

SECTOR ASSESSMENT: WATER SUPPLY AND OTHER MUNICIPAL INFRASTRUCTURE AND SERVICES

Sector Road Map

1. Sector Performance, Problems, and Opportunities

1. **Urban water supply.** Bangladesh is rapidly becoming urbanized. The urban population is growing rapidly, from 20% of the total population in 1990 to 28% in 2010—at an annual growth rate of 2.8%, more than double the 1.1% annual growth rate of the entire population.¹ Although coverage in drinking water supply reached 85% in urban areas in 2010 (81% for the whole country), access to piped water supply in household premises is provided to only 20% of the urban population, requiring significant improvement in service levels.² The coverage of piped water supply systems remains incomplete because of insufficient investment funds, coupled with systemic constraints such as lack of local capacity and political control of water tariffs. Inadequate water tariffs cause revenue generation to remain low, and water utilities are unable to carry out adequate repair and maintenance work, and invest in improvement. Most sources of water supply are tube wells with hand pumps, sunk by private households, water utilities, and local governments, which lower local groundwater tables to a worrying degree. The quality of the water is also an issue; many of the wells are contaminated with arsenic and bacteria. The water levels of deep aquifers are also dropping in many towns, especially in larger industrial areas in and around Dhaka.

2. The operation and maintenance (O&M) of the water supply system is inadequate, as reflected in high water losses or what is technically termed nonrevenue water (NRW). The NRW in Dhaka is estimated at about 30%; Chittagong and Khulna are estimated to have similar levels. Periodic maintenance of the systems is not done properly, resulting in leakages in pipelines and early deterioration of pipes, wells, and machinery. Most of the connections in Dhaka and Chittagong have water meters but there are none in Khulna. No Water Supply and Sewerage Authority (WASA) has 24/7 water supply. Dhaka supplies water for about 22.5 hours per day, but water supply is not always reliable during the dry season, and this is compounded by frequent power outages. The WASAs in Chittagong and Khulna can only supply water for nearly 12 hours per day. In Rajshahi, where a WASA was set up in 2010, water supply remains irregular and low. Dhaka can recover a small part of the investment cost in addition to full O&M costs whereas Chittagong and Khulna can hardly recover even the O&M costs.³ All these problems are compounded by the inability of water utilities and the government to increase tariffs commensurate to cost recovery levels.

3. **Sanitation services.** The sanitation coverage is high when basic sanitation is considered but it declines when more stringent requirements for improved sanitation or hygienic sanitation are taken into account. The sanitation coverage for improved sanitation facilities in urban areas increased to 57% in 2010 (56% for the whole country) and open defecation fell to 2% in 2010 (footnote 2). The National Campaign for Sanitation, which started in 2005, contributed toward the drastic reduction in open defecation and wider coverage of sanitation facilities. Conventional sewer systems are lacking in all urban areas except Dhaka, where some

¹ United Nations Department of Economic and Social Affairs. 2012. *World Population Prospects: The 2010 Revision and World Urbanization Prospects: The 2011 Revision*. New York.

² United Nations Children's Fund (UNICEF) and World Health Organization (WHO). 2012. *Progress on Drinking Water and Sanitation: 2012 Update*. New York.

³ Government of Bangladesh. *Sector Development Plan FY 2011 – 2025: Water Supply and Sanitation Sector*. Dhaka.

25% of the population is served by a sewer network; the remainder of the population uses on-site options such as septic tanks, pit latrines, unhygienic latrines, or none at all. Only one wastewater treatment plant exists in Dhaka, with limited capacity, and most of the wastewater is discharged untreated, directly into the river. The sanitary conditions of urban slums are in deplorable conditions, and only 8%–12% of households have hygienic latrines (footnote 3). Open discharge of wastewater into drains and open fields, and by the roadside or riverbanks, has a significant impact on environmental pollution and health hazards.

4. **Current institutional setup for the water sector.** At the national level, the Local Government Division of the Ministry of Local Government, Rural Development and Cooperatives is responsible for the overall development of the water supply and sanitation (WSS) sector. Large urban areas—Dhaka, Chittagong, Khulna, and Rajshahi—have WASAs. Water supply in other urban areas is maintained by city corporations or *pourashavas* (municipalities), which can charge tariffs to meet the O&M costs of water supply. The Department of Public Health Engineering is responsible for the implementation of WSS projects in rural areas as well as providing technical support and guidance to *pourashavas*. The union water supply and sanitation committees, which include community leaders and Department of Public Health Engineering representatives, have responsibility for promoting hygiene education, environmental sanitation, and approving the distribution of tube wells. In addition to government institutions, nongovernment organizations (NGOs) and the private sector are involved in water services. However, private sector participation in this sector remains limited to small businesses such as supply of hand pumps, pipes, and tube well materials.

