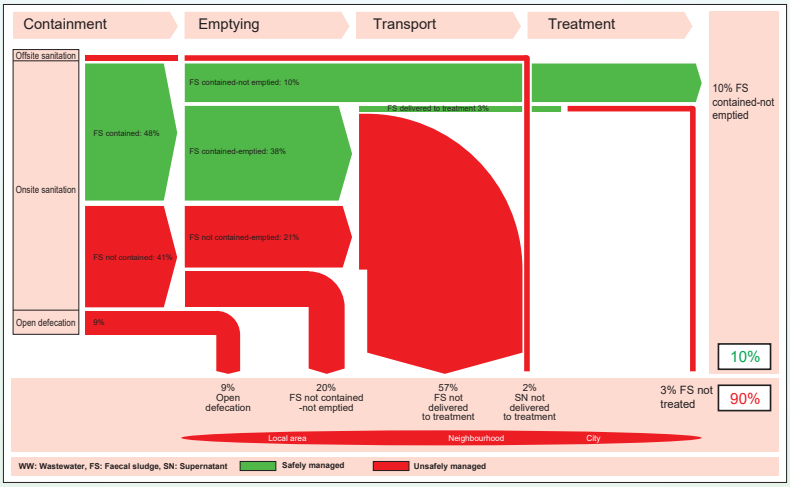
Freshwater Action Network South Asia

Freshwater Action Network South Asia-Bangladesh

SFD Report

Gaibandha Municipality



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Gaibandha Municipality Bangladesh

Final Report

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SFD Report Gaibandha Municipality, Bangladesh, 2024

Produced by:

SKS Foundation, Gaibandha, Bangladesh

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www.sfd.susana.org.

Foreword

The government and development organizations are promoting city-centered facilities to meet Bangladesh's need for rapid urbanization. Being an advocacy network in the WASH sector, the FANSA-Bangladesh is running its advocacy for the promotion of safely managed sanitation services (SMSS) following the city-wide inclusive sanitation (CWIS) approach. Being the FANSA-Bangladesh Secretariat, SKS Foundation has been implementing the project *Rising for Rights for Strengthening Civil Society Networks in South Asia to Achieve SDG 6* alongside other members of the network. The Project covers the cities/towns under 3 geophysical locations namely Barishal City Corporation, Barishal; Sreemangal Municipality, Moulvibazar; and Gaibandha Municipality & Muktinagar Union, Gaibandha.

FANSA-Bangladesh realizes that to effectively promote SMSS following the CWIS approach through the duty-bearers, an analysis of the existing sanitation situation of the target city/town is imperative. Concerning this, SKS Foundation conducted a comprehensive study to dig out and understand the overall sanitation situation of the Gaibandha city.

The study assessed the sanitation situation covering the service provision & standards and prepared a Shit Flow Diagram (SFD) for the Gaibandha Municipality. The study observed that the city has a flat topography and lies near the Ghaghot River. Seasonal flooding is a common occurrence, influencing both urban planning and sanitation systems. The majority of the population uses pit latrines with varying degrees of safety based on the construction and maintenance of the pits. Approximately 20% of the population have either septic or fully lined tanks. Open defecation is still a concern in Gaibandha Municipality, especially in low-income communities. The Municipality doesn't have any concrete plans for expanding sanitation systems and the yearly budget for sanitation is too poor. Alongside, the open dumping of garbage and waste by the Municipality creates health hazards.

The study mapped the duty-bearers, service providers and relevant stakeholders within the municipal area who provided valuable insights into the current sanitation challenges of the city. Upholding the duty-bearers' roles & responsibilities, the stakeholders underscored an urgent need for comprehensive solutions to address the fecal sludge treatment issues and promote inclusive sanitation facilities in the city. However, based on the existing sanitation situation of the city, the SFD was designed following the model from www.sfd.susana.org that will help the respective duty-bearers for informed decisions to prioritize their efforts and resources to accelerate the promotion of safely managed sanitation services.

I express my heartfelt thanks & gratitude to Dr. Md. Mujibur Rahman, Professor, Department of Civil Engineering & Director, CSIRS-UIU, and his team members for conducting the Study & sharing the results through this SFD Report.

I appreciate my colleagues for their efforts in initiating and supporting the conduction of the study by organizing the people focusing on the low-income communities, different groups & forums, and relevant stakeholders consulted to make the study informative and purposeful.

Rasel Ahmed Liton
Chief Executive
SKS Foundation

Abbreviations

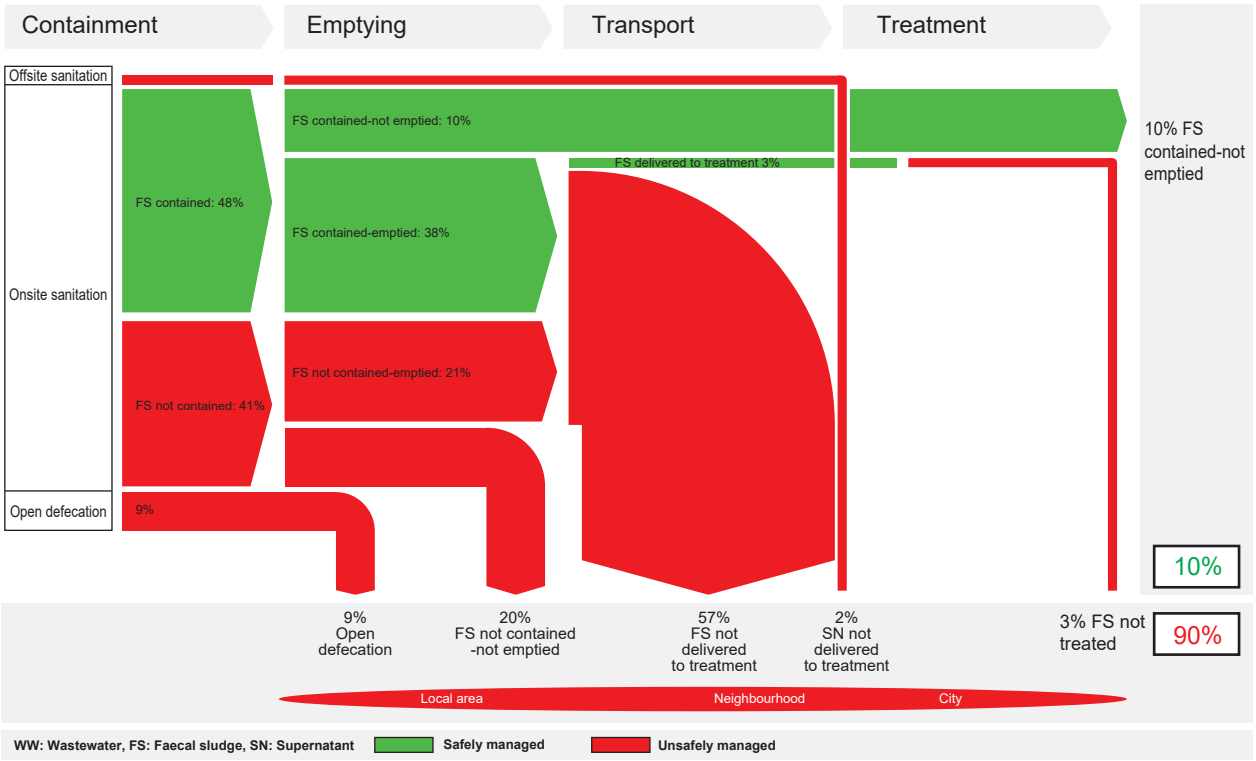
DPHE	Department of Public Health Engineering
FGD	Focus Group Discussion
FS	Faecal Sludge
FSM	Faecal Sludge Management
FSTP	Faecal Sludge Treatment Plant
IRF-FSM	Institutional and Regulatory Framework for Faecal Sludge Management
KII	Key Informant Interviews
LIC	Low Income Community
LGED	Local Government Engineering Department
NAP	National Action Plan
NGO	Non-Government Organization
SFD	Shit Flow Diagram

