

Sanitation Market Analysis

SUMMARY REPORT: BANGLADESH



Acknowledgements

UNICEF contracted Oxford Policy Management to conduct an assessment of the sanitation markets in Bangladesh, Nepal and Pakistan. This report is part of a series and includes findings from the assessment in Bangladesh.

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Summary

Context:

Sanitation coverage in Bangladesh has improved significantly over the last three decades; this has been mainly driven by government, development partners and NGO-led programmes. Most households either purchase their toilet components from local latrine producers (LP) or sanitation service providers and complete all or some of the construction themselves or else hire the services of the LP to install the whole toilet. Some LPs have received training from development partners. In certain locations, small business associations act as a platform from which to connect with other market players and government.

Key products:

The most common toilet is a pour-flush latrine (direct drop or offset type) connected to a pit lined with concrete rings. Locally manufactured concrete components make up most of the cost of a toilet at around US\$2-\$3 per ring or slab. The 'gooseneck' plastic pan (US\$0.12-\$1.06) is the cheapest and most common pan purchased by customers while the desired choice is for the more expensive ceramic pan (US\$5-\$10). The plastic SaTo pan is a recent innovation and costs around US\$1.5. The complete sub-structure for the cheapest toilet option (direct drop with the pit directly below the pan) is less than US\$20. However, the government is now recommending toilets with off-set pit(s) to facilitate safe management and these are a little more expensive.

Levels of demand and market size:

This assessment found that the cheaper toilet options are considered affordable for the low-income group but unaffordable for the 'ultra-poor'. If all the households with unimproved or shared sanitation were to purchase an offset pour flush toilet (single pit), the potential value of the market would be US\$1.8 billion for mid-range off-set toilets with a durable superstructure.

Constraints faced by businesses in sanitation include:

Access to finance as well as lack of access to training, innovative technology, quality products, standards and quality assurance. Businesses generally suffer from inadequate infrastructure, counterfeit products, corruption, lack of access to finance, bureaucracy and a low-skilled workforce.

Key opportunities to expand the sanitation market include:

Standard toilet designs that provide a more affordable range of choices for customers; more favourable payment plans to purchase toilets; training LPs to construct latrines and perform safely managed pit emptying services.

Introduction

Bangladesh is one of the most densely populated countries in the world, with a population of about 165 million people (2017) and a population growth rate of 1% (significantly down from over 3-4% in the last decade) (World Bank, Open Data). The rural population has decreased significantly over the recent past, from 80% in 1990 to 64% in 2017.

Bangladesh is subdivided into administrative units for local government. This includes 64 districts with an average area of 2,000 km² and 492 Upazilas (administrative regions that serve as sub-districts), with an average area of 265 km². The lowest administrative level is the Union Parishads, with an average area of 28 km², and there are 4,553 of these with an average population of 27,000 people and 6,000 households. See Figure 1.

Figure 1: Administrative map of Bangladesh



Bangladesh has enjoyed strong economic growth over the last decade. It has averaged around 6-7% year on year and this growth has been largely driven by exports of ready-made garments, remittances from workers overseas, and the domestic agricultural sector. The country has pursued export-oriented industrialisation, with its key export sectors including textiles, shipbuilding, fish, seafood, jute and leather goods.

Poverty rates in Bangladesh have reduced substantially over the last two decades. Around 50% of the population was living at or below US\$1.90 a day in 2000 compared to 24% in 2016 (Bangladesh Bureau of Statistics (BBS), 2016). In terms of 'extreme poverty'¹, the reduction was 34.3% to 12.9% over the same period. In 2017, GDP *per capita* (purchasing power parity, PPP) stood at US\$4,561 (International Monetary Fund, 2017), which was up from US\$1,856 in 2005. However, the GINI index, although relatively low, has increased in the past few decades, indicating an increase in income inequality.

Rising incomes and national wealth have also coincided with a growth in human capital and health. Life expectancy at birth now stands at 72 years, compared to 65 years in 2000. Moreover, infant mortality and under-five child mortality have both decreased significantly in recent years, with particular reductions in death from diarrhoeal disease, which is a 6.5% less frequent cause infant death from 2007 to 2017 (Healthdata.org, 2018). School enrolment and literacy have also improved.

Bangladesh is very vulnerable to floods and cyclones. The country is situated in a low-lying delta, where several Himalayan rivers drain, and flooding has been exacerbated by rising sea levels. In recent years, cyclones Sidr (2007) and Aila (2009) led to widespread casualties, along with loss of infrastructure, livestock, and cropland.

This brief summarises an assessment (Pinfold et al, 2019) of the demand side, supply side, and enabling environment of the sanitation market in Bangladesh. It concludes with a series of recommendations for catalytic market systems changes.

¹ Also termed hardcore or ultra-poor – defined by a calories intake of 1,860 kcal per day (below 80% of a person's energy requirements).

Methodology

In the context of a world with 4.5 billion people without access to safely managed sanitation (WHO & UNICEF, 2019), one of the key programming approaches employed by UNICEF in its global WASH strategy (2016-2030) is building sustainable markets for water, sanitation and hygiene goods and services which balance demand and supply.

UNICEF contracted Oxford Policy Management to conduct an assessment of the sanitation markets in Bangladesh, Nepal and Pakistan, to improve their understanding of the product and market landscape, to inform UNICEF's market-led approach to improving the supply of appropriate sanitation for communities in the long term. This brief is drawn on the report of the market assessment for Bangladesh.

The methodology for the market analysis includes a number of steps:

Step 1: An inception phase

The inception phase is necessary to understand the priority focus areas for the assessment.

Step 2: Mapping the market system

Mapping the market system involves studying the demand-side; supply landscape and product assessment; as well as to analyse product and supplier data.