5. The Millennium Development Goal (MDG) target for water supply in Bangladesh is to reach 89% coverage by 2015. The Government of Bangladesh has set targets of safe drinking water for the entire population as soon as possible after 2011 and sanitation for all by 2013.⁴ The latest Bangladesh Bureau of Statistics Multiple Indicator Survey (2009) reveals that access to an improved source of water, adjusted for arsenic contamination, has increased to 86%. National campaigns and community-wide approaches have had marked success in moving communities to fixed-place defecation. Although the sanitation coverage is slightly better in urban areas, the situation is not optimal in many high-density urban areas because of lack of space and the risk of groundwater contamination. Moreover, de-sludging and safe disposal are other concerns.

2. Government's Sector Strategy

6. The government places a strong focus on the water sector and has prepared a WSS sector development plan (SDP), 2011–2025 presenting the progressive development of WSS services during the SDP's three strategic time frames: short-term, medium-term, and long-term. While development partners have supported the water sector significantly, the public sector plays a dominant role in the overall planning, design, and implementation of programs and projects. In the majority of cases, agencies within the public sector are engaged in the planning, programming, and managing of WSS programs.

7. The sector review identified a number of policies and strategies directly and indirectly related to WSS. The National Policy for Safe Water Supply and Sanitation (1998) aims to change the existing service delivery to a dynamic system through measures requiring complex

⁴ Government of Bangladesh. 2010. *Outline Perspective Plan of Bangladesh 2010-2021: Making Vision 2021 A Reality*. Dhaka. The programs and projects undertaken during the Sixth Five Year Plan will increase and sustain the service level.

social, economic, technical, administrative, and management interventions. The National Water Policy (1999) provided guidance to all agencies and institutions working directly or indirectly in the water sector to improve the country's water resource management system. The National Water Management Plan (2004) is an operational framework for the central and local governments, and other stakeholders, to implement their activities and projects at both local and central levels. The National Policy for Arsenic Mitigation and Implementation Plan (2004) provides guidelines for arsenic mitigation program countrywide. The Pro-Poor Strategy for Water and Sanitation Sector (2005) succeeded in defining the basic minimum level of WSS service up to which the government should provide special support to the hard-core poor. Finally, the SDP, 2011–2025 aims to deliver universal coverage of improved WSS services to the population.

8. However, most of the policies and strategies are not widely disseminated so many of them were not implemented properly. For example, the pro-poor strategy did not reach the lowest level of local government institutions, which are supposed to implement many parts of it. The sector development framework and development plan have not been adequately used. Interagency coordination has been one of the bottlenecks of the development of the WSS sector. Although various policies reflect and acknowledge the importance of government–NGO collaboration, as well as public–private partnerships, it is not visible in practice.

9. To meet MDG goals by 2015, it has been estimated that a total of \$14.11 billion will be required to undertake WSS interventions over 2009–2015, at an average per capita cost of \$13.17 per year.⁵ Investment in the WSS sector comes mainly from the government, development partners, NGOs, and the private sector. Government funds for development works are channeled through its annual development programs. In recent years, the allocation to the WSS sector has been increasing. However, despite this increase, the sectoral investment will have a resource gap of 32% to achieve universal coverage.

3. ADB Sector Experience and Assistance Program

10. The Asian Development Bank (ADB) is a major development partner in WSS development in Bangladesh, and has given high priority to this sector in its country partnership strategy.⁶ The development of urban infrastructure—especially for water supply, sanitation, and waste management—has received ADB support, with significant improvement of service delivery and positive impacts on the health of urban residents. A number of development partner initiatives have focused on improving WSS in Bangladesh. Currently, ADB is supporting policy reform of the sector and rehabilitation of the Dhaka water supply system under the Dhaka Water Supply Sector Development Program.⁷ The aim of the program is to contribute to sustained economic growth and improved health conditions in Bangladesh's urban centers by improving water supply services through reduction of the level of NRW to 15% in five zones (out of a total 11) in service areas of Dhaka WASA (DWASA). With the support of the program, as well as DWASA's Turnaround Program 2010–2013,⁸ important progress has been made on several key issues, including more efficient administrative and financial management of DWASA,

⁵ Government of Bangladesh, United Nations Development Programme. 2009. *Millennium Development Goals: Needs Assessment and Costing 2009-2015*. Bangladesh.

⁶ ADB. 2011. *Country Partnership Strategy: Bangladesh, 2011–2015*. Manila.