1. The SFD Graphic

Gaibandha Municipality, Gaibandha, Bangladesh

SFD Level: 2 Intermediate SFD

Date prepared: 15 Sep 2024
Prepared by: SKS Foundation & CSIRS-UIU



The SFD Promotion Initiative recommends preparation of a report on the city context the analysis carried out and data sources used to produce this graphic.
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2. Diagram information

SFD Level:

Intermediate-Level 2 Report

Produced by:

- Center for Smart Infrastructure Resilience and Sustainability (CSIRS) of United International University (UIU)

- This report is a part of the project *"Rising for Rights for Strengthening Civil Society Network in South Asia to Achieve SDG 6"* of SKS Foundation (The FANSA-Bangladesh Secretariat)

Collaborating partners:

- Gaibandha Municipality

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3. General city information

Gaibandha is a district headquarters and a municipality town in the Rangpur Division of Bangladesh. The SFD boundaries have been chosen to align with the official municipal boundaries to ensure accurate data collection and analysis. The city, located 267.2 km north of Dhaka, has a flat topography and lies near the Ghaghot River. Seasonal flooding is a common occurrence, influencing both urban planning and sanitation systems.

The total population of Gaibandha Municipality is 1, 27,468 with a population growth rate of 1.06% and a female to male ratio of 1.2 (2022). Around 30% of the population is living in low income communities (LIC). The urban area is characterized by varying population densities, with some informal housing arrangements, especially in low-income areas like Ward 6 (sweeper polli) and certain Hindu localities in Wards 7 and 8, which lack proper sanitation infrastructure.

4. Service outcomes

- Only 10% of the excreta can be considered safely managed. Majority of the excreta is unsafely managed (90%).
- The city's sanitation system primarily relies on onsite technologies like pit latrines, with septic tanks being increasingly used in new buildings. However, most systems do not contain faecal sludge properly, leading to open dumping and poor waste management.
- No faecal sludge treatment plant exists, and a single dumping station in Ward 7 serves the entire municipality. The absence of a sewer system leads to hazardous practices, such as dumping sludge in nearby ponds and rivers.
- Groundwater contamination risk is significant due to the lack of proper containment systems and the shallow depth of water tables, especially since a large portion of the population relies on groundwater for drinking.

5. Service delivery context

The city's sanitation service chain faces several gaps:

- There is limited capacity for waste transfer with only one truck, insufficient for handling all waste.
- Poor infrastructure in narrow roads in certain wards makes sludge removal difficult, and only a small portion of the city has drainage infrastructure.
- Community engagement and awareness about proper waste disposal are low, resulting in open dumping and improper handling of household waste.

Key gaps hindering effective service delivery include:

- Inadequate budget allocation (only 3% of the municipal budget goes to sanitation).
- Limited service targets, as there are no concrete plans for building or expanding sanitation systems.
- Insufficient service provider capacity and weak monitoring of sanitation facilities.

6. Overview of stakeholders

The regulatory framework involves the City Council and Ministry of Local Government. The municipality plays a key role in delivering services, with SKS Foundation, DPHE, and private sectors involved in sanitation-related activities. There is a clear need for enhanced stakeholder coordination to address service gaps.

Table 1: Key Stakeholders

Key Stakeholders	Institutions / Organizations
Public Institutions	Gaibandha Municipality, Ministry of Local Government, DPHE
Non-governmental Organizations	SKS Foundation
Private Sector	Sanitation Workers, Local Sanitation Vendors.
Development Partners, Donors	N/A
Others	N/A

Overall, Gaibandha requires urgent investments in infrastructure, stronger policy implementation, and more robust stakeholder involvement to address the growing sanitation challenges.

7. Process of SFD development

The SFD (Shit Flow Diagram) for Gaibandha Municipality was developed through a combination of household surveys, Key Informant Interviews (KIIs), and Focus Group Discussions (FGDs). Data was collected using the mWater tool for household surveys, which provided quantitative data on sanitation practices, access to facilities, and service provision across various wards. Additionally, KIIs and FGDs with key stakeholders such as municipal officials, community leaders, and sanitation service providers gave critical qualitative insights into the real challenges and gaps in the sanitation service chain.

Some deviations from the standard SFD methodology had to be made due to limitations in data collection. For instance, access to certain informal settlements and high-density areas was restricted, limiting the availability of household survey data in these localities. Moreover, historical data on sanitation infrastructure and service coverage were either out-dated or inconsistent, which required adjustments in assumptions for population growth and sanitation coverage.

The SFD graphic generated, while highly useful, may not fully reflect the complexities of Gaibandha's sanitation reality. For example:

- The graphic represents faecal sludge emptying as a continuous process, but in reality, the lack of a treatment plant and insufficient capacity for waste management means that emptying services are sporadic and inadequate.
- Open defecation rates are hard to quantify exactly, especially in informal settlements, where data is scarce.

Despite these deviations, the SFD remains a useful tool for visualizing the key sanitation challenges in the municipality, though it might underrepresent the extent of informal waste management practices.

8. Credibility of data

- Household Surveys: Conducted using the mWater tool across multiple wards, capturing data on sanitation facilities, waste management practices, and access to services.
- Key Informant Interviews (KIIs): Interviews were conducted with key stakeholders, including government officials, municipal workers, NGOs, and private sector actors. A total of 4 KIIs were carried out, providing insights into policy, infrastructure, and challenges in sanitation service delivery.
- Focus Group Discussions (FGDs): Three FGDs were conducted with community members, local leaders and local community to capture the lived experiences of residents regarding sanitation services, highlighting both the gaps and areas for improvement.