Step 2.1 Demand-side study

The demand-side study collects information on:

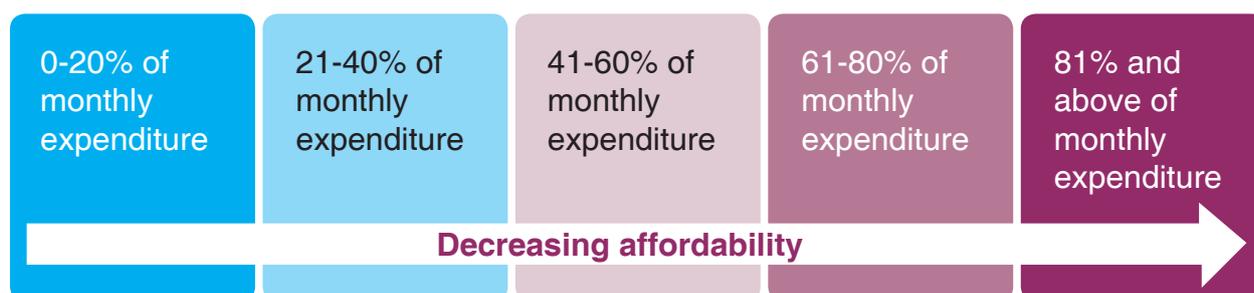
- Levels of demand (current and potential) for sanitation products and services amongst certain groups of the population (e.g. based on income or geographic location);
- Preferences for different types of toilet amongst different types of customer (e.g. rural or urban, geographic location and different income groups);
- Barriers to accessing the sanitation market for low-income groups; and
- Affordability of certain toilet designs.

Secondary data can be collected from sanitation programmes, sector reports, and peer-reviewed literature. Insights on the demand-side market dynamics can also be collected as part of the investigation into supply landscape and product assessment and the wider enabling environment affecting sanitation markets.

Toilet costs: The possible cost drivers inherent in the construction of typical toilet designs for household toilets can be assessed using costing information for materials, labour, and, to the extent possible, other cost drivers such as transportation from upstream supply chains to markets and vending points, profit margins, and transaction costs along the supply chain. Costs for labour can be collected in the form of daily rates of skilled and unskilled labour

Affordability: OPM developed an affordability model to better understand the financial constraints faced by householders (particularly low-income and middle-income householders). The affordability model considers monthly consumption data disaggregated by income quartiles (derived from the Global Consumption Database) against the upfront cost of constructing a toilet. The model also considers other factors affecting affordability including household savings, remittances, and willingness to pay (WTP).

Figure 2: Affordability framework



Source: Authors

In attempting to quantify demand, the Joint Monitoring Programme's (JMP) data on access to sanitation provides information on the number of people currently accessing a range of sanitation facilities. Existing studies and assumptions can be used to estimate the number of people who demand a sanitation facility that differs from the one they currently have access to.

For this exercise it is also important to consider two stages of demand. First, the level of potential demand, which can be considered as the number of people whose current sanitation facility is considered inadequate. Of course, every individual will have their own opinion of what they consider to be adequate, based on their knowledge and view of the importance of sanitation, in comparison to other areas of their life.

Using the JMP definitions, the customer groups includes: 1) those practicing open defecation, who can be considered as potential first-time users of a sanitation facility; and 2) those accessing an unimproved facility who can be considered as potential demand for an improved facility (unimproved and limited sanitation access under JMP terminology).

The second stage of demand is actual demand, defined as those people who have expressed a willingness and capability to improve their access to sanitation. A number of conditions need to be in place to support the conversion of this potential demand to actual demand. These include a dissatisfaction with current sanitation access, a knowledge of sanitation products and designs, access to sanitation-related products, materials and services, a willingness to pay for these, and an ability to afford them.

Existing surveys of WTP and user needs can be used to understand levels of actual demand framed around different customer profiles. Where feasible, WTP figures related to actual demand can be scaled up to estimate regional actual demand (within a country) or scaled up to the national level.

Step 2.2 Supply landscape and product assessment

The aim of the supply-side study is to:

- Identify the actors involved in sanitation supply chains;
- Understand the roles of these actors, the scope of their work, their motivations, incentives, and challenges;
- Understand the type, volume, and nature of sanitation products and services available;
- Identify constraints in the market, particularly to improving access for low-income customers;
- Compile a database of suppliers and their products/services; and
- Compile a list of stakeholders who could be considered as invitees to the industry consultation.

Step 2.3 Product and supplier data

Collect information on products and suppliers by tapping into known networks following a snowball approach to identify new suppliers.

Step 3: Identifying constraints

Following completion of the mapping exercise of the market system, the main market constraints are identified. The focus here is constraints as they pertain to lower-income households accessing better sanitation facilities. The analysis focused on understanding what is preventing and or discouraging the supply side from offering appropriate, quality sanitation solutions at affordable prices.

Step 4: Provision of recommendations for catalytic market systems changes.

Having identified the main constraints, in this step the constraints are prioritized in the order in which they can be tackled, and recommendations provided in line with the main components on the market analysis: demand side, supply side, and enabling environment.

Step 5: Validate findings, collate new insights, and begin action planning for improving sanitation markets

National industry consultation meeting is held in order to validate findings, collate new insights, and begin action planning for improving sanitation markets. This includes a prior step of helping to identify the main stakeholders to be invited.



