



PROGRAM OVERVIEW (FIRST EDITION, SEPTEMBER 2021)

FIVE YEARS OF 2030 WATER RESOURCES GROUP IN
BANGLADESH
(2015–2020)



**THIS DOCUMENT PROVIDES AN
OVERVIEW OF 2030 WRG'S COUNTRY
PROGRAM IN BANGLADESH,
WHICH IS REFERRED TO AS THE
BANGLADESH WATER MULTI-
STAKEHOLDER PARTNERSHIP.**

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FOREWORD

The Bangladesh Water Multi-Stakeholder Partnership (BWMSP) was formed in 2015. The partnership was formalized through a gazette notification, giving it a quasi-legal status. The overall goal is to develop a fact-based, analytical approach to address water security at national and local levels for economic development and a healthy ecosystem. The partnership's executive organ is the National Steering Board, which is chaired by the Cabinet Secretary, the country's highest ranking civil servant. The resolutions of the National Steering Board, which meets twice a year, are signed off by the Cabinet Secretary and explicitly inform the country's water agenda.

Initially, the partnership launched three workstreams to address the country's water challenges: 1. Water Governance and Sustainability; 2. Greater Dhaka Watershed Restoration; and 3. Agricultural Water. The partnership has grown to include two new workstreams: 4. Industrial Water and Wastewater Management (2017) and 5. Water Innovations (2019).

The 2030 Water Resources Group (2030 WRG) Bangladesh Chapter plays an independent supporting role. It facilitates the efficient and effective functioning of the Steering Board and its workstreams by providing secretariat support, developing project concept notes and proposals for solutions, identifying third-party implementers, mobilizing financing for projects, monitoring project progress, and resolving bottlenecks as needed.

Water challenges in Bangladesh are well documented. As interagency coordination is vital for successful water reforms, the 2030 WRG BWMSP promotes coordination across sectors to establish efficient and sustainable partnerships. For instance, 2030 WRG is supporting the Bangladesh Economic Zones Authority (BEZA) on industrial wastewater treatment and reuse. 2030 WRG has also started collaborating with the Bangladesh Local Government Department and other stakeholders to develop pathways for accelerated and sustainable treatment of municipal wastewater in the Greater Dhaka area, including wider roles for the private sector.



KARIN KRCHNAK
2030 WRG Program Manager



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2030 WRG Bangladesh
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Moreover, 2030 WRG aims to improve irrigation efficiency by promoting a gradual shift to high-value crops that are less water-intensive, which in turn will increase farmers' adaptive capacity, resilience, and income. 2030 WRG and the World Bank are supporting the development of an investment plan focusing on three thematic areas (institutional and policy reform; enabling private sector participation; and climate change adaptation) and six regional hotspots in the Bangladesh Delta as part of the Bangladesh Delta Plan 2100. This plan aims to identify and prioritize infrastructure investments, primarily related to water resources, to ensure sustainable development of the Bangladesh Delta.

2030 WRG Bangladesh is setting the bar high for collective action on water and is tackling difficult issues head on. With only a decade left until 2030, accelerating and scaling solutions must be everyone's top priority. 2030 WRG Bangladesh welcomes new ideas and innovations, understanding that approaches need to be flexible and dynamic to ensure stakeholders' continued commitment.

We would like to thank the National Steering Board, the workstreams, the high-level committees, the task forces, the advisory committees, the technical committees, and all stakeholders for their dedication to the BWMSP. We hope that in the years ahead, they continue to be ambassadors for the multi-stakeholder model and approaches in the region and beyond.



BACKGROUND

“Too little, too much, and too polluted” characterizes Bangladesh’s water challenges. Bangladesh has too much water in the wet season and too little in the dry season. It gets more than 90 percent of its water from transboundary rivers. Due to increasing water withdrawal by upper riparian countries, particularly in the Ganges basin, surface water shortage becomes acute in northwest and southwest Bangladesh, particularly in the dry season.

A large part of the country’s surface water is polluted because of indiscriminate discharge of untreated wastewater generated from industries and municipalities, combined with the leaching of fertilizers and pesticides from agricultural fields. The levels of arsenic and salinity in the groundwater are also a problem, compounded by sharp declines in the groundwater table—as high as 3 meters every year in some parts of the country. The effect of urbanization and industrialization is particularly visible in the Greater Dhaka area, which is a major engine of growth for the national economy.

The Ganges-Brahmaputra-Meghna Delta is also under immense pressure. It is Asia’s largest delta and home to more than 200 million people, 165 million of whom live in Bangladesh. Recent catchment developments, as well as population and

economic growth, have had a profound effect on the fragile delta ecosystem, making it vulnerable to coastland flooding, wetland losses, shoreline retreat, and infrastructure losses. In the northwest, extended droughts and declining groundwater levels are threatening agricultural productivity.

These challenges are exacerbated by legislative gaps, policy overlaps, and limited institutional capacity, which make it difficult to manage the country’s water resources sustainably and to achieve Sustainable Development Goal (SDG) 6. To address these multifaceted challenges effectively, joint efforts are urgently needed from the public sector, private sector, nongovernmental organizations, and academia through a collective approach to problem solving.

OUR WORK IN BANGLADESH

2030 WRG is a public-private-civil society partnership hosted by the Water Global Practice, World Bank Group. The partnership supports country-level collaboration designed to unite diverse groups with a common interest in the sustainable management of water resources.

Global Engagement

Our mission is to help countries close the gap between water demand and supply by 2030. It is important that we build strong partnerships and understand how decisions are made in the countries in which we operate. We want to know whether our programs are successful and impactful, and why. This will help us to design better programs with our partners, and more effectively replicate and scale our efforts.

2030 WRG's work is centered around our theory of change and our results framework. We use these inputs to determine the desired outputs, outcomes, and eventual impacts. Clear indicators are associated with each step, focusing on concrete, measurable results.

2030 WRG is committed to contributing to achieving the United Nations' SDGs. This commitment is not just to the goals that specifically target water, but also to those that depend on water. In terms of climate action, 2030 WRG is helping countries develop water security and resilience planning capabilities through different approaches and methodologies. These include:

- Developing hydro-economic analyses and multicriteria investment prioritization systems aimed at pursuing water security and resilience.
- Supporting reforms in water allocation regimes to provide for greater water security and legal certainty under greater variability and uncertainty.

- Integrating nature-based solutions in water resources management to support climate change adaptation processes.
- Supporting the private sector in its efforts to develop more robust water risk and water stewardship practices.

Our work contributes in various ways to the goal of ending poverty through a strong focus on improving the livelihoods of smallholder farmers. Our programs also contribute to building sustainable cities as well as protecting life below water and life on land as we focus on producing more food with less water, cleaning up rivers, and improving the treatment of wastewater and industrial effluents.

The SDGs include a strong call for various kinds of partnerships to contribute to their implementation, particularly among governments, the private sector, and civil society. 2030 WRG contributes directly to SDG 17 and sets an example for other platforms on how to mobilize actors across sectors.

Engagement in Bangladesh

2030 WRG started its engagement in Bangladesh through commissioning two analytical studies in 2014. A program of technical assistance support was developed based on the findings, several rounds of stakeholder consultation, and high-level guidance from the Planning Commission and the Ministry of Water Resources. In order to systematically engage the diverse stakeholders from government, the private



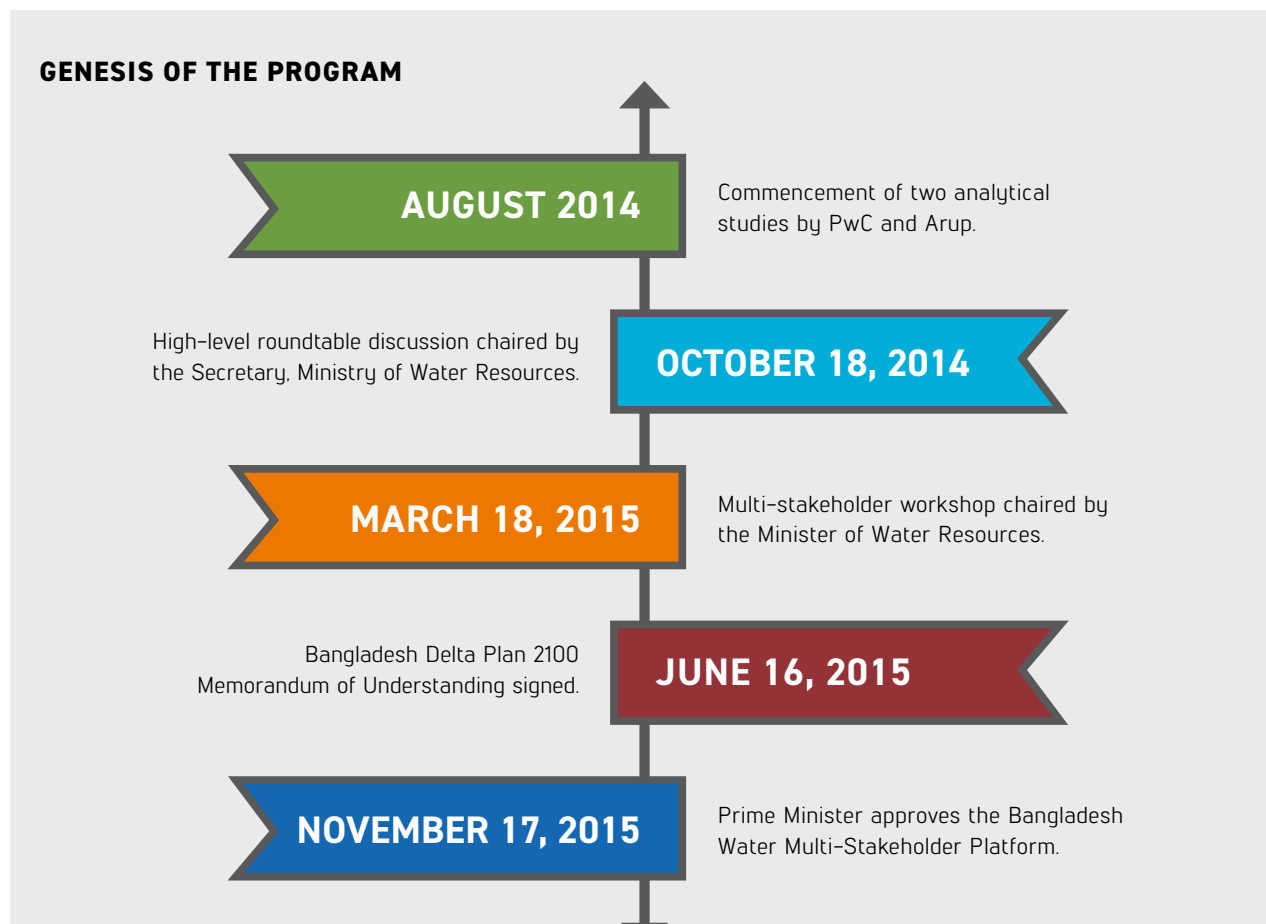
sector, and civil society on a sustained basis. 2030 WRG also supported the establishment of the BWMS. With the approval of the Honorable Prime Minister, the government of Bangladesh formalized the MSP through a gazette notification dated 3 December 2015. The National Steering Board anchoring the partnership is chaired by the Cabinet Secretary and co-chaired by the International Chamber of Commerce (private sector) and BRAC (civil society). The National Steering Board includes high-level representation from government, the private sector, nongovernmental organizations, civil society, and academia.

2030 WRG's current engagement in Bangladesh can be structured under the following broad themes:

- Water security and resilience (Water Governance and Sustainability workstream).
- Promoting a circular economy approach to domestic and industrial wastewater treatment and reuse (Greater Dhaka Watershed Restoration workstream and Industrial Water and Wastewater Management workstream).
- Transforming value chains (Agricultural Water workstream).
- Thought leadership and knowledge exchange (Water Innovation workstream, Strategic Communications, Analytical workstream).

Activities or tasks under each theme are agreed with stakeholders and undertaken by dedicated task forces under the overall guidance of workstream groups made up of relevant stakeholders, and following periodic approvals and decisions of the National Steering Board. The engagement has included advocacy for improved policies as well as implementation support for programs and projects.

MULTI-STAKEHOLDER PLATFORM GOVERNANCE

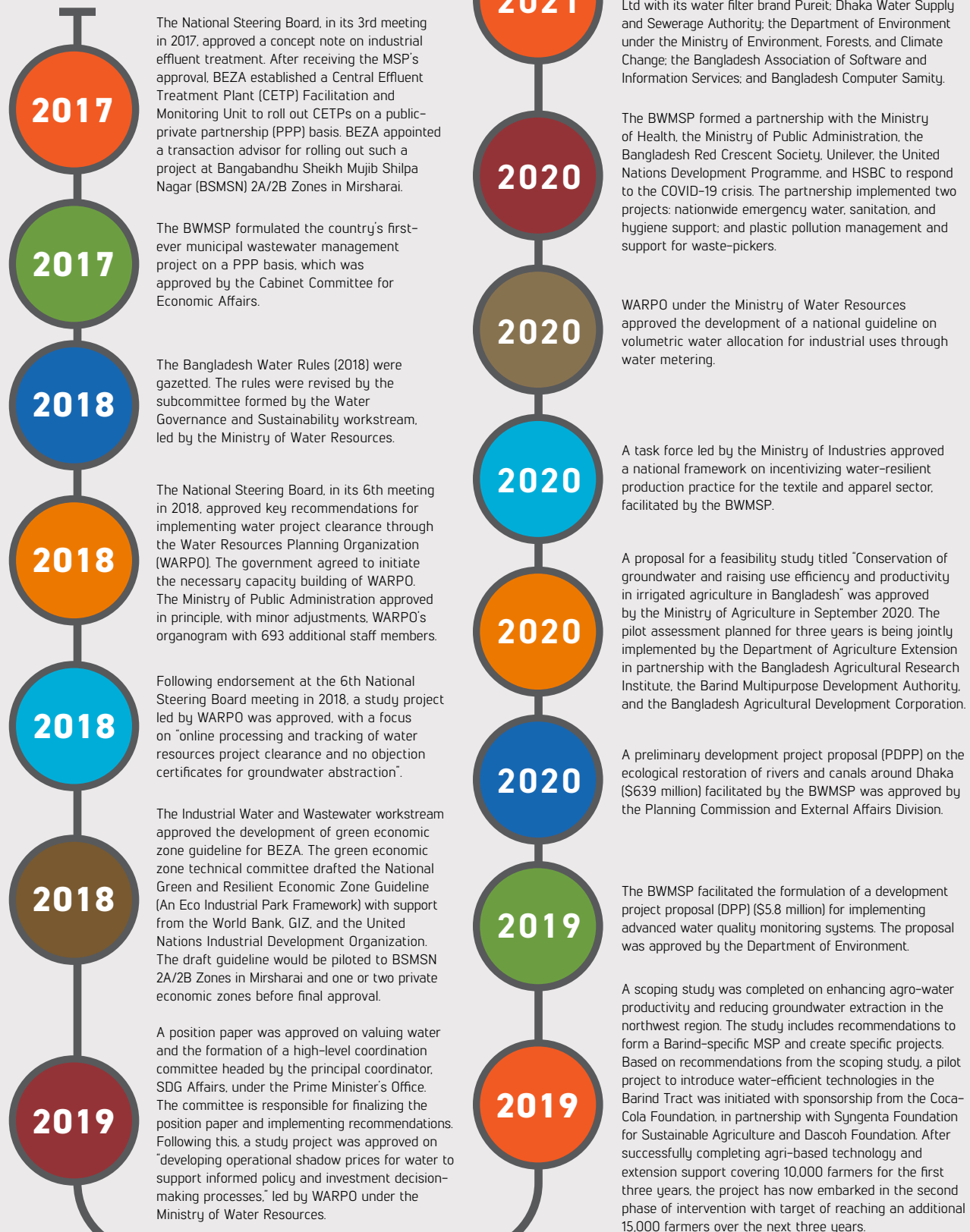


“In the absence of information about ecosystem values, substantial misallocation of resources has occurred and gone unrecognized and immense economic costs have often arisen. Under-valuation impacts on the status and integrity of natural ecosystems, and also runs the risk of undermining water availability, water profits, and sustainable development goals.”

