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Situation analysis of the urban sanitation sector in Bangladesh

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Executive summary

Bangladesh is a lower middle-income country with high ambitions, but poor infrastructure in urban areas is holding back economic growth.

Bangladesh has made remarkable progress in reducing poverty in recent decades. A densely-populated country of 159 million people, Bangladesh is vulnerable to natural disasters (particularly floods), but has displayed impressive resilience to global economic shocks. The manufacturing sector, to which the garment industry contributes 50% of formal employment, is the largest single contributor to growth, while higher labour incomes and rising remittances have been important drivers of inclusive growth more broadly. Progress in reducing the gender gap in economic opportunities has been slow, but the country has maintained a long tradition of women's involvement in decision-making and political empowerment. The government has committed to reach upper middle-income status by 2021 (the 50th anniversary of its independence): in order to achieve this ambition, the country needs to accelerate economic growth in urban centres, which remain plagued by poor infrastructure and services.

Bangladesh is one of the least decentralised countries in the world. Only 4% of government expenditure is spent at local level and less than 2% of total revenue is collected at subnational level. Local governments depend almost entirely on central government transfers for investments and operating costs.

Bangladesh's urban population of 42 million is one of the largest in the world in absolute terms, equivalent to 30% of the total population. Urban residents are concentrated in its 11 City Corporations (of which population sizes vary between 307,000 and 3.9 million) and Pourashavas (agglomerations of more than 5,000 with urban features such as non-farming activities). Dhaka is classified as a Metropolitan Area (comprising two City Corporations) and is at least twice as large in population as Chittagong, the country's second largest city. Together, Dhaka and Chittagong's economic outputs contribute 48% of the country's GDP; however, Dhaka's annual output falls short of what would be expected for a metropolitan area with its population density, largely because of lack of infrastructure.

Slum areas are important features of urban agglomerations in Bangladesh. A census conducted in 2005 identified 4,966 slum clusters in Dhaka Metropolitan Area alone. Slums are defined by the Bangladesh Bureau of Statistics as unplanned clusters of housing in an "unhealthy" environment, and are situated within residential areas of the city itself and along its fringes. Slums are located both on government- and privately-owned land. There have been

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attempts to resettle slum residents outside city centres but most have failed due to poor transport infrastructure.

Onsite sanitation is the norm; transport and treatment services for sewage and faecal sludge are under-developed.

According to the Joint Monitoring Programme (JMP), 58% of urban residents benefited from improved sanitation facilities in 2015. Open defecation has reportedly been eradicated in urban areas. However, 12% use unimproved facilities and 30% rely on facilities which are shared by different households, or on public (fee-paying) facilities. Most urban residents rely on onsite sanitation facilities: Dhaka is the only city in Bangladesh with a sewer system, to which only 20% of its population is connected.

Transport and treatment systems for wastewater and faecal sludge management (FSM) are very limited. Increasing population density and increasing levels of water use lead to septic tanks and pit latrines filling up rapidly. Residents (including in high-income areas) generally discharge large volumes of untreated effluent directly into the drainage or the nearby environment. Manual emptying – a service usually performed by "sweepers" who provide a range of sanitation services – is widespread. A common practice in both low- and middle/high-income areas is to connect pour-flush toilets directly to drains, without any form of onsite containment. With regards to sewer services, Dhaka's only treatment plant functions below capacity. The network transports only 2% of the sewage produced and only 0.3% is effectively treated. Pilots have recently been launched by numerous agencies (including WSUP, UNICEF, Practical Action and WaterAid) to test approaches for improved FSM.

The legal framework for sanitation is fragmented, but recent progress has been made in developing a draft regulatory framework for FSM.

The legal framework for sanitation services is distributed across several acts of law. The main acts pertaining to sanitation are the City Corporation and Pourashava Acts (2009) that assign to local governments the responsibility for sanitation services. At the same time, the Water Supply and Sewerage Authority (WASA) Act established the creation of WASAs (public utilities) in City Corporations, the prime responsibility of which is to provide water and sanitation services. Other environmental and health-related acts provide norms for environmental quality standards.

In recent months, the Local Government Division of the Ministry of Local Government, Rural Development and Cooperatives (MoLGRD&C) drafted an institutional and regulatory framework for FSM, with support from key donors involved in the sanitation sector. The draft framework clarifies the roles and responsibilities for FSM, re-affirming City Corporations and municipalities' roles for ensuring services, and the need for potential partnerships with WASAs where relevant. The framework also proposes guidelines for the design of household facilities and faecal sludge treatment facilities; specifies the potential of private sector participation; and identifies the need for the MoLGRD&C to set up a dedicated unit in the City Corporations or municipalities for FSM. As of February 2017, the draft framework was ready for approval by Parliament.

The National Policy for Safe Water Supply and Sanitation (issued in 1998) is the main policy document for the sector, setting the goal of universal access to sanitation, but without committing to a timeframe. In 2014, the government issued a National Strategy for Water Supply and Sanitation that recognised access to water and sanitation services as a human right, together with the need to move up the sanitation ladder to develop FSM services.

There is significant overlap in institutional responsibilities, contributing to the limited supply of FSM services.

At the national level, the Department of Public Health Engineering (DPHE), sitting within the Local Government Division of MoLGRD&C, has chief responsibility for sanitation policy

development. DPHE also retains responsibility for implementing sanitation (and water) projects in areas not covered by WASAs, despite local governments' overlapping mandate. DPHE is further mandated to monitor and regulate sanitation services; however in practice, it exerts limited oversight on sanitation services. Local governments' planning and budgeting capacities are constrained by a lack of resources: budgets allocated by the central governments do not take into account the need to develop infrastructure, and local governments face major human resource constraints.

The main providers of urban sanitation services are local governments, Dhaka WASA, informal service providers ("sweepers") and a burgeoning formal private sector. Local government services are generally limited to drainage and solid waste services, although some are involved in hygiene promotion and public toilet construction. Dhaka WASA provides sewerage services, although some pilot projects now involve the utility in FSM. Informal service providers, mainly involved in septic tank and latrine emptying, predominate. Innovative contracts are currently being developed to attract more formal service providers to the FSM market: for example, WSUP has supported the design of a lease contract between Dhaka WASA and a medium-capacity SME to operate a vacuum tanker. CBOs and local NGOs have a long history of involvement in developing community-managed toilets in urban slums.

Funding has focused on rural sanitation, and sewerage services to urban areas.

Central government funds allocated to sanitation increased from 0.006% of GDP in 2007/2008 to 0.023% in 2015/2016. However, most funds have been allocated to sewerage services (in urban areas) and rural sanitation, where the government has been implementing a subsidy-based strategy to eradicate open defecation. Similarly, donor-funded projects have focused on sewerage improvements (the World Bank is soon to launch a USD 960 million project for Dhaka's sewerage improvements). International NGOs and not-for-profit organisations have attempted to bridge the gap by investing in the piloting of infrastructure and services for onsite services to low-income urban areas.

Rapid urbanisation, low decentralisation, lack of demand for and supply of FSM services and lack of investment are all major barriers to pro-poor urban sanitation.

Population density arising from rapid urbanisation presents a challenge for the construction of traditional networked-based solutions, but some policy-makers remain unconvinced that onsite sanitation services can provide a solution. At the same time, weak environmental and housing regulations implicitly allow landlords to discard appropriate containment solutions and households to discharge faecal sludge into drains. As a result, there is a perception of lack of demand for improved and sustainable sanitation services, including among municipal officials. This combination of factors results in continued de-prioritisation of pro-poor sanitation services and a lack of investment in the necessary infrastructure for transport and treatment. Ineffective decentralisation and the duplication of roles and responsibilities create further disincentives for engaging in sanitation services.