Results

1 The demand side of the market

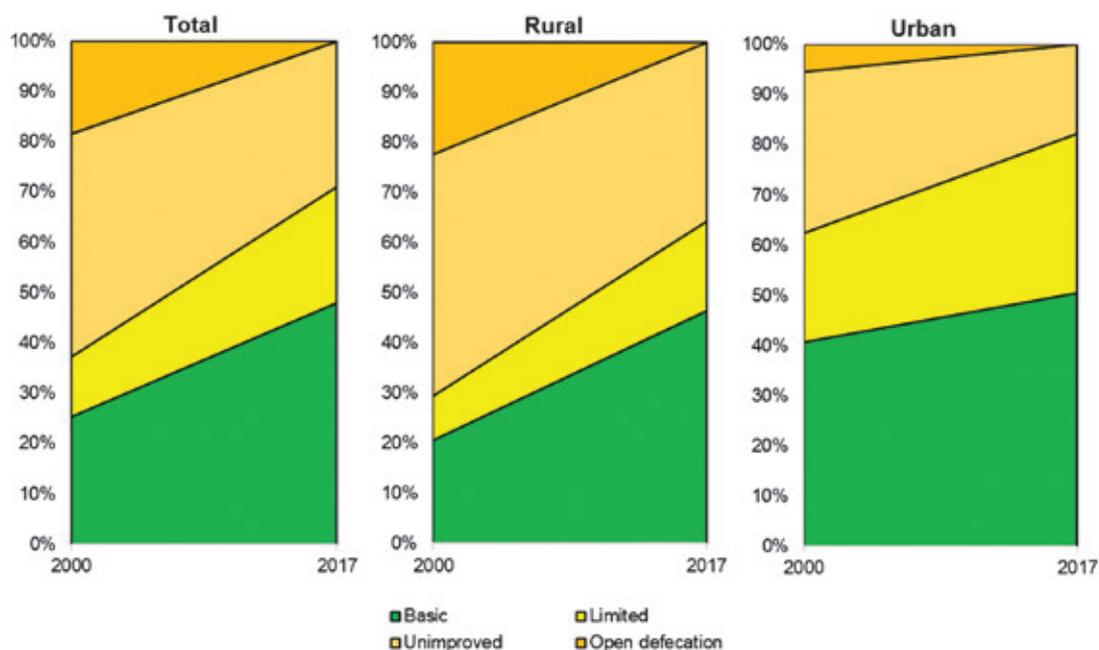
This section outlines the types of sanitation facilities available in Bangladesh, demand characteristics and quantifying demand for sanitation. It also discusses issues around financing such as toilet costs, willingness to pay for sanitation as well as affordability.

Sanitation in Bangladesh

Bangladesh has made good progress in improving sanitation coverage in the last decade and a half. The coverage of basic sanitation has improved from less than 25% in 2000 to 48% in 2017, and Bangladesh now claims to be almost Open Defecation Free (ODF)

(WHO & UNICEF, 2019). Coverage of unimproved latrines decreased from 44% in 2000 to 29% in 2017, but more people are sharing (limited access) in both rural (9% to 18%) and urban areas (22% to 32%). See Figure 3.

Figure 3: JMP sanitation coverage for Bangladesh (2000–2017)

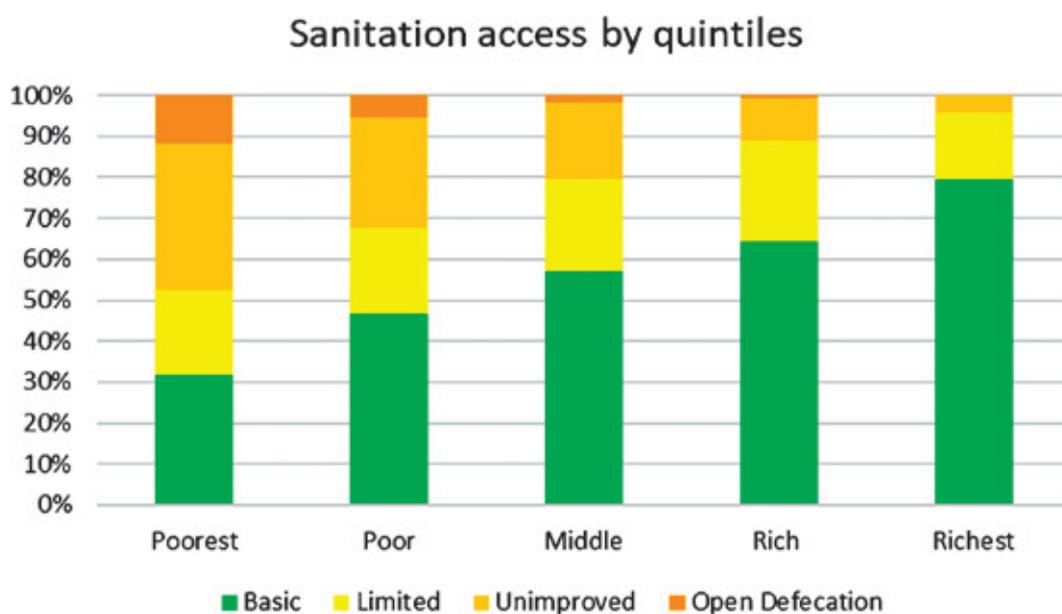


Source: JMP household data 2019

Limited access (sharing) is fairly constant across wealth quintiles. Unimproved toilets are more common for the poorer quintiles, and these are often self-built with limited involvement of the private sector in terms of mass-produced or locally

manufactured products. However, most toilets do not connect to any sewerage network, and there is a serious problem of groundwater pollution in Dhaka (SuSanA, 2016). See Figure 4.

Figure 4: Sanitation coverage by wealth quintile (2013)



Source: Authors, using JMP data

Many Bangladeshis live in areas where improving access to sanitation is more challenging. Parts of Bangladesh are difficult to reach with sanitation products and services, and/or difficult places in which to construct toilets. These include wetlands (Haor), floating islands (Char), and some coastal areas with high water tables and salinity. Transportation costs are often significantly higher in these regions and local producers of toilet components are not as prevalent. Moreover, the toilet technology often requires adaptation to combat conditions such as a high-water table and flooding, and these adaptations often cost more or, conversely, cheaper typical toilet technology does not last long or function properly.