IUCN, 2004

NOTEWORTHY OUTCOMES

Key outcomes to date include:

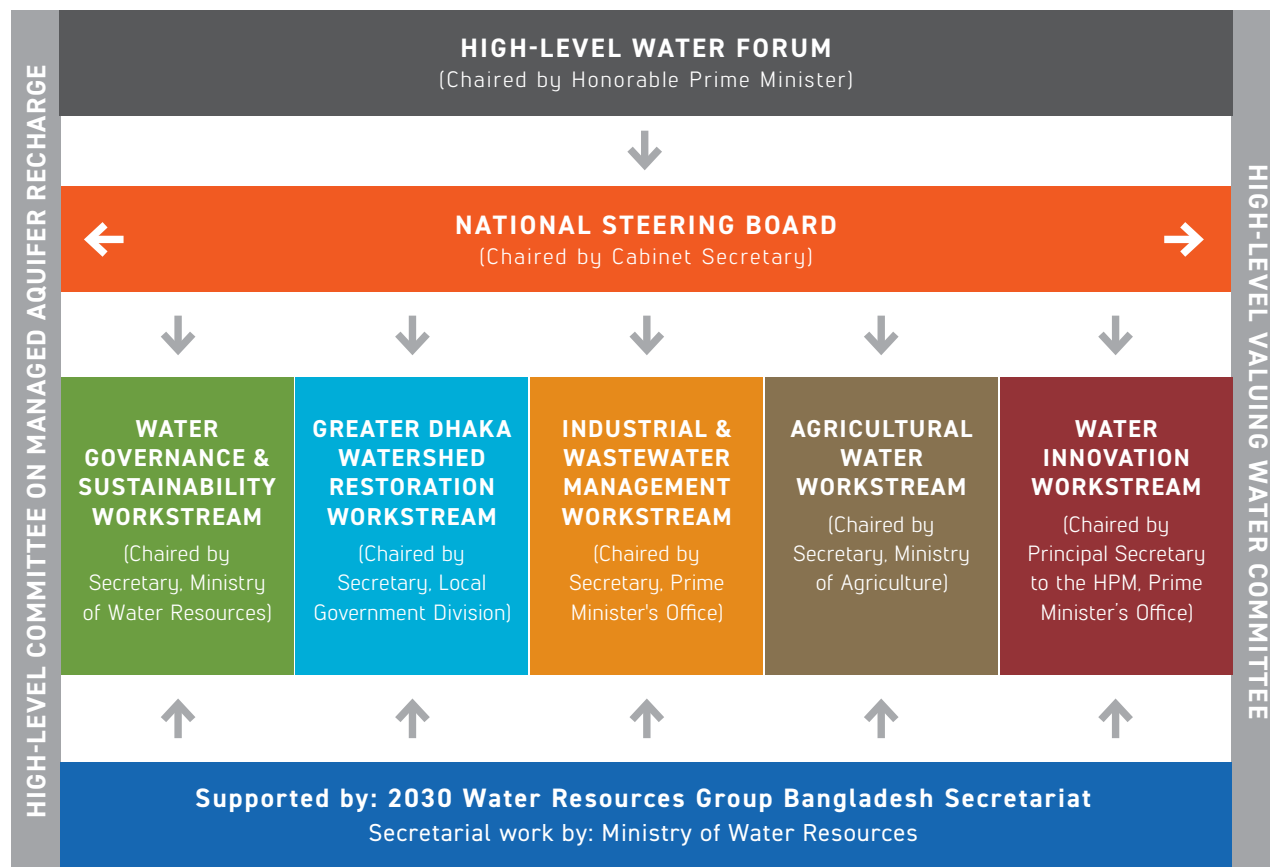


Government Structures

The BWMSP is structured as follows:

- The National Steering Board. This is an apex body for priority setting, partnership development, and workstream monitoring.
- Workstreams. These are thematic groups for implementation oversight, formation of task forces, PPP acceleration, and budget approvals.
- Task forces/technical committees/advisory committees. These groups are established for the development of specific programs, projects, financing mechanisms, and policy initiatives by drafting detailed implementation roadmaps and budget proposals and organizing stakeholder consultations.

This structure is outlined in the graphic below.



COMPOSITION OF THE NATIONAL STEERING BOARD

GOVERNMENT	CIVIL SOCIETY/ACADEMIA	PRIVATE SECTOR
Chair, Cabinet Secretary	BRAC [Co-chair]	International Chamber of Commerce [Co-chair]
Principal Coordinator, SDG Affairs, Prime Minister's Office	Bangladesh Water Partnership	Bangladesh Garment Manufacturers and Exporters Association
Principal Secretary Prime Minister's Office	Bangladesh University of Engineering and Technology	Bangladesh Knitwear Manufacturers and Exporters Association
Secretary, Prime Minister's Office	Institute of Business Administration, University of Dhaka	Bangladesh Textile Mills Association
Secretary, Finance Division, Ministry of Finance	Business Initiative Leading Development	Bangladesh Agro-Processors' Association
Secretary, Ministry of Commerce		Bangladesh Association of Pharmaceutical Industries
Member, General Economics Division, Planning Commission		Bangladesh Tanners Association
Executive Chairman, BEZA		Metropolitan Chamber of Commerce and Industry (Represented by Coca-Cola)
Secretary, Ministry of Agriculture		Foreign Investors' Chamber of Commerce & Industry (Represented by Nestlé)
Secretary, Ministry of Environment, Forests and Climate Change		Buyers Forum (Represented by H&M)
Secretary, Ministry of Industries		Buyers Forum
Secretary, Local Government Division, Ministry of Local Government, Rural Development and Cooperatives		
Member, Physical Infrastructure Division, Planning Commission		
Member, Agriculture, Water Resources and Rural Institutions Division		
Senior Secretary, Ministry of Water Resources (as Member-secretary)		

WORKSTREAM INITIATIVES AND PROGRAMS



This section provides an overview of the workstreams and ongoing programs under the 2030 WRG Bangladesh partnership, including key activities and expected results.

Workstream 1: Water Governance and Sustainability (led by Ministry of Water Resources)

KEY CHALLENGES

- Need for enhanced coordination and integrated planning
- Ownership in water resources management
- Inadequate incentives to comply with regulations
- Limited water pricing and extraction licensing
- Limited systematic or meaningful consultation with the private sector.

The Bangladesh Water Act (2013) provides guidance that clearance or licenses are required for water usage by the private sector. However, it is important that this clearance is implemented in a meaningful and streamlined way to achieve the desired goals of conserving water resources and promoting industrial and agricultural growth. In terms of coordinating activities among the many government bodies responsible for water governance, a lot is left to be desired. Interagency coordination is vital for successful water reforms. This workstream therefore focuses on institutional strengthening of WARPO (including issuance of water clearances) and creating economic incentives for the water sector.

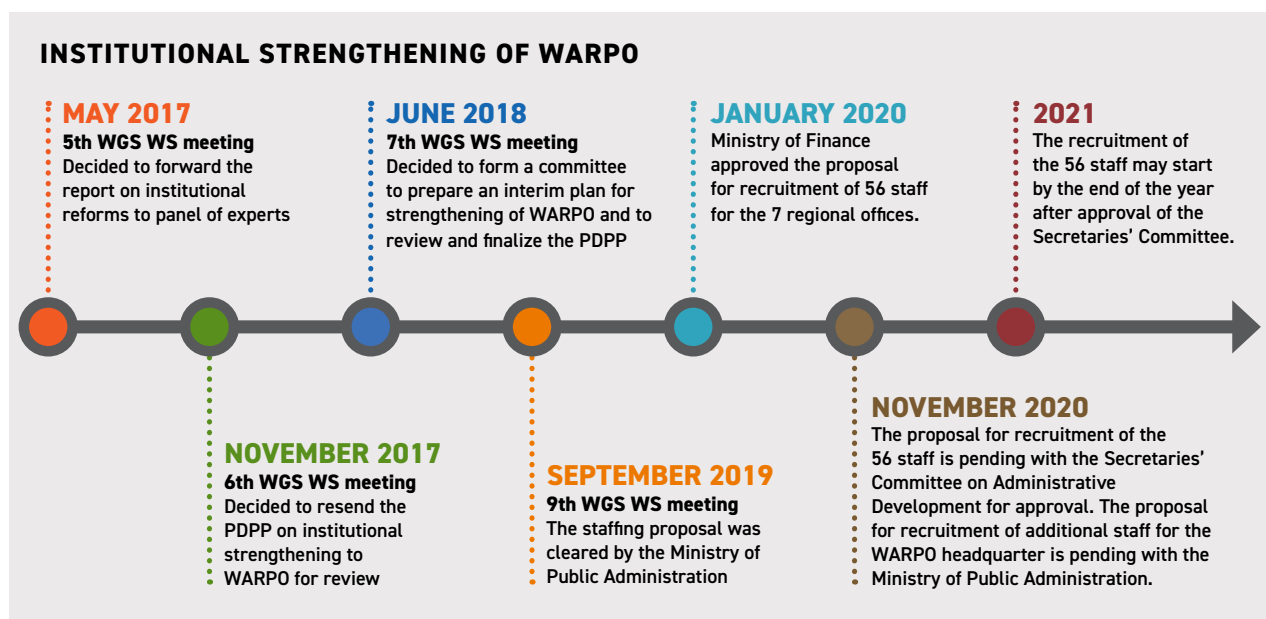
COMPOSITION OF THE WATER GOVERNANCE AND SUSTAINABILITY WORKSTREAM

GOVERNMENT	CIVIL SOCIETY/ACADEMIA	PRIVATE SECTOR
Chair, Senior Secretary, Ministry of Water Resources	Representative, Water Resources Engineering Department, Department of Civil Engineering, Bangladesh University of Engineering and Technology	Representative, Federation of Bangladesh Chambers of Commerce and Industries
Additional Secretary (Development), Ministry of Water Resources		Representative, International Chamber of Commerce – Bangladesh
Joint Secretary (Development-1), Ministry of Water Resources	Director, Institute of Business Administration, University of Dhaka	Representative, Metropolitan Chamber of Commerce and Industry – Bangladesh
Joint Chief, Planning and Development, Ministry of Water Resources	CEO, Business Initiative Leading Development	Representative, Bangladesh Garment Manufacturers and Exporters Association
Deputy Secretary (Development-5), Ministry of Water Resources	Country Representative, Bangladesh Water Partnership (Bangladesh Chapter of Global Water Partnership)	Managing Director, Coca-Cola Bangladesh Ltd.
Governor, Bangladesh Bank	Representative, BRAC	Environmental Sustainability Manager, H&M
Ministry of Environment, Forests and Climate Change		Director, Corporate Affairs, Nestlé Bangladesh
Member, General Economics Division, Planning Commission		Managing Director, DBL Group
Member, Agriculture, Water Resources and Rural Institution Division, Planning Commission		Managing Director, Sigma Group
Member, Policy, National Board of Revenue		
Additional Secretary, Ministry of Industries		
Additional/Joint Secretary, Administrative Development and Coordination Branch, Cabinet Division		
Director General, Bangladesh Water Development Board, Ministry of Water Resources		
Director General, WARPO, Ministry of Water Resources		
Director General, Department of Environment, Ministry of Environment, Forests and Climate Change		
Project Director, Bangladesh Delta Plan 2100		
Executive Director, Institute of Water Modeling, Ministry of Water Resources		

“Dynamic leadership and forward-looking guidance of the Hon’ble Prime Minister has made it possible to formulate the Bangladesh Delta Plan (BDP) 2100. We are undertaking projects in alignment to the Delta Plan 2100. This is our great pleasure to highlight that 2030 Water Resources Group has been working to overcome the water related challenges of the country through Bangladesh Water MSP.”



*Kabir Bin Anwar, Senior Secretary,
Ministry of Water Resources*



The focus areas of the workstream is described in more detail below.

1. INSTITUTIONAL STRENGTHENING OF WARPO

WARPO was created through the Water Resources Planning Act (1992) as the apex body for water sector planning. To meet the challenges of a changing water sector, the Bangladesh Water Act (2013) extended the mandate of WARPO to act as a regulatory agency and as the secretariat of the Executive Committee of National Water Resources Council. WARPO is a multidisciplinary organization with around 47 professionals from a wide range of disciplines.

Although identified as an apex body, WARPO was not adequately resourced for its extended mandate and regulatory role. In particular, WARPO lacked sufficient professional staff and the decentralized structure needed to manage water resources in a well-informed and participatory manner. Key challenges facing the sector include reconciling the needs of, and allocating water between, the public and private sectors and the environment. Improving interagency coordination is also vital for attaining SDG 6 regarding access to clean water and sanitation for all, reducing pollution, integrated water resources management, and recognizing the economic value of water in decision-making.

In 2016, the Water Governance and Sustainability workstream

of the BWMSF established a high-level task force of sector professionals and stakeholders to recommend improvements to the institutional framework for water resources management. A concept note was prepared to guide the work of the workstream and task force. The task force developed 11 recommendations for institutional reform, approved by the National Steering Board. The recommendations built on three pillars: Finalizing and gazetting the Rules of the Bangladesh Water Act, which was done in 2018; additional staffing for WARPO at headquarters and regional level; and a capacity-building project that will allow the new legal framework and human resources to facilitate better water management.

In May 2017, the Water Governance and Sustainability workstream forwarded the task force's report to a panel of experts. In November 2017, the workstream further discussed institutional strengthening of the water sector and a new organogram for WARPO, which had been approved in principle by the Executive Committee of National Water Resources Council. This consolidated two of the three pillars. To complete the implementation of the 11 principles, the outline design of a capacity-building project was prepared, to be implemented by the Ministry of Water Resources and WARPO with the participation of other sector agencies as needed.

In June 2018, the Water Governance and Sustainability workstream decided that a small committee should be formed, including WARPO, the Center for Environmental and Geographic Information Services, the Institute of Water Modeling, 2030

WRG, and the H&M Foundation, to prepare an interim plan to strengthen WARPO in implementing the Bangladesh Water Act and its rules while increasing its staffing capacity. The committee would also finalize the preliminary development project proposal (PDPP) for building WARPO's capacity.

2030 WRG, acting through the National Steering Board and the workstream's platforms, has been facilitating the approval process for additional WARPO staffing. Representatives of the Ministry of Public Administration and the Ministry of Finance assured the 7th National Steering Board meeting that the staffing proposal would be approved. Consequently, on getting clearance from the Ministry of Public Administration, the Ministry of Finance approved the recruitment of 56 staff for seven divisional offices and, in principle, the recruitment of the rest of the regional staff. This proposal is awaiting approval of the Secretaries' Committee on Administrative Development. The proposal for recruiting headquarters' staff will require some adjustments to designations and pay scales. These issues are currently being examined by the Ministry of Water Resources and the Ministry of Public Administration.