Despite challenges, the sector has an opportunity to bring about change.

The urban sanitation sector in Bangladesh has moved beyond the development of containment services to supporting the development of the full supply chain. FSM is now a buzzword in the sector: studies such as the Shit Flow Diagram (funded by the World Bank) have helped to highlight the problem of ill-managed faecal sludge services. In addition, donors are interested in developing pro-poor services, and the establishment of a low-income unit within Dhaka WASA is an encouraging sign of increasing institutional commitment to this end. Finally, the government's ambition to achieve upper middle-income status increases the potential for rapid progress in the sanitation sector. To harness this opportunity, the sector must coordinate efforts to identify a range of suitable technologies and service delivery models for low-income areas.

Contents

Acronyms and abbreviations

ADP	Annual Development Plan
CBO	Community-based Organisation
DPHE	Department of Public Health Engineering
FSM	Faecal Sludge Management
FSMNB	Faecal Sludge Management Network Bangladesh
MDG	Millennium Development Goal
MoH&PW	Ministry of Housing and Public Works
MoLGRD&C	Ministry of Local Government, Rural Development and Cooperatives
NPSWSS	National Policy for Safe Water Supply and Sanitation
SDP	Sector Development Plan
WASA	Water and Sewerage Authority

Note: 1 Bangladesh Taka (BDT) = USD 0.0124 as of 24th January 2017

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Background

The Urban Sanitation Research Initiative is a 2016–2020 research programme currently focused in Bangladesh, Ghana and Kenya. The primary aim of this programme is to deliver research that builds national evidence bases around pro-poor urban sanitation, and that drives policy change and wider sector change in the three focus countries. The programme is managed by Water & Sanitation for the Urban Poor (WSUP) and core-funded by UK aid from the UK government.

The aim of this situation analysis is to inform WSUP's future research on key issues facing the urban sanitation sector in Bangladesh as well as opportunities to influence change. The report presents the country's wider socio-economic and political context and provides an overview of institutional and financing arrangements for the sector. It also highlights the challenges of developing pro-poor urban sanitation services and identifies possible drivers of change.

1 Country context

1.1 Socio-economic context

Bangladesh has one of the world's highest population densities, with around 159 million people living in less than 150,000 sq. km. The country is highly vulnerable to floods, tropical cyclones, earthquakes and climate change. Despite these challenges, the country has made remarkable progress in poverty reduction. GNI per capita has grown from around USD 100 in 1972 to USD 1,314 in 2015. Bangladesh crossed the World Bank threshold for the lower middle-income group in 2015.[1]

Bangladesh's economy has shown resilience to global shocks. Its annual GDP growth averaged about 6% over 2005 to 2015, despite the adverse impacts of the global recession, oil price rises, unrest in the Middle East (an important destination for Bangladeshi migrants) and local natural disasters. Factors contributing to resilient growth include working age population growth, better job opportunities, higher agricultural income and higher remittances. The manufacturing sector is the largest single contributor to growth, representing 17% of GDP in 2015. The labour-intensive garment industry accounted for over 50% of formal manufacturing employment. Services (mainly wholesale and retail trade, transport, storage and communication) and agriculture represented about 54% and 15% of GDP in 2015 respectively.[2]

The country has also made some progress in reducing poverty and inequalities. Bangladesh has surpassed the Millennium Development Goal of halving the incidence of extreme poverty between 1990 and 2015. Higher labour incomes and rising remittances have been important drivers of inclusive growth. While inequality in rural areas (where about 70% of Bangladesh's population resides) stagnated, inequality in urban areas trended downwards. Inequality in Bangladesh (Gini coefficient about 0.3) is lower than in most other East Asian countries. National poverty levels remain significant, estimated at 31.5% of the population; however, extreme poverty has been reduced to 12.9%.[3] The country has only made slow progress in reducing the gender gap, especially in terms of economic opportunities. Women made up 32% of the labour force in 2014 (only slightly higher than the average in middle-income countries), although many more women than men complete lower secondary school education. Bangladesh has a long tradition of women involved in politics and decision-making:[4] it has the seventh lowest gender gap in political empowerment in the world.[5]

1.2 Political context

Bangladesh is a parliamentary democracy: the parliament is the legislature and passes laws executed by the government. The head of government is the Prime Minister. The supreme decision-making body is the Cabinet, composed of the Prime Minister and Cabinet Ministers.

The three major parties are the Bangladesh Nationalist Party (BNP), the Bangladesh Awami League and the Jatiya Party. Politics is dominated by the Awami League-BNP rivalry. The country's rival and leading politicians, Sheikh Hasina (the current Prime Minister, Awami League) and Begum Khaledia Zia (BNP), have ruled the country in turn since 1991. The last general election was held in 2014 and won by the Awami League. The next general election is due to take place in 2018.

[1] World Bank 2015
[2] World Bank 2015
[3] Asian Development Bank 2016 & World Bank, Poverty headcount ratio at national poverty lines: Bangladesh, World Bank Data 2016 http://data.worldbank.org/indicator/SI.POV.NAHC?locations=BD
[4] World Bank, Gender Data Portal: Bangladesh, World Bank Data 2017 http://datatopics.worldbank.org/gender/country/bangladesh
[5] WEF 2016

Social and economic opportunities appear to be dependent upon party allegiance. Most parliament members (more than 60%) are businessmen.[6] Various respondents drew attention to a common perception that people with allegiance to the party in power get more support and political benefits from the government in all affairs.

1.3 Commitment to development and to pro-poor services

Bangladesh has committed to reach upper middle-income status by 2021 (the 50th anniversary of its independence). To achieve this, Bangladesh will need accelerated economic growth, which is only likely to come from urban centres (as other middle-income countries' experience has shown). However, Bangladesh's current urban features—exceptionally high urban population growth and density, as well as extremely poor infrastructure and services— are holding back economic growth. Poor infrastructure and services in particular are placing constraints on the competitiveness of urban areas, negatively affecting the productivity, connectivity and viability of the urban space.[7]

Bangladesh plans public sector investments based on a 5-year planning cycle. The current 5-year plan (2016-2021) aims to reduce the headcount poverty ratio by 6.2% and extreme poverty by 4%, and has placed urban development and sanitation (and water) as key targets.

1.4 Administrative set-up and decentralisation level

Bangladesh's administrative set-up is complicated and overlapping. The country is divided across multiple dimensions: administratively, politically and economically. Administratively, the country is divided into 8 Divisions, 64 Districts, 490 Upazilas (sub-districts), 80 Thanas, 4,543 Unions and 87,319 Villages. Within these administrative divisions, urban areas with political autonomy are organised as City Corporations and municipalities (Pourashavas). As of 2017, there were 11 City Corporations and 335 municipalities. In addition, Bangladesh has identified "Metropolitan Areas", which do not have political and administrative power, but enable accounting for the peri-urban areas that surround City Corporations. In 2017, there were four metropolitan areas: Dhaka, Chittagong, Khulna and Rajshahi.

City Corporations and municipalities, headed by councils, are the local authorities in urban areas. Direct elections are held for each City Corporation and municipality to elect the council's chairperson and councillors. Legally, City Corporations and municipalities are autonomous entities, as per the City Corporation Act. However, they remain under the control of the Ministry of Local Government, Rural Development and Cooperatives (MoLGRD&C).