The availability of data varied across sectors:

- Gaps: Data on sanitation in informal settlements and hard-to-reach areas was limited. Information regarding faecal sludge emptying schedules and overall waste disposal practices was difficult to obtain due to the absence of a formal tracking system.
- Assumptions: To account for these gaps, assumptions were made regarding population growth, open defecation rates, and faecal sludge management based on historical trends and estimates from municipal authorities. For example, assumptions on septic tank use in newer buildings were based on KIIs and city infrastructure reports, as there was no comprehensive database.

Overall, the report draws from multiple data sources to provide a thorough analysis of Gaibandha's sanitation services, despite the constraints faced in collecting fully comprehensive data.

9. List of data sources

- CWIS- FSM Support Cell. (2022). শহরব্যাপী অন্তর্ভুক্তিমূলক স্যানিটেশন পরিষেবা প্রবর্তনে সহায়ক নির্দেশিকা. Department of Public Health Engineering, Government of the People's Republic of Bangladesh.
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1 City context

Gaibandha is a municipality town and district headquarters in the Rangpur Division of Bangladesh. Situated 267.2 kilometres north of the capital city, Dhaka, Gaibandha is a rapidly growing city with historical significance, being one of the oldest towns in the Indian subcontinent. The town was officially declared a municipality in 1923, marking its importance in the region. It is strategically located beside the Ghaghot River and is well-connected by road, water, and railway networks, making it accessible and vital for trade and transportation. Gaibandha is one of the 53 district-level municipalities in Bangladesh, reflecting its administrative significance.

The total population of Gaibandha Municipality is 1,27,468 with a population growth rate of 1.06% and a female to male ratio of 1.2 (2022). Around 30% of the population is living in low income communities (LIC). The urban area is characterized by varying population densities, with some informal housing arrangements, especially in low-income areas. The city's topography is predominantly flat, which, along with its location near the Ghaghot River, makes it susceptible to seasonal flooding. The river is a significant geographic feature that influences the local economy and sanitation services. The climate in Gaibandha is tropical, with hot, humid summers and a monsoon season characterized by heavy rainfall, which impacts both daily life and infrastructure.

The municipality covers a defined urban area that includes a mix of residential neighbourhoods, commercial zones, and peripheral rural areas. The urban boundaries are marked by a gradual transition from densely populated areas to more sparsely populated rural regions. The city's infrastructure, while developed, faces challenges related to flooding and seasonal access issues, especially in low-lying areas.

Overall, Gaibandha's historical significance, strategic location, and growing population make it a key urban center in northern Bangladesh. However, the city also faces challenges related to rapid urbanization, infrastructure development, and environmental management, particularly in the context of its sanitation services.

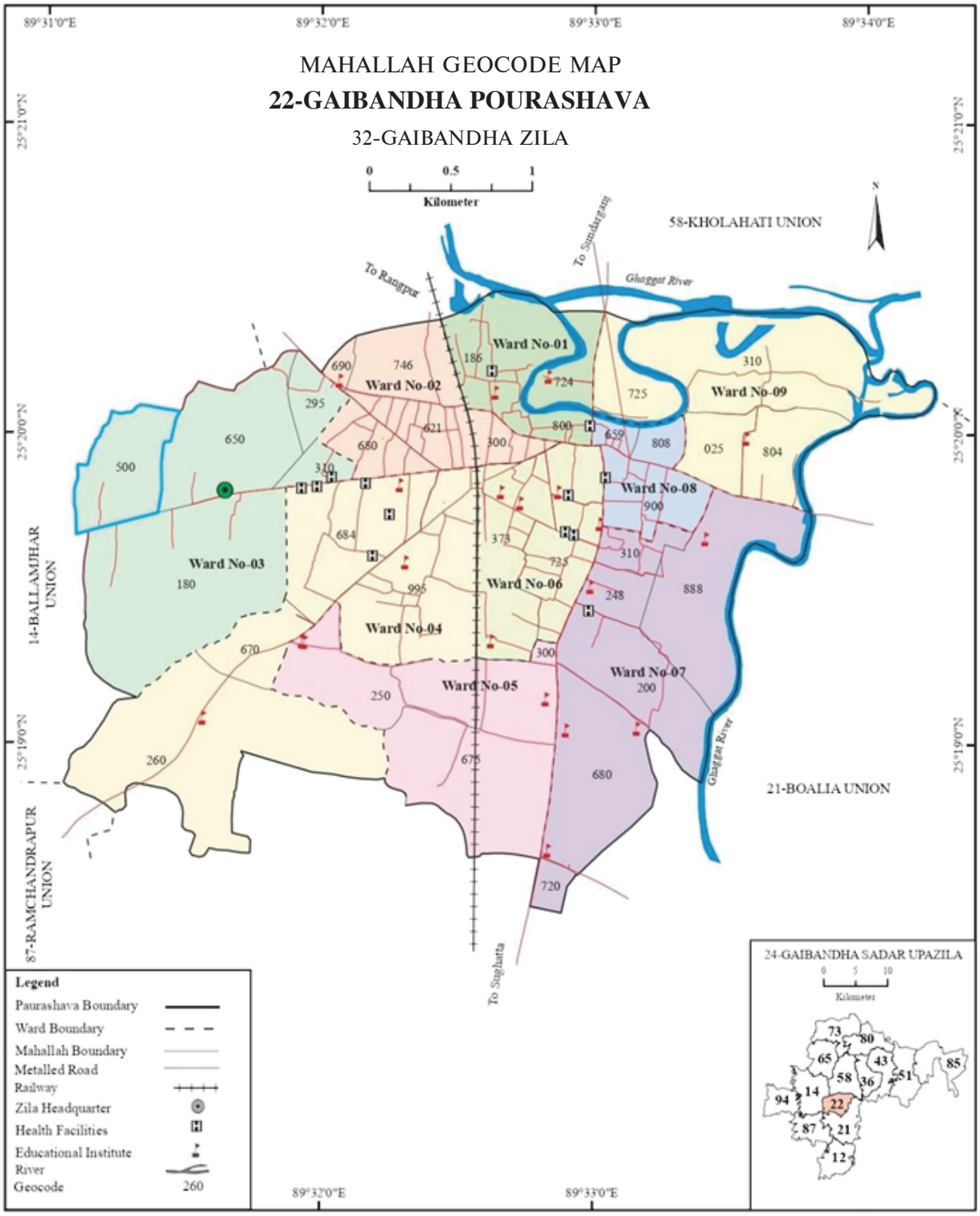


Figure 1: Gaibandha municipality ward boundary map (Source: BBS/ GIS report 2017).

2 Service Outcomes

2.1 Overview

Data on sanitation situation were collected through a household survey. Further details are presented in Appendix 2. The results obtained after the triangulation and validation of the data with all the data sources including literature reviews, Key Informant Interviews (KIIs) and a validation workshop is presented in this section.