2. WATER VALUATION, PRICING, AND INCENTIVES

Background

The Honorable Prime Minister of Bangladesh was a member of the United Nations and the World Bank High Level Panel on Water, which prioritized Valuing Water as an action to achieve sustainable water resources management. The National Steering Board of the BWMS set up the High-Level Valuing Water Committee in 2018, chaired by a Principal Coordinator (SDG Affairs), to lead this initiative. It is supported by a Technical Valuing Water Committee. The Valuing Water initiative in Bangladesh is the first national-level initiative on valuing water anywhere in the world and the activities under the High-Level Valuing Water Committee are considered potential "lighthouse" examples to demonstrate international best practice to transform water resources management. The underlying position paper has been approved and was published in August 2020.



Current and future challenges of the water sector

In policy and investment decisions, the consideration of all benefits and costs related to water provides the foundation for sustainable water management and long-term socioeconomic development. In Bangladesh, these benefits and costs related to water are currently not being explicitly considered. This may result in substantial misallocation of resources, which can lead to localized severe groundwater over-abstraction and water shortages, surface water pollution, and flooding. The approach of the Valuing Water initiative provides the basis for recognizing and considering all costs and benefits provided by water, including their economic, social, and ecological dimensions (Bellagio Principles, 2017).

Review of past activities

In cooperation with the Ministry of Water Resources, the High-Level Valuing Water Committee and the Technical Valuing Water Committee developed a Proforma Feasibility Study to Develop Operational Shadow Prices for Water to Support Informed Policy and Investment Decision-Making Processes. It was approved by the Ministry of Water Resources and is now being implemented by WARPO.

3. PRELIMINARY DEVELOPMENT PROJECT PROPOSAL ON RIVERS (INCLUDING CANALS) AROUND DHAKA

The Government of Bangladesh commissioned a River Master Plan, which was completed in June 2019. In response to recommendations made at the 7th National Steering Board and 9th Water Governance and Sustainability workstream meetings, the Ministry of Water Resources formed an advisory committee to prepare a PDPP on the restoration of rivers and canals around Dhaka. The committee was mandated to act



as the baseline research group as per the River Master Plan. It provided input into the preparation of a PDPP on selected activities mandated in the River Master Plan and Bangladesh Delta Plan 2100 and, among other things, identify projects for potential priority investments.

The PDPP Advisory Committee has convened three meetings since January 2020, identified the scope of work, and developed a PDPP. The committee consolidated all existing and proposed projects related to the eco-restoration of rivers undertaken by key agencies such as the Bangladesh Water Development Board, the Bangladesh Inland Water Transport Authority, the Capital Development Authority (RAJUK), city corporations, and the Dhaka Water Supply and Sewerage Authority. An inventory of projects was also prepared and shared with the key agencies. In the third meeting of the advisory committee, the PDPP for “Ecological Restoration Support to Rivers and Canals around Dhaka” was approved. The PDPP has been initially accepted by the Work Bank. It is envisioned that the implementation of the project will support the restoration of the ecological state of the rivers and canals around Dhaka, which will directly impact the livelihoods of 20 million people living in and around Greater Dhaka area by ensuring access to clean surface water.

4. DEVELOPMENT PROJECT PROPOSAL ON INTEGRATED AND SUSTAINABLE MANAGEMENT OF THE HAORS (WETLANDS)

The project development process has been divided into the following stages:

- **Stage 1:** Review government policies and previous project interventions relevant for wetlands
- **Stage 2:** Identify intervention packages focusing on enhancement of community-based livelihood development leading to optimal water management (efficient drainage, water storage/management) by changing or prioritizing practices
- **Stage 3:** Design and prepare project proposals
- **Stage 4:** Mobilize large-scale investments for implementation

To conduct these activities, a scoping study titled “Encouraging Ecosystem-based Adaptive Water Management on Haors” has been conducted to develop an effective and integrated management strategy for water and other relevant resources. The aim of the strategy is to respect the unique ecological characteristics of the selected haors

while improving the socioeconomic conditions of the habitats in a sustainable manner. This has been done by 2030 WRG in partnership with BRAC and the International Union for Conservation of Nature, in consultation with the Department of Bangladesh Haor and Wetlands Development, the Bangladesh Academy for Rural Development (Cumilla),



and civil society experts. At the 10th meeting of the Water Governance and Sustainability workstream, the development of project proposals on ecosystem based adaptive water management for selected Haors to be led by the Multidisciplinary Advisory Committee for Haor, was approved in principle.

As per the decisions made at the 7th meeting of the National Steering Board of the BWMS, and the 8th meeting of the Water Governance and Sustainability workstream, a multidisciplinary Advisory Committee for the haor scoping study was formed through the office order issued by the Ministry of Water Resources. The committee is guiding the development of concepts on potential interventions for the selected haors by aligning institutions, incorporating biodiversity, capitalizing on technological advancements, and supporting policy and investment interventions.

The overarching goal of the proposed project "Integrated and Sustainable Management of the Haor" is to develop a replicable model over the next four years. The project will have the following components:

- Improved water connectivity and water storage facilities
- Restoration of haor ecosystem and biodiversity
- Sustainable livelihoods through income generating activities, market, and value chain development
- Improved water supply and sanitation
- Capacity and institutional development.

The Department of Bangladesh Haor and Wetlands Development will work closely with a number of departments (such as the Department of Agriculture Extension, the Department of Fisheries, and the Department of Environment). The Bangladesh Academy for Rural Development, the International Union for Conservation of Nature, and BRAC are expected to be partners in their respective areas of comparative advantage. In addition, collaborative research on haor water will be developed with regional or local institutions.

5. KNOWLEDGE PRODUCT ON GENDER AND WATER IN AGRICULTURE AND ALLIED SECTORS

A World Bank review of 121 rural water supply projects found that women's participation is integral for project effectiveness. It was also found that failure to take into account gender differences and inequalities can result in the failure of a project. Gender considerations have been integrated into 2030 WRG's program interventions in countries such as India. Therefore, to address gender issues in the BWMS, experts from 2030 WRG and United Nations Development Programme jointly consolidated a draft Gender Action Plan.

The Gender Action Plan has three stages, which will move in parallel. The first stage is to develop a knowledge product based on best practices by women groups contributing to better water management, which has the potential to be scaled up. In the second stage, the aim is to gather an understanding of the policy landscape by reviewing relevant government policies and gender inclusive initiatives by civil society and other relevant stakeholders. The third stage involves a resource mobilization strategy, where future interventions will be designed to scale up initiatives at the national level

The knowledge product is currently at the inception phase. As part of the research, a workshop was conducted in February 2020, with participants from public sector, private sector, and civil society organizations. The aim of the workshop was to identify case studies through a consultation process with the participants. After the consultation process and several key informant interviews with relevant stakeholders, a total of seven case studies were identified. In addition, a review of government policies and relevant literature is in progress to better understand the existing policy landscape through a gender lens.

Following the decision of the 11th workstream, a Gender Advisory Committee was formed. The committee will provide guidance to finalize the knowledge compendium and identify project interventions that have potential to be scaled up at the national level.

CASE STUDIES:

Gender and water in agriculture and allied sectors



1. Empowering women with water-efficient irrigation tools

Drip-fertigation and sprinkler irrigation under polyshed extension program in Jashore district (Gothkhali subdistrict) for horticultural producers (2017-2020), a government of Bangladesh project implemented by the Bangladesh Agricultural Development Corporation.

Four hundred households, including 200 women, are trained and supported under 22 schemes. The beneficiaries are taught how to conduct drip-fertigation or sprinkler irrigation under polyshed, harvesting rainwater stored in dug-wells for producing flower, fruits, and vegetables throughout the year. The project has reduced water use by 95 percent while improving women earnings by 80 percent.

2. Promoting access to water in remote areas

Access to water in remote communities of the Chottogram Hill Track: a United Nations Development Programme project (Chittagong Hill Tracts Watershed Co-Management Activity) funded by USAID.

With the support of the community, the project installed small-scale gravity flow systems and water collection points in Ukling para. This has changed lives and livelihoods, specially for women living in the area. The systems have given the women easy access to water, which has enabled them to get involved in income-generating activities. This in turn is contributing to their self-esteem and empowerment.



3. Improving water management in Barind

Integrated water resources management in Barind (Rajshahi, Chapai Nawabganj, and Naogaon districts), funded by the Swiss Agency for Development and Cooperation and the government of Bangladesh.

The project has 280,000 beneficiaries and developed 1,272 water management committees, which are institutionally anchored at the union level. Indigenous santal and local people are trained to produce less irrigation-thirsty winter crops like tomato, wheat, potato, watermelon, and mustard. The water committees provide support for pond-based water storage, improved drinking water supply, and the scaling up of irrigation technologies.

4. Empowering women to become water entrepreneurs

Surovi Mohila Samity: Water-based women entrepreneurship opportunity in coastal districts project, implemented by WaterAid under the HSBC Water Program.

In southwestern coastal areas, saline intrusion leaves both ground and surface water reservoirs unfit for drinking. Under this initiative, the installed reverse osmosis plant filters and purifies saline water and makes it safe for drinking and cooking. The cooperative members sell water to 300 community families. The women use this income to contribute to their own families.



CASE STUDIES: Gender and water in agriculture and allied sectors

5. Making pumpkins profitable for vulnerable communities

Pumpkin producers in northwest Bangladesh: A sustainable business initiative under Pumpkin Plus (initiated by Practical Action with funding support from USAID and others).

Rangpur and Kurigram, are highly disaster-prone districts in the north, where riverbank erosion leads to permanent loss of land for cultivation and shelter. The remoteness of the Chars (silted islands in the river system) and the transitional sandbar close to rivers contribute to a high degree of social marginalization, child labor, exploitation, girl marriage, and early pregnancies. Women and children are the most vulnerable, with a lack of alternative livelihood options.

The program has successfully demonstrated that the growing of pumpkins in small compost pits dug into the sand is both possible and profitable. Between 2005 and 2017, a total of 128,000 MT of pumpkins were produced by 22,000 farmers, of which 60 percent were women. The pumpkins produced on the sandbars can be stored over a year, which greatly assists poor households with both income and food security.



6. Increasing women's participation in income-generating activities

Gender Action Learning System project, introduced by the International Fund for Agricultural Development, to promote gender-responsive actions, including access to water for poor households of Patharghata.

The Gender Action Learning System was introduced in Bangladesh through the International Fund for Agricultural Development funded Coastal Climate Resilient Infrastructure Project. The project enables family members to work together, to improve relations and decision-making, and to achieve more equitable workloads. The initiative was piloted in five markets in five coastal districts. The training made the household members aware about the individual workloads and how they could be redistributed in favor of the women. Before the training, the women used to collect water from the community ponds at least twice a day. After the training, the participating households in Patharghata upazila, Barguna district, are now buying water from the upazila town that costs between 400 and 500 Bangladeshi taka per household per month. As a result, women have more productive hours and their incomes have increased, enabling them to become more involved in income-generating activities.

7. Growing hydroponic grass in haors

Water-based hydroponic grass production empowering women.

Haor (wetlands) is a distinct ecosystem in northeastern region of Bangladesh. It is flooded during monsoon season. hydroponic grass production enables women living in the area to earn money by producing green fodder for cattle. Three kilograms of grass can be produced from half a kilogram of wheat seeds, costing 20 Bangladeshi taka, while the same can be sold for between 30 and 40 taka. An initial investment of about 200 taka is required and the yields can feed cattle for up to nine days. The BRAC Integrated Development Programme trained 600 women from four upazilas (Derai, Sunamganj district; Baniachong, Habiganj district; Itna, Kishoreganj district; and Khaliaghuri, Netrokona district). Besides feeding their own cattle, the women are selling hydroponic grass to their neighbors. After successful trials, more women are getting involved in hydroponic grass production.



6. NATIONAL INITIATIVE ON MANAGED AQUIFER RECHARGE

Following the decision of the National Steering Board in May 2019, the High-Level Committee on Managed Aquifer Recharge was formed under the chairmanship of the Principal Coordinator (SDG Affairs), Prime Minister's Office. The committee met on August 6, 2019, to discuss its role and mode of working, and constituted a technical committee and a technical lead for drafting the national strategy paper and implementation plan, which will be formulated in three stages:

regulation; planning and design; implementation and funding; operation and management; sustainable water management and governance; and research and development.

Upscaling managed aquifer recharge must follow a roadmap that progressively demonstrates that it is practical for Bangladesh, that it will be effective in tackling water scarcity, and that international experience has been properly adapted

to local conditions. The scoping study examined the positive experiences of existing pilot projects but also recognized that to achieve impact at scale, and in good time, it is best to construct additional pilots that satisfy one of three criteria: (i) a known technology in a proven area, but a greater size; (ii) a known technology in an unproven area; or (iii) a new technology in any area where the managed aquifer recharge concept is accepted.

To this end, the technical committee identified 10 potential schemes with known interest. The committee sought approval from the high-level committee

to explore and cost these schemes with a view to implementing some or all of them. It was suggested in the second high-level committee meeting that the demonstrations should not be confined to these areas and should reflect the diverse needs of the country. The possibility of aligning the Managed Aquifer Recharge for Artificial Storage project under the Bangladesh Delta Plan 2100 should be explored. The Ministry of Water Resources agreed to provide support and guidance in creating a PDPP or DPP for such purposes. The Bangladesh Water Development Board and WARPO could be included in implementation, monitoring, and evaluation of the proposed project.




The scoping report was submitted to the high-level committee in its second meeting on July 23, 2020. The report reviews the current knowledge of managed aquifer recharge in Bangladesh and relevant parts of the world to identify promising technical options, and reviews existing laws, policies, and strategies that relate to managed aquifer recharge. The technical committee is now focusing on drafting the National Managed Aquifer Recharge Strategy for Bangladesh. The draft strategy will build on the foundations of the scoping study. Following the completion of the scoping report, the technical committee developed a tentative structure for the draft strategy that is built around themes and strategic actions such as knowledge and awareness raising; legislation and

Workstream 2: Greater Dhaka Watershed Restoration (led by Local Government Division)

COMPOSITION OF THE GREATER DHAKA WATERSHED RESTORATION WORKSTREAM

GOVERNMENT	PRIVATE SECTOR	CIVIL SOCIETY/ACADEMIA
Chair, Senior Secretary, Local Government Division, Ministry of Local Government, Rural Development and Co-operatives	Representative, Water Resources Engineering Department, Department of Civil Engineering, Bangladesh University of Engineering and Technology	Representative, Federation of Bangladesh Chambers of Commerce and Industries
Director General, Monitoring, Inspection & Evaluation, Local Government Division	Representative, Department of Chemical Engineering, Bangladesh University of Engineering and Technology	Representative, International Chamber of Commerce, Bangladesh
Additional/Joint Secretary, Ministry of Environment, Forests and Climate Change	Country Representative, Bangladesh Water Partnership (Bangladesh Chapter of Global Water Partnership)	Representative, Bangladesh Garment Manufacturers and Exporters Association
Additional/Joint Secretary, Ministry of Industries	Representative, BRAC	Representative, Bangladesh Textile Mills Association
Additional/Joint Secretary, Ministry of Land		Representative, Bangladesh Knitwear Manufacturers and Exporters Association
Additional/Joint Secretary, Local Government Division		Representative, Bangladesh Tanners Association
Additional/Joint Secretary, Ministry of Shipping		Managing Director, Coca-Cola Bangladesh Ltd.
Additional/Joint Secretary, Ministry of Water Resources		Environmental Sustainability Manager, H&M
Chairman/Member Board, the Capital Development Authority (RAJUK)		Director, Corporate Affairs, Nestlé Bangladesh
Managing Director, Dhaka Water Supply & Sewerage Authority		CEO, Business Initiative Leading Development
Chairman, Bangladesh Inland Water Transport Authority		
Director General, Bangladesh Water Development Board, Ministry of Water Resources		
Director General, Department of Environment, Ministry of Environment, Forests and Climate Change		
Director General, WARPO, Ministry of Water Resources		
CEO, Public Private Partnership Authority, Prime Minister's Office		
CEO, Dhaka North City Corporation		
CEO, Dhaka South City Corporation		
Executive Director, Institute of Water Modeling, Ministry of Water Resources		
CEO, Gazipur City Corporation		

A photograph showing a man and a woman in a rural setting. The man, shirtless and wearing a blue and white checkered dhoti, stands in the background holding a wooden pole across his shoulders. The woman, wearing a red and yellow patterned sari, is in the foreground, bent over and pouring water from a red plastic bucket into her hand. The ground is sandy and there are some green plants in the background.