Bangladesh is one of the most centralised countries in the world. Subnational expenditures are estimated to be about 3 to 4% of the total government expenditure.[8] On the revenue side, local authorities are mandated to raise revenue from local taxes and fees for providing urban services; however, tax rates and implementation guidelines need to be approved by the MoLGRD&C. In reality, less than 2% of total government revenue is collected at the subnational level, placing Bangladesh at the low end internationally. City Corporations and municipalities are almost entirely dependent on central government funding for investments as well as operating costs.

[6] Liton 2015
[7] Muzzini & Aparicio 2013
[8] In comparison, Indonesia's subnational expenditure is estimated at more than 35% of total public expenditure (see https://www.iseas.edu.sg/images/pdf/ISEAS_Perspective_2016_3.pdf)

Local governments receive central government transfers based on Annual Development Plans (ADP). The ADP includes the budget for development projects funded by the central government's own funds and funding from development partners. The allocation for development budgets from the central government is approved and disbursed through the MoLGRD&C.

Since independence each successive regime has increasingly emphasised the need to strengthen local government institutions. However, decentralisation reforms remain to be fully implemented, due to factors such as bureaucratic complexities, lack of interest to continue reforms initiated by the previous government, political affiliations and corruption.

2 Access to urban sanitation services

2.1 Rate of urbanisation

Bangladesh has experienced faster urbanisation than South Asia as a whole between 2000 and 2010: its urban population is today one of the largest in the world in absolute terms, with over 42 million urban residents.[9] According to the Pourashava Act, an area is considered urban when three quarters of its adult male population is engaged in non-farm activities; it has at least 15,000 inhabitants; and the average density is at least 2,000 inhabitants per square mile. According to this definition, there are today 5,000 areas which can be considered urban or semi-urban. Other than the declared Pourashavas, there are informal urban areas developing in Upazila (sub-district) administrative divisions. An estimated 28% of the total population is urban.[10]

Urban growth is driven by both natural population increase and internal migration. Over the past century, rural-to-urban migration has increased due to better economic opportunities provided in cities, access to better service provision and changing environmental and climatic conditions. Political factors are also at play in the selection of urban areas and the distribution of corresponding resources for urban development. Urban population density (per km^2) has increased in line with the growth in urban population. National urban population density stood at nearly 1,240/km^2 in 2015[11]; in 2013, Dhaka's population density was 44,500/km^2.[12] The populations of the major City Corporations are presented in Table 1 below. Metropolitan Dhaka (i.e. the two Dhaka City Corporations plus peri-urban areas) is projected to have about three times the population of the next-largest city, Chittagong, by 2030.

Table 1: Urban population in City Corporations and their peri-urban areas

Major cities	Total urban population 2011[13]	Slum/floating population 2011[14]	Projected population (including slum areas) 2030-31[15]
Barisal City Corporation	328,278	39,094	617,073
Chittagong City Corporation	2,581,643	486,099	4,852,783
Comilla City Corporation Total	407,901	7,586	766,742
Dhaka City Corporation South	3,012,803	496,698	5,663,246
Dhaka City Corporation North	3,957,302	148,969	7,438,645
Gazipur City Corporation Total	1,199,215	186,773	2,254,196
Khulna City Corporation	663,342	79,740	1,246,902
Naryanganj City Corporation Total	709,381	41,091	1,333,442
Rajshahi City Corporation	448,087	38,564	842,281
Rangpur City Corporation	307,053	23,118	577,176
Sylhet City Corporation	479,837	50,570	901,962

[9] Ellis & Roberts 2016
[10] Directorate General of Health Services 2012
[11] World Bank, Population density (population per sq. km of land area): Bangladesh, World Bank Data 2017 http://data.worldbank.org/indicator/EN.POP.DNST?locations=BD
[12] UN-Habitat (2017) Urban Data: Dhaka, urban agglomeration population density (population/km2) in 2013, http://urbandata.unhabitat.org/data-city/?cities=6081&indicators=urban_agglomeration_population_density
[13] Bangladesh Bureau of Statistics 2014
[14] Bangladesh Bureau of Statistics 2015a
[15] The projected population in 2030-31 is estimated based on Bangladesh Bureau of Statistics 2015b and 2015c

Box 1: Dhaka, Chittagong, and secondary cities

The Dhaka Metropolitan Area is among the 10 largest megacities in the world, with an estimated population of about 15 million (surpassed in South Asia only by the metropolitan areas of Mumbai and Delhi). Dhaka is reportedly the fastest growing city in the world, with a growth rate of around 3% per annum. This adds an estimated half a million people per year to the 15 million people already residing in Dhaka mega-city as of 2016.

Metropolitan Dhaka (i.e. the two Dhaka City Corporations plus peri-urban areas) is also a "primate city"—a city that is at least twice as large as the country's second-largest city (Chittagong). Economic output from Dhaka and Chittagong dominates Bangladesh's economy, accounting for 48% of the country's GDP; Dhaka Metropolitan Area alone contributes 36% of GDP. The gap between Dhaka and Chittagong, and between Dhaka/Chittagong and secondary cities, has widened in recent years. Below the two largest metropolitan areas are six secondary cities in which 10% of the urban population lives: the Khulna and Rajshahi metropolitan areas; the cities of Barisal and Sylhet; and the new cities of Comilla and Rangpur. Bangladesh's urban economic output is low from an international perspective, with Dhaka's annual output falling short of what would be expected for a metropolitan area with Dhaka's population density.

Source: Muzzini & Aparicio 2013

2.2 Slum characteristics

Slum populations are ethnically diverse and predominantly composed of rural migrants coming in search of better economic opportunities. Among slum communities, some ethnic groups have been traditionally engaged in municipal services related to sewage and drainage cleaning. These groups are known locally as "sweepers" and often belong to the Harijan (low caste) community. Inner city slums are located in dense urban areas of mixed commercial and residential status. Many slums are located among planned residential areas. In City Corporations and some large Pourashavas, slums are dominant and have visible urban features. In small Pourashavas, low-income urban households are generally concentrated in their own small lands with little or no access to urban infrastructure. Slum residents are usually designated as "poor" or "low-income" communities.

The most recent comprehensive survey of Bangladesh's slum characteristics was conducted in 2005 by the Centre for Urban Studies.[16] The study conducted a census of slums and squatter settlements and prepared slum maps for six cities. It identified some 4,966 slum clusters in Dhaka Metropolitan Area alone.[17] Of the 4,966 slum clusters, 4,342 were within the Dhaka City Corporation area and were home to 2.5 million residents. An additional 0.9 million slum residents were found in the Dhaka Metropolitan Area outside of the City Corporation area. The proportion of slums on private land was about 70%; the research also observed that the quality of housing in some private slums was better than those constructed on government land. Slums were found to be concentrated in the eastern fringe of Dhaka, along the border of the City Corporation. A large concentration was found in Khilkhet, opposite the Hazrat Shahjalal International Airport. The single largest concentration of slums was found in Kamrangirchar on the western fringe of the Buriganga River. The largest single slum within Dhaka was Karail in Mohakhali near Gulshan, with more than 100,000 people.

[16] Centre for Urban Studies et al 2005
[17] In the study, a cluster is defined as a concentration of at least 10 households or a unit with a minimum 25 members in one location.