⁷ ADB. 2007. *Report and Recommendation of the President to the Board of Directors: Proposed Loans and Technical Assistance Grant to the People's Republic of Bangladesh for the Dhaka Water Supply Sector Development Program*. Manila.

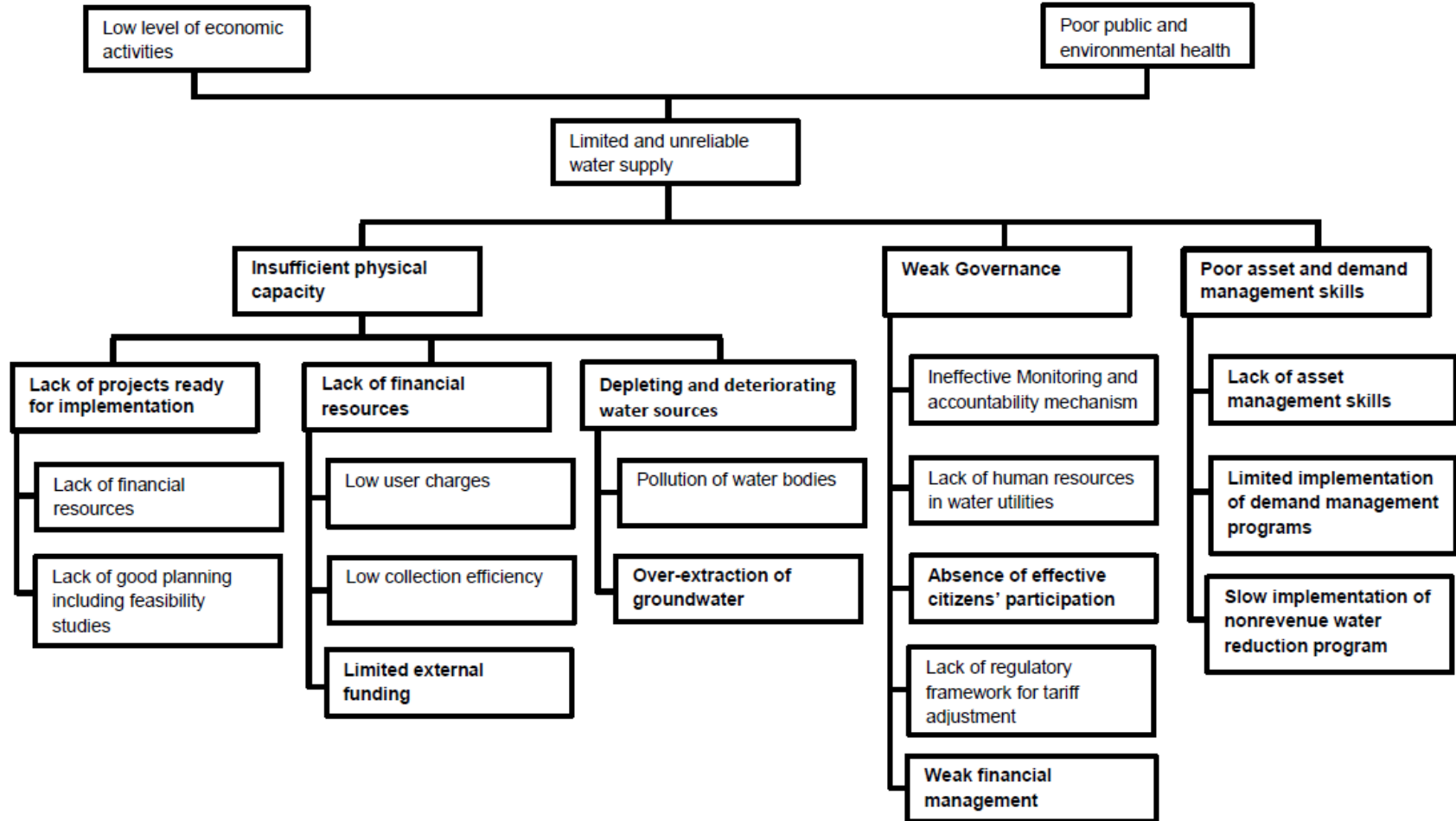
⁸ A DWASA's program to improve operational efficiency and level of services to customers with a view to turning the organization into a profitable public sector corporate body.

strengthening of staff capacity with increased budget allocations for training, development of a comprehensive human resources strategy, and development of a 5-year business plan. ADB has just started technical assistance to assist the government in establishing a regulatory framework for the urban WSS sector, which covers the management of WASAs and water supply sections in municipalities.⁹