“The proposed scheme has huge potential: it will generate revenue for the implementing agency to repay the service providers for operating and maintaining the sewage treatment plants and fecal sludge treatment plants, which will eventually lessen the burden on the users and minimize the overall financial risks of the project. Moreover, the pressure on groundwater sources from industrial abstraction will be eased significantly, as will the cost of water use to the industries. Ultimately, industrial production efficiency will increase and benefit the whole sector.”

*Mohammad Zahangir Alam, Mayor,
Gazipur City Corporation*



KEY CHALLENGES

- 97 percent of urban wastewater in the Greater Dhaka area is released untreated into bodies of water
- Inefficient industrial processes are depleting the supply of groundwater
- Lack of industrial wastewater treatment hinders the growth of exports (particularly textiles).

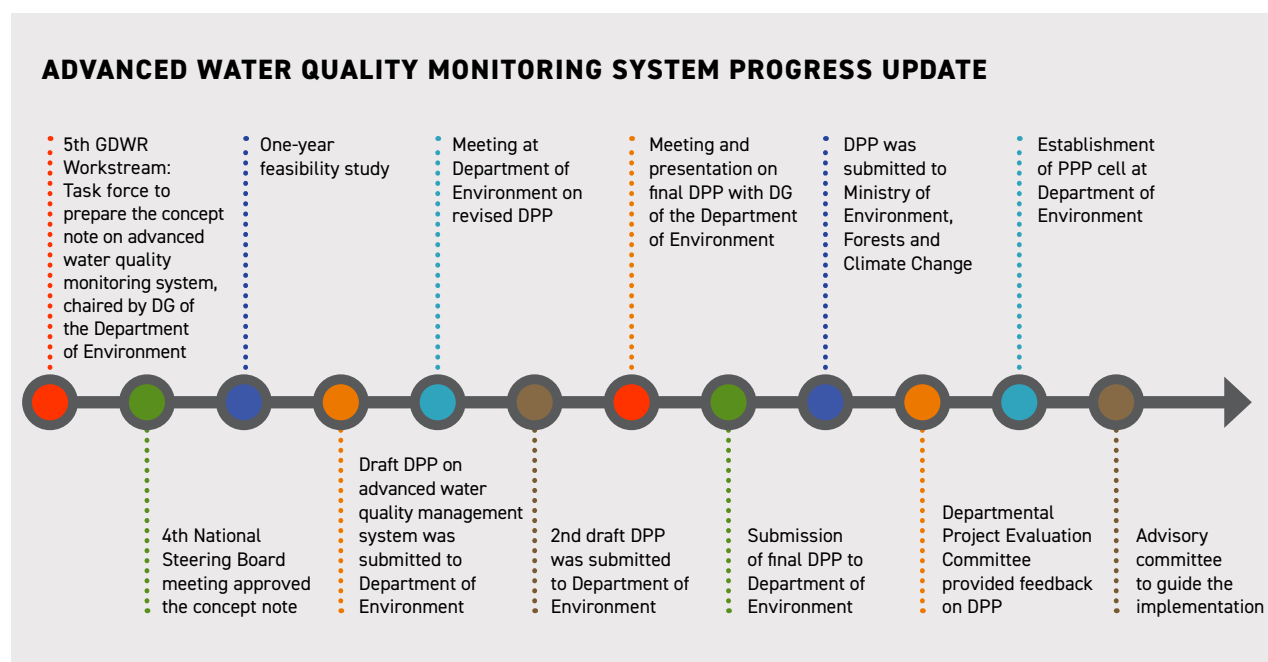
This workstream has been formed to contribute to the restoration of the water bodies of the Greater Dhaka watershed area. Chaired by the Senior Secretary of the Local Government Division, the workstream focuses on facilitating private sector participation in municipal wastewater treatment and fecal sludge management.

1. DEVELOPMENT PROJECT PROPOSAL FOR ADVANCED WATER QUALITY MONITORING SYSTEM

In order to address the water pollution from urban, industrial, and agricultural sources, a greater focus on monitoring must be included in the overall solution, especially as a precursor to future

investments or changes in practices that lead to improvement in water quality. Simply stated, it is difficult to gauge water quality improvements without measurement. Bangladesh already performs manual water quality measurements in the Greater Dhaka Watershed Restoration Area¹ but lacks spatial coverage and is limited in temporal coverage due to logistical challenges. To address this challenge, the workstream appointed a task force. A concept note on a water quality monitoring system was developed and subsequently approved by the workstream and the National Steering Board.

It is proposed that the project have a three-year implementation period with 15 years of post-implementation support. A PPP is proposed for the post-implementation support, where the private entity will provide support with a phased transfer of the monitoring stations to the government. The project is unique in the sector and, for the first time in Bangladesh, a water quality monitoring system is likely to be implemented through a PPP. The development project proposal has been reviewed and finalized by the Department of Environment and forwarded to the Departmental Project Evaluation Committee, Ministry of Environment, Forests and Climate Change, for review and approval.



¹ The Greater Dhaka Watershed Restoration Area is about 1,800 square kilometers in size, which includes Dhaka City Corporation, Savar upazila, Keraniganj upazila of Dhaka district, Narayanganj Sadar upazila, Bandar upazila, Rupganj upazila of Narayanganj district, Gazipur Sadar upazila, and Kaliakair upazila of Gazipur district, and Narsingdi Sadar upazila and Palash upazila of Narsingdi district. It hosts a total population of over 18 million residents.

2. GAZIPUR CITY CORPORATION INTEGRATED WASTEWATER AND FECAL SLUDGE MANAGEMENT PROJECT

The Greater Dhaka region, which accounts for over 40 percent of the country's gross domestic product (GDP), bears the brunt of pollution due to discharge of untreated municipal wastewater on land and surface waters. In response, the Dhaka Sewerage Master Plan, elaborating a technical approach for management of urban wastewater in the area, was finalized in 2013. The plan identifies 11 catchments. In 2017, the Ministry of Local Government, Rural Development and Cooperatives engaged with 2030 WRG to explore implementation options for the Tongi-Gazipur catchment in the Gazipur City Corporation (GCC), with a focus on optimizing the use of scarce federal resources. The catchment had a population of approximately 0.9 million people at the time.

2030 WRG undertook a rapid assessment, evaluated options, and recommended an implementation structure on a PPP basis to meet the objective: in line with the Dhaka Sewerage Master Plan, an integrated approach combining both network and non-network infrastructure was proposed, with capital costs to be financed through modest private investment, and concessional debt supplemented by federal grants. Given the city's lack of experience in wastewater management, the PPP would bring technical and operational expertise for asset development and service delivery through the private partner.

Details of this recommendation were discussed widely with all relevant stakeholders, including GCC, the Local Government Division, and the Prime Minister's Office. The National Steering Board specifically positioned the initiative as a pilot to establish the salient components of an implementation model suitable for scaling up to other urban areas, in support of the country's SDG. As a result, GCC entered into an agreement with the PPP Authority of Bangladesh to procure the services of the International Finance Corporation (IFC) for project development and transaction support. 2030 WRG was mandated to continue its guidance and consensus-building role.

Following the National Steering Board's direction, 2030 WRG has focused its continued support on enabling the conditions for sustainable and replicable implementation, with minimum recourse to federal resources. In a series of discussions with the Local Government Division and GCC, it became clear that creating demand for services to be made available through the proposed wastewater management project was critical: beneficiary buy-in would facilitate a steady and robust revenue

stream, enabling the city to meet payment obligations to the private partner. Initial analysis showed that nearly half the target beneficiaries were to be serviced through non-network, or fecal sludge management, services. However, buildings in the area lack adequate on-site sanitation arrangements—septic tanks and soak wells—to receive safe emptying services, as planned under the project. Thus, the first step in demand creation is to improve on-site sanitation facilities.

For this purpose, 2030 WRG entered a partnership with SNV, the Netherlands' Development Organisation. An app-based, building-level survey was launched in the Tongi-Gazipur catchment of GCC, to provide information for planning the improvement drive. The survey, completed in March 2021, covered every building in the area—over 146,000 structures—in a period of nine months. Based on the assessment of requirements resulting from the survey, technical options for the upgrade of building-level sanitation arrangements are under development. In discussion with vendors, cutting-edge plastic septic tanks have been proposed, alongside more conventional brick and mortar containment structures; innovative soak wells, constructed with ring slabs commonly used in pit latrines in the area, are being tested for effectiveness; and a training program is planned to help masons install the septic tank systems. To complement the technical options, a variety of subsidy and microfinance arrangements are proposed to support building owners and households in paying for improvements. For this purpose, 2030 WRG aims to collaborate with Palli Karma-Sahayak Foundation, a development finance institution working with microfinance institutions to offer microcredit to households.

The drive to improve on-site sanitation will be carried out through a behavior change communication campaign. Jointly supported by 2030 WRG and SNV, the campaign will use a range of methods at various levels to persuade building owners and households to adopt solutions on offer for safe sanitation—including messaging on mass media at the city level; focused group discussions with communities, anchored by sanitation volunteers, at the ward level; and door-to-door marketing at the building or household level. The campaign will also leverage the regulatory requirement for safe on-site sanitation through septic tank systems.

Made possible through MSPs steered by 2030 WRG, the behavior campaign aims to build the foundation for sustainable and replicable implementation of the larger GCC wastewater management project—thus facilitating the achievement of the country's SDGs.

Workstream 3: Agricultural Water (led by Ministry of Agriculture)

COMPOSITION OF THE AGRICULTURAL WATER WORKSTREAM

GOVERNMENT	PRIVATE SECTOR	CIVIL SOCIETY/ACADEMIA
Secretary, Ministry of Agriculture	Executive Director, Agribusiness, ACI	Programme Head, Agriculture and Food Security Programme, BRAC
Additional Secretary, Ministry of Agriculture	Managing Director, Coca-Cola Bangladesh Ltd.	Country Representative, Bangladesh Water Partnership (Bangladesh Chapter of Global Water Partnership)
Chairman, Bangladesh Agricultural Development Corporation	Managing Director, PRAN-RFL Group	Department Head, Irrigation and Water Management Department, Bangladesh Agricultural University
Director General, Bangladesh Rice Research Institute	Secretary General, Federation of Bangladesh Chambers of Commerce and Industries	Department Head, Irrigation Department, Bangabandhu Sheikh Mujibur Rahman Agricultural University
Director General, Bangladesh Agricultural Research Institute		Director of News, Channel I
Director General, Department of Agricultural Extension		Managing Editor, ATN Bangla Channel
Director General, Rural Development Academy		
Joint Secretary, Ministry of Agriculture		
Executive Director, Barind Multipurpose Development Authority		

KEY CHALLENGES

- Rapid depletion of groundwater table northwest region; increasing salinity in southwest debilitate traditional agricultural expansion
- Partial scaling up of water efficient irrigation technologies
- Limited transformation of agro-based value chain.

The Agricultural Water workstream aims to improve the efficiency of irrigation by promoting a gradual shift to high-value crops that are not water-intensive, which in turn will increase farmers' adaptive capacity, resilience, and income. In close partnership with private sector and civil society stakeholders (such as ACI, BRAC, Coca-Cola, International Union for Conservation of Nature, and Preservation and Proliferation of Rural Resources and Nature), the workstream focuses on developing water-efficient solutions for farmers in the northwest and southwest of the country.

1. INTRODUCING WATER-EFFICIENT TECHNOLOGIES IN THE BARIND TRACT PROJECT

This project, launched in 2018, aims to address the rapid depletion of groundwater in the Barind Tract² in the northwest of the country by introducing water-efficient irrigation technology and providing social and technology-based support to ensure its successful application. In the first phase of project implementation, drip irrigation and ultra-high-density mango cultivation technology, along with hands-on training, was provided to 6,000 farmers with mango orchards. The project provided 4,000 rice farmers with alternate wetting and drying technology transfer support together with hands-on training. To advance the rural market linkage for faster service delivery of good quality inputs, 30 farmer hubs have been operational in the project locations which ensures sustainable rural agro-

based entrepreneurship together with quicker supply of high-density mango saplings and vegetable seeds, and also acts as a collection platform for farmers for post-harvest product handling and market access. It is expected that, after completion of this first phase, irrigation water demand can be reduced by up to 90 percent through drip irrigation and up to 30 percent through the alternate wetting and drying technique.

In the second phase, the project will expand across other subdistricts within water-stressed Barind, as well as in previous project locations to introduce water-saving practices for other crops. It is expected that the project footprint will grow through 2030 WRG engagement for the next five to 10 years as long-term implementation is necessary to shift mindsets from producing water-intensive rice to producing water-smart, high-value crops, thus limiting the over-extraction of rapidly dwindling groundwater.

SUPPORT FOR IRRIGATED RICE PRODUCTION USING AWD AND DRIP IRRIGATION FOR ULTRA HIGH-DENSITY MANGO ORCHARDS

Farmer hub rented out combined rice harvesters providing service for 300 farmers during national lockdown



Mango grading, sorting, and packaging done at farmer hubs before shipping to capital/urban markets



On-field AWD demonstration on 660 acres of cropping land



110 drip demonstrations set up on mango orchards



UHDP mango trees beginning to fruit in 2019/20



70 farmer hubs provide high quality seedlings, rental service for machines, and post-harvest handling service



10,000 farmers trained on AWD for rice farming and drip+ UHDP in mango orchards



“With the backdrop of green revolution in past century enabling remarkable production capacity expansion, we embrace the future with fresh initiative to improve technology based private sector/farmer inclusive value chain revolution. The singular representation of government agencies, private sector and civil society in one platform, will be greatly needed to support



this endeavor by assembling resources and joining forces to combat challenges.”

*Md. Mesbahul Islam,
Senior Secretary, Ministry of Agriculture*



2. PROMOTING COMMUNITY-BASED CLIMATE-SMART AGRICULTURE FOR THE SOUTH OF BANGLADESH

Salinity in both surface and groundwater is a significant barrier to sustainable water use in southwest Bangladesh, affecting agriculture, aquaculture, and domestic and industrial water use. Improving water efficiency and productivity is a critical issue that needs urgent attention for sustainable agriculture. Based on stakeholder consultation and analytical work, this region has been identified as the Agricultural Water workstream's second focus area.