List A: Where does the toilet discharge to? (i.e. what type of containment technology, if any?)	List B: What is the containment technology connected to? (i.e. where does the outlet or overflow discharge to, if anything?)									
	to centralised combined sewer	to centralised foul/separate sewer	to decentralised combined sewer	to decentralised foul/separate sewer	to soakpit	to open drain or storm sewer	to water body	to open ground	to 'don't know where'	no outlet or overflow
No onsite container. Toilet discharges directly to destination given in List B					Significant risk of GW pollution / Low risk of GW pollution					Not Applicable
Septic tank					T2A2C5 / T1A2C5	T1A2C6				
Fully lined tank (sealed)					Significant risk of GW pollution / Low risk of GW pollution	T1A3C6	T1A3C7			
Lined tank with impermeable walls and open bottom	Significant risk of GW pollution / Low risk of GW pollution	Significant risk of GW pollution / Low risk of GW pollution	Significant risk of GW pollution / Low risk of GW pollution	Significant risk of GW pollution / Low risk of GW pollution	Significant risk of GW pollution / Low risk of GW pollution		T1A4C7	T1A4C8	T1A4C9	Significant risk of GW pollution / Low risk of GW pollution
Lined pit with semi-permeable walls and open bottom	Not Applicable									T2A5C10 / T1A5C10
Unlined pit										Significant risk of GW pollution / Low risk of GW pollution
Pit (all types), never emptied but abandoned when full and covered with soil										Significant risk of GW pollution / T1B7C10
Pit (all types), never emptied, abandoned when full but NOT adequately covered with soil										
Toilet failed, damaged, collapsed or flooded									T1B9 C1 TO C10	
Containment (septic tank or tank or pit latrine) failed, damaged, collapsed or flooded										
No toilet. Open defecation	Not Applicable						T1B11 C7 TO C9			Not Applicable

Figure 2: Gaibandha Municipality SFD Selection Grid

In Gaibandha Municipality, the sanitation landscape comprises a mix of onsite and offsite systems. Onsite sanitation technologies include:

- Pit Latrines: Widely used by households, especially in rural and semi-urban areas. They are simple, cost-effective, and have limited treatment capacity.
- Septic Tanks: Increasingly common in new residential and commercial buildings. Septic tanks are used for more substantial wastewater treatment compared to pit latrines.
- Pour-Flush Latrines: A variation of pit latrines that uses a small amount of water to flush waste into the pit.

Figure 3: Onsite Latrines

Offsite sanitation systems are limited, with no central sewerage system present in the municipality. Waste management is largely handled by:

Vacu-tug Trucks: These trucks are used to transport faecal sludge from households with septic tanks and pit latrines to a single dumping station. Currently there is only one vacu-tug in the municipality.

Percentage Contribution of Excreta from Different Origin Categories:

Households: The majority of excreta originate from individual households using pit latrines (more than 60%). Around 20% of households have septic tanks or fully lined tanks.

Shared or Communal Toilets: There are 30 communal toilets located in densely populated areas and market zones which are used mostly by the people in LIC/slums.

Public Toilets: Public toilets contribute around 5% of the excreta, located in market areas and near transportation hubs.

Institutions: Schools and government offices account for approximately 3% of the excreta, with basic sanitation facilities.

Commercial and Industrial Areas: Contribute around 2% of the total excreta, mostly from small-scale commercial establishments.

Restaurants and Hotels: Approximately 2% of the excreta are generated from restaurants and hotels, which typically have more advanced onsite systems.

Sanitation services in Gaibandha Municipality involve:

Local Government: The municipality manages the collection and disposal of faecal sludge. The process is mostly done manually; a small fraction of the sludge is collected using vacuum trucks.

Private Operators: Private entities assist in the maintenance and emptying of septic tanks, though this is less formalized.

Community Organizations: Local NGOs and community groups occasionally engage in sanitation awareness and infrastructure improvement projects.

2.2 SFD Matrix

In Gaibandha Municipality there is a significant amount of variation in containment types. The household surveys data shows that more than 60% of the population uses pit latrines with varying degrees of safety based on the construction and maintenance of the pits. Approximately 20% of the population have either septic tanks or fully lined tanks which provides better containment.

Around 15% of the population uses public and shared toilets combined. Open defecation is a concerning issue in Gaibandha Municipality. Household survey reflects that 9% of the population does not have any toilet facilities at all. The KIIs revealed that open defecation is still prevalent in the sweeper polli in Ward 6, and also in the Hindu localities of Ward 7 & 8.

Table 1: SFD Matrix for Gaibandha Municipality

Gaibandha Municipality, Gaibandha, Bangladesh, 15 Sep 2024. SFD Level: 2 - Intermediate SFD
Population: 127468
Proportion of tanks: septic tanks: 78%, fully lined tanks: 81%, lined, open bottom tanks: 100%

Containment						
System type	Population	FS emptying	FS transport	FS treatment	SN transport	SN treatment
	Pop	F3	F4	F5	S4e	S5e
System label and description	Proportion of population using this type of system (p)	Proportion of this type of system from which faecal sludge is emptied	Proportion of faecal sludge emptied, which is delivered to treatment plants	Proportion of faecal sludge delivered to treatment plants, which is treated	Proportion of supernatant in open drain or storm sewer system, which is delivered to treatment plants	Proportion of supernatant in open drain or storm sewer system that is delivered to treatment plants, which is treated
T1A2C5 Septic tank connected to soak pit	4.9	52.4	54.5	0.0		
T1A2C6 Septic tank connected to open drain or storm sewer	5.4	26.1	50.0	0.0	0.0	0.0
T1A3C6 Fully lined tank (sealed) connected to an open drain or storm sewer	2.3	40.0	0.0	0.0	0.0	0.0
T1A3C7 Fully lined tank (sealed) connected to a water body	3.7	37.5	0.0	0.0		
T1A4C7 Lined tank with impermeable walls and open bottom, connected to a water body	6.8	17.2	0.0	0.0		
T1A4C8 Lined tank with impermeable walls and open bottom, connected to open ground	2.1	33.3	0.0	0.0		
T1A4C9 Lined tank with impermeable walls and open bottom, connected to 'don't know where'	0.5	0.0	0.0	0.0		