11. Several other development partners are engaged in the WSS sector in Bangladesh. The World Bank is supporting DWASA to improve the sustainable delivery of storm water drainage, wastewater, and water services to the population of Dhaka. Outside of Dhaka, the World Bank and Japan International Cooperation Agency (JICA) are supporting the improvement of water supply systems in Chittagong, and ADB and JICA are supporting the development of a new surface water treatment system in Khulna. The third phase of Danish support to the WSS sector comprises the sector policy support component and the hygiene, sanitation, and water supply fund component. The sector policy support is providing funding for the implementation of the action plans deriving from the SDP in terms of the policy, institutional, and regulatory framework. The Policy Support Unit in Local Government Division plays a lead role in pilot testing, coordinating, and monitoring implementation of the SDP. Government of Denmark support has also assisted DWASA with the phase 2 of Saidabad water treatment plant development. Coordination among development partners will ensure comprehensive programming for the overall improvement of the WSS sector in Bangladesh.

⁹ ADB. 2013. *Technical Assistance to Bangladesh for Establishing a Regulatory Framework for Urban Water Supply and Sanitation*. Manila.

Problem Tree for Water Supply and Other Municipal Infrastructure and Services



Interventions

Financing support from ADB, AFD, Danida, EIB, JICA, World Bank

ADB = Asian Development Bank, AFD = *Agence Française de Développement*, EIB = European Investment Bank, JICA = Japan International Cooperation Agency.

Sector Results Framework: Water Supply and Other Municipal Infrastructure and Services

Country Sector Outcome		Country Sector Outputs		ADB Sector Operations	
Outcomes with ADB Contribution	Indicators with Targets and Baselines	Outputs with ADB Contribution	Indicators with Incremental Targets	Planned and Ongoing ADB Interventions	Main Outputs Expected from ADB Interventions
<p>More people enjoying improved water supply and sanitation services, and health care</p> <p>Sustainable use of groundwater by shifting extraction of surface water</p>	<p>Urban (Dhaka) population using improved drinking water sources increased from 90% to 95% in 2021</p> <p>Groundwater table drawdown is reduced to 1–2 meters in Dhaka (baseline: 2–3 meters drawdown a year)</p> <p>Khulna city: Household coverage with access to piped water increased from 22.6% in 2010 to 62.3% in 2018</p> <p>Average hours of water supply increased from 5.3 hours/day in 2009 to 24 hours/day in 2017</p>	<p>Water supply infrastructure in Dhaka expanded, improved, and well managed</p> <p>Reduction in extracting groundwater, and increase in surface water supply</p> <p>Water sources in Khulna city are augmented and managed sustainably</p> <p>Distribution extended and delivers water efficiently in Khulna city</p>	<p>Baseline: 0</p> <p>Coverage in Dhaka increased by 5 percentage points by 2021</p> <p>Reduction of at least 150 MLD of water sourced from tube wells by 2018</p> <p>Additional production capacity in Khulna using surface water: 110 MLD by 2016</p> <p>Physical loss reduced from 36% in 2009 to 20% in 2017</p>	<p>Planned key activities areas Development of water supply infrastructure in large cities (Dhaka and Khulna)</p> <p>Ongoing projects with approved amounts Dhaka Water Supply Sector Development Program (\$200 million)</p> <p>Secondary Town Water Supply and Sanitation Sector Project (\$41 million) with OFID cofinancing of \$9 million</p> <p>Khulna Water Supply (\$75 million) with JICA cofinancing of \$184 million</p> <p>Pipeline projects with estimated amounts Dhaka Environmentally Sustainable Water Supply Project (\$250 million)</p> <p>Coastal Towns Infrastructure Improvement (\$52 million)</p> <p>Third Urban Governance and Infrastructure Improvement Project (\$125 million)</p>	<p>Planned key activities areas Water supply system improved, with better management system in two megacities</p> <p>Urban public health services improved</p> <p>Ongoing projects Key infrastructure improved</p> <p>Water supply system with installed capacity of 110 MLD in Khulna</p> <p>Additional 65,000 households will have piped water supply in 16 <i>pourashavas</i> (municipalities)</p> <p>Pipeline projects Water supply system with installed capacity of 500 MLD in Dhaka</p> <p>Regulatory regime improved, including transparent tariff setting by water utilities</p> <p>Vulnerable coastal towns will have sustainable water supply and improved sanitation facilities</p>

ADB = Asian Development Bank, JICA = Japan International Cooperation Agency, MLD = million liters per day, OFID = OPEC Fund for International Development.
Source: Asian Development Bank.