

RESEARCH BRIEF, JULY 2019

# SANITATION POLICIES, PRACTICES AND PREFERENCES IN RANGPUR, BANGLADESH



## SUMMARY

- In Rangpur, the majority of low-income residents use lined pit latrines, but would prefer pour-flush toilets.
- Most low-income areas have sandy soil, which makes pits prone to collapsing.
- When pits are full, residents typically hire informal manual emptiers who bury the waste nearby.
- A new fecal sludge treatment site recently opened in 2019, though there are no other facilities to treat wastewater or fecal sludge.
- The majority of previous sanitation programs implemented in Rangpur focused on latrine construction.

## BACKGROUND

Limited access to safely managed sanitation infrastructure and services compromises public health and economic growth in the developing world. Low-income households are the most affected: they often cannot afford to construct and manage on-site sanitation facilities or connect to sewerage networks (Daudey, 2017). Understanding the economics of sanitation service improvements, including both life-cycle costs and affordability, is essential for expanding safe sanitation in low-income settings.

The Aquaya Institute is conducting research on urban sanitation economics under the Urban Sanitation Research Initiative, a program managed by Water and Sanitation for the Urban Poor (WSUP). The research goal is to assess the extent to which low-income households can bear the financial costs of safely managed sanitation in five cities across Kenya (Nakuru, Malindi, and Kisumu), Bangladesh (Rangpur), and Ghana (Kumasi). This brief is on sanitation policies, practices, and preferences in the city of Rangpur, Bangladesh.

## RANGPUR, BANGLADESH

Rangpur is the fifth largest city in Bangladesh with a population of approximately 796,556 (Rangpur City Corporation, 2019). The city has 76 low-income areas, comprising about 8% of the population. Access to piped water is generally low in these areas: only 2% of residents use piped water for drinking, while 13% use piped water for other activities (Bangladesh Bureau of Statistics, 2015).

The legal responsibilities for sanitation service provision and fecal sludge management are outlined in Table 1.

## METHODS

We conducted reviews of 10 national and local documents describing sanitation policies and programs. In the city of Rangpur, we conducted 76 transect walks, 14 key informant interviews, and 8 focus-group discussions with low-income residents. Through these activities, we identified water and sanitation stakeholders; located and characterized low-income neighborhoods; identified existing sanitation facilities, practices, and services; and examined sanitation preferences and gender concerns.

**TABLE 1:**  
**SANITATION LEGAL FRAMEWORK**

### National policies

- **Water Supply and Sewerage Authority Act** (1996): enables City Corporations to establish public utilities whose main responsibility is to provide water and sanitation services.
- **The Local Government (City Corporations) Act** (2009): specifies the roles and responsibilities, including those related to water and sanitation, of all City Corporations in Bangladesh. The Act requires homeowners to provide adequate sanitation facilities.
- **National Strategy for Water Supply and Sanitation** (2014): replaces the 2005 Strategy largely focused on rural sanitation. The 2014 Strategy provides strategic guidance to both state and non-state actors to work towards safe and sustainable water supply, sanitation and hygiene services for all. The Strategy encourages the use of twin pit latrines to enable proper in-situ composting of sludge for safe disposal or use as fertilizer.
- **Institutional and Regulatory Framework for Fecal Sludge Management (IRF-FSM) for City Corporations** (2017): defines the roles and responsibilities of stakeholders for effective implementation of fecal sludge management services in City Corporations outside Dhaka. The Framework proposes that City Corporations promote mechanized emptying and that until treatment plants are built, fecal sludge should be buried at land designated by the City Corporations.

## KEY FINDINGS

### 1) The most common toilet types in Rangpur low-income areas are shared lined pit latrines with concrete slabs.

Approximately 76% of low-income households share sanitation facilities (BBS 2015), and low-income residents are concerned about unpleasant odors and long queues for shared facilities. Residents also raised concerns about the lack of space to construct toilets and weak superstructures, typically made with tin sheets on a bamboo frame. Open defecation is not widespread in Rangpur city, though it is still practiced in the low-income, peri-urban areas. For middle- and high-income residents, ceramic cistern-flush pans are the dominant toilet types. As in most cities in Bangladesh, there is no sewerage network in Rangpur.