Containment						
System type	Population	FS emptying	FS transport	FS treatment	SN transport	SN treatment
	Pop	F3	F4	F5	S4e	S5e
System label and description	Proportion of population using this type of system (p)	Proportion of this type of system from which faecal sludge is emptied	Proportion of faecal sludge emptied, which is delivered to treatment plants	Proportion of faecal sludge delivered to treatment plants, which is treated	Proportion of supernatant in open drain or storm sewer system, which is delivered to treatment plants	Proportion of supernatant in open drain or storm sewer system that is delivered to treatment plants, which is treated
T1A5C10 Lined pit with semi-permeable walls and open bottom, no outlet or overflow	42.9	84.2	3.9	0.0		
T1B11 C7 TO C9 Open defecation	9.1					
T1B7C10 Pit (all types), never emptied but abandoned when full and covered with soil, no outlet or overflow	0.2					
T1B9 C1 TO C10 Toilet failed, damaged, collapsed or flooded, connected to sewer, soak pit, open drain or storm sewer, water body, open ground or 'don't know where'	3.0					
T2A2C5 Septic tank connected to soak pit, where there is a 'significant risk' of groundwater pollution	2.1	77.8	0.0	0.0		
T2A5C10 Lined pit with semi-permeable walls and open bottom, no outlet or overflow, where there is a 'significant risk' of groundwater pollution	17.0	90.4	0.0	0.0		

Containment: Table 1 shows the SFD Matrix for Gaibandha Municipality. The results of the household survey are reflected on the SFD matrix. We can see that, only 12.4% of the people have septic tanks either connected to soak pit (T1A2C5 & T2A2C5) or open drain (T1A2C6). 2.1% of the septic tanks pose "significant risk" of groundwater pollution (T1A2C6). 2.3% of the population uses fully lined tank (sealed) that are connected to open drain (T1A3C6), and 3.7% have fully lined tank (sealed) connected to a water body (T1A3C7). Majority of the population uses various types of pit latrines. 42.9% of people have lined pit with semi-permeable walls and open bottom with no outlet or overflow (T1A5C10). 17% of people have a similar system but there is a "significant risk" of groundwater pollution (T2A5C10). 6.8% and 2.1% of the population uses lined tank with impermeable walls and open bottom that are connected to water body (T1A4C7) and open ground (T1A4C8) respectively. A small portion of the people (0.5%) are unaware of the outlet of the pit (T1A4C9). 3% of the toilets are damaged (T1B9C1 TO C10) and 9.1% population in the Municipality have no toilets within their premises and resort to open defecation (T1B11C7 TO C9).

Emptying and Transport: FS is mostly emptied manually in Gaibandha Municipality. There is only 1 vacu-tug that can mechanically empty FS which is inadequate for the total population (1.4%). The survey finds, 39% of the containments have never been emptied, and 61% of containments have emptied at least once manually and mechanically. The survey finds that, 84.2% of pits with low risk of groundwater pollution and 90.4% of pits with significant risk of groundwater pollution have been emptied. A small amount of septic tanks connected to water body (26.1%) have ever been emptied whereas 77.8% of septic tanks connected to soak pit with significant risk of groundwater pollution have ever been emptied.

Among the emptied containments, 10% was emptied in less than 6 months ago, 27% is emptied in 6 months to 1 year, 16% in 1-2 years, 5% in 2-3 years and 3% in more than 3 years.


Figure 4: Dumping Station

Treatment: Currently, there is no dedicated treatment plant in Gaibandha Municipality. There is an open dumping ground where only 5.7% of the emptied faecal sludge is disposed and poses significant environmental risks. The SFD matrix shows that only half of the faecal sludge emptied from various septic tanks is delivered to the dumping ground. 84.2% of the pits with low GW risk are emptied but only 3.9% of that is carried to the dumping ground, mostly are covered with soil or dumped at nearby low lands.

Risk of Groundwater Contamination:

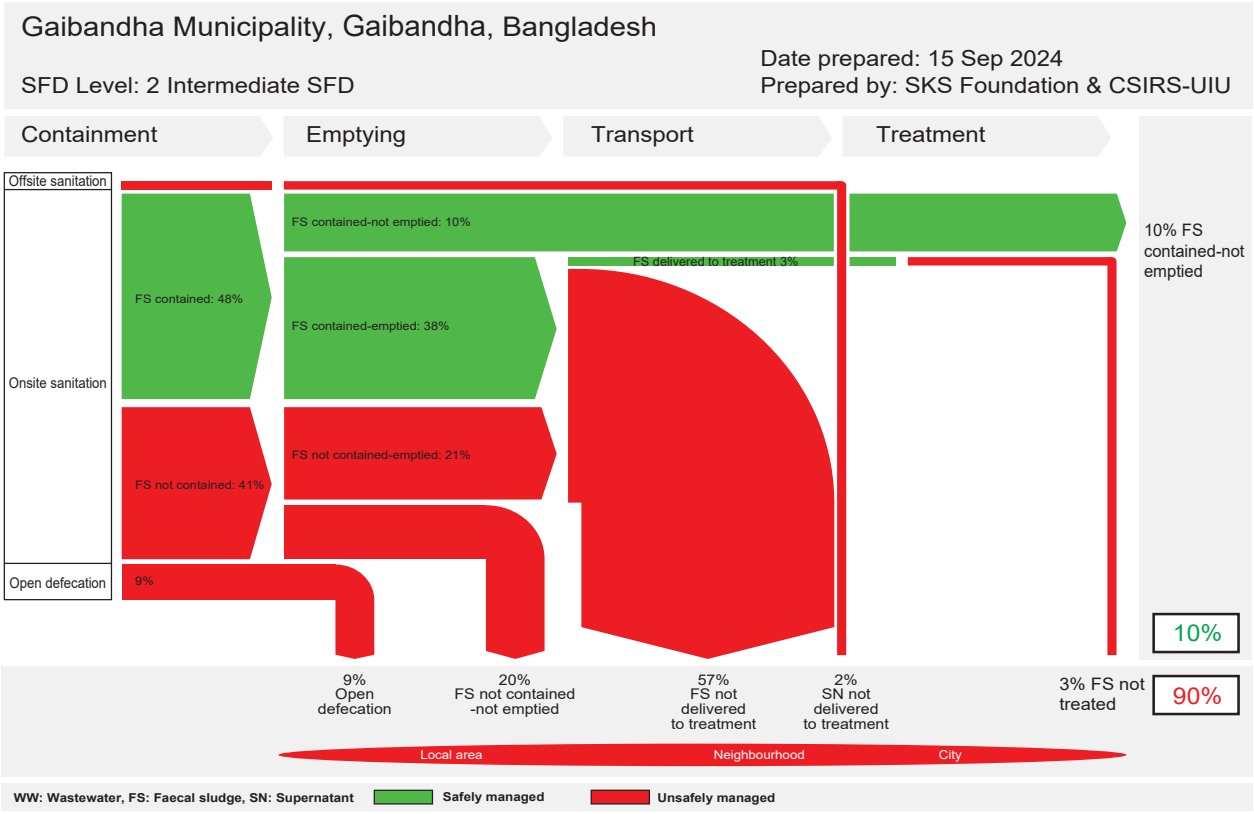
- Vulnerability of the Aquifer: The aquifer is relatively shallow, with groundwater levels ranging from 25 to 35 feet. The soil type and geology are prone to contamination from inadequate sanitation facilities.
- Expansion: Rapid urbanization is increasing the density of onsite systems, potentially exacerbating contamination risks.
- Lateral Separation: Many sanitation facilities are located close to drinking water sources (tube well), increasing the risk of contamination.
- Groundwater Supply: The main source of groundwater is through shallow wells, which could be affected by nearby sanitation facilities.

