

SECTOR ASSESSMENT (SUMMARY): WATER SUPPLY AND OTHER MUNICIPAL INFRASTRUCTURE

A. Sector Road Map

1. Sector Performance, Problems and Opportunities

1. In 2011 Bangladesh had a population of about 150 million. Although only 19.2% of the population currently lives in urban areas, Bangladesh is urbanizing rapidly, and over 50% of the population is expected to be urban by 2045. Around 60% of the urban population lives in the four largest cities: Dhaka, Chittagong, Khulna and Rajshahi, and an estimated 60% of urban residents live in slums;¹ the large urban slum population is attributed in part to climate migration from coastal areas.

2. **Water supply sector.** Although water is abundant in Bangladesh, urban drinking water supplies are constrained nationally. It is estimated that 95% of the urban population has access to a drinking water supply, with piped water supply coverage estimated at 39%; the remaining 61% of the population is served by non-piped supplies (e.g., hand pump tubewells, pond sand filters, bottled water, rainwater, or springs). Currently only 30% of households drink tap water, and fewer than 20% have their own house connections. Bangladesh is situated mainly in a river delta, and has exploitable surface water in most parts of the country. In coastal areas, however, river water is often turbid, polluted, and salty, and fluctuates significantly in quantity and quality between the wet and dry seasons. In practice, groundwater has provided the major source of drinking water and is accessed by shallow and deep wells. Nationally it is estimated there are 7 million tubewells, although the poor often lack access close to their homes. The water supply is compromised by arsenic contamination of wells: an estimated 16%–25% of existing wells in Bangladesh are contaminated by arsenic, some seriously. In the coastal region, arsenic contamination is most prominent in the southwest districts (greater than 45% of households have arsenic contamination above government's standard).² The entire coastal region experiences salinity intrusion in both groundwater (shallow aquifers) and surface water which is expected to be exacerbated by climate change.

3. **Urban sector.** The sector is characterized by numerous subsectors, development partners, lending modalities, and approaches, and has experienced: (i) accelerating, unplanned and uncontrolled urbanization; (ii) severe deficits in urban infrastructure provision and basic service delivery resulting from alarming financial constraints; (iii) planning instruments that are inadequate, lack an implementation orientation and/or are not enforced; (iv) urban poverty and lack of inclusiveness in municipal planning; (v) severe constraints in local government capacity—including technical capacity for operation and maintenance (O&M), governance structures, and municipal finances; and (vi) weak devolution and fragmented urban sector institutional frameworks at the national and local levels, including an outdated and inadequate legislative framework. There are opportunities to address inadequate infrastructure and further strengthen municipal governance and management.

B. Municipal infrastructure and services

¹ United Nations. 2013. Millennium Development Goal Indicators. Slum population as percentage of urban percentage. <http://mdgs.un.org/unsd/mdg/seriesdetail.aspx?srid=710>.

² The eight coastal project towns are located in the central coastal region, where arsenic contamination levels are less (less than 15%).

4. **Sanitation.** Despite considerable improvements in sanitation coverage, urban sanitation coverage and practice remain unsatisfactory. While many households have septic tanks and sanitary latrines, much of the sludge is discharged through open drains into rivers. The use of septic tanks and pit latrines is becoming increasingly unsatisfactory as a result of increased urban density, inconvenient and/or impractical O&M, and the inadequate design and maintenance of older tanks. In combination these factors result in wastewater leakage and threaten groundwater contamination, with untreated wastewater flowing into low-lying areas and open drains. This situation is exacerbated during periods of high rainfall and flooding, posing significant health risks.