The overarching goals are to:

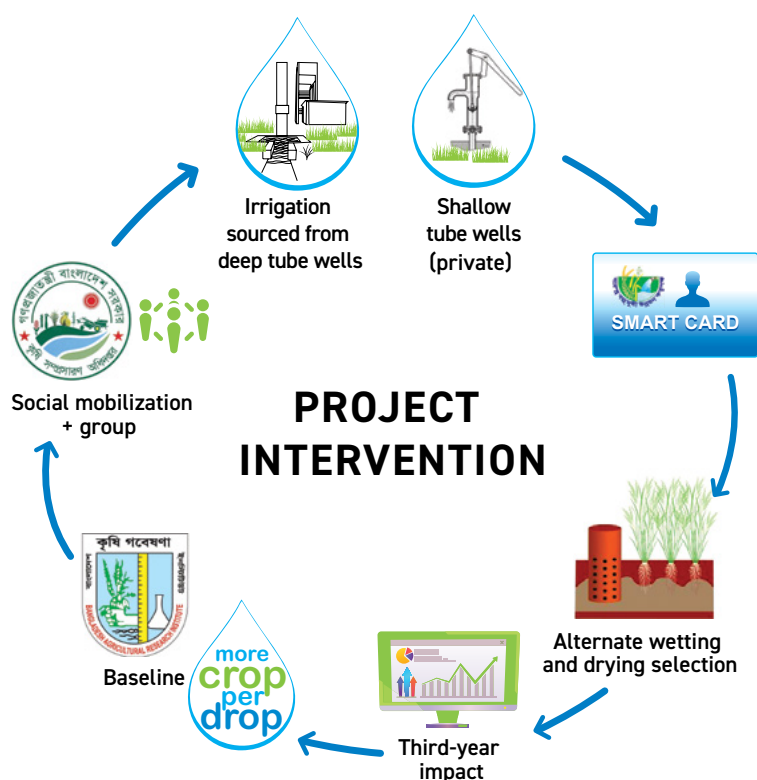
- Reduce the salinity intrusion of water bodies
- Enhance agro-water productivity ("more crop per drop")
- Improve livelihood options for farmers (that is, create a secure business case for the sustainable mitigation of salinization).

Funded and implemented by the Ministry of Agriculture, the knowledge product will be developed through a proforma feasibility study, "Conservation of Ground Water and Raising Its Use Efficiency and Productivity in Irrigated Agriculture in Bangladesh". The project will be rolled out at the start of the irrigated rice season, beginning in the first quarter of 2021. The three-year project aims to survey 2,500 farmers depending on their use of deep or shallow tube wells for irrigation, followed by subsequent demonstration-based interventions to minimize irrigation demand, and concluding with an endline survey to evaluate the impact of the interventions. The initial aim is to increase efficiency and effectiveness of irrigation water management and provide policy support in preparing necessary economic incentives. If carried out successfully, the system change may save at least 50 percent of water for irrigation.

The project will be jointly implemented by the Department of Agriculture Extension, the Bangladesh Agricultural Research Institute, the Bangladesh Agricultural Development Corporation, and the Barind Multipurpose Development Authority.

3. KNOWLEDGE PRODUCT ON IMPACT ASSESSMENT OF FARMER-LED IRRIGATION IN RAISING WATER PRODUCTIVITY IN IRRIGATED AGRICULTURE

Many farmers in Bangladesh lack motivation to reduce their water usage despite the development of several technologies for controlling water demand. This is mainly due to the popularity of fixed pricing systems in privately operated shallow tube wells, or deep tube wells operated by government agencies. However, there is a successful example of farmer-led irrigation in Bangladesh that involves giving farmers access to and control of a water supply through a smartcard-based system and including communities in financial and resource support for the alternate wetting and drying water management technique.



A PPP MODEL FOR BANGLADESH'S AGRO-PROCESSING ZONE

1

Agriculture is Bangladesh's single largest economic sector, yet post-harvest losses stand at around \$3 billion a year.

2

2030 WRG is working with the government of Bangladesh on a proposal for developing an agro-processing zone to support government's plan in doubling agro-food production by 2030.

3

The agro-processing zone will include many shared facilities and services.



ROADS



STORAGE



TREATMENT PLANTS



UTILITIES



**BUSINESS
SERVICES**



LOGISTICS



**LABORATORY TESTING
FACILITIES**

The zone's shared nature makes it a good candidate for public-private partnership. The BWMSP, with 2030 WRG Bangladesh's support, is developing a model for such a partnership.

4. DEVELOPING A PPP MODEL FOR AN AGRO-PROCESSING ZONE

The agriculture sector currently contributes nearly 15 percent to GDP and employs more than 39 percent of the country's population. The development of Bangladesh can largely be attributed to remarkable advances in the agriculture sector. Currently, the agriculture sector contributes about 14 percent to the country's GDP and employs around 41 percent of the total labor force, according to the 2017 data of Bangladesh Bureau of Statistics. But the sector is plagued with difficulties, primarily related to inefficiencies in the supply chain and distorted value chains that leave farmers with little power over their commodities. Farmers are failing to secure fair prices due to a lack of market expansion possibilities. The use of toxic chemicals and pesticides is widespread across the food supply chain. Total losses for major crops in value chain management are estimated to be about US\$26 billion, according to a Bangladesh Agricultural Research Council technical session held in February 2020. In the case of fruits and vegetables, post-harvest losses stand at between 20 percent and 40 percent during their handling and transportation, according to Hortex Foundation's 2013 report.

Industrial zones dedicated to agro-processing can offer a sustainable solution to these problems by developing forward linkages such as processing and storage facilities for fresh produce, thus enhancing capacity for value addition and reinforcing a higher market price. An agro-processing zone can catalyze the growth of the agro-processing industry by providing technological and institutional support, and

concentrated resources (energy, land, infrastructure).

At the 9th Agricultural Water workstream meeting in March 2020, 2030 WRG presented a concept note for developing a PPP model of an agro-processing zone. 2030 WRG is now working to form a high-level task force, under the leadership of the Ministry of Agriculture, to carry forward the initiative. In parallel, 2030 WRG is in consultation with the relevant government agencies and ministries, such as the Bangladesh Small and Cottage Industries Corporation, BEZA, and the Ministry of Industry on their various initiatives. The government declared the agro-processing industry a thrust sector in its 2016 National Industrial Policy. 2030 WRG is also in discussion with private value chain actors under Bangladesh Agro-Processors Association.

5. BARIND INTEGRATED LANDSCAPE TRANSFORMATION MSP

The scoping study on the northwest region, Enhancing Agro-Water Productivity and Reducing Groundwater Extraction, recommended the formation of a regional MSP in the Barind region. In December 2017, a leadership workshop was held at the Rural Development Academy, Bogura, on "Transforming Barind Agriculture: Achieving SDGs and Climate Resilience with an Integrated Landscape Approach". In February 2018, the Barind Integrated Landscape Transformation Multi-Stakeholder Partnership (BILT-MSP) was established with the objective of bringing together key stakeholders committed to a responsible and attractive future for the Barind region, with a focus on water-centric climate resilience. The three organs





of this platform are the BILT-MSP Forum, the Committee of Conveners, and the Committee of Advisers. The Chairman of the Barind Multipurpose Development Authority was unanimously elected as Chairman of the BILT-MSP Forum and the Committee of Conveners.

BILT-MSP's focus has been particularly on enhancing agro-water productivity, reducing groundwater extraction, and increasing farmers' income, mainly in the drought-prone and poverty-stricken northwest of the country, and especially the greater Barind region. It has also been involved in creating awareness; mobilizing; and sharing knowledge, expertise, and technologies—as reflected in several workshops conducted in the region, attended by ministers, senior secretaries of government, private sector and civil society representatives, and researchers and academics from universities and regional and national research institutes.

During the 7th National Steering Board meeting, a strong rationale was given for forming a regional MSP. In order to develop a roadmap, 2030 WRG commissioned a study on the institutional alignment of BILT-MSP, including how the secretariat could be hosted, and to work out the funding

strategy for a self-sustaining partnership for the Barind region. The study identified the Barind Multipurpose Development Authority as the most suitable organization to host the BILT-MSP Secretariat.

The vision, objectives, and a three-phased plan are briefly detailed below:

Vision: Pioneer water-centric integrated landscape management to achieve Bangladesh SDGs and Climate Resilient Barind Tract to ensure safe water to support the needs of the people, ecosystems, and the economy.

Objective: To connect all key stakeholders committed to a responsible and attractive future for the Barind region, with a focus on water-centric climate resilience (SDG 6 and 13).

Strategic plan:

Phase I: Preparatory (concept note for High-Level Committee formation, develop 1-2 project proposals, and pilot initiatives)

Phase II: Development (institutional strengthening, capacity development, and options tested and evaluated for replications and upscaling)

Phase III: Consolidation (sustainable basis created for BILT-MSP).

Workstream 4: Industrial Water and Wastewater Management (Led by Secretary, Prime Minister's Office)

COMPOSITION OF THE INDUSTRIAL WATER AND WASTEWATER WORKSTREAM

GOVERNMENT	PRIVATE SECTOR	CIVIL SOCIETY/ACADEMIA
Chair, Secretary, Prime Minister's Office	Chairman, Bangladesh Tanners Association	Representative, Chemical Engineering Department, Bangladesh University of Engineering and Technology
Executive Chairman, BEZA	President, Bangladesh Garment Manufacturers and Exporters Association	Program Coordinator, PSES-GIZ
Executive Chairman, Bangladesh Export Processing Zones Authority	President, Bangladesh Knitwear Manufacturers and Exporters Association	Secretary General, SDG Foundation
Chairman, Bangladesh Small and Cottage Industries Corporation	President, Metropolitan Chamber of Commerce and Industry	Vice Chancellor, Bangladesh University of Textiles
Director General, Department of Environment	President, Federation of Bangladesh Chambers of Commerce and Industries	Program Manager, IFC-PaCT
Additional Secretary, Health Services Department, Ministry of Health	Managing Director, Coca-Cola Bangladesh Ltd.	
Additional Secretary, Ministry of Industries	Country Manager, H&M	
Director General, WARPO	Country Director, Inditex	
Chief Engineer, Department of Public Health Engineering	Program Coordinator Bangladesh C&A Foundation	
	Country Manager, Unilever	
	Head of Sustainability, Grameen Phone	

KEY CHALLENGES

- Rapid and unplanned growth of the industrial sector is imposing increasing stresses on the environment. In terms of water, the very real impacts of these pressures include declining groundwater levels and deteriorating river water quality
- Lack of water-resilient production practices in water-intensive industries (textile and leather) therefore, low levels of water reuse and recycle
- Heavy dependence on groundwater for industrial production.

In June 2017, the National Steering Board decided that the scope of the work under industrial wastewater needed to be broadened from its initial focus, which was limited to the Greater Dhaka area, and expanded to the national level. Thus, a new workstream, "Industrial Water and Wastewater Management" would be formed. Established under the leadership of the Prime Minister's Office in June 2017, the Industrial Water and Wastewater Management workstream aims to help formulate strategy for water resilient industrial development, develop innovative finance mechanisms with private sector participation, and support economic zones as they develop and become more populated.

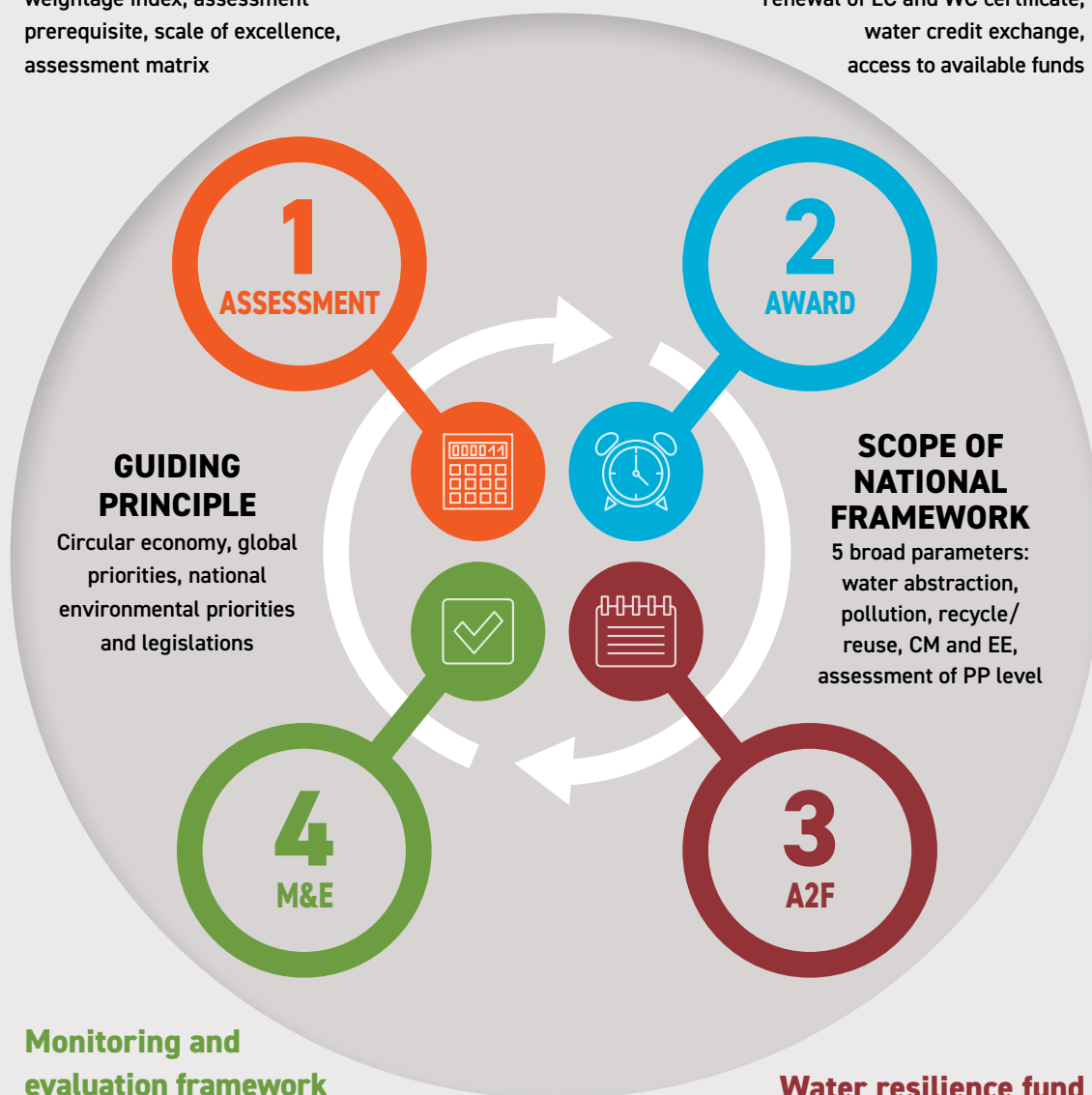
IWRP NATIONAL FRAMEWORK

Factory CPI assessment

Parameterization, prioritization, weightage index, assessment prerequisite, scale of excellence, assessment matrix

Incentivizing water resilience

Recognition, reward, rebate, renewal of EC and WC certificate, water credit exchange, access to available funds



“With regard to water, an economic zone should ensure the use of zero or near to zero water discharge technologies through rainwater harvesting, sustainable and circular water use, efficiency improvement and effluent treatment, and it should improve the resilience of the water supply system, which was not previously addressed. Economic zones are expected to responsibly source water, considering local water scarcity issues and sensitive water reservoirs.”