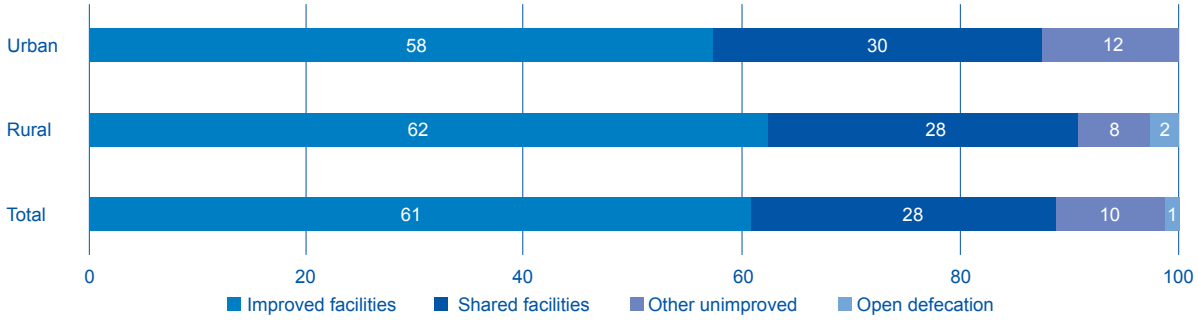
The survey conducted by Bangladesh Bureau of Statistics on slum areas and floating populations in 2014 provides a general definition of "slum".[18] It is defined as a cluster of compact settlements of five or more households growing in an unplanned manner in unhealthy conditions on government or private vacant land.[19] No slums are considered legal. Despite being viewed by the administration as illegal, slums do sometimes benefit from development initiatives. For example, in 2015, Dhaka WASA (the public utility in charge of water supply in Dhaka) prepared a Low-Income Customers Service Improvement Plan with the aim to increase access to piped services (water and sanitation) in low-income communities, including in slums.[20]

There is no official policy for slum resettlement, but evictions of slums built on publicly-owned land are common. For example, many slum communities have been evicted from the central area of Dhaka City over the years. To date, about 18 slums have submitted law suits against eviction and have obtained temporary stay orders.[21] There have been initiatives to resettle selected low-income families from Dhaka slums in specific areas on the outskirts of the city; however, most have failed, mainly due to the distant location of the new settlement from areas of work and poor transport infrastructure.

2.3 Access to basic sanitation

Access to improved sanitation in urban areas is slightly lower than the national average. JMP 2015 data (Figure 1) indicate that while 61% of the total population have access to improved sanitation, 58% of urban residents benefit from such facilities. The use of shared sanitation facilities is also more prevalent in urban areas. Although this data suggests that open defecation is non-existent in urban settings, some reports indicate that urban dwellers resort to open defecation, especially where shared facilities are poorly maintained.[22]

Figure 1: Access to improved sanitation services in Bangladesh (%)



Source: JMP 2015

2.4 Access to transport and treatment services

The vast majority of urban households use onsite sanitation facilities and services. Only Dhaka has a sewerage system, to which about 20% of the population is connected.[23] Other middle- and high-income residents use septic tank systems. With an increasing population density and increasing levels of water use, septic tanks are commonly overloaded and discharge large volumes of untreated effluent directly into the local environment, via dysfunctional soakaways, or by deliberate direct

[18] This official definition is quite broad and enables to use "slum" to encompass a wide range of low-income urban settlements with diverse social and spatial characteristics. One main characteristic is the unplanned or informal nature of these urban settlements.
[19] Bangladesh Bureau of Statistics 2015a
[20] Dhaka WASA 2015
[21] These lawsuits were filed with support from Bangladesh Legal Aid and Services Trust (BLAST) and Ain O Shalish Kendra (ASK)
[22] Alam, Yeasmin, Luby & Unicomb 2015
[23] Ross, Scott & Ravikumar 2016

discharge to informal surface drains or formal storm water drains. In low-income areas, different types of pit latrines prevail, and are often shared between several households due to lack of space. Pit latrines fill up quickly and require frequent emptying, and likewise discharge large volumes of inadequately treated effluent into the nearby environment. A common practice in both low- and middle/high-income areas is to connect pour-flush toilets directly to drains, without any form of onsite containment.

Sewage treatment is very limited and faecal sludge management (FSM) services are almost non-existent. There is only one wastewater treatment plant currently operating in Dhaka: the Pagla Sewage Treatment Plant with a capacity of 120,000 m^3/day. However, the sewerage network is not fully functional due to either leaking sewers or non-functioning pumping stations: it transports only 2% of the sewage produced. Only 0.3% of Dhaka's sewage is effectively treated, as shown in the Shit Flow Diagram produced for the city.[24]

Households using onsite sanitation with adequate containment usually rely on manual emptying services, performed by "sweepers". However, only a fraction of the faecal sludge produced is safely managed due to lack of disposal sites. Sludge (like most wastewater) is usually discharged to the environment untreated, causing serious environmental pollution and health hazards. Box 2 below presents the case of Faridpur Municipality, a secondary city located in central Bangladesh. Further details on the type of sanitation service provision found in Bangladesh are presented in Section 4.2.

In recent years, NGO-led initiatives have led to the pilot of service delivery models for urban sanitation services. The Department of Public Health Engineering (DPHE) has undertaken pilot projects in collaboration with UNICEF to establish faecal sludge treatment plants in 16 City Corporations and municipalities throughout the country. Some of these facilities are still under construction as of March 2017; others have already been put in operation (e.g in Lakshmipur Pourashava). WSUP is supporting the development of FSM services in low-income areas of Dhaka (including transport to Dhaka WASA disposal sites) through an innovative Public Private Partnership arrangement under the brand name SWEEP (see section 4.2 for more details on the SWEEP model). At the time of writing, Practical Action Bangladesh and WaterAid are also piloting service delivery models for urban sanitation (Box 2).[25]

Box 2: Sanitation services in Faridpur

Faridpur Municipality is the administrative headquarters of Faridpur District, situated 140 km west of Dhaka. It is a small city of 129,000 people, without a sewerage system. An estimated 94% of the population has access to sanitation facilities formally classified as "improved" as defined by the JMP, but at least 30% of households directly connect their facilities to the storm drainage system. Other households simply overflow their facilities when they are full. There are emptying services on offer (by municipal services and private service providers), which are used by at least 55% of households. However, these are only transport services, as there is no operational faecal sludge treatment plant in Faridpur. As in other cities in the country, nearly all the excreta produced in the city is discharged into the environment untreated. In recent months, the municipality of Faridpur has set out to address the issue of faecal sludge management. With financial and technical support from Practical Action, Faridpur is piloting a faecal sludge management service. A faecal sludge treatment plant was acquired with a capacity of 24m3/day (the plant is large enough to enable the treatment of 14% faecal sludge generated in Faridpur Pourashava), together with a small emptying truck (vacutug). Sweepers have been trained and contracted to operate the vacutug and the treatment plant.

Sources: Practical Action 2014 and field visit to Faridpur

[24] Ross, Scott & Ravikumar 2016
[25] Rahman et al 2016

3 Legal and policy framework for urban sanitation

3.1 Legal framework

The existing legal framework for the sanitation sector in Bangladesh consists of Acts and other legal instruments specifying the functions and responsibilities of various sector organisations. Table 2 below presents the main acts and ordinances related to the sanitation sector. Other acts related to health and safety (e.g. 1860 Penal Code and the 1944 Public Health Ordinance) are also relevant.