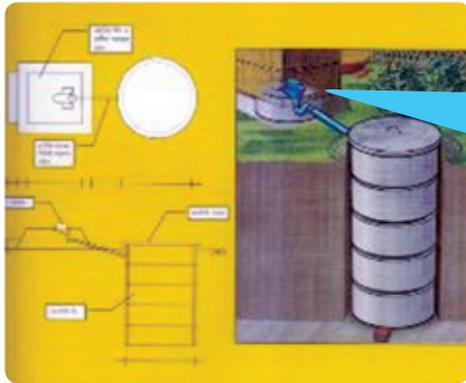
The government policy is that hardware subsidies should only be provided to the poorest households, with the expectation that all other households self-

finance latrine construction. World Bank studies have shown that only 11% of households reported receiving free toilets from governmental agencies or NGOs (World Bank, 2018). The Department of Public Health Engineering (DPHE) once operated subsidised latrine production centres but these have now all been closed. A market-led approach is in operation that provides customers a choice of prices and technology options through the private sector. The government funds a rural sanitation project that delivers free latrines to the 'ultra-poor' (it is currently in its third phase). These toilets are provided through the private sector either by open tender with contractors or sometimes smaller contracts are awarded directly to LPs. However, these can often be of poor quality, resulting in leakage and breakage of the water seal, and also fill up quickly when shared with other households.

Types of sanitation facilities

The range of rural and urban sanitation options varies widely, from pour-flush pit toilets for the poor to upmarket solutions such as the auto-flush toilets that serve the very rich. Direct-drop and off-set pit toilets predominate in rural areas. See Figures 5 and 6.

Figure 5: Pour-flush off-set toilet

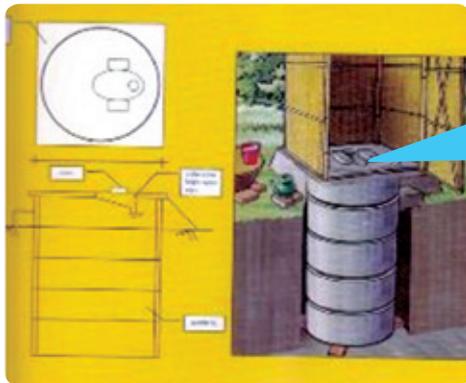


Source: NGO Forum



Options include plastic or ceramic pan with siphon, and SaTo Pan with collection or San Box

Figure 6: Pour-flush with direct drop and gooseneck pan



Source: NGO Forum



Gooseneck plastic pan – the bottom parts fits onto the hole of the pan to form a water seal

The pour-flush direct drop is the most common toilet design in rural Bangladesh. The pour-flush aspect means water is manually poured into the pan to flush the faecal waste directly into the pit below. The main components are concrete rings, a concrete slab, a plastic or ceramic toilet pan and plastic pipes. The pit is usually lined with concrete rings and a concrete

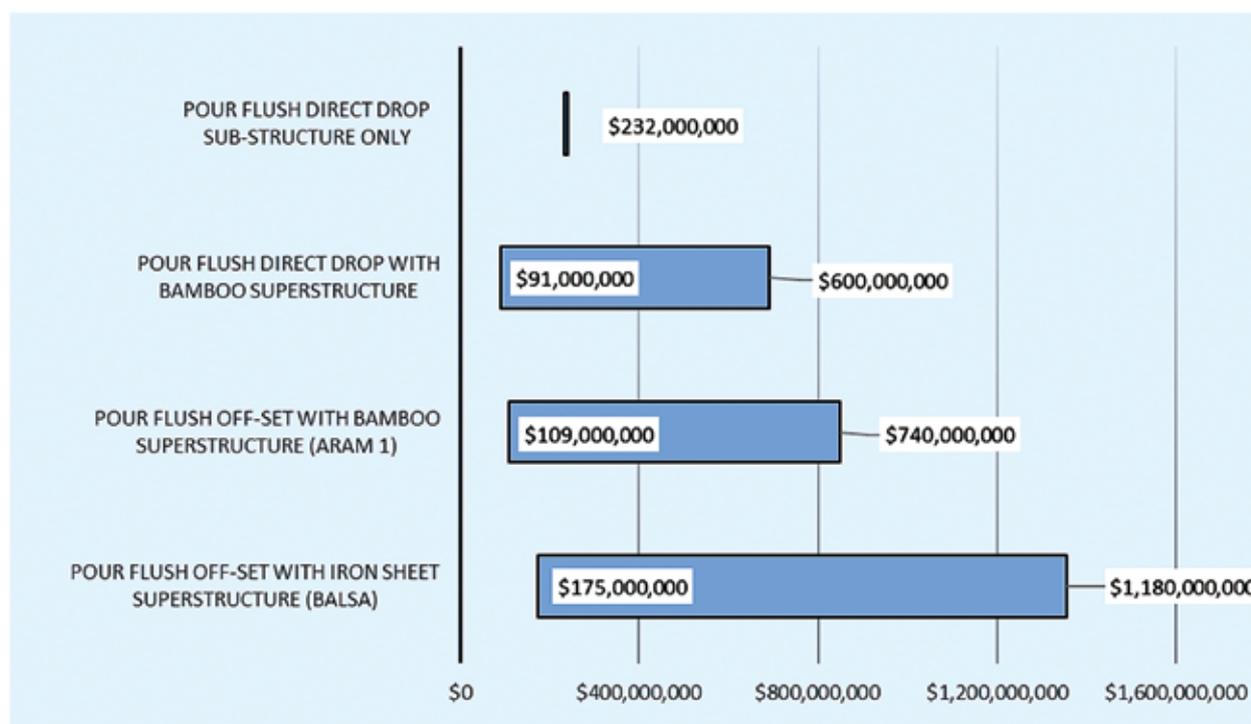
slab sits on top of the rings so that faecal waste 'drops' directly into the pit below without the need for any additional pipes. The pit is not usually fully sealed and often gaps are made to allow fluid to seep into the surrounding soil to reduce its filling time. The main drawback of these options is the difficulty of access to empty the pit once it becomes full.