Assumptions:

The data used in the SFD Matrix comes from various sources, including field surveys, Key Informant Interviews (KII) and Focus Group Discussion (FGD). The following assumptions are made for developing the SFD for Gaibandha Municipality:

- Estimate of population growth are based on extrapolations from available census data and may not fully capture recent changes.
- Although there is no treatment facility in Gaibandha, there is a designated dumping ground which is considered in creating the SFD.
- From the household surveys, if the respondents could state that the GW level at the time of construction of containment was relatively close to containment bottom, then it is considered that there is “significant risk” of GW pollution.
- The field survey found that, pit latrines are in some cases connected to open drains or water bodies. Usually, this containment technology should not have any outlet. So, in such instances, it is defined as Lined tank with impermeable walls and open bottom.

2.3 SFD Graphic



The SFD Promotion Initiative recommends preparation of a report on the city context the analysis carried out and data sources used to produce this graphic.
Full details on how to create an SFD Report are available at sfd.susana.org

Figure 5: SFD Graphic of Gaibandha Municipality

The SFD Graphic, generated using the SFD Graphic Generator, visually represents the proportions of safely managed, partially treated, and unsafely managed excreta. The outcome of the SFD graphic shows that only ten percent (10%) of the excreta flow is classified as safely managed, and the remaining ninety percent (90%) is classified as unsafely managed (Figure 5).

It should be noted that the proportion of safely managed excreta mostly originates from pits that have never been emptied, which might pose groundwater risk in the future. A significant portion of waste is unsafely managed due to improper use and management of onsite facilities and the absence of formal treatment facilities. Key issues affecting sanitation service delivery include the lack FSTP, frequent flooding impacting onsite systems, and the limited capacity of existing waste management infrastructure. The unsafely managed excreta originate from the following sources:

- Faecal Sludge(FS) not delivered to treatment 57% (both contained & not contained)
- FS not contained- not emptied 20%
- Open Defecation 9%
- FS contained-emptied & transported but not treated 3%
- Supernatant not delivered to treatment 2%

Previous reports show that, in 2021 only 11% of total FS was safely managed (Gaibandha Municipality SFD Lite Report, 2022). It reflects that the sanitation situation has slightly worsen in the past few years.

3 Service delivery context

3.1 Policy, legislation and regulation

3.1.1 *Policy*

According to the Local Government (Pourashava) Act, 2009 (amended in 2010) (hereinafter referred to as "Pourashava Act 2009"), municipalities are responsible for (a) water supply for residential, industrial and commercial use; (b) water and sanitation; and (c) waste management, in areas within its jurisdiction (sub-clause 2). Schedule 2 of Pourashava Act 2009 details the function of a municipality which includes that a municipality is responsible for maintaining sufficient number of public toilets for both male and female. The Municipality shall also make adequate arrangements for the removal and proper disposal of refuse from all public streets, public latrines, urinals, drains, and all buildings and land vested in the municipality (IRF-FSM, 2017).

The Municipality can collaborate with the Department of Public Health Engineering (DPHE), the Local Government Engineering Department (LGED), the private sector/ non-government organization to plan and implement FSM infrastructure and services in accordance with Clauses 95 and 96 of Pourashava Act 2009 (IRF-FSM, 2017).

The National Policy for Safe Water Supply and Sanitation (1998) serves as the principal framework for water supply and sanitation sector. One of the objectives of the policy is ensuring the installation of one sanitary latrine in each household area and improving public health standard. In urban settings, the policy objective is to ensure sanitary latrine within easy access of every urban household. Additionally, the policy mandates that water supply and sanitation technologies be tailored to the unique regional, geological, and social conditions (National Sanitation Strategy, 2005).

The Environmental Conservation Rules (1997) under the Environmental Conservation Act (1995) sets the qualitative standards for inland waters, sewage discharge and industrial wastes. However, the Act does not include specific measures for the regulation of waste or sludge treatment.

The sanitation policy framework in Gaibandha Municipality is largely shaped by Bangladesh's National Sanitation Strategy (2005), which aims to ensure full sanitation coverage and improve public health through hygienic practices. Despite these overarching goals, local policy implementation faces significant hurdles. One of the primary challenges is the lack of a dedicated faecal sludge management (FSM) policy at the municipal level. As a result, sanitation services are often ad-hoc, leading to serious gaps in waste management and hygiene practices across the city. The municipality's efforts are constrained by limited financial and infrastructural resources, which hinder the realization of a more structured and sustainable sanitation system.

3.1.2 *Institutional roles*

Several institutions play a role in the sanitation ecosystem of Gaibandha, although their functions are not always well-coordinated:

- **Municipal Authority:** The municipality is the primary body responsible for waste collection and disposal. However, their capacity to manage the growing sanitation needs of the city is limited due to insufficient resources, particularly in terms of manpower and vehicles. The lack of operational faecal sludge treatment facilities further complicates their role.

- **Department of Public Health Engineering (DPHE):** The DPHE provides technical expertise and infrastructure support for water and sanitation projects. While DPHE's involvement is critical in developing water supply systems, their role in FSM remains limited, which contributes to the challenges in establishing a holistic sanitation system.

- **SKS Foundation:** As a leading non-governmental organization, SKS Foundation plays a pivotal role in advocacy and communication around sanitation issues. They work closely with communities to raise awareness, advocate for better facilities, and promote behavior change.

- **Private Sector:** The involvement of private sector players in Gaibandha's sanitation system is minimal. Waste collection and management services are primarily managed by the municipality, with limited outsourcing or private partnerships to enhance capacity.

3.1.3 *Service provision*

Sanitation services in Gaibandha face numerous challenges, particularly due to limited resources and inadequate infrastructure. Waste collection is handled by the municipality, which operates with only one truck capable of transferring faecal sludge. This truck, with a capacity of 2000 liters, makes five trips a day at a cost of Tk 1500 per trip. However, the capacity is insufficient to meet the needs of the entire city. The limited number of vehicles and resources has led to an unsatisfactory level of service delivery.

Additionally, the waste management system is not comprehensive. For instance, there are no formal sewer networks in the city, and the absence of a functioning faecal sludge treatment plant has led to the unsafe disposal of waste. Some wards, such as Wards 5, 7, and 9, have narrow roads, making it impossible for the sludge truck to access septic tanks, resulting in open dumping in ponds and lakes.