Table 2: Legal acts pertaining to the urban sanitation sector

Acts, ordinances and other legal instruments	Brief description
– Rules of Business, 1996	Allocates responsibilities to various government departments and ministries. For Dhaka, Chittagong, Khulna, and Rajshahi City Corporations, separate WASAs were created by WASA Acts. The Department of Public Health Engineering (DPHE) is responsible for the construction of water and sanitation systems throughout the country including in Pourashavas. At the same time Pourashavas are responsible for the operation and maintenance of water and sanitation infrastructures in their towns.
– Local Government (Pourashava) Act, 2009 – Local Government (City Corporations) Act, 2009 – Upazila Parishad Act, 2009 – Union Parishad Act, 2009	Specifies the responsibilities, including those related to water and sanitation, of different levels of local governments. In the case of water and sanitation, responsibilities include provision and maintenance of water supply, sanitation and drainage facilities and preventing pollution of water sources. The Acts also establish as an offence allowing the contents of any sink, sewer, drain, or cess-pool to reach any street or public place.
– Water and Sewerage Authority (WASA) Act, 1996	Empowers local governments to establish WASAs and permits WASAs to carry out works related to sewerage systems, solid waste collection and drainage; describes the composition of the WASA Board and delineates responsibilities between the Board and the Managing Director; empowers local governments to set tariffs and taxes for improved sanitation services. WASAs are established in Dhaka, Chittagong Khulna and Rajshahi.
– Environmental Conservancy Act, 1995 – Environmental Conservation Rules, 1997	Establishes a framework for environmental management and setting environmental quality standards.

The existing legal framework reveals overlaps and confusions in the allocations of responsibilities for sanitation services, especially between sector agencies (e.g. DPHE) and local governments (Union Parishads and Pourashavas). The existing Local Government Acts remain to be fully enforced so that City Corporations and Pourashavas can have full autonomy to plan and budget for sanitation services, and recruit the staff needed (currently, they require permission from the Local Government Division of the MoLGRD&C).

In a bid to clarify institutional responsibilities, the government has developed a specific regulatory framework for FSM. The draft FSM institutional and regulatory framework has been prepared by a working committee of the Local Government Division with support from key donors involved in the sanitation sector in Bangladesh. It clarifies the roles and responsibilities for FSM, re-affirming ministries' lead role in policy making, City Corporations and municipalities' roles in ensuring services, and the need for potential partnerships with WASAs where relevant. The framework also proposes guidelines for the design of household and treatment facilities; specifies the potential of private sector participation; and identifies the need for the MoLGRD&C to set up a unit in the City Corporation (or municipalities' organogram) for the effective delivery of FSM services. As of February 2017, the draft framework had been approved by the relevant ministries and was ready for approval by the Parliament.[26]

[26] The Institutional and Regulatory Framework was approved in May 2017, after the completion of this report. It consists of four frameworks: one for Dhaka, one for other City Corporations, one for municipalities and one for rural areas.

3.2 Policy framework

The National Policy for Safe Water Supply and Sanitation (NPSWSS) issued in 1998 is the main policy document for the sector. It sets the goal to provide universal access to sanitation for all at affordable costs, without committing to a timeframe. The policy acknowledges the need for decentralised services (without providing specific guidance on how services should be organised) and the role of NGOs and the private sector in providing sanitation services.

NPSWSS assigns roles and responsibilities of government agencies, the private sector and NGOs. It recognises DPHE as the lead sector agency and outlines the role of the Local Government Engineering Department (LGED) in supporting donor-funded projects, including water and sanitation. However, the institutional arrangements between the national government agencies and local governments (Union Parishads, Pourashavas and City Corporations) are only suggestive. The policy does not provide a mechanism for well-defined coordination among different sector stakeholders from the community to the central level. Further, the policy does not define targets and standards for service levels and does not address FSM, one of the key issues facing Bangladesh's cities.

Strategies have been developed to support the implementation of the NPSWSS. In 2014, the government issued a National Strategy for Water Supply and Sanitation (replacing a strategy developed in 2005, which was mainly focused on rural sanitation). The 2014 Strategy re-affirms the goal to achieve universal access to sanitation services and provides strategic guidance to government institutions and sector practitioners. A guiding principle of the Strategy is the recognition of access to water and sanitation services as a human right. The Strategy explicitly recognises the need to move up the sanitation ladder and develop FSM services, and identifies some broad areas of intervention in order to establish FSM services (Box 3).

Box 3: Strategic directions for FSM in the 2014 National Strategy

The following areas of interventions or "strategic directions" were identified in the 2014 National Strategy for Water Supply and Sanitation in order to establish adequate faecal sludge management services:

1. Give priority to the management of faecal sludge from septic tanks and pit latrines such that all sludge is collected, transported, treated and disposed safely in an environmentally friendly manner.
2. Develop innovative technologies appropriate to local conditions for collection, treatment and safe disposal of faecal sludge.
3. Allocate land at suitable locations (by local governments) for faecal sludge treatment and disposal for all urban areas and upazilla headquarters.
4. Build faecal sludge management and regulation capacities of local governments.
5. Emphasise action research and demonstration projects for recycling faecal sludge, such as composting for use as fertilizer and generation of biogas.
6. Encourage use of double pit latrines to enable proper in-situ composting of sludge, its safe disposal and/or use as fertilizer.
7. Make arrangements including bylaws for regular emptying of septic tanks and pit latrines.
8. Establish sludge management systems for trains, launches and boats.
9. Provide technical and business support to the private sector in sludge management, recycling, and sale of compost or other products.

The government has approved a 15-year Sector Development Plan (SDP) for the financial years 2011-2025 for the water supply and sanitation sector. This long-term plan is supposed to be updated every five years (although it was not updated in 2016). The objective of the SDP is to provide a framework for planning, implementing, coordinating and monitoring all activities in the water and sanitation sector. It sets the situation of services and the key principles that should guide the sector. Among these principles, the SDP recognises the need to provide inclusive services (particularly to reach low-income areas) and the role of the private sector. It also recognises that public investments in urban sanitation have to increase. However, the SDP plan focuses on sewerage services, leaving the bulk of investments in onsite technologies to households.[27]

[27] Local Government Division 2011

4 Institutional arrangements for urban sanitation

4.1 National and local level institutions

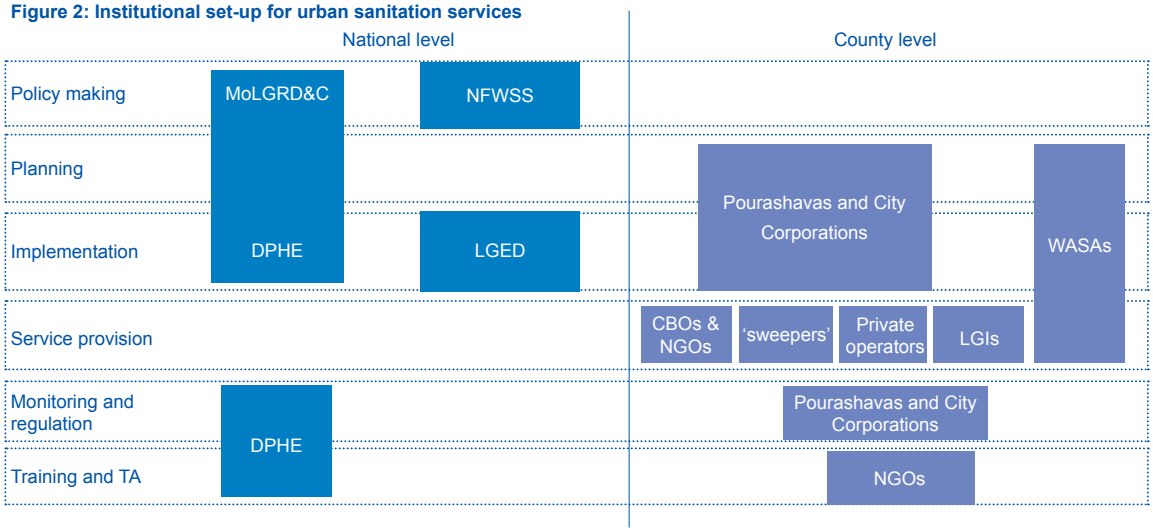
At national level, DPHE, sitting within the Local Government Division of MoLGRD&C, has chief responsibility for the development of the water and sanitation sector. DPHE has the specific responsibility to implement sanitation (and water) projects in areas that are not covered by a WASA. DPHE's mandate also includes advising the government on policy and action plans for sanitation and providing support to local governments in the development and operation of sanitation services. In addition to DPHE, the Local Government Engineering Department (LGED), also within the MoLGRD&C, implements water and drainage projects in urban areas as part of urban infrastructure development projects.