Demand characteristics

There is a need for a range of toilet options to suit different purses as well as provision of payment plans or credit by the private sector. Cheaper toilet options appear affordable for the low-income group but unaffordable for the 'ultra-poor'. Willingness to pay data indicates a high demand for improved sanitation but a strong preference to pay in monthly instalments.

If all households with unimproved or shared sanitation were to purchase a single pit offset pour-flush toilet, potentially this market would be worth US\$1.8 billion for mid-range off-set toilets with a durable superstructure. A breakdown of costs for selected components of this toilet would represent a potential market of US\$550 million for concrete components such as rings and platform constructed by LPs, and US\$83 million ceramic pans.

Figure 7: Estimated market value (low–high demand) for different toilet options for the rural population



Source: Authors

Toilet costs

Locally manufactured concrete components make up most of the cost of a toilet and in most rural areas prices are very competitive at around US\$2-\$3 per ring / slab. Amongst the pans purchased by customers, the 'gooseneck' plastic pan is the cheapest and most common while the desired choice is the more expensive ceramic pan. The 'gooseneck' ranges from US\$0.12-\$1.06 depending on the quality while ceramic pans are available for between US\$5-\$10. The plastic SaTo pan is a recent innovation introduced by Lixil as a better-quality alternative to traditional plastic pans that uses less water for flushing and costs around US\$1.5.

The complete sub-structure for the cheapest toilet option (direct drop – with the pit directly below the pan) is typically less than US\$20. However, in line with the SDGs, the government is now recommending toilets with off-set pit(s) to facilitate safe management and these a little more expensive with options provided by World Bank and Palli Karma Sahayak Foundation (PKSF) and International Development Enterprises (iDE) and UNICEF ranging from US\$28.81-\$52.62, depending on the design. The SaTo pan has been modified to work with an off-set pit but the price of this 'SanBox' is around US\$9, which is more expensive than a mid-range ceramic pan. See Figure 8.

Figure 8: Price range for different toilet options



Source: Authors

Willingness To Pay (WTP)

There are few WTP studies for sanitation in Bangladesh. One study found that around 80% of the rural households questioned were willing to pay for improved sanitation services, among whom 92% preferred to pay in monthly instalments (Seraj, 2008). Those who were interested in making a single payment had a mean WTP of BDT (Bangladesh Taka) 1,619 while those wanting to pay a monthly instalment had a mean WTP of BDT 76. The mean WTP for the overall sample was between 1-2% of the households' average disposable income. The single payment is just outside the Ability To Pay (ATP) range of BDT 790-1,580, while the monthly payment is within the ATP range BDT 41-83 (ATP is derived from 1-2% of the annual / monthly income, respectively). The WTP and ATP figures would be higher if a study were to be conducted today. A conservative current estimate for these WTP figures using the average annual inflation rate of 6.5% over the last 10 years to give BDT 143 (US\$1.7) for monthly and BDT 3,039 (US\$36.2) for a one-off payment.

The main barrier found to installing a latrine was economic hardship. One factor is the issue of liquidity, which can be solved if loans are available. There would still be an affordability issue for the

rural ultra-poor; they would struggle to make the loan repayment even if such financing were available and some level of subsidisation is still necessary in such cases.

Affordability

OPM developed an affordability model to better understand the financial constraints faced by householders (particularly low-income and middle-income householders). The affordability model considers monthly consumption data disaggregated by income quartiles (derived from the Global Consumption Database) against the upfront cost of constructing a toilet. There is no hard and fast benchmark for sanitation affordability, but 1-2% of the annual household income is used as a rough guide and this has been converted to 20% of monthly income as the most affordable category. Benchmarking from the healthcare sector suggests that out-of-pocket payments for healthcare services should not exceed 15-20% of the total cost to provide that service to ensure financial barriers to access to care are reduced, especially for the poorest households. According to this model, the pour-flush direct-drop latrine with bamboo superstructure was affordable for the poorest people.

2 The supply side of the market

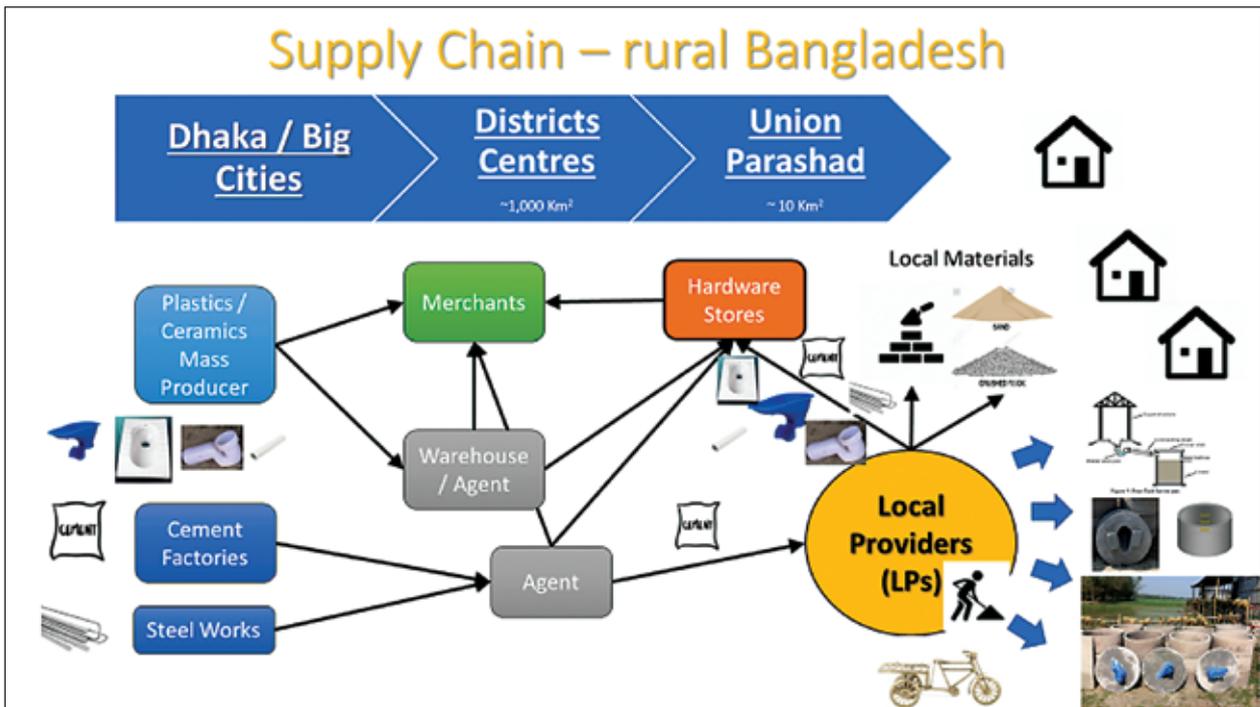
This section reviews the key supply-side actors, new technologies and emptying services, constraints faced by businesses in Bangladesh together with financing options.