5. **Drainage and flood management.** Periodic flooding is common in Bangladesh, resulting from (i) its location (in the low-lying deltaic floodplains at the convergence of three Himalayan rivers), (ii) heavy monsoon rainfall, and (iii) poor drainage. Water logging and drainage congestion are common throughout the country, and are exacerbated by a combination of inadequate drainage (including design, provision, and O&M); perennial clogging as a result of inadequate solid waste management systems; open dumping of garbage; and unregulated dumping of septic tank fecal sludge. In coastal areas, flood control is achieved through an extensive network of coastal polders, with drainage facilitated by 1,347 regulators and 5,932 kilometers of drainage channels owned and operated by the Bangladesh Water Development Board.

6. **Solid waste management.** Solid waste collection and disposal are not well managed in Bangladesh. Most urban areas lack comprehensive, planned collection systems and suffer from a lack of equipment and resources. Improperly managed dumpsites are normal in most *pourashavas* (secondary towns). Urban local governments are generally unfamiliar with modern solid waste practices (including composting and waste-to-energy) and reduce, recycle and re-use principles. Hazardous waste such as infectious hospital waste is often handled as domestic municipal waste. The situation is worse in informal housing areas, most of which lack managed collection and disposal systems, such that households often dump their wastes on open land, drains, and natural watercourses, and in the streets. Commercial and industrial operators often illegally dump industrial waste.

7. **Urban poverty.** Urban poverty remains high (21% of the estimated 2010 urban population were poor, according to the upper national poverty line) despite declining poverty rates as indicated by the national Household Income and Expenditure Survey, which states that poverty rates have declined substantially in urban areas since 2005. These decreases have contributed disproportionately to the reduction in the overall national poverty level, which fell from 57% in 1991 to 32% in 2010. Of Bangladesh's six administrative divisions, two coastal divisions (Barisal and Khulna) have the second- and third-highest incidence of poverty: 39.4% in Barisal and 32.1% in Khulna. Progress in reducing urban poverty will likely be compromised by climate change impacts, including on the urban poor that settle in areas of high vulnerability, and increasing climate-induced migration to urban areas.

C. Government's Sector Strategy

8. **Water supply sector.** The sector has benefited from significant policy development culminating in sequential sector development plans developed by the Local Government Division. The current sector development plan for the water supply and sanitation sector Bangladesh for FY2011–FY2025 (SDP-WSS) provides a strategic framework for planning, implementing, coordinating and monitoring all activities in the water supply sector (WSS), with all WSS-related national and sector policies, strategies and international commitments to be aligned with the

plan.³ The SDP-WSS sets progressive development targets for water supply and sanitation services during the short (5 years), medium (10 years) and long term (15 years), and treats the rural and urban subsectors as distinct. The investment required for moderate service levels and operating efficiencies is BDT14,655 billion. The Bangladesh Sixth Five-Year Plan (FY2011–FY2015) reinforces water supply goals through targets for the percentage of population using improved drinking water sources (urban and rural).⁴

9. The government needs to develop policies and legislation that can provide local government with the capacity to meet user needs. This requires an understanding of good practice in hydrogeology and geochemistry, with local governments able to manage the decision making, building and engineering needed to supply the hardware necessary for clean water. To meet WSS challenges reforms are needed in the interrelated areas of: (i) institutional and organizational development in *pourashavas*, and (ii) establishment of a regulatory framework.

10. **Urban sector.** Investment in the urban sector by executing agencies from project aid and government funds amounts to BDT2,038 billion (FY2008–FY2012), with planned investment of BDT3,335.3 billion over FY2013 to FY2017). However, there is no government urban sector plan, and this has inevitably resulted in a disjointed and leaderless approach to sector management. A draft National Urban Sector Policy has been developed but not endorsed. The sector is guided through a range of national development policies and strategies, with the overall government development framework set by the Sixth Five-Year Plan. The only attributed “urban” outcome, indicators and targets in the plan are a reduction in urban poverty and improved living conditions through better city governance and service improvements; achievement is to be measured through: (i) the percentage of city corporations’ expenditure raised autonomously, and (ii) the percentage of urban population with regular employment. This emphasizes the importance of a poverty-centric, multi-dimension and multi-stakeholder approach to sector interventions. The Strategic Program for Climate Resilience (SPCR) is the main basis for the government’s efforts to combat climate change over a 10-year period, and address urban climate change adaptation through required infrastructure measures.⁵ The coastal towns project financed by the Asian Development Bank (ADB) is programmed in the SPCR.

