of Bangladesh, this policy brief recommends Department of Agricultural Extension (DAE) to have the overseeing role of managing Water Management Organizations (WMOs) as it has a strong local presence and a mandate for agricultural development and has been recommended by Water Management Organizations (WMOs) members to take the lead.

Focus should be on empowering WMOs by outlining their rights, mandates, and responsibilities, ensuring they remain central in managing polder operations, and adjusting existing rules and regulations for membership and funding enabling WMOs to manage resources effectively, ensuring long-term sustainability without project-specific dependency.

Polders and their sub-catchments should be used as primary development units, allowing agencies to work through established WMOs and avoid creating new groups for each project, thus reducing costs and enhancing impact, and designating a lead coordination agency, such as the Department of Agricultural Extension (DAE) for agriculture-based areas or the Department of Fisheries for fisheries-focused polders, would improve WMO oversight and collaboration.

The Bangladesh Water Development Board (BWDB) should continue providing essential engineering support, coordinating with other agencies, and submitting rehabilitation requests based on local needs. The lead agency overseeing the WMOs in a particular polder can coordinate and request other existing actors to respond to the water management need of the WMOs. BWDB being an important actor should be available at upazila level coordination meetings concerning water management.



1. Polder's Internal Canal Dried up

1. Background

Since before independence, Bangladesh has proactively responded to climate change-induced natural disasters, implementing strategies that have safeguarded lives and agriculture-dependent livelihoods in its vulnerable coastal regions. Central to this resilience is a network of 139 polders—constructed from the 1960s to the 1990s in Bangladesh to protect the floodplains from saline water intrusion and tidal surge (Nath et al., 2019). Over the decades, people in the coastal area of Bangladesh have adapted to the environment and are shaping their livelihoods by keeping this network of infrastructures as the basis of their lifeline and protection from cyclonic disasters, floods, and salinity.

The Ministry of Water Resources and Bangladesh Water Development Board (BWDB), together with their development partners, have experimented with different innovative approaches to ensure the benefit of these infrastructures for the people living in the region, constructing polders in the region. Approximately 1.2 million hectares of poldered land, out of a total of 2.8 million hectares, are served by polderization. Over eight million people rely on this land for food security and livelihoods (Pukinskis, 2015).

Since the 1990s, the country has experimented with participatory and decentralized approaches to water management, empowering local communities through the formation of Water Management Groups (WMGs) and Water Management Associations (WMAs) (Buisson et al., 2017; BNR, 2023). This shift was formalized through the 1999 National Water Policy, the 2001 Guidelines for Participatory Water Management, and the 2014 Rules for Participatory Water Management, which aimed to transfer responsibility from state agencies to community-based Water Management Organizations (WMOs) (Dewan et al., 2014).

Despite these advancements, these coastal polders have failed to deliver expected results as effective water management in these polders encounter multiple challenges. Infrastructure maintenance remains inconsistent as water management organizations formed during different projects under government rules do not function properly. Conflicts between farmers and other stakeholders are common and responsible authorities for the polders cannot provide support for the operation, maintenance of infrastructure and the stakeholder



2. Participants Mapping Out Existing Polder During Workshop

organizations (Nath et al., 2024). The lack of support is preventing the system from being maintained at a basic standard necessary for agriculture and other essential livelihoods. For example, Blue Gold Program, which over eight years rehabilitated infrastructure across 22 coastal polders, organized WMGs and WMAs and built their capacity.

Throughout the program period, these community organizations were empowered to manage basic water management infrastructures, undertake local development initiatives, adopt modern farming practices, make strategic crop choices, and engage in joint collective initiatives for agricultural development (Blue Gold wiki).

Most of such project approaches proved to be useful and effective when there was a project to provide support for it and WMO activities stopped as the project closes. This is a situation that needs to be addressed.

2. Methodology

Under the CGIAR Initiative on Asian Mega-Deltas, IRRI sought to understand the current situation in the coastal areas in a modest capacity by engaging various water sector stakeholders and examining the present conditions of two polders

in the region: Polder 34/2P in Khulna and Polder 43/2F in Barguna. These stakeholders included farmers, water management committees organized by the BWDB, other stakeholders working for agricultural and other livelihood development at the upazila and district levels, local government leaders and a few national-level agencies.

Recommendations from these stakeholders have been compiled and presented in this brief to support a national-level discussion aimed at developing a clear pathway to address water management challenges in the coastal polders. Both qualitative and quantitative data were collected through surveys, focus group discussions, and workshops at various administrative levels: union, upazila, and district. The study has been conceptualized and benefited from other ongoing parallel studies and events conducted with the DAE¹ and with other components of the CGIAR Initiative on Asian Mega-Deltas².

¹<https://www.cgiar.org/news-events/news/building-climate-resilience-in-coastal-bangladesh-the-promise-of-cs-map/>

²The One CGIAR program team had field visits in these two selected polders to identify interventions that each of the partner agencies, IRRI, World Fish, CIMMYT, CIP and IWMI, can take so that there are visible impacts of all components in these two polders. The team had several meetings with farmers and concerned agriculture development related offices in two upazilas. There were also all concerned stakeholders who identified water management issues as the key bottleneck for agriculture development: <https://www.irri.org/news-and-events/news/cgiar-launches-asian-mega-deltas-initiative-bangladesh>.

³Interview with former Chief, Water Management, BWDB.