A National Forum for Water Supply and Sanitation (NFWSS) was established within the Local Government Division. The Forum acts as a national-level coordination platform between government agencies, NGOs, development partners and the private sector.

As per the Pourashava and City Corporation Acts, local governments should ensure sanitation services to all residents. However, their current capacity to fulfil this mandate is very limited: local governments face resource constraints as transfers from national governments are very limited; they have limited autonomy in setting tax rates; and they are often unwilling to raise sufficient taxes and fees to cover their costs. Local governments are also reluctant to act as regulators (e.g. to enforce public health standards) for services. Despite increased awareness of environmental and health hazards caused by poor FSM, local governments do not prioritize sanitation services and therefore do not allocate resources to the sector. A contributing factor is that demand for improved services from urban residents is generally perceived to be low.[28] There is no separate unit/division for FSM within City Corporations and Pourashavas, although all have a separate section known as the "Conservancy Section" that deals primarily with street sweeping, surface drain cleaning and solid waste management.

Figure 2 below presents the different institutions involved in sanitation services and their mandated functions.

Figure 2: Institutional set-up for urban sanitation services



[28] Ross, Scott & Ravikumar 2016

A FSM network of sector practitioners was launched in August 2016. The FSM Network Bangladesh (FSMNB) is a membership organisation and platform for sector actors to generate ideas, share views, and influence policies and practices to meet sector challenges. FSMNB has succeeded in engaging with national institutions and has been instrumental in developing the regulatory framework for FSM services. The first FSM Convention was held on in December 2016, coordinated by WaterAid Bangladesh and other key stakeholders.

4.2 Service providers

Sanitation service providers in urban cities include WASAs, cities and municipalities, and private operators, as outlined below.

WASAs. To date, four WASAs have been established: Dhaka, Chittagong, Khulna and Rajshahi. These WASAs, which are corporatised utilities (i.e. they ring-fence their revenues), fall under the direct authority of the MoLGRD&C. WASAs are mandated to ensure water supply, drainage and sewerage services in their respective City Corporations. They undertake the construction, operation and maintenance of water, sewerage and storm water systems. WASAs source their funds for operational costs from tariff revenues. However, capital investments are usually financed by the central government (often with support from development partners). WASAs also receive some grants for the maintenance of drainage systems. WASAs do not have specific departments for FSM.

Dhaka WASA is the only utility offering sanitation services, as it is the only one that operates a sewerage network and a treatment plant. WASAs do not have any responsibility for emptying septic tanks or pits. In recent months, UNICEF donated two faecal sludge vacuum tankers to Dhaka WASA. With support from WSUP, lease contracts were designed to tender the tanker's operation.[29] A private company involved in cleaning services won the contract and provides the emptying service under the brand name "SWEEP". Subsidised lease fees have enabled SWEEP to make a profit after its first five months of operations; however, significant challenges remain around a) ensuring that operators serve low-income communities and b) ensuring safe disposal of the waste collected. The lease model is being replicated in Chittagong and Rangpur, and is expected to be rolled out to other cities in due course.[30]

Cities and municipalities. Where WASAs are not present, cities and municipalities provide some sanitation services (e.g. in Faridpur, see Box 2 on page 12). Within cities and municipalities, the Water Supply and Drainage Division usually lies under the Engineering Department. Municipal services are usually focused on cleaning drains, the removal of solid waste, and street sweeping. Some municipalities are engaged in hygiene promotion and toilet construction. Although national data is not available, several respondents indicated that it is extremely rare for municipalities to offer any form of sanitation (excreta management) services.

CBOs and NGOs. CBOs and local NGOs have been key actors in the urban sanitation sector since the 2000s, as community-led water and sanitation programmes were implemented with support from donors (UNDP, UN-Habitat and DFID). Some CBOs have been successful in mobilising communities to invest in communal sanitation facilities.[31]

[29] WSUP 2015
[30] Based on discussion with key informants in-country
[31] See for example the guidelines under the Participation of Local Partnerships for Urban Poverty Alleviation Project (LPUPAP) funded by UNDP, among other donors.

Several local NGOs are involved in hygiene promotion as well as the construction of toilet facilities and the provision of faecal sludge management services. In Dhaka for example, ARBAN, DSK and NDBUS are NGOs involved in public toilet construction. Since 2002, DSK also offers mechanical emptying services with vacutugs at subsidised rates in low-income areas (higher rates are applied in better-off parts of Dhaka).

Private operators. Beyond toilet construction (usually done by local masons) and manual emptying performed by sweepers, the involvement of private operators in the sanitation sector is very limited at present and mostly supported by international NGOs. The most significant pilots in this regard are the WSUP-UNICEF-supported lease contracts with a local company (Gulshan Clean Care or GCC) for sludge emptying in Dhaka (which operates under the brand name SWEEP); Practical Action's capacity building activities with sweepers to develop emptying and transport services in Faridpur; and WaterAid's work in the area of public toilet management. Despite commitments in the Sector Development Plan (SDP) to increase private sector participation, the country has yet to see the private sector involved in sanitation services on a large scale, especially in urban areas (Box 4).

Box 4: Despite clear potential, private sector participation remains limited

A policy and strategy for Public Private Partnerships (PPP) was published in 2010, which made various environmental services eligible to be implemented through PPPs. Although not explicitly mentioned, sanitation is within the sectors recognised in the scope of PPPs. The policy, however, mainly refers to concession contracts that entail substantial risks for private operators, as they are long-term contracts that require a contribution to capital expenditure. Apart from NGO-led pilots, initiatives to translate the PPP policy into guidelines for the water and sanitation sector are weak. Further, the private sector is not attracted to the sanitation sector due to limited demand from households. As highlighted by the World Bank diagnostic of FSM services in Dhaka, only 13% of households surveyed report having septic tanks or latrines that need to be emptied. Low consumer demand is linked to poor construction of toilet facilities, which are often directly connected to drains. Developing private sector participation would require a substantial increase in public expenditure in infrastructure development and the roll-out of less risky contracts such as lease or management contracts. At the same time, local governments (who would be contracting authorities) should be provided technical assistance for procuring the services of private operators, drafting contracts and regulating their implementation.

Sources: Government of Bangladesh 2010 and Ross, Scott & Ravikumar 2016

5 Financing arrangements for urban sanitation

5.1 Government and international transfers

An assessment of the Bangladesh government's expenditure in the WASH sector was carried out by WaterAid for the financial years 2007-2008 to 2011-2012. It considered the funds transferred from National Development Budget (central government) to the Local Government Division (MoLGRD&C) allocated to WASH expenditure (whether in WASH-specific projects or multi-sector projects with a WASH component). As presented in Table 3, national funding allocation to sanitation (excluding solid waste) has significantly increased since 2012, although the water sector continues to receive the bulk of overall funds to WASH. Investments in sanitation (excluding drainage and solid waste) represented 8% of overall expenditure in 2015-2016, or 0.023% of GDP (in comparison with 0.006% in 2007-2008).