Paban Chowdhury, Executive Chairman, Bangladesh Economic Zones Authority

1. INCENTIVIZING WATER-RESILIENT PRODUCTION PRACTICE

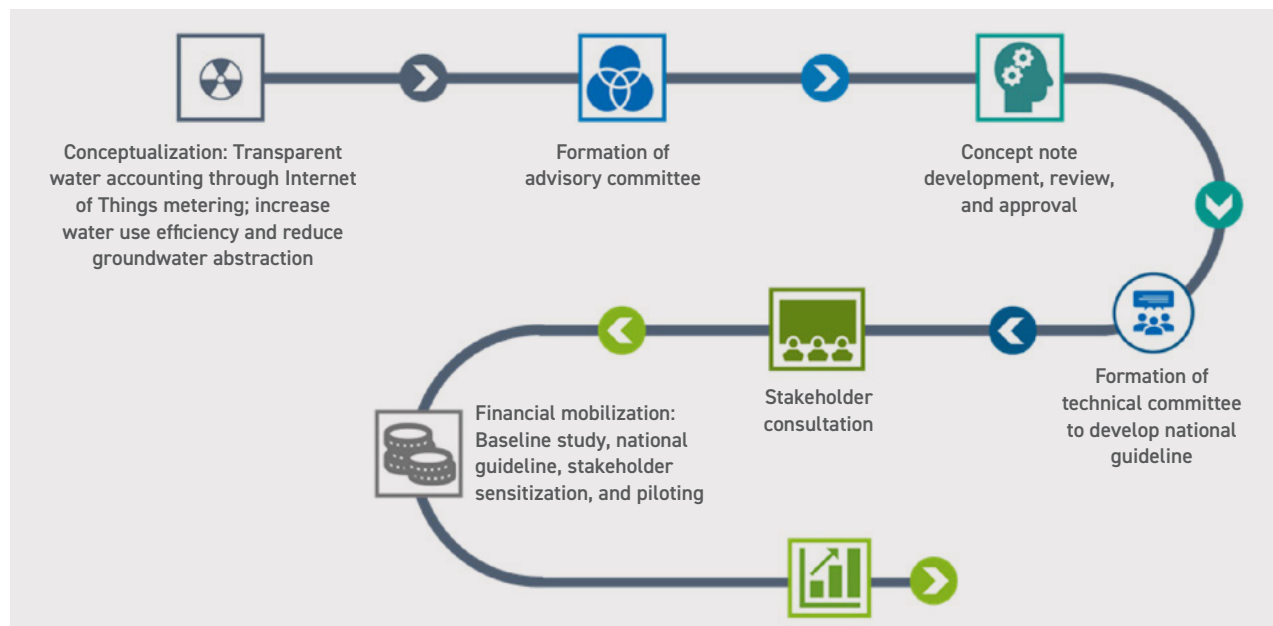
Incentivizing water-resilient production practice is an initiative designed to transform the water-intensive industrial sector in Bangladesh into a greener, water-resilient sector by adopting a systematic market-led approach. The BWMSP has brought together the public and private sector, and developed a national framework for water-resilient production practices. The framework encompasses priority water-centric production parameters, which set short-, medium-, and long-term targets, and a comprehensive production performance assessment tool. The framework has been developed on the principles of a circular economy, taking into account global and national environmental priorities and legislation.

The framework recommends a phased implementation of optimization measures to improve water-resilient production. It has developed a set of incentives in the form of recognition, reward, and rebate, and it advocates for a joint declaration by international brands and government. Following the accreditation by the National Board of Revenue under the Ministry of Finance, the Department of Environment under the Ministry of Environment, and the Water Resource Planning

Organization under the Ministry of Water Resources, it has been approved by the task force headed by the Ministry of Industries. The Central Bank of Bangladesh has accredited the framework for access to finance from the Green Transformation Fund, which is designed to support all export-oriented industries in the country. The framework is ready to be piloted in one of the country's major industrial conurbations.

2. VOLUMETRIC WATER ALLOCATION FOR INDUSTRIAL USE

The belief that “you can’t manage what you can’t measure” underpins this initiative, which aims to improve water security for industries and for those segments of the population that participate in intensive industrial development, or who are directly or indirectly affected by it. The goal is to establish a transparent water-accounting system for industry, principally for groundwater drawn from privately installed wells. This objective complements other fundamental objectives of water resources management, including sustainable use of resources, protection of natural water quality, and safeguarding the universal right to sufficient safe drinking water. In this regard, a national guideline for volumetric water allocation for industrial uses will be developed to establish transparent



water accounting system and to promote rationalized water allocation for the industrial sector. An advisory committee led by the Ministry of Water Resources and a technical committee led by WARPO, with support from 2030 WRG, is currently functional and working on establishing a real-time water accounting system at the water inlet–outlet and at various production stages of water intensive industries. The envisioned water allocation guidelines include a proposal to use tiered water pricing to incentivize industries to become more water efficient. The Industrial Water and Wastewater Management workstream has endorsed the development of the national guidelines.

3. GREEN AND RESILIENT ECONOMIC ZONE GUIDELINE

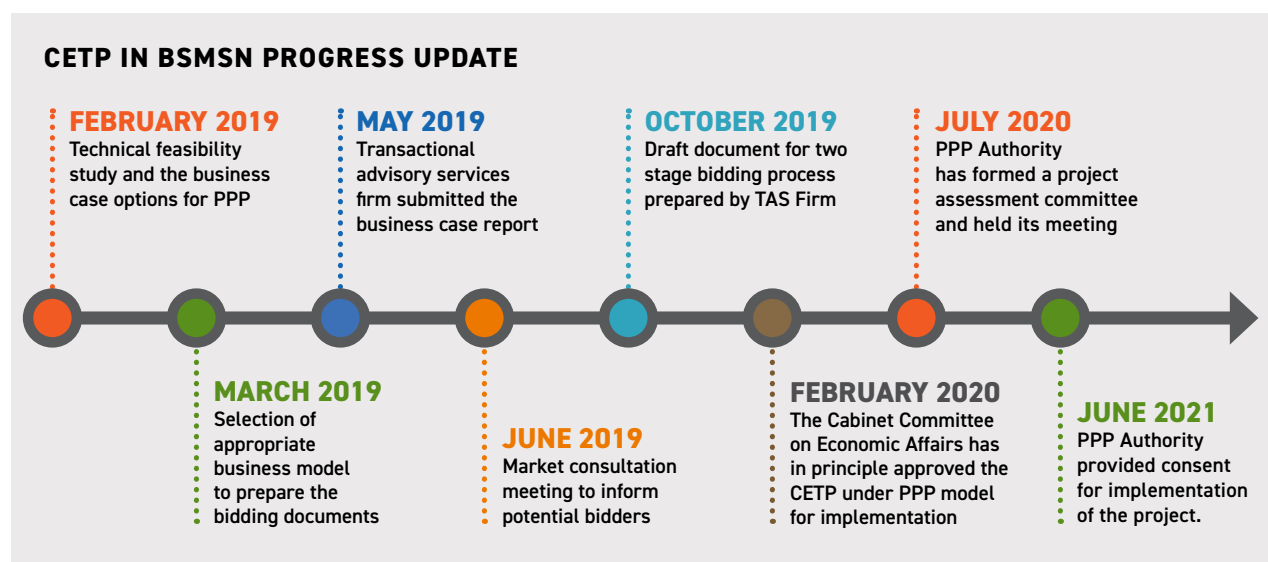
In recent years, there has been growing interest in enhancing the sustainability and resilience of economic zones and businesses in Bangladesh by addressing economic, social, and environmental standards. The country has seven of the global top 10 and green garment factories in the world as of 2019. Given the critical role that Bangladeshi firms and economic zones play in the global value chain, there is growing interest and an opportunity to strengthen the sustainability and resilience of an entire economic zone, rather than by individual firms, in order to increase competitiveness at minimal cost.

The objective of the Green and Resilient Economic Zone Guideline is to establish a new national performance standard of economic

zones in Bangladesh to enhance their competitiveness. The guideline encompasses four impact and performance areas: (i) economic zone development and management, (ii) environment, (iii) social, and (iv) green and resilience principles and practices integrated across all four areas. These performance areas are measured against specific indicators for greenness and resilience informed by international best practice and current national baseline practice.

The main users of this guideline document are BEZA, management entities of all types of economic zones, and tenant firms. By using this guideline, BEZA can develop and implement a program to promote competitiveness by certifying green and resilient economic zones that comply with the guideline's performance standards. It can also use the guideline to monitor and regulate economic zones that are underperforming. On the other hand, economic zone management entities can establish and brand themselves as green and resilient economic zones by adopting the performance standards set out in the guideline, and they can go beyond the performance requirements to emphasize their environmental, social, and disaster-conscious efforts.

The guideline will be useful to tenant firms seeking to enhance and brand their competitiveness through improved energy and resource efficiency, environmental and social awareness, disaster preparedness, and business continuity practices—considerations that are increasingly becoming a requirement for participation in the global value chain.



4. CENTRAL EFFLUENT TREATMENT PLANTS IN ECONOMIC ZONES

As Bangladesh rapidly industrializes, it is important that it learns from past unplanned industrial growth. Providing facilities for environmental compliance such as CETPs will help to ensure sustainable growth and better access to export markets. With that view, a workshop on “Industrial Wastewater Management in Economic Zones” was jointly organized by BEZA and 2030 WRG in November 2017. This was the kick-off event to develop a knowledge partnership between the two organizations. Subsequently, a task force led by BEZA to develop a concept note on CETPs in economic zones was formed under the directives of the Greater Dhaka Watershed Restoration workstream in January 2017. The task force convened and approved a draft concept note “Mobilizing Private Sector Participation and Innovative Financing Mechanisms for Centralized Effluent Treatment Plants in Economic Zones”.

To further raise awareness and consolidate cooperation within the knowledge partnership, a second workshop “Central Effluent Treatment Plants for Economic Zones in Bangladesh” was jointly organized by BEZA, GIZ, and 2030 WRG in April 2017. The three parties also signed a memorandum of understanding to identify the roles in the collaboration under this initiative.

The first CETP in a BEZA economic zone will be set up at BSMSN in Mirsharai. The process for the appointment of a reputed transaction advisory services firm was initiated in collaboration with 2030 WRG to conduct a feasibility study, develop viable

business models, and supervise the procurement process of the CETP. The transaction advisory services firm submitted the business case report for the CETP at BSMSN in May 2019. The firm prepared the draft business plan and consulted with potential bidders and stakeholders.

In February 2020, the Cabinet Committee on Economic Affairs approved, in principle, the implementation of the CETP under a PPP model. The PPP Authority formed a Project Assessment Committee in July 2020 and provided its consent. Meanwhile, the World Bank Group, through its new project “Bangladesh Private Investment and Digital Entrepreneurship Project”, will support the establishment of the CETP at BSMSN in Mirsharai. The PPP Authority formed a Project Assessment Committee in July 2020 and after several meetings and scrutinization, PPP Authority has provided consent in June 2021 for implementation of the project.”

The bidding process for issuing a request for qualification with approval from the World Bank for the CETP at BSMSN in Mirsharai 2A/2B economic zone is expected to be commissioned by February 2022. A CETP Facilitation and Monitoring Unit has been formed and operationalized within BEZA to ensure its goal to establish more than 100 green economic zones by 2030. 2030 WRG’s support is expected to greatly improve the commercial and technical sustainability of CETPs rolled out in all economic zones of BEZA. CETP Facilitation and Monitoring Unit has been formed and operationalized within BEZA to ensure its goal to establish PPP model CETPs in all the 100 economic zones of the country in phases.

Workstream 5: Water Innovations (Led by Principal Secretary, Prime Minister's Office)

COMPOSITION OF THE WATER INNOVATIONS WORKSTREAM

GOVERNMENT	PRIVATE SECTOR	CIVIL SOCIETY/ACADEMIA
Chair, Principal Secretary to Honorable Prime Minister, Prime Minister's Office	Chief Executive Officer, TETRA	Representative, Department of Water Resources Engineering, BUET
Secretary, Ministry of Water Resources	Head of Communications, Public Relations and Sustainability, Unilever Bangladesh Ltd.	Representative, Institute of Business Administration, University of Dhaka
Secretary, Ministry of Science and Technology	Head of Sustainability, Grameen Phone	Representative, Shahjalal University of Science and Technology
Secretary, Local Government Division, Ministry of Local Government, Rural Development and Co-operatives	Representative, Bangladesh, Google	Representative, United Nation Development Program, Dhaka
Secretary, Ministry of Agriculture	Managing Director, PRAN-RFL	Country Representative, WaterAid
Director General, Department of Environment, Ministry of Environment, Forest and Climate Change	Representative, the Federation of Bangladesh Chambers of Commerce and Industries	Representative, UNICEF
Project Director, Access to Information (a2i) Project, ICT Division, Ministry of Post, Telecommunication and Information Technology	Representative, HSBC	Representative, Centre for Climate Change (E3R), BRAC
Chief Conservator of Forest, Forest Department, Ministry of Environment, Forest and Climate Change	Representative, H&M	
Executive Director, Institute of Water Modeling, Ministry of Water Resources		
Executive Director, Center for Environmental and Geographic Information Services, Ministry of Water Resources		
Chief Scientific Officer, Bangladesh Council for Scientific and Industrial Research		
Secretary (MAU), Ministry of Foreign Affairs		
Representative, Dhaka Water Supply & Sewerage Authority		
Representative, Sustainable Finance Department, Bangladesh Bank		

“Citizens will be able to access surface water quality information on a real-time basis, which is expected to enable them to take informed decisions regarding surface water use. This will create a level of confidence among citizens in the quality of the surface water and will also help sensitize them to keep the water sources clean by refraining from discharging untreated municipal wastewater. Additionally, various water quality management projects undertaken by relevant water agencies will leverage this sensitization to ensure citizen participation in the project implementation process.”



Dr. Fahmida Khanom, Director (NRM), Department of Environment

KEY CHALLENGES

- In the absence of proper metering and monitoring systems, unabated water extraction and pollution continue
- Lack of reliable data on water availability, usage, and pollution are obstacles for meaningful water sector planning
- Lack of infrastructure for adoption and mainstreaming of new technology-based innovations in the water sector.

The immense possibilities of digital technology-based innovations in the development of the country is recognized by both the public and private sector, civil society, and donor agencies in Bangladesh. Due to the many initiatives taken by different government and nongovernment agencies, a thriving digital innovation ecosystem is emerging in the country. In addition, the government of Bangladesh has declared its aim to become “Digital Bangladesh” in its Vision 2021.

The idea of forming a workstream for water innovation was raised in the 7th meeting of the National Steering Board of the BWMS, held in May 2019. The Water Innovations workstream is intended to provide thought leadership and strategic guidance, and to play an important role in innovation design and implementation for better water resource management and conservation. It aims to support initiatives that contribute to achieving the SDGs by mobilizing knowledge and technical/implementation partners.

The workstream’s activities focus on (i) disruptive technologies’ applications in the water sector in Bangladesh (information and communications technology applications) and (ii) new techniques in water treatment, technology applications, process applications, and financing modalities. However, in the initial stages of the workstream, the focus is on innovation related to information and communications technology applications in the water sector, learning from ongoing activities in India and Vietnam, specifically related to the Internet of Things smart-metering, machine learning, artificial intelligence, and blockchain applications.



WATER INNOVATION CHALLENGE COMPETITION 2021

The Fourth Industrial Revolution has ushered in a new era, providing an array of technologies that are cheaper, allowing the masses to access them. Innovation is the main driving force in this new era, where anyone can combine technologies to address many of the challenges citizens face today. Access to clean water is one such challenge in the context of population growth, rapid industrialization, and depletion of freshwater sources. The water value chain of source, use, refuse is still using traditional technology. Under this workstream, 2030 WRG and partners are launching challenge competitions for innovations in the water sector to crowdsource disruptive technology-based innovations to overhaul the water sector. The first of these events is the Water Innovation Challenge Competition 2021.

