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PRO-POOR SUBSIDIES FOR FECAL SLUDGE MANAGEMENT IN BANGLADESH

November 2025

DISCLAIMER:

This report builds on research initiated under the United States Agency for International Development's (USAID's) Urban Resilience by Building and Applying New Evidence in Water, Sanitation, and Hygiene (URBAN WASH) project, which was supported by a cooperative agreement between the United States Agency for International Development (USAID) and The Aquaya Institute. The research was completed in collaboration with Tetra Tech. The contents of this report are the sole responsibility of The Aquaya Institute and Tetra Tech and do not necessarily reflect the views of USAID or the United States Government.

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ABOUT URBAN WASH:

URBAN WASH (Advancing Urban Water Supply, Sanitation, and Hygiene Resilience Worldwide) was a USAID-funded applied research and technical assistance program led by Tetra Tech. The project focused on improving sustainable, resilient, and equitable WASH services in urban, peri-urban, and informal settlements in low- and middle-income countries. Designed and originally executed as a five-year program, URBAN WASH was terminated in February 2025 along with the vast majority of USAID's overseas development assistance programs.

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ACRONYMS

BARC	Bangladesh Agricultural Research Council
BARI	Bangladesh Agricultural Research Institute
BDT	Bangladeshi Taka
CACTUS	Climate and Costs in Urban Sanitation
CBOs	Community Based Organizations
CFCS	Chourhash Fultola Kalyan Committee
CWIS	Citywide Inclusive Sanitation
DPHE	Department of Public Health and Engineering
ERAS	Environmental Resource Advancement Services
FGDs	Focus Group Discussions
FSM	Fecal Sludge Management
FSTP	Fecal Sludge Treatment Plant
ICDDRB	International Center for Diarrheal Disease and Research Bangladesh
IEDCR	Institute of Epidemiology, Disease Control and Research
IRF-FSM	Institutional and Regulatory Framework for Fecal Sludge Management
ITN-BUET	International Training Network Center Bangladesh University of Engineering and Technology
LIAs	Low Income Areas
LGED	Local Government Engineering Division