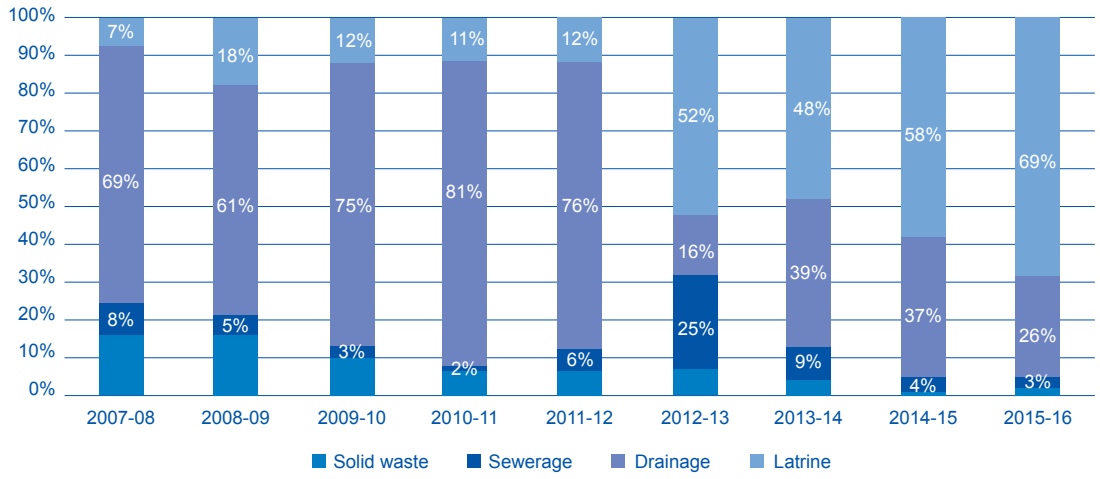
Table 3: Central government overall allocation to sanitation

	WASH budget total (in billion BDT)	WASH budget total (in USD million)	Allocation to sewerage	Allocation to latrine	Total allocation to sanitation (sewerage and latrine)	Total allocation to sanitation as % of WASH budget
2008-08	24.73	311.07	0.31	0.28	0.59	2%
2008-09	21.17	266.29	0.18	0.64	0.82	4%
2009-10	34.66	435.98	0.29	1.14	1.43	4%
2010-11	43.81	551.07	0.28	1.45	1.73	4%
2011-12	49.87	627.3	0.84	1.9	2.74	5%
2012-13	32.42	407.8	0.78	1.65	2.43	7%
2013-14	30.6	384.91	0.45	2.48	2.93	10%
2014-15	43.58	548.18	0.21	3.14	3.35	8%
2015-16	46.19	581.01	0.15	3.73	3.88	8%

Source: based on Barkat, Poddar, Abdullah & ud Dowlah 2015

Government activities have focused on investments in sewerage systems (hence only in Dhaka) and the provision of subsidies for poor households' latrine construction. Since 2012, government transfers allocated to latrine construction represent over 50% of total national government investment in sanitation (Figure 3). Although sub-sector expenditure by rural or urban area is not available, it seems likely that most of this investment has been allocated to rural areas, in the drive to end open defecation.

Figure 3: Government transfers to sanitation activities (based on total sanitation expenditure)



Source: Barkat, Poddar, Abdullah & ud Dowlah 2015

The above figures do not take into account projects funded by multilateral and bilateral development partners. The main development partners involved in urban sanitation are the World Bank, the Asian Development Bank (ADB) and Agence Française de Développement (AFD). Although the bulk of donor funding is allocated to Dhaka WASA for water supply, some has been allocated to sewerage improvements. Of the large international financial institutions, only the World Bank has supported the development of FSM services: to date this support has consisted of technical assistance to Dhaka WASA for the development of a strategy for FSM. The World Bank is preparing the next phase of the Dhaka Sanitation Improvement Project (expected to cost USD 960 million), a seven-year project to be implemented from October 2018. The programme is planning the construction of several sewerage treatment plants, additional pipe sewerage network and pumping stations for lifting and discharging sewage to treatment plants. Other donors are expected to support the programme.

The figures on national expenditure on sanitation services presented above do not take into account municipal own-revenue allocation to sanitation. However, it is likely that such allocations are currently of very small amount.

5.2 Tariffs

Only Dhaka WASA applies tariffs for sewerage services. In Dhaka, households that have both water and sewerage connections pay the equivalent of their water bill for sewerage services (i.e. if the water bill is USD 15, the household would pay an additional USD 15 for sewerage).

Sanitation tariffs paid by tenants to landlords are generally low. In Dhaka, for example, tenant households that pay for sanitation separately from rent spend on average only BDT 31 (USD 0.38) per month, equivalent to just 0.4% of average monthly income. Only 9% of tenant households pay for sanitation separately from rent: the remaining 91% of tenant households use sanitation facilities provided by their landlord without additional charge. It is unclear whether rents are higher for accommodations with sanitation facilities.[32]

Existing data indicates fees for faecal sludge emptying are often beyond low-income households' willingness and/or ability-to-pay. In Faridpur, for example, sweepers charge BDT 1.5-2 (USD 0.19-0.24) per pit or cubic feet of liquid faecal sludge; while BDT 2,000-3,000 (USD 12-37) per 0.5 m3 to 1 m3 of sludge is charged for septic tanks, including transport. A NGO managing a biogas digester collects BDT 40-50 (USD 0.5-0.62) per household monthly.[33] In Dhaka, two operators (DSK and GCC) apply differentiated tariffs depending on the type of customers using their services. Low-income customers pay a subsidised rate while non-low-income residents and businesses pay a higher rate.

[32] Dhaka WASA 2015
[33] Practical Action 2014

6 Key barriers to developing pro-poor urban sanitation services

The sections above have outlined some of the key challenges faced by the urban sanitation sub-sector, especially for delivering pro-poor services. We suggest that key barriers to universal urban sanitation coverage are as follows:

Rapid urbanisation. Rapid rates of urbanisation have created areas of very high population density, presenting a challenge for the construction of networked solutions, transfer stations and treatment plants. In addition, many policy makers do not currently view onsite sanitation technologies as acceptable solutions for densely populated areas. While solutions should focus on the promotion of adequate household sanitation facilities with appropriate containment capacity - in addition to the whole sanitation value chain – lack of space in densely populated slum areas often prohibits the provision of individual household toilets: in such cases communal toilets need to be considered (whereby several households use the same facility, not on a pay-per-use basis), together with pay-per-use public toilet facilities in busy areas. Together with onsite facilities, transport and treatment facilities adaptable to high density areas should gain prominence in the planning of sanitation services. The availability of land (mostly privately owned in slums) for sanitation improvements (e.g. constructing decentralised treatment plants) is a further challenge.

Weak decentralisation and local governments' limited financing capacity. Local governments are fully dependent on MoLGDR&C for all matters, including infrastructure improvements. Poor fiscal decentralisation implies that local governments cannot effectively plan service delivery as they do not have adequate budgets to fulfill their mandates. Most construction works are planned and overseen by a central agency, usually the DPHE. Local governments' capacity to plan, implement and regulate sanitation services is further constrained by their limited capacity to generate local revenues, as tax types and rates remain controlled by the central government. As they are resource-constrained and subject to the Local Government Division's approval to recruit staff, local governments are also under-staffed. The overall result is that local government capacity for delivering services remains poor.