3.1.4 *Service standards*

Service standards for sanitation in Gaibandha remain low. Although the municipality strives to adhere to national sanitation guidelines, the lack of financial resources and infrastructure means that many areas do not receive proper waste management services. Open defecation is a significant problem, particularly in marginalized areas such as the sweeper community in Ward 6 and certain Hindu localities in Wards 7 and 8. The lack of a formal sewer network and the absence of faecal sludge treatment exacerbate the problem, as untreated waste is often dumped in water bodies, creating environmental and public health risks.

3.2 Planning

3.2.1 *Service targets*

The municipality has established basic service targets to improve sanitation, with a focus on increasing access to toilets and reducing open defecation. However, without a comprehensive faecal sludge management plan, these targets remain largely aspirational. The lack of infrastructure, including treatment plants and transport vehicles, limits the municipality's ability to meet its goals. Additionally, there is no long-term vision for addressing the increasing demand for sanitation services, especially in densely populated or underserved areas.

3.2.2 *Investments*

Investment in sanitation infrastructure and services is inadequate. Only 3% of the total municipal budget is allocated for sanitation, which is insufficient to address the city's growing needs. The limited budget restricts the municipality's ability to invest in much-needed facilities, such as additional faecal sludge treatment plants, expanded drainage systems, and improved waste collection services. Currently, there are only 280 sanitation workers employed by the municipality, but their efforts are hampered by a lack of proper equipment and support. In addition, the revenue generated from sanitation sector in not solely utilised for sanitation development.

3.3 Equity

3.3.1 *Current choice of services for the urban poor*

The urban poor in Gaibandha face significant sanitation challenges. Many areas, especially the Sweeper Polli in Ward 6 and certain Hindu localities in Wards 7 and 8, lack basic sanitation infrastructure. Open defecation is common in these areas due to a lack of access to toilets, and the municipality’s sanitation services often fail to reach them due to logistical challenges, such as narrow roads and limited resources. The urban poor also suffer from a lack of public awareness about hygiene practices, further exacerbating the sanitation crisis in these communities.

3.3.2 *Plans and measures to reduce inequity*

At present, Gaibandha Municipality does not have any specialized toilet facilities for individuals with disabilities, pregnant women, or elderly people. While some efforts have been made by non-governmental organizations such as SKS Foundation to raise awareness and promote hygiene, there are no comprehensive plans at the municipal level to address the sanitation needs of the urban poor. More focused interventions, including targeted infrastructure development, public awareness campaigns, and improved service provision, are urgently needed to bridge the sanitation gap between wealthier and poorer areas of the city.

3.4 Outputs

3.4.1 *Capacity to meet service needs, demands and targets*

The current capacity of Gaibandha Municipality to meet its sanitation service demands is severely limited. The municipality relies on a single faecal sludge truck, which is insufficient to handle the city's waste. The lack of an operational faecal sludge treatment plant means that waste is often dumped in nearby ponds, lakes, or rivers, creating significant environmental and health hazards. Additionally, the narrow roads in certain wards, such as Wards 5, 7, and 9, prevent access to many septic tanks, further compounding the city's sanitation problems.

3.4.2 *Monitoring and reporting access to services*

There is currently no systematic process for monitoring or reporting sanitation services in Gaibandha. The municipality lacks a formal framework for tracking service delivery and ensuring that sanitation targets are met. While there are informal reports of service issues, such as open defecation and insufficient waste collection, these are not compiled in a way that can inform future planning and investments.

3.5 Expansion

3.5.1 *Stimulating demand for services*

The municipality and non-governmental organizations like SKS Foundation need to take a proactive approach to stimulating demand for improved sanitation services. Public education campaigns aimed at raising awareness about the risks of open defecation and the benefits of using proper sanitation facilities could help foster a demand for better services. These campaigns should be tailored to reach marginalized and underserved communities, where sanitation issues are most acute.

3.5.2 *Strengthening service provider roles*

To address the sanitation crisis, the roles of service providers must be strengthened. This includes increasing the capacity of municipal workers through training and the provision of better equipment. The municipality should also explore partnerships with private sector actors to expand its reach and improve service delivery. Additionally, fostering stronger collaboration between government institutions, such as the DPHE, and non-governmental organizations will be crucial in building a more efficient and effective sanitation system.

4 Stakeholder Engagement

The stakeholder engagement process for the Gaibandha Municipality sanitation project involved extensive interaction with key stakeholders through a series of Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs). These engagements provided valuable insights into the current sanitation challenges, existing services, and potential areas for improvement in faecal sludge management (FSM) and overall sanitation services. Observations of service providers were also conducted, allowing for the validation and cross-checking of the collected data.

4.1 *Key Informant Interviews (KIIs)*

Key Informant Interviews were a crucial part of the data collection process, targeting a diverse group of stakeholders involved in sanitation services. This included local government officials, engineers, sanitation workers, and community leaders, all of whom provided nuanced perspectives on the challenges and needs within Gaibandha Municipality.

- Md. Shafiqul Islam (Assistant Coordinator – Advocacy & Communication, SKS Foundation): During his interview, Mr. Islam highlighted the lack of a faecal sludge treatment plant in the municipality, with the only waste dumping station located in Ward 7. He emphasized that open defecation is still common in Ward 6, particularly in the Sweeper Polli and near the station, as well as in Wards 7 and 8, especially in Hindu localities. Mr. Islam underscored the urgent need for improved sanitation facilities and public awareness programs.

- Prodip Roy (Communication Officer, SKS Foundation): Mr. Roy provided further context regarding the sanitation issues in the Hindu localities, particularly Ward 8, where a faecal sludge treatment facility was once operational but has been out of use for a significant period. He noted that the situation has exacerbated open defecation and sanitation problems, posing serious health risks.

- Arif Billa (Sub Assistant Engineer, DPHE): As an engineer at the Department of Public Health Engineering (DPHE), Mr. Billa echoed concerns about inadequate sanitation infrastructure. He stressed the negative environmental impact caused by improper waste disposal, with untreated faecal sludge contaminating nearby water sources. His insights reinforced the need for immediate investment in a faecal sludge treatment facility and improvements in sanitation practices.

Figure 6: KII with stakeholders in Gaibandha

4.2 Focus Group Discussions (FGDs)

The FGDs were conducted with various stakeholders, including local councillors, municipal officials, community leaders, and sanitation workers. These discussions allowed for collective problem-solving and a deeper understanding of the issues at the grassroots level.

- Councillors from Wards 3, 5, 7, and 9: The councillors provided first-hand information about the sanitation challenges in their respective wards. They revealed that the municipality operates with only one sludge truck, capable of carrying 2000 liters of waste, which makes five trips per day, however this is insufficient to meet the demand. Again, due to narrow roads, sometimes the truck is unable to reach it's destination, as such faecal sludge in some areas is being dumped into ponds and lakes. They also pointed out that only 3% of the municipal budget is allocated for sanitation, which is far from adequately addressing the growing needs of the population.