In collaboration with partners Aspire to Innovate, Unilever Bangladesh Ltd, Dhaka Water Supply and Sewerage Authority, the Department of Environment, the Bangladesh Association of Software and Information Services and Bangladesh Computer Samity, the two proposed use cases for the challenge are as follows:

- **Topic 1: Household Water Footprint (Citizens' Water Tool Analytics):** Citizens' water tool analytics and peer-to-peer comparison platform, linked with billing system, for data access and visualization of urban users' water footprint in both quantity and quality perspective to create behavioral change among citizens, leading to an overall reduction in water usage.
- **Topic 2: Industry Water Footprint (Industry Water Accounting):** Online analytics, peer-to-peer comparison platform and dashboard for monitoring, tracking quality and quantity of industrial groundwater use, reuse, and recycle to raise accountability and transparency thus reducing pressure on groundwater usage and ensuring industry sustainability.

The problem statements were finalized at a focus group meeting held with subject matter experts and relevant industry professionals. The Water Innovation Challenge Competition 2021 will be jointly funded by Unilever and 2030 WRG. Aspire to Innovate is the implementation partner. Dhaka Water Supply and Sewerage Authority has agreed to be the knowledge partner and scale-up partner for Topic 1 and the Department of Environment will play this role for Topic 2. The

Bangladesh Association of Software and Information Services and Bangladesh Computer Samity will be the technology knowledge partners. The program will run for about three months and will be held in the first half of 2021.

The program was launched on 23 February 2021 with Mr. Kabir Bin Anwar, Senior Secretary, Ministry of Water Resources, as the chief guest. Submissions from innovators will remain open for about three months and several webinars are being organized on topics related to the problem statements. The competition is expected to end on June 5, World Environment Day, with awards distributed to winners. A Facebook page <https://facebook.com/WICCpage> has been set up to capture the progress of the program.

WATER REUSE CERTIFICATES

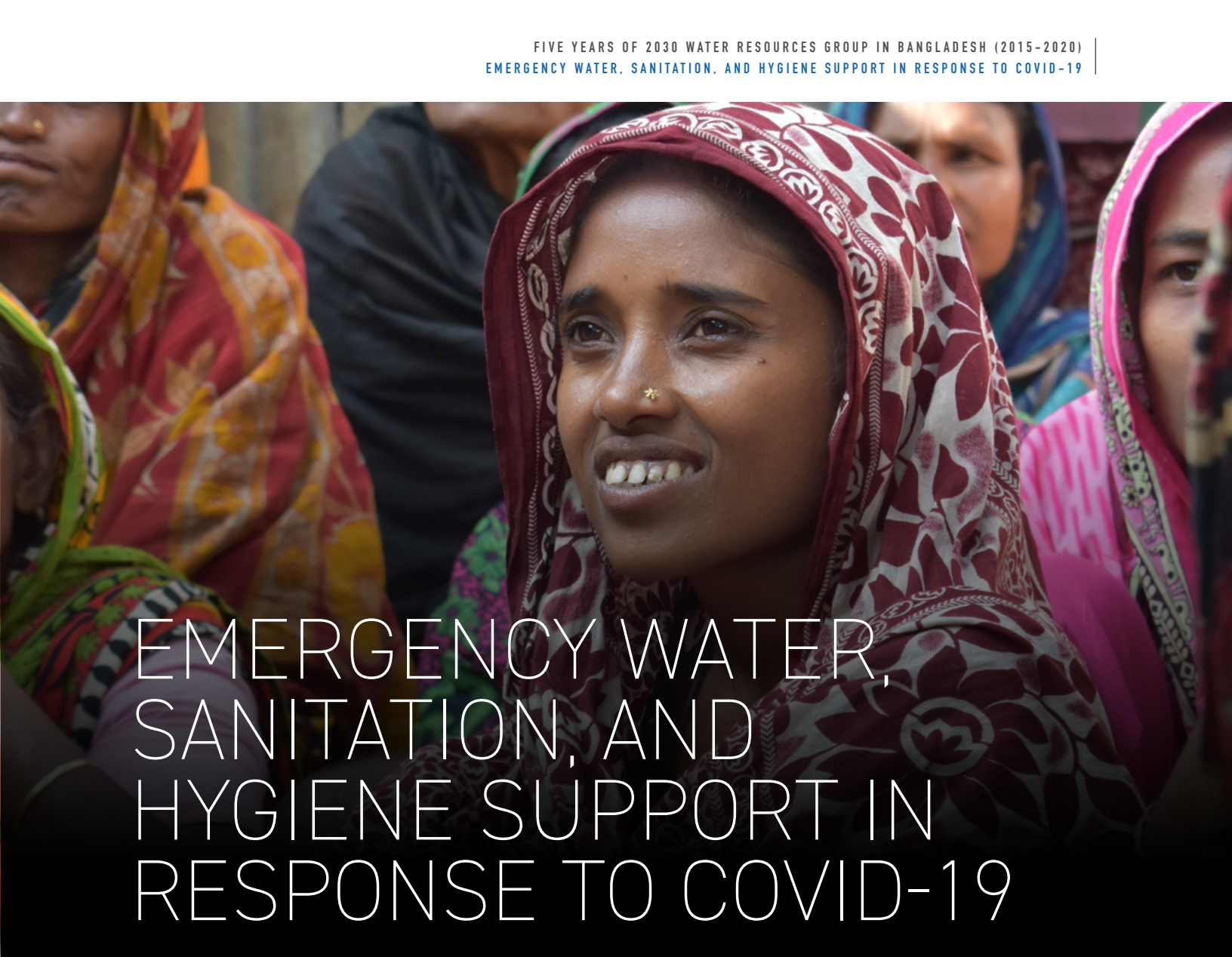
A key aspect of 2030 WRG's goal of better water resource management is wastewater reclamation and reuse in industrial processes as an alternative to freshwater sources. In pursuit of this goal, 2030 WRG is working on an innovative proposal of an economic instrument—tradable permits, called wastewater reuse certificates. This is a market-based trading mechanism to promote treatment of wastewater and reuse of treated wastewater.

2030 WRG has engaged KPMG to develop a rollout handbook for the initiative in Bangladesh and to develop specific operational guidelines to assist policymakers in implementing it. 2030 WRG is currently assisting KPMG in conducting focused group discussions with industry leaders and associations, government counterparts in assessing interest in the concept, and finding out current practices of water use, recycle, and reuse.

Focused group discussions were conducted with BEZA—authorized private economic zones; tannery owners under the Bangladesh Tanners Association, Bangladesh Finished Leather, Leathergoods and Footwear Exporters' Association; and with government industry zone developers BEZA, the Bangladesh Export Processing Zones Authority, and the Bangladesh Small and Cottage Industries Corporation.

A questionnaire survey is ongoing among the participants related to the industry, industrial zone's water usage, CETP performance, and wastewater usage practices, which will be used in the feasibility study for the water reuse certificates initiative.





EMERGENCY WATER, SANITATION, AND HYGIENE SUPPORT IN RESPONSE TO COVID-19

In response to COVID-19, 2030 WRG collaborated with the Ministry of Health, Unilever, and the Bangladesh Red Crescent Society to mobilize resources and facilitate the implementation of a nationwide water, sanitation, and hygiene project. The project included establishing handwashing facilities, training hygiene workers, supplying hygiene materials, and providing a supply of drinking water. The project was designed for rapid implementation in April 2020 based on emergency response principles. In one month, the project reached 20 million people. 2030 WRG is now partnering with Unilever, the United Nations Development Programme, the World Health Organization, and the World Economic Forum to develop long-term programs to combat COVID-19 and maintain the pace of the country's economic development.

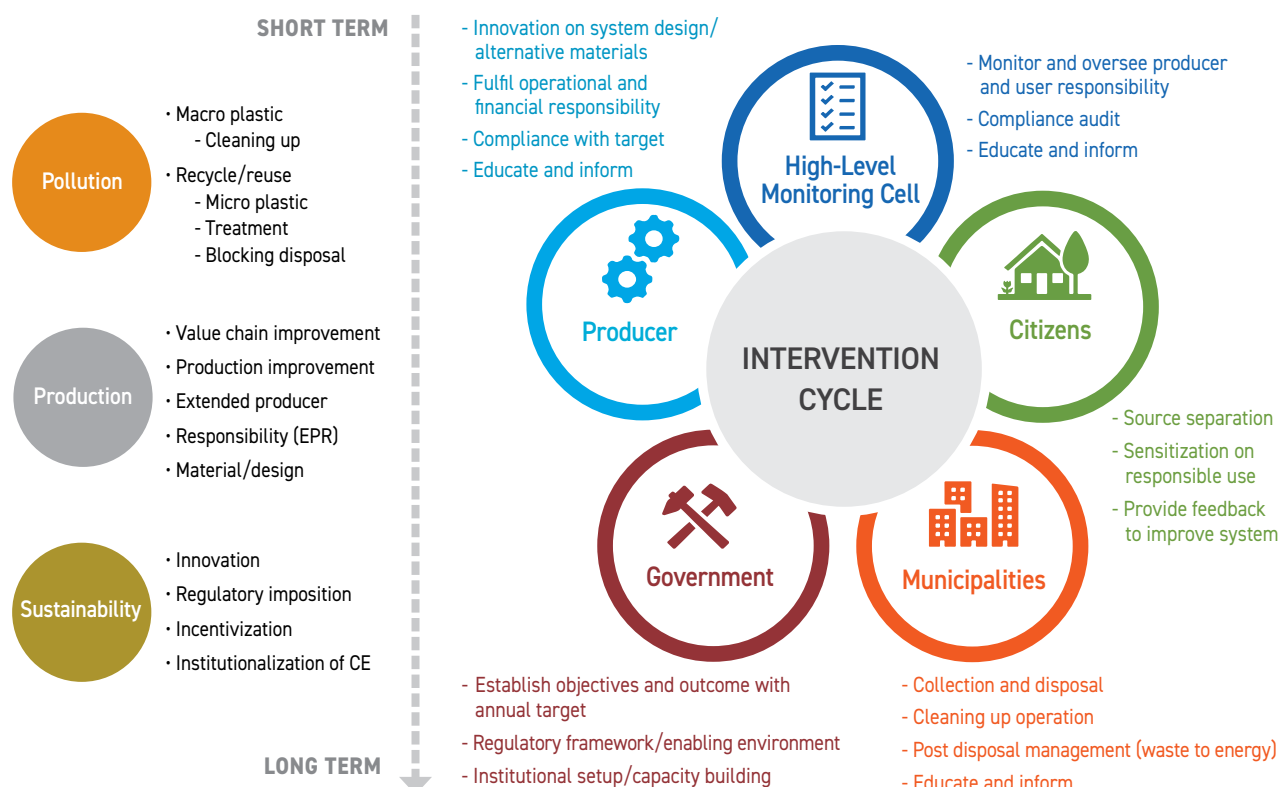
NEXT STEPS

The key next steps of the BWMSF for the next one to two years are detailed below.

Workstream 1: Water Governance and Sustainability

- Continue institutional reform recommendations, including strengthening of WARPO.
- Through pilot projects, implement the recommendations for economic incentives for water efficiency and wastewater treatment for the industrial sector and water-efficient practices for the agricultural sector.
- Improve the application and enforcement of the Bangladesh Water Act through the implementation of the Bangladesh Water Rules.
- Complete analytics and initiate project preparatory arrangements including development of concrete project proposals to support Water Global Practice's proposed IPF on ecological restoration support to rivers and canals around Dhaka.
- Develop project concept/high-level proposals aimed at improving involvement of women in water and allied sectors.
- Develop a national initiative on the circular economy and riverine plastics pollution. The overarching objective of this initiative is to create an enabling environment, develop institutional arrangements, and make management tools available for establishing a circular economy in plastics in Bangladesh, which encompasses plastic recycle and reuse, value chain improvement, and efficient management of riverine plastic pollution.

CONCEPTUAL FRAMEWORK OF CIRCULAR ECONOMY AND RIVERINE PLASTIC POLLUTION MANAGEMENT



A rapid assessment is under way to generate the baselines and a technical committee is functioning to develop the concept note. As decided by the Water Governance and Sustainability workstream, a high-level committee will be formed under the National Steering Board of BWMSP to guide the initiative at national level.

- Implement the Jamuna River Economic Corridor Development Project. Jamuna is one of the major rivers in Bangladesh and characterized with frequent channel migration, riverbank erosion, channel sedimentation and decreased navigation, and water quality deterioration and water quantity variability. The World Bank designed the Jamuna River Economic Corridor Development Project to address these challenges. Under the Water Governance and Sustainability workstream, an advisory committee has been formed to guide the implementation of the project and establish effective coordination among the implementing agencies.

Workstream 2: Greater Dhaka Watershed Restoration

- Complete a feasibility study for wastewater treatment and fecal sludge management for GCC and implement project.
- Initiate the behavior change communication campaign in Gazipur to improve awareness and buy-in of stakeholders/beneficiaries to the proposed wastewater and fecal sludge management services.
- Pilot the fecal sludge collection services in GCC Zone 1 and 4.
- Initiate process for the improvement of household fecal sludge containment structures through a combined approach of regulatory compliance advocacy and facilitating access to finance to the households.
- Support the transaction advisor (IFC) to prepare the bidding documents for establishment of the proposed sewage treatment plants and fecal sludge treatment plants using a replicable PPP model.
- Continue supporting the implementation of the project and the enhanced and real-time water quality monitoring system in four rivers surrounding Dhaka.
- Design and develop the Narayanganj City Corporation integrated municipal wastewater management project.
- Collaborate with the World Bank's Bangladesh Environmental Sustainability and Transformation Project.

Workstream 3: Industrial Water and Wastewater

- Formalize and pilot the national framework for water-resilient production practice for the water-intensive industrial sectors.
- Develop and pilot a national guideline on volumetric water allocation for industrial uses through implementation of water metering for groundwater sources.
- Ensure that the circular economy-based policy on wastewater treatment and reuse in economic zones is adopted.
- Strengthen the CETP Facilitation and Monitoring Unit of BEZA to effectively manage PPP arrangements with private sector CETP operators.
- Develop an infrastructure guarantee fund for CETPs in economic zones managed by BEZA.
- Develop pipelines for wastewater management facilities on PPP basis for additional economic zones under BEZA.
- Develop and pilot the Green and Resilient Economic Zone Guideline to establish a new national performance standard of economic zones in Bangladesh to enhance their competitiveness.

Workstream 4: Agricultural Water

- Support and facilitate implementation of pilot project funded by the Ministry of Agriculture (valued at approximately \$500,000) on water-efficient agricultural technology and practices in the Barind Tract.
- Develop a project proposal for south Bangladesh based on climate-smart agriculture and a complementary water resource management structure.
- Scale up the success stories and lessons learned from Industrial Water and Environmental Technology project

funded by the Coca-Cola Foundation in other subdistricts of water-stressed Barind for better use of available ground/surface water.

- Develop a PPP model for an agro-processing zone under the Ministry of Agriculture, involving other relevant government agencies and private sector counterparts/civil society organizations.
- Set up a subnational (regional) MSP for the water-scarce Barind Tract region of northwest Bangladesh.
- Form a task force to develop responsible solutions for groundwater recharge.