Key supply-side actors

In 2000, the World Bank estimated that LPs accounted for 65% of the total sanitation market, numbering 3,000. A more recent estimate from 2011 suggests that there were more than 10,000 LPs. LPs manufacture concrete rings and slabs that are used to construct a toilet and most households purchase their toilet components from an LP and then complete all or some of the construction themselves. A pit digger or mason may be hired if required. If a household cannot access the concrete components, they may even construct them themselves. However, it is now becoming more common for customers

to hire the services of the LP to install the whole toilet. Some of these LPs have received support from development partners such as Building Resources Across Communities (BRAC), iDE, UNICEF, Association for Social Advancement, NGO Forum for Public Health and World Bank who have provided training on constructing quality toilets, support to improve toilet designs and business loans. In some locations, iDE and UNICEF have also encouraged the establishment of small business associations (SMAs) for providing mutual support and acting as a platform from which to connect with other market players and government. See Figure 9.

Figure 9: Supply chain for the rural sanitation market



Source: Authors

The mass-produced sanitation products stocked by LPs such as ceramic, plastic pans, and pipes are purchased in local hardware stores who in turn purchase from merchants or warehouses in district or regional centers. There are no sanitation specialists as such as they all trade in a variety of goods. Most of these mass-produced products are manufactured in Bangladesh by large conglomerates that produce a range of products while the specific sanitation products tend to be a small part of their larger product portfolio. For example, RFL Plastics (one of the largest plastic companies in Bangladesh) has around 100,000 employees in total and exports to 36 countries, employs around 1,000 in its kitchen and bathroom division where the SaTo pan only contributes to around 2% of its divisional turnover. Other examples include ceramic manufacturers RAK and Star which follow International Organization for Standardization (ISO) and British standards and cater to the higher end of the market.

There are also manufacturers of plastic and ceramic pans operating at a regional level, usually located in large urban centers. However, these companies tend to produce un-branded, lower quality, cheaper products.

With the economic growth, the construction industry expanded rapidly, meaning there are more than 45 cement manufacturers in Bangladesh, including the top 4 global producers: Lafarge, Holcim, Cemex and Heidelberg. The total market amounts to 33 million metric tons per year, but the proportion used in toilet construction is unknown.

New technologies

In rural Bangladesh, the local private sector are offering a more affordable range of choices for customers. Continued toilet design innovations are needed to provide a desirable but affordable toilet options to the market, particularly to supply the difficult to reach areas of the country and those at risk of flooding.

Emptying services

Manual emptying services are available in rural areas. This is usually done by sanitation workers, with the faecal sludge dumped on a nearby surface (e.g. fields), water body, or ditch. iDE and UNICEF have trained sanitation workers in their programme area to bury the faecal sludge. The LPs trained by iDE sometimes help market the local pit emptiers by referring them to householders wanting their toilets emptied.

Constraints faced by sanitation businesses in Bangladesh

Bangladesh ranks very low on the World Bank's Ease of Doing Business Index, with a score of 177. In general, businesses suffer from inadequate infrastructure, corruption, lack of access to finance, bureaucracy and a low-skilled workforce. Most LPs reported that access to finance was a key constraint to the growth of their business. Other barriers are a lack of access to training, innovative technology, standards and quality assurance.

A shortage of quality aggregate in many parts of rural Bangladesh has pushed up the price of quarried stones, so LPs often rely on the cheaper broken bricks which are not only poorer quality aggregate but also more detrimental to the environment.

LPs are not particularly severely affected by inadequate infrastructure. Local road infrastructure may be a problem in some areas but population densities usually mean the distances they are required to cover are usually not great. Hardware stores face similar constraints as LPs, except that road infrastructure is probably more important to them given that some goods are collected from merchants and deposited at regional centers.

Financing businesses

The large national manufacturers of toilet components have access to loans from formal banks, but the same is not true for local-level hardware stores and LPs. The LPs are very small businesses that do not have access to formal loans. They mostly rely on informal channels – their means of financing is primarily individual savings and/or personal loans. That said, some do access small loans from Microfinance Institutions (MFIs) such as PKSF (Palli Karma Sahayak Foundation)², BRAC or the Association for Social Advancement (ASA). The following examples of micro-credits for small local toilet producers provide lessons for a market-based strategy to advance sanitation in the future.

PKSF is a government fund that generates rural employment through providing income-generating micro loans to the poor. PKSF recently partnered with the World Bank in successfully piloting a market-

based approach to promote sanitation. The project has financed and trained selected local sanitation entrepreneurs on the supply side and has assisted households with micro-credit to acquire better toilets on the demand side.