3. Key Findings

3.1. Relevance of WMOs: Water Management Organizations, e.g., WMGs and WMAs, have been recognized and remain relevant as the necessary and effective primary institutions responsible for the operation and maintenance of polder water management infrastructures that need to be maintained and strengthened further with innovative adjustments to the institutions.

Activities within WMOs declined significantly after project completion, as observed in two studied polders where the termination of the Blue Gold program in 2021 led to a withdrawal of external support. Specifically, the end of expert involvement² in overseeing community participation and the discontinuation of funding for polder infrastructure operation and maintenance diminished WMO effectiveness.

3.2. Limitations of BWDB Role in Supporting WMOs: The Bangladesh Water BWDB, as the sole agency responsible for organizing, developing, and providing necessary oversight to WMOs, has proven ineffective over time. Due to a lack of manpower, BWDB is unable to consistently support these local committees, making it difficult to fulfill its role³. As a result, BWDB's continued oversight of WMOs in completed polders has become impractical and requires re-evaluation. Transferring this responsibility to a more suitable authority would facilitate more effective interactions between WMOs and their overseeing body, improving overall outcomes in water management efforts.



3. District Level Meeting

3.3. Role of the DAE: The Department of Agricultural Extension (DAE), which has a strong local presence and a mandate for agricultural development, has been recommended by WMO members to take the lead, as in most polders agriculture is the dominant livelihoods source. DAE with support from local government agencies could help enhance the capacity and effectiveness of WMGs and WMAs.



4. Upazila Level Meeting

3.4. BWDB's Continued Support: BWDB should continue to play its specialized role in infrastructure maintenance upon request by the WMOs to ensure the sustainability of the water management structures and systems in coastal polders.

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4. Policy Recommendations

To address the challenges outlined above, the following policy recommendations are proposed for the institutionalization of sustainable coastal water management for resilient agriculture in the polder areas of coastal Bangladesh. The readiness of a polder in terms of its status of basic infrastructure determines whether a particular polder will be considered or not for a proper participatory water management system by the WMOs. In polders, where there is a need for major water management infrastructure development, do not suit this consideration.

4.1. Strengthening/Empowering WMOs: WMOs should remain at the center of the coastal water management system. The government should establish clear rights, mandates, and responsibilities for WMOs, WMAs, and subsequently the Water Management Federation (WMF) to ensure that they can play their desired role in polder operation and maintenance after the construction of the polder is completed. There is a need to simplify the existing rules so that farmers and other water users can comfortably constitute, operate, and review their organizations without major assistance from outside.

4.2. Deciding a lead coordination agency based on importance of primary livelihoods source: To ensure effective management in each polder, a lead coordination agency should be appointed to collaborate with WMOs and oversee their activities. Findings from the two polders studied suggest that the DAE would be well-suited for this role, as agriculture is the primary livelihood in these areas. DAE has the advantage of dedicated field staff at the union and block levels, which is likely beneficial across most polders. However, in polders where fisheries are the primary livelihood, the Department of Fisheries could take the lead. To support this approach, a regional crop zoning exercise could facilitate collaboration between sectors.

This coordination should be formalized within the local government unit relevant to each polder, whether at the union, upazila, or district level, depending on the polder's size. Local government involvement provides advantages, including access to emergency funding and a critical role in managing conflicts among different water users. Additionally, other key stakeholders active in the polder area should be integrated to offer direct and indirect support to the WMOs.

4.3. Polder and its sub-catchments should be considered as the development unit/entity:

Polders and their sub-catchments should serve as the primary development units for agencies, projects, and programs focused on natural resource management. The relevant apex WMO can partner with these agencies to collaboratively design, implement, and assess the impact of activities. Rather than creating new groups for each project or program, agencies operating in the polder should utilize these established community organizations to support and engage with their initiatives. This approach can help lower the cost of stakeholder participation and improve the quality of outcomes.

4.4. BWDB to continue to play the important role of providing engineering support: Polders often require significant rehabilitation of infrastructure



5. Polder Embankment



6. FGD Participants

components, necessitating the expertise of the BWDB. Coordinated at the local government level, other agencies, such as BADC and LGED, can make valuable complementary contributions to system rehabilitation. The lead agency should coordinate with these organizations and submit well-prepared rehabilitation requests based on local needs and consensus. BWDB should take an active role in this local coordination, which is currently lacking. In critical upazilas with multiple polders, establishing a BWDB office at the upazila complex is essential for effective engagement and support.

4.5. Existing rules and guidelines need to be adjusted: The existing rules and regulations for membership of WMOs and resource mobilization need to be reviewed and simplified so that they can easily handle the processes of organizing and funding without major complexities. The proposed new lead agency (e.g., DAE) can lead the process. so that the WMO can operate their respective organizations without major problems. The recommendations made here, if found sensible, will require adjustments to existing rules and regulations. The adjustment should be made such that it is simple to manage by WMO members and for the implementing agencies from a long-term sustainability point of view and does not become dependent on support from a project's human and financial resources. This may involve amendments to the Participatory Water Management Rules (2014) to reflect the need for stronger institutional support, legal recognition, and financial backing for WMOs

Conclusion

Implementing these recommendations will create a more integrated and responsive water management system in coastal Bangladesh. The success of these policy changes will depend on continued collaboration between government agencies, local communities, and all other stakeholders. With proper implementation, these recommendations have the potential to transform the existing water management practices, enhancing food security and livelihoods for millions of coastal residents in the face of climate change challenges.



7. Focused Group Discussion with Water Management Groups

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