Workstream 5: Water Innovations

- Provide thought leadership and expert guidance to workstreams under BWMS and 2030 WRG operations in other countries in the technology sphere to develop a pipeline of futuristic technology-based innovations for 2030 WRG.
- Form a close-knit knowledge hub with relevant technology, industry experts, and academia to provide thought leadership in technology innovations in the country's water sector.
- Participate and contribute to different technology-based innovation initiatives in the country.
- Continue to identify and solve problems in the country's water sector and improve water resource management, efficiency, consumption, wastage, pollution, and in the water, sanitation and hygiene sector with crowdsourcing solutions using advanced technologies.
- Analyze the feasibility of best practices and innovations from other countries in the water sector and implement them in Bangladesh.
- Design programs to encourage young innovators to work towards innovations in the water sector.
- Disseminate knowledge and encourage efficiency in water sectors through web portal.

High-Level Valuing Water Committee

- Incorporate valuing water considerations in public investment decision-making in collaboration with the Planning Commission. This will allow for future investment decisions that further support sustainable water resources management and thus sustainable economic development.
- Identify and demonstrate ways to incorporate valuing water into private sector decision-making for more sustainable investment and operational choices.
- Develop an interactive awareness campaign that highlights the importance of water and the actions required to conserve it, and empowers citizens to take these actions.
- Develop an international, interactive knowledge hub on valuing water, with Bangladesh taking a leading role, in order to generate and disseminate more knowledge around valuing water, enable fruitful collaborations, and offer training and courses to targeted audiences with the goal of improving the overall understanding of valuing water and related topics, such as the SDGs.

High-Level Committee on Managed Aquifer Recharge

- Facilitate the finalization, consensus building, and approval of the National Managed Aquifer Recharge Strategy.
- Support the widespread adoption of managed aquifer recharge in the private sector and civil society.
- Support coordination of public and private sector actions and open reporting.
- Help give a voice to the dominant, but unrepresented, private water users in water sector planning and management.
- Promote an open water information policy.

OUR TEAM



1. Sayef Tanzeem Qayyum

Sayef Tanzeem Qayyum is a Regional Lead for 2030 WRG, managing country programs in Bangladesh, Vietnam, and Pakistan. He has worked for the International Finance Corporation and the World Bank for the past 14 years in the areas of water resources management, inclusive multistakeholder dialogue, investment climate reforms, PPPs, and innovative use of ICT in the public sector. He also supports 2030 WRG's global country expansion and circular economy thematic area. He has received three World Bank Group performance awards for his leadership and contributions to projects in Nepal, India, and Bangladesh and worked extensively in South and East Asia. Prior to joining the World Bank Group, he worked for government agencies in Canberra, Australia. He is an MPA (Mason) Fellow at the Harvard Kennedy School, Harvard University, with concentration in infrastructure finance and adaptive leadership. He holds an MBA (finance) from the Institute of Business Administration, University of Dhaka, Bangladesh, and a Master's in Information Technology from the University of Canberra, Australia. He can be contacted at sqayyum@worldbank.org

2. Michel Leushuis

(Netherlands) is a senior water finance expert supporting 2030 WRG in its countries of operation. In Bangladesh, Michel supports BEZA through the Industrial Water and Wastewater Management workstream in preparing and transacting a CETP in the Mirsarai Economic Zone phase 2A/2B, following a PPP model. The Mirsarai CETP is BEZA's first PPP industrial wastewater treatment project. He further supports the private sector participation option study of industrial wastewater treatment in the Greater Dhaka area, as part of the Ecological Restoration Support to Rivers and Canals around Dhaka project through the Water Governance and Sustainability workstream. He can be contacted at mleushuis@worldbank.org

3. Faisal Ahmed

is a creative designer. He has been involved in creative communication and campaigns for multinational corporations, real estate, food & beverage, fast-moving consumer

goods, and development organizations. He was a former creative director at Havas iPositive, former creative director at Beyond Media Limited, and former AGM (creative head) at Concord Group of Companies. At 2030 WRG, Faisal provides creative directions, and visual ideas for project campaigns, promotions, videos, and presentations. He can be contacted at faisalahmedswapan@gmail.com

4. Dr Jahangir Hussain

obtained his Doctor of Forestry qualification from Germany. He has over 30 years of professional experience and collaboration with different organizations, including universities, multinational companies, farmers' groups, international NGOs, government departments, and donor agencies. His technical expertise covers forestry, agroforestry, agribusiness, livelihoods, microenterprise & value chain program development, and water-centric program activities. At 2030 WRG, he contributes to the Gender, Hoar, and BILT-MSP initiatives. He can be contacted at mhussain7@worldbank.org and mjhussain313@gmail.com

5. Dr M Emdadul Haque

is a consultant in 2030 WRG and his working areas include the Water Governance and Sustainability workstream, the development of CETPs, and the Green and Resilient Economic Zone Guideline for industrial parks. He holds an MBA (environmental management), a postgraduate degree in applied chemistry & chemical technology, and a PhD in environmental sciences. He worked for the government as a career civil servant for more than 32 years in field administration and in different ministries/departments, including BEZA under the Prime Minister's Office, home affairs, foreign affairs, finance, public administration, and expatriate welfare. He also worked in Bangladesh missions in Jeddah and Riyadh on diplomatic assignments. He can be contacted at mhaque8@worldbank.org and emdad1958@yahoo.com

6. Suneetha Dasappa Kacker

is an urban and water sector professional with over 19 years' experience in planning,

infrastructure development, and service delivery. Her work has included both project and policy aspects, and extensive engagement with PPPs. She has multi-country experience, including in India, Mongolia, Cambodia, the Philippines, and Kenya. In 2030 WRG (Bangladesh), she is currently focused on urban wastewater management, while providing support across initiatives. She can be contacted at suneethadkacker@gmail.com

7. Dr Kazi Matin Ahmed

is a Professor at the Department of Geology, University of Dhaka. His prime research interest is sustainable groundwater management. He has been involved in groundwater research for about 36 years, focusing on impacts of urbanization on groundwater, microbiological and arsenic contaminations, and saline groundwater management. He has research collaborations with universities in Asia, Europe, and North America. He works as a consultant for national and international agencies. He has authored/coauthored about 250 papers and book chapters, having more than 13,500 citations. He is working with 2030 WRG as a consultant on preparing the National Managed Aquifer Recharge Strategy in Bangladesh. He can be contacted at kazimatin@yahoo.com

8. Andrew Jenkins

has a first degree in social science and an MSc in agricultural engineering, with over 40 years of experience in water management and rural development in South and Southeast Asia. He is currently the Team Leader of the Char Development and Settlement Project, Bangladesh; a Visiting Fellow at Cambridge University; a Senior Strategic Advisor on Agricultural Water in South Asia to 2030 WRG; and a Senior Consultant with the UN International Fund for Agricultural Development. Andrew provides advice on the overall direction of 2030 WRG in Bangladesh and Vietnam, especially in relation to agricultural water with an emphasis on impact evaluation, and on developing relationships with possible sources of investment. He can be contacted at andrew@jenkins.associates and andrewjenkins@btinternet.com

9. Peter Ravenscroft

is a specialist in groundwater, water quality, WASH, and water resource management with substantial experience in South Asia and around the world. Since 2016, Peter has been providing technical guidance for reforms in water resources governance and capacity building, developing a National Managed Aquifer Recharge Strategy, and supporting other activities. Peter can be contacted at ravenscroftp@aol.com.

10. Dr MA Sattar Mandal

is Emeritus Professor of Agricultural Economics at Bangladesh Agricultural University (BAU), former Vice-Chancellor of BAU, a former member of the Agriculture and General Economics Division of the Bangladesh Planning Commission, and former advisor to FAO Bangladesh. He is a member of the Bangladesh Ministry of Agriculture's Expert Pool, a member of the WorldFish Independent Steering Committee, and advisor to CIMMYT Bangladesh and the 2030 WRG Agricultural Water workstream. He can be contacted at asmandal11@gmail.com.

11. Jennifer Möller-Gulland

was involved with the BWMS from its start. Jennifer and her team conducted the report "Consolidation and Analysis of Information on Water Resources Management in Bangladesh" for 2030 WRG while being manager at PwC India. She then moved on to work directly as a consultant with 2030 WRG Bangladesh in 2017. As a water economist, she is now driving the Bangladesh Valuing Water initiative. She can be contacted at jzgulland@gmail.com.

12. Nazmul Islam Chowdhury

has a Master's in Agricultural Science, from BAU, Bachelor of Arts, following a professional diploma on poverty-focused monitoring and evaluation from the University of East Anglia, Norwich, UK. He has 30 years of experience in development with donors and international NGOs as a strategic lead in agriculture and disaster risk

reduction. He is working for 2030 WRG as a Senior Advisor for the Agricultural Water workstream. He is also the Founder Director of Pumpkin Plus Agro Innovation Limited and an innovator of three agricultural technologies (sandbar cropping, crops in the crisis, and floating garden). He is a governing body member of Hortex Foundation and life member of the Bangladesh Agricultural Extension Network Society and the Krishibid Institution. He has won nine international awards. He can be contacted at nichowdhury1966@gmail.com.

13. Syeda Sitwat Shahed

has been working with the 2030 WRG Bangladesh country program since 2017. She is responsible for strategy development, conceptualization, and detailing project proposals focusing on enhancing agricultural water efficiency and transforming value chain under the Agricultural Water workstream. She also supports a number of initiatives under the Water Governance and Sustainability workstream and the Barind/ regional MSP. With her nine years of professional experience in quantitative impact evaluation, she also manages the WRG-Coca-Cola flagship projects and guides the monitoring and evaluation process of the project. She can be contacted at sshahed@worldbank.org and syedasitwatshahed@gmail.com.

14. Mahady Hassan

has been working with 2030 WRG Bangladesh since 2019. He manages the Industrial Water and Wastewater Management workstream and also provides input into various other initiatives under the Greater Dhaka Watershed Restoration workstream and the Water Governance and Sustainability workstream. He has 15 years of professional experience in water resources management both in Bangladesh and abroad. He holds an MSc in water resources management from the University of Karlsruhe, Germany. He can be contacted at mhassan5@worldbank.org and mahady.hassan@yahoo.com.

15. Professor Ainun Nishat

is recognized as a pioneering expert of water resource management and climate change in Bangladesh. Currently, he is involved in BRAC University as Professor Emeritus where he also served as Vice-Chancellor. He is member of various national and international committees and panels of experts. He plays a strategic advisory role in 2030 WRG's Bangladesh program.

16. Dr Mahesh Patankar

is a resource management expert with specific experience in the water and energy sectors nurtured over 29 years of his career. He has worked as a staff consultant with a leading regulator in India, has led water sector project development for the private sector, and successfully strengthened the India practice of a leading not-for-profit in the resource conservation space. In the recent past, he conceived an innovative wastewater recycle/reuse certification process, which is a one-of-its-kind market-based instrument. It is currently being crafted as a regulatory policy-push and market-pull instrument in India, Bangladesh, and Vietnam using advanced metering and computing techniques. At 2030 WRG, Mahesh advises projects linked to disruptive technology applications in the water sector in Vietnam, Bangladesh, and Mongolia. He has worked in over 15 countries globally in the energy and environment sector, including Southern Pacific Islands, Southeast Asia, South Asia, Sub-Saharan Africa, Middle East and North Africa, and North and Latin America—all focusing on resource efficiency projects in multiple sectors. He can be contacted at mpatankar@worldbank.org.

17. Dr M Asaduzzaman

former Research Director at the Bangladesh Institute of Development Studies, has a long career as an economist and has been associated with research on agricultural growth and rural development, food safety, nutrition, environment, water resource management, climate change, and related issues. He was one of the Commissioners and the Deputy Chair of the International

Commission on Sustainable Agriculture and Climate Change under the Consultative Group on International Agricultural Research, which has published a widely acclaimed major work on sustainable agriculture under climate change. He was a lead author of the Second Assessment Report of the International Panel on Climate Change, and in that capacity was also one of the co-recipients of the Nobel prize given to the International Panel on Climate Change. Two of his present works grew out of his research under 2030 WRG funding on economic incentives for optimal water use. One of these will look at water-use efficiencies in agriculture in the Barind Multipurpose Development Authority area. The other relates to valuing water use in various economic uses and other circumstances. He can be contacted at asaduzzaman.m@gmail.com

18. Syed Ishtiaque Ahmed

has over 15 years of technology and project management work experience in the telecommunications and ICT industry. He worked for four years in Ericsson's technical team in Bangladesh and three years in a telecommunications company in the UK. He also spent three years founding a startup IT firm for developing infrastructure solutions and a broad range of software solutions, including comprehensive business software currently deployed in one of the largest retailers in the country. In the past few years, he has also focused on disruptive technology applications of the Fourth Industrial Revolution. Ishtiaque holds a Master's in Applied Physics and Electronics from the University of Dhaka and an MBA (marketing) from the Institute of Business Administration. He is also an active national committee member in the largest pro-environment advocacy group of the country (Bangladesh Poribesh Andolon) and co founded social and environmental advocacy groups Poriborton Chai, Citizens Open Forum. At 2030 WRG, Ishtiaque is working on creating momentum in the newly formed Water Innovations

workstream, with the first project being designing and launching the Water Innovation Challenge Competition 2021. He can be contacted at sahmed54@worldbank.org or his personal email ishtiaque.bd71@gmail.com

19. Syeda Jaferi Husain

is a consultant with 2030 WRG and provides support to the Gender Initiative and the communications team. She has worked for the World Bank, Action Aid, United Nations Children's Emergency Fund, and the Bangladesh Centre for Advanced Studies. Academically, she is a trained environmentalist with a Bachelor of Science in Environment Management from Independent University Bangladesh, which was followed by a Master's in Development Studies from BRAC University and a second Master's in Communication Studies from Monash University. She is also skilled in the areas of policy analysis, qualitative research, and has participated in several international conferences throughout her career.

20. Dr Atiq Rahman

is a prominent environmentalist, scientist, development expert, and visionary thinker in South Asia. He is also a visiting professor to the International Diplomacy and Sustainable Development at the Fletcher School of Law and Diplomacy, Tufts University in Boston, United States. At present he is working as the Executive Director of Bangladesh Center for Advanced Studies, a leading research and policy institute in the nongovernment sector of Bangladesh. He plays a strategic advisory role in the 2030 WRG Bangladesh program.

21. Javed Bin Karim

is a Workstreams Coordinator providing overall managerial support to 2030 WRG's Bangladesh program. He is also the lead for the Greater Dhaka Watershed Restoration (Municipal Wastewater Management) and the Industrial Water and Wastewater Management workstreams. He has over 15 years of experience in the

private sector, serving in the capacity of CEO and senior management of various companies engaged in the areas of impact investments, climate finance projects, financial services (credit rating), and international transportation. Javed also has more than 12 years of work experience in development organizations as a consultant, senior business development advisor, and senior advisor (IFC, GIZ, and 2030 WRG).

22. Toaha Muhammad

leads the Valuing Water initiative and the Managed Aquifer Recharge initiative, and coordinates the Resilience thematic area in the 2030 WRG Bangladesh program. He has more than 15 years of experience working in physical and social infrastructure projects; full-cycle investment banking from raising, managing, and closing of funds; and technical assistance, policy advisory assistance, and project management in local economic development, natural resources management, value chain development, market systems development, SME promotions, business, and investment climate related fields. Toaha has a Master's in Development Studies with a major in natural resources management from the University of Dhaka and a Master's in Business Administration in Finance from the Institute of Business Administration. He is currently pursuing his Doctor of Business Administration qualification on water valuation at the national level in Bangladesh. He can be contacted at tmuhammad@worldbank.org and Toaha.muhammad@gmail.com