11. There is a wide range of legislation that has a direct and indirect bearing on the sector, although the historical absence of clear, comprehensive and up-to-date laws has likely compounded poor urban sector performance. The primary legal framework and mandate for urban local government is set out in the Local Government (City Corporation) Act 2009 and Local Government (*Pourashava*) Act 2009. A comprehensive new Urban and Regional Planning Act has been drafted but not yet passed. In the absence of the enactment, planning control (including building and environment) is covered by various laws, the principal of which is the Building Construction Act (1952). The Environment Conservation Act (1995) and associated regulations and rules also bear on the urban sector. All laws face major obstacles in terms of the capacity and willingness of authorities to enforce rules and regulations. Bangladesh’s urban local governments have systemic weaknesses that include the institutional framework, organizational structure and staffing (staff numbers and skills).

³ Government of Bangladesh, Ministry of Local Government, Rural Development and Cooperatives, Local Government Division. 2011. *Sector Development Plan (FY 2011-25)–Water Supply and Sanitation Sector In Bangladesh*. Dhaka.

⁴ Government of Bangladesh, Planning Commission. *Sixth Five Year Plan FY2011–FY2015: Accelerating Growth and Reducing Poverty*. Dhaka.

⁵ Government of Bangladesh. 2010. *Strategic Program for Climate Resilience*. Dhaka.

D. ADB Sector Experience and Assistance Program

12. **Water supply sector.** ADB has approved large sector development programs for Dhaka (Dhaka Water Supply Sector Development Program) and Khulna (Khulna Water Supply Project). The Secondary Towns Water Supply and Sanitation Sector Project, like the Urban Governance and Infrastructure Improvement Project (UGIIP) 1 and 2, emphasizes governance, with the following key features: (i) a performance-based approach, (ii) emphasis on tariffs and financial sustainability, (iii) supporting institutional change in *pourashavas*, and (iv) community management of common infrastructure.

13. **Urban sector.** There has been a steady increase in urban sector assistance from ADB and other development partners. Beginning in 2000, there has been increasing effort to address weaknesses in the investment environment in secondary towns. A core lesson from the implementation of previous projects is that municipal performance—while sufficient to use the investment funds—failed to generate sufficient revenues, secure human resources to ensure proper O&M of infrastructure and services, or sustain good urban management practices. UGIIP 1 and 2 (the third phase is undergoing processing for approval in 2014) have emphasized good governance and incentive-based performance systems. A UGIIP innovation was the requirement that town-level and ward-level coordination committees be established, a requirement made mandatory under the Local Government (Pourashava) Act (2009). The UGIIP is regarded as a milestone in strengthening the governance and capacity of *pourashavas*, and the approach has shaped other projects supported by ADB: the Secondary Towns Water Supply and Sanitation Project, the Urban Public and Environmental Health Sector Development Program, and the City Region Development Project.⁶ Other development partners—the World Bank and the Japan International Cooperation Agency—have adopted such approaches in their new urban projects.

14. The main lessons observed from both sectors are: (i) governance reform is a milestone but the momentum of reform must be sustained; (ii) further improvement in municipal financing (own-source revenue generation) is imperative; (iii) local area development plans are critical but need to be implementation-oriented; (iv) performance-based measures are relevant to all municipal support projects and should be adopted as standard government practice, reflecting that it is now accepted practice, and is based on a critical mass of experience (involving approximately 80 *pourashavas* and six city corporations); and (v) successfully piloted governance measures provide opportunities for further refinement and application, replication by other development partners, and further possibilities for joint cooperation (such as the planned third phase of the UGIIP).