- Community Leaders and Sanitation Workers: Representatives from the local community and sanitation workers shared their challenges in managing waste in densely populated areas. A key issue raised was the lack of proper waste disposal infrastructure, which has led to open dumping and burning of waste, causing health problems. There was a consensus that more resources and awareness campaigns are needed to improve waste collection, sanitation, and hygiene practices in these areas.

Figure 7: FGD with Ward Councillors of Municipality and Local Community of Gaibandha

4.3 Observations of Service Providers

Direct observations of sanitation services were carried out to validate the information provided by key informants and focus group participants. The observations focused on the operation of the waste management system, including the sludge truck, workers' routines, and the condition of the waste dumping site in Ward 7. Key findings from the observations included:

- Limited Capacity of the Sludge Truck: Observations confirmed that the single sludge truck was indeed overburdened, making multiple trips each day, but still falling short of meeting the municipality's sanitation needs. The truck's limited capacity was particularly problematic in areas with narrow roads, where faecal sludge could not be easily transported and ended up being dumped into water bodies.

- Condition of the Dumping Station: The dumping station in Ward 7 was found to be operating without proper treatment facilities, as previously highlighted by the KIIs and FGDs. Waste was being dumped directly onto the site, with significant environmental and health risks due to contamination of nearby water sources.

- Narrow Roads and Limited Access: In Wards 5, 7, and 9, direct observation confirmed that the narrow road networks prevented vehicles from accessing septic tanks, leading to the accumulation of untreated waste. This observation matched the feedback from councillors and community members about the environmental degradation caused by poor waste disposal practices.

4.4 Cross-Verification of Data

The information gathered from KIIs and FGDs was cross-checked through observations, ensuring consistency in the data. The findings from community leaders and municipal officials regarding open defecation in certain wards were directly observed in the field. Similarly, the lack of budget allocation for sanitation and the limited capacity of the waste collection system were verified through interviews and service provider observations.

Overall, stakeholder engagement was critical in providing a comprehensive understanding of the sanitation challenges facing Gaibandha Municipality. The combination of interviews, group discussions, and direct observations ensured a well-rounded analysis, highlighting the need for significant improvements in sanitation infrastructure, services, and community awareness.

5 Acknowledgements

We would like to express our sincere gratitude to all those who contributed to the development of this report. Our heartfelt thanks go to the local authorities of Gaibandha Municipality and the Ministry of Local Government for their support and collaboration throughout the process.

We appreciate the efforts of local NGOs and community-based organizations for their invaluable input and assistance in data collection and fieldwork. Special thanks to the private sector partners who provided critical insights into waste management practices and challenges.

Finally, we thank all the community members who participated in the surveys, key informant interviews, and focus group discussions, providing essential information and perspectives that shaped the findings of this report.

Your collective efforts and support have been instrumental in addressing the sanitation challenges faced by Gaibandha Municipality, and we look forward to continued collaboration in future endeavours.

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7 Appendix

7.1 Appendix 1: Stakeholder identification

Table 2: Stakeholder Identification

Name	Designation
1. Md. Shafiqul Islam	Assistant Coordinator – Advocacy & Communication, SKS Foundation
2. Prodip Roy	Communication Officer, SKS Foundation
3. Arif Billa	Sub Assistant Engineer - DPHE
4. Mohammed Abu Bakar Siddique	Councilor - Ward 7
5. Abdul Samad Rukon	Councilor - Ward 5
6. Md Kamal Hossain	Councilor - Ward 3
7. Kazi Humaiyun Kabir	Councilor - Ward 9
8. Md. Jewel Mia	Assistant officer
9. Abrar Ahmed	Community Leader
10. Md Samin	Sanitary Inspector

7.2 Appendix 2: Tracking of Engagement

Household survey In-depth information and data were collected for the towns which included project documents, master plans and baseline reports from town and national levels, statistical data like population and household income expenditure, satellite images and Open Street Maps (OSM). Traditional paper questionnaire was not used rather android powered tab was deployed to collect household information. Questions were converted to appropriate format to use in mWater. Data collected through mWater are directly stored in a web-based database which is connected online with a website designed for this study.

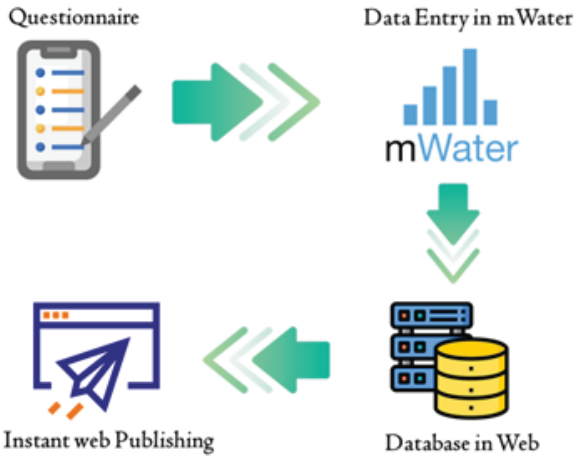

Figure 8: Workflow of mWater on HH survey.

mWater has been used for several reasons. It ensures the quality of data collection. It saves time and error in data entry. Moreover, for data analyst and field supervisor, it is convenient to examine data in real-time. It helps to prepare maps and visualize the spatial pattern of any phenomena. Extensive household questionnaire surveys were conducted for 429 households for Gaibandha Municipality. This sample size ensures, at least, a confidence level of 95% with a margin of error of 5%. Different type of information is collected like demographic, socio-economic, household characteristics, status of water supply, existing practices of sanitation including faecal and solid waste management at the household and town levels, gender, financial and environmental status. In addition to the total calculated samples, about 10% more samples were allocated to some grids based on factors like diversity of houses and business and potential rapid future growth. The steps in field survey consist of downloading the mobile App. for the questionnaires and the town map from the database, then conducting the questionnaire survey and finally transferring data to the central server. During the time of the questionnaire survey, geo-coordinates of the household and a photograph of the respondent (with her/his permission) were taken and uploaded.

In addition to ensure the field data quality, the data collection team (8-10 enumerators) for were properly trained. A set of different questions were asked during the survey on the full sanitation value chain. Few of the relevant questions on sanitation were: 1) User interface of the toilet, 2) Type of containment, 3) Type of building, 4) Outlets from the septic tanks, 5) Desludging of septic tanks and latrine pits, 6) Desludging frequency, 7) Responsibility of desludging, 8) Desludging process, 9) Location of sludge disposal, 10) Water supply source and risk of contamination and 11) Transportation, treatment and reuse of faecal sludge.

SFD Promotion Initiative

SFD Report Gaibandha Municipality, Bangladesh, 2024

Produced by:

SKS Foundation, Gaibandha, Bangladesh

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