Lack of coordination among national institutions. Ill-defined institutional relationships—a result of ineffective decentralisation—and historically limited experience with onsite sanitation services are critical issues that need to be overcome. Urban sanitation falls under the responsibilities of several institutions, while central government institutions, mainly MoLGDR&C and the Ministry of Housing and Public Works (MoH&PW, responsible for urban planning), retain a role in planning and implementation, in addition to policy development. However, linkages between MoLGDR&C and MoH&PW in the formulation of budget allocation and planning infrastructure development are almost non-existent, resulting in a corresponding lack of city-wide urban planning incorporating strategies for housing, sanitation and other critical urban infrastructure and services. Overlaps and lack of coordination also affect service delivery at the local level. In large cities, WASAs (funded directly by the MoLGRD&C) are responsible for sanitation, a responsibility that overlaps with City Corporations' responsibilities. Most funds for water and sanitation are directed to WASAs where they exist.

Limited supply side and limited demand for sanitation services. The market for FSM is embryonic. As presented in this report, most sanitation service providers are individuals operating informally, known as sweepers. Professional operators involved in faecal sludge services are mostly NGOs (although there is one enterprise that won a lease contract with Dhaka WASA). This lack of supply of services reflects the lack of demand for improved sanitation services. A study in Dhaka found that although 75% of households city-wide use onsite sanitation - suggesting high potential demand for FSM services - only 13% of households report experiencing a pit or tank filling up, suggesting low effective demand.[34] This is because sludge and wastewater are directly discharged

[34] Ross, Scott & Ravikumar 2016

into the drains.[35] Operators such as the NGO DSK report that vacuum trucks are not operational for up to 40% of their time due to lack of demand.[36] At the same time, marketing activities to promote these services are quasi non-existent. A critical area to address is the lack of enforcement of building planning regulation, which means that more housing is being built without adequate sludge containment systems (Box 5).

Box 5: The application process for housing construction permits in Dhaka

According to the formal process for obtaining a housing construction permit, a property developer should seek planning permission from RAJUK (the Capital Development Authority of Bangladesh). Before granting the permit, RAJUK should consult with the relevant authorities (including Dhaka WASA and the City Corporation) in order to ensure that adequate services (e.g. water supply, sewerage, drainage, solid waste etc.) are delivered in the area where the new housing will be developed. However, the actual process rarely follows the formal procedure. For example, RAJUK ensures that water services are provided, but does not inquire about other services, such as adequate sanitation. Further, according to building standards, developers should construct septic tanks (and leach pits) that should be easily accessed for desludging. However, developers often connect toilet facilities to drains and find ways to avoid any fines from RAJUK inspectors.

Source: Ross, Scott & Ravikumar 2016

Lack of public funds allocated to urban sanitation. Most funds for the sector are allocated to water; sanitation (including sewerage services) has received very limited funds. There are no government investments in the infrastructure required to improve sanitation services for low-income communities. Domestic public expenditure on onsite sanitation (the predominant solution in low-income areas, as well as better-off parts of cities) in urban areas is quasi-nil. As a result, the supporting infrastructure for emptying, transport and treatment services is equally non-existent. Most infrastructure (including emptying trucks and small-scale faecal sludge treatment facilities) is funded by international NGOs and is generally implemented in pilot projects, with limited scale. Bringing onsite sanitation services to scale will require considerable public investments, especially in the context of the embryonic market described above.

Challenging topography and hydro-geological conditions. Bangladesh is a flat country, except for a small part of Chittagong Hill Tracts in the South East. As a result, sewerage is costly to install with many pumps required to convey the sewage. In addition, many poor urban communities are located in high water table and flood-prone areas, requiring adaptive (and potentially costly) technologies.

[35] Ross, Scott & Ravikumar 2016
[36] Communication with Georges Mikhael (WSUP, UK)

7 Sector trends

Sanitation has yet to captivate the public attention in the same way as other concerns of urban residents (such as solid waste management). As in many countries, poor sanitation remains "invisible" and its adverse effects on health and the environment are not well-known, or simply ignored or accepted as inevitable. Reflecting general opinion, political commitment to sanitation, including for urban areas, is equally weak. Despite these challenges, a number of factors presented below have the potential to bring positive changes in the sector in the future. The pace of change in the sector will depend on how fast the barriers that have been identified are addressed.

FSM as the buzzword in the sector. The sector has clearly moved beyond the MDG era and is looking beyond the development of containment services to the development of the whole supply chain of services. Studies such as the Shit Flow Diagram have helped to highlight the problem of ill-managed faecal sludge services. International NGOs influential in the sector have launched a coalition called the FSM Network Bangladesh to bring together all stakeholders directly or indirectly linked to the sector (from sector agencies to microfinance institutions).

The increasing interest of larger donors in pro-poor sanitation services. As described in this report, larger donors such as the World Bank and AFD have focused on the design of sewerage improvements. While the need to improve sewerage services is pressing in many cities in Bangladesh, decentralised solutions appear to be the most realistic solution in the short to medium term. The piloting of contracts, technologies and institutional arrangements by NGOs active in the sector has shown that there are other investment opportunities for donors looking to impact the lives of the poorest urban residents. The World Bank's support to Dhaka WASA in the formulation of a FSM strategy is recognition of the need to invest in decentralised sanitation solutions.

Dhaka WASA's creation of a Low-Income Unit. Linked to the previous point, a major step forward is the incorporation of a Low-Income Unit within Dhaka WASA, whereby subsidised connections are provided to poor households. Although the initiative has so far focused on water supply, this inclusion of low-income customers can potentially be widened to sanitation services.

The government's aim to achieve upper middle-income status. With the government having aimed to achieve the middle-income status by 2021, there is impetus to invest in urban infrastructure in order for cities to reach their potential. As identified in this assessment, Bangladesh's urban economic output is low from an international perspective, and Dhaka's annual output falls short of what would be expected for a metropolitan area with its population density. Increasing economic growth will therefore require increasing outputs from cities, metropolitan areas and secondary cities. Economic losses related to poor sanitation have been estimated at USD 4.2 billion each year, equivalent to 6.3% of GDP.[37] Translating the potential of cities into growth will inevitably require tackling the sanitation challenge if Bangladesh is to fulfil its ambition.

Advocacy for reducing urban poverty. A number of initiatives are contributing to raising the voice of the urban poor, in particular the Bangladesh Urban Forum and the Coalition for the Urban Poor. With the increased recognition of the linkage between sanitation, housing and ill-defined policies regarding the urban poor, these platforms have the potential to amplify advocacy messages for the increased political prioritisation of sanitation.

[37] WSP 2012

8 Opportunities for influencing the urban sanitation sector

The authors of this report suggest research in the following areas may be of value for generating evidence that will support the development of sanitation solutions for the urban poor:

- In partnership with other stakeholders, including the relevant ministries and international NGOs, research the actual costs of delivering sanitation services within selected cities and assess current funding allocation; such an assessment will provide a stronger basis for advocating increased investments in sanitation;
- Identify factors contributing to low demand for sanitation services and how to trigger demand (including potential opportunities to develop urban sanitation marketing);
- Assess the impacts of inadequate sanitation on women and vulnerable groups, such as children, people with disabilities and the elderly, and their respective roles in decision-making for improving facilities;
- Research the role of community organisations in supporting behaviour change and driving demand for improved sanitation services;
- Pilot sanitation solutions suitable for water-logged densely populated areas. Among such solutions, consider private facilities as well as communal facilities (i.e. non-fee paying facilities shared by several households); and research incentives for adequate maintenance of such facilities, either by households themselves or through developing maintenance services that would be contracted;
- Pilot various contractual arrangements between City Corporations/Pourashava governments and private operators; assess the financial viability of these contracts for both public and private partners;
- Assess within selected City Corporations and Pourashava governments training needs and human resources required for planning, implementing and regulating sanitation services;
- Where access to finance has been identified as a barrier to demand for sanitation services, research mechanisms to facilitate access to finance for household investments in sanitation.

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