⁶ ADB. 2006. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of Bangladesh for Secondary Towns Water Supply and Sanitation Project*. Manila; ADB. 2009. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of Bangladesh for Urban Public and Environmental Health Sector Development Program*. Manila; ADB. 2010. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of Bangladesh for City Region Development Project*. Manila.

Sector Results Framework (Water Supply and Other Municipal Infrastructure Sector, 2014–2016)

Country Sector Outcomes		Country Sector Outputs		ADB Sector Operations	
Outcomes with ADB Contribution	Indicators with Targets and Baselines	Outputs with ADB Contribution	Indicators with Incremental Targets (Baselines Zero)	Planned and Ongoing ADB Interventions	Main Outputs Expected from ADB Interventions
More people enjoying improved water supply, sanitation services, and health care	<p>Urban population using improved drinking water sources increased from 93.3% in 2009 to 100.0% in 2015</p> <p>Rural population using improved drinking water sources increased from 83.8% in 2009 to 96.5% in 2015</p> <p>Urban population using improved sanitary facilities increased from 53.5% in 2009 to 100.0% in 2015</p> <p>Rural population using improved sanitary facilities increased from 54.3% in 2009 to 90.0% in 2015</p> <p>Births attended by skilled health personnel increased from 26% in 2010 to 50% in 2015</p>	Water supply, sanitation, and other urban infrastructure in Dhaka, Khulna, and other municipalities expanded, improved, and well managed	<p>Coverage in Dhaka increased by 5 percentage points and in Khulna by 9 percentage points, by 2015</p> <p>20 municipalities improving infrastructure under STWSSP, by 2015</p> <p>50 additional municipalities improving urban infrastructure with better planning under UGIIP 2, by 2015</p> <p>50 additional municipalities improving governance under UGIIP 2, by 2015</p> <p>One model corridor structured and equipped with a mass-transit system, by 2015</p>	<p>Planned key activity areas Integrated urban infrastructure in municipalities, water supply infrastructure in large cities, urban primary health care</p> <p>Pipeline projects with estimated amounts Coastal Towns Environmental Infrastructure (\$92 million); UGIIP3 (\$150 million); STWSSP (\$50 million); Urban Environment Improvement (\$150 million)</p> <p>Ongoing projects with approved amounts Khulna Water Supply (\$75 million); Greater Dhaka Sustainable Urban Transport Corridor Project (\$145 million); Khilkhet Water Supply (\$185 million); Dhaka Water Supply Sector Development Program (\$200 million); UGIIP 2 (\$87 million); UPEHSDP (\$120 million)</p>	<p>Planned key activity areas Urban governance and infrastructure improved in municipalities; Water supply system improved with better management system in three megacities.</p> <p>Projects Key infrastructure improved Water supply system with installed capacity of 100 million liters per day in Khulna Additional municipalities covered for improvement of governance and infrastructure Expanded primary health care through public– private partnership</p> <p>Ongoing projects Policy reforms implemented in line with policy matrix for urban water sector; 2,000 kilometers of distribution network rehabilitated in Dhaka; 50 municipalities implementing governance and infrastructure improvement program under UGIIP 2, with ward coordinating committees being 40% women; 20 municipalities implementing institutional and infrastructure improvement under the STWSSP; Improved environmental health through better solid waste management.</p>

Abbreviations: ADB = Asian Development Bank, STWSSP = Secondary Towns Water Supply and Sanitation Sector Project, UGIIP2 = Second Urban Governance Infrastructure and Improvement Project, UGIIP3 = Third Urban Governance Infrastructure and Improvement Project, UPEHSDP = Urban Public and Environmental Health Sector Development Project.

Sources: *Country Partnership Strategy: Bangladesh, 2011-2015*. Manila; ADB. 2010. *Country Operations Business Plan for Bangladesh, 2013-2015*.

Source: Asian Development Bank

Problem Tree