2) **Residents of low-income areas prefer water-based sanitation, such as pour-flush toilets connected to twin pits or a septic tank.** There is limited knowledge about sewerage and it is generally less preferred due to space and financial constraints. Residents prefer private toilets (as opposed to public toilets) and for toilets to be separate from the bathroom, despite space constraints in some low-income areas. Residents also expressed preferences for the following components, which are currently often too costly or not accessible: ceramic pans, a strong superstructure of brick walls and iron sheets for roofs, handwashing facilities, and piped water for menstrual hygiene management.

3) **Most low-income areas have loose, sandy soil and a high water table.** Weak superstructures, typically made with tin sheets on a bamboo frame, are also prone to

collapsing, especially on loose soil. To minimize the risks associated with pit collapses in sandy soil, there is a preference for offset pits or fully lined holding tanks. The city is characterized by a high water table (approximately 6 meters deep) where groundwater is highly susceptible to contamination, particularly in low-income urban centers where latrines and borewells are in close proximity. The high water table also limits pit depth to around two or three meters. Spillage from pit latrines occurs during the rainy season in some of the low-lying parts of the city prone to flooding.

4) **When pits are full, low-income residents typically hire informal manual emptiers, referred to as “sweepers”, who empty the pits and bury the waste nearby.** Alternatively, residents sometimes connect pits directly to nearby water bodies or drains to discharge the fecal waste, thereby contaminating the environment. In 2017, the World Bank donated a 3,000-liter Vacutug truck (a small emptying truck with a mechanized vacuum pump) to Rangpur City Corporation, with the view that this would be publicly tendered and ultimately leased and operated by the private sector to provide formalized services. The service, known as SWEEP, is a public-private partnership that provides fecal sludge emptying services across the city, though primarily serves middle- and high-income populations. SWEEP is operated by the Rangpur City Corporation Conservancy Department with strategic and technical support from Water and Sanitation for the Urban Poor (WSUP). Residents of low-income areas have

little knowledge about the availability of this service and perceive this service as cost prohibitive. Low-income residents expressed the following concerns about current informal emptying practices: disease risks, unpleasant odors, and the safety of the manual emptiers. However, low-income residents continue to rely on this service due to its affordability in comparison to formal emptying services.

**5) Rangpur has a new fecal sludge treatment site, funded by WSUP and managed by the Rangpur City Corporation Conservancy Department.** This treatment facility opened in 2019 and uses drying beds and co-composting to process the waste. Rangpur does not have any other facilities to treat wastewater or fecal sludge; there is no reuse infrastructure or sewerage network in the city. Previously, fecal sludge collected by Rangpur City Corporation was buried at a site designated by the city for fecal waste disposal.

**6) Sanitation programs in Rangpur have focused on latrine construction through subsidies.** These programs include SWEEP (funded by WSUP), Sustainable Urban WASH Program (funded by WSUP), Integrated Services for Development of Children and Mothers (funded by OBAT Helpers), and Empower (funded by DFID and Australia Aid). These programs provided a subsidy for the construction and rehabilitation of latrines. The Northern Bangladesh Integrated Development Project (NOBIDEP), funded by JICA, constructed latrines and septic tanks throughout northern Bangladesh, including Rangpur. In addition, the United Nations Development Programme constructed dry twin pit latrines in Rangpur City as part of its Urban Partnerships for Poverty Reduction program. Anaerobic baffled reactor (ABR) septic tanks, a type of improved septic tank with a series of baffles under which the wastewater is forced to flow, have also been piloted in one Rangpur low-income area.



## NEXT STEPS

In Rangpur, we are currently conducting detailed cost evaluations and household surveys to elicit stated willingness-to-pay for different sanitation facilities and services: pour-flush toilets to septic tank, pour-flush toilets to dehydration vault, pour-flush toilets to neighborhood sewer systems (i.e., anaerobic baffled reactor sewer systems), and mechanized pit emptying. Specifically, we are examining willingness-to-pay for different cost structures (i.e., upfront payments and installments) for both landlords and tenants.

This investigation will allow us to assess the gap between the costs of providing pro-poor sanitation products and services and the amounts that low-income households are able to invest in sanitation improvements. We will apply these gap assessments to develop recommendations for delivering high-quality sanitation solutions to urban, low-income residents.

## REFERENCES

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