In its WASH programme, BRAC has supported over 1,500 LPs and also provides interest-free loans for LPs, starting from a minimum of BDT 100,000 (US\$1,119) to a maximum of BDT 1,000,000 (US\$11,190) payable in two years.

ASA is the largest MFI after Grameen Bank and offers micro-credit, small business credit, regular weekly savings, voluntary savings, and life insurance. The signature ASA product remains the low-cost, 12-month, weekly-repayment loan, backed by borrower saving accounts. It was the main MFI partner in the World Bank and PKSF sanitation programme but doesn't take any funds from the World Bank.



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² An apex development organisation established by the Ministry of Finance, the Government of Bangladesh (GoB) in May 1990.

3 The enabling environment in Bangladesh

This section provides an outline of the key actors influencing the enabling environment in Bangladesh, it summarises sector policy and strategy, regulations and standards, reviews experience in sanitation marketing, promotion, and campaigns as well as the use of public-private partnerships (PPPs) for sanitation. Overall, an enabling environment is created through policy commitment, continued donor support, technical support from academics, large-scale development partner and NGO-led sanitation programmes, enthusiasm on the part of local governments, and communities' aspirations for improvements in their health, hygiene, and social status.

The key actors influencing the enabling environment

Bangladesh has a unitary form of government, with the country divided into eight divisions. A division comprises a number of zilas (districts) totalling 64 in all. Each of the zilas is further subdivided into upazilas (sub-districts), with a total of 492. A sub-district has a number of Union Parishads (UPs) - there are 4,488 UPs across the country. The government administration extends to the upazila level. The few government officials located at the UP level are under the control of the administrative hierarchy of relevant ministry or government line agencies. The UPs are the lowest level of locally elected self-government.

The Local Government Division (LGD) of the Ministry of Local Government, Rural Development and Cooperatives is responsible for the water and sanitation sector. It approves and adopts policies, strategies, government programmes and projects, leverages funds, and coordinates and monitors development activities. LGD delegates its operational responsibility to the DPHE, which is responsible for water and sanitation development in the rural areas; and over 329 Pourashavas (municipal corporations). DPHE has staff up to the upazila level and implements its own programmes, keeping the local government administration informed of its activities through coordination meetings at different levels. Four water and sewerage authorities (WASAs) in Dhaka, Chittagong, Khulna, and Rajshahi are responsible for the development and maintenance of water and sanitation within their respective jurisdictions. Twelve City Corporations and 329 Pourashavas are also responsible for water supply, sanitation and conservancy services within their respective jurisdictions.

Donor assistance in the sector has shifted from direct provision of services to improvement of governance. With exceptions, large donor investments are typically channelled through the government. Collectively donors can be a strong voice in bringing about institutional reforms to ensure good governance at all levels. The main donor that currently makes investments in the water and sanitation sector is the World Bank, while the Asian Development Bank, Islamic Development Bank (IsDB), Danish International Development Agency (DANIDA), Agence Française de Développement (AFD), UNICEF, Bill & Melinda Gates Foundation, Japan International Cooperation Agency (JICA), Swiss Agency for Development and Cooperation (SDC), Swedish International Development Cooperation Agency (SIDA), Department for International Development (DFID) and World Health Organization (WHO) provide implementation, technical, and advisory support.

Hundreds of NGOs are active in the water and sanitation sector in Bangladesh. Development partners and NGO representatives are now active members of national committees and forums that take important decisions. Such participation provides opportunities for interactions that development partners can use to strategically advance 'practice to policy' transformation.

Sector policy and strategy

The National Policy for Safe Water Supply and Sanitation (1998) is the major guiding document in the WASH sector (currently under review). When the government started working on the Poverty Reduction Strategy Paper (PRSP) in 2002 (also under review), the low sanitation coverage shown in the national sanitation baseline survey 2003, influenced

investment in sanitation since 2003. Since the main reason for not having access to sanitation was affordability, the government earmarked 20% of the Annual Development Programme (ADP) grant to LGIs specifically for sanitation.

Regulation and standards

The Bangladesh Standards and Testing Institution (BSTI) is the public agency vested with the responsibility of setting, testing, and monitoring all standards and performance in Bangladesh. There are no standards on plastic pans or SaTo pans. The standards BSTI has in place on ceramic pans or plastic pipes and fittings are seldom enforced or monitored. This has led to companies producing and selling sanitary products of dubious quality.

Marketing, promotion, and campaigns

Bangladesh's sanitation campaign (2003–2006) was not the first such campaign in the country, but it was the most thorough and covered almost all parts of the country. Two of the most well-known and relatively successful programmes under the campaign were CARE International's SAFER programme (in the south-eastern districts of Chittagong and Cox's Bazaar) and UNICEF's Social Mobilisation Programme (in the southern district of Barisal). There have been various follow-up campaigns by NGOs and government. Most customers are now toilet users, with their sanitation behaviour already having been changed away from open defecation through sanitation mobilisation under a Community-Led Total Sanitation approach. Sanitation programmes currently use marketing techniques to promote their products and services.

Since November 2015 GoB-UNICEF-SDC-iDE have implemented the SanMarkS I project in six districts. The project won two prestigious global awards, the P3 Impact Award 2017³ and Civil Society Innovation Award, 2018⁴. Under this project more than 500 LPs were trained, engaged in the sanitation supply chain in connection with national firms, which led to the sale and construction of more than 170,000 toilets, reaching more than 7,765,000 people (2016–2019). The average cost saving per household was equivalent to US\$132 per year in 2010 (DeFrancis, 2012) and the basic toilet model cost US\$18. The

SanMarkS I project surpassed its original target by more than 170% at a cost of US\$35 per household (a per-capita cost of US\$7.7)

SanMarkS I project-conducted 'deep dive' market research to fully understand their target audience. This research revealed 'limited awareness of toilet options' and 'incorrect perceptions around affordability', which was then used to design a comprehensive sanitation market development marketing strategy for rural Bangladesh. The project adopted market-led approaches and focused on strengthening the supply chain, improving consumer demand and strengthening local government to create an enabling environment where smart nudges are the drivers of greater uptake and utilization of sanitation products.

iDE has also been implementing different projects using the sanitation market system approach over the last decade in multiple countries, including Bangladesh. The iDE Bangladesh team adapted the SanMarkS approach for the Bangladesh context through rigorous evaluation of technologies during research and design processes as well as facilitating private sector partnerships and development of a network of last-mile delivery system.

Since 2017, under a World Bank and PKSf project, MFIs partners were given the primary responsibility for motivating households to take out loans and build new toilets. They introduced sanitation loan products in their weekly sessions with credit groups, where they also dealt with general loans and instalment collection. In addition, the project engaged NGO Forum for Public Health to provide technical support to MFIs to undertake demand-creation sessions with credit groups. To support communication activities, standard marketing materials were developed for MFIs and LPs including posters and brochures with details of the different toilet models. Such standardisation ensured consistency and quality across the communication tools, and in effect subsidised the marketing activities of the initiative. The communication strategy focused on the convenience and quality of the new toilets, to tap into households' desire to improve their existing services.

³ Champion Award for P3 Impact Award, 2017 (Concordia, the University of Virginia, the US Department of State Secretary's Office of Global Partnerships)

⁴ Runner Up Award for Civil Society Innovation Award, 2018 (AusAid and Civil Society Water, Sanitation and Hygiene Fund)

The communication messages did not focus on the health benefits of using hygienic toilets, which had been the approach previously used to eradicate open defecation.

Experience of Public Private Partnerships (PPPs)

The main PPP arrangement for sanitation is for faecal sludge management for densely populated low-income urban areas (Skoll Foundation, 2017). Water & Sanitation for the Urban Poor (WSUP) has helped establish a financially sustainable PPP model between the public utility providing water supply and sewerage services and private operators providing mechanical faecal sludge emptying services. By de-risking private sector investment and incentivising collaboration with public utilities, WSUP's approach

provides a sustainable option for middle- and low-income consumers to have safe, hygienic, and affordable septic tank and pit emptying services across urban centres.

The only other formal PPP found in sanitation involves public toilets where land is provided by the government and toilets are built by NGOs or projects with leasing arrangements to private operators. That said, in fact the two large rural sanitation programmes (World Bank/PKSF and iDE/UNICEF) are also a form of PPP arrangement as they both involve delivering sanitation services through the private sector, just that there is no formal agreement in this relationship. This confirms that the vibrant private sector that exists in Bangladesh can be harnessed to provide better sanitation services.



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Recommendations

Specific recommendations for market shaping in Bangladesh are provided below.

Recommendations for the demand side of the market

Recommendation 1: Support the scaling up of the Palli Karma Sahayak Foundation (PKSF) sanitation programme by supporting MFIs to provide sanitation loans for rural households. The World Bank and PKSF have had good results working with existing MFI providers to add sanitation loans to their product offerings.

Recommendations for the supply side of the market

Recommendation 2: Support the scaling up of efforts to build the capacity of more LPs and develop a market system for suitable sanitation products and services that are readily available from a competitive, reputable and reliable supplier base and services in rural areas of Bangladesh to meet SDG 6.2 targets. Many people want a toilet of their own instead of sharing one and others are looking to upgrade their unimproved toilet. Building the capacity of the private sector to provide quality but affordable toilet options will see these people move up the sanitation ladder and towards safely managed sanitation services. Increasing access to finance for private sector actors will facilitate the expansion of their business. UNICEF, SDC and iDE have had good results strengthening the capacities of local sanitation service providers to ensure their products and services are supplied in a sustainable manner (including local production where appropriate).

Recommendation 3: Support product modifications and innovations. Sharing of information between private sector actors and between the private sector and consumers can only be valuable if lessons learned translate into modified products and services. Working with a large number of LPs provides an opportunity to shape the mass-produced product market (e.g. ceramic

and plastic pans) by offering market opportunities for product innovation.

Recommendation 4: Develop affordable sanitation products and toilet designs for areas prone to flooding/with a high water table and introduce them to manufacturers and suppliers for scale-up. Many people live in areas that are prone to flooding and /or have a high water table, and the current options designed for such areas tend to be too expensive and/or do not function properly.

Recommendation 5: Develop a viable business model for an appropriate and safe FSM system for rural areas. Some LPs are already referring their customers to sanitation workers when they need emptying services. This may provide an opportunity to further expand LPs' business.

Recommendation 6: Investigate alternatives to 'brick chips' as concrete aggregate. Brick kilns churn out black smoke, the clay soils are being mined out (thus reducing water retention), and breaking bricks (manually) produces noxious dust. Further investigation is required to better understand the full environmental implications and whether there are feasible alternatives.

Recommendations for the enabling environment

Recommendation 7: Establish an accreditation system with local government for LPs. Quality assurance is important to safeguarding the reputation of trained LPs as well as the branding of toilet options and services.

Recommendation 8: Establish channels for the sharing of information and the provision of peer support. LPs in some locations have formed SBAs and this provides a forum for sharing experiences of construction

techniques to ensure quality and the spread of innovations. Associations form a useful point of contact for other market actors such as mass producers who may want to introduce innovations to suppliers as they are developed.

Recommendation 9: Improve access to financing for LPs. LPs need access to finance to expand their business and this was cited as their main (and indeed only) constraint. LPs are small businesses and lack the collateral to easily access finance from formal markets.

Recommendation 10: Strengthen standards for products and regulations for intellectual property and their enforcement. Protecting quality products helps ensure the durability of toilets for the user. There have been instances of copyright breach with SaTo pans where imitations made with inferior quality plastic, which are brittle.

Recommendation 11: Continue to support learning, coordination, and dialogue in the sanitation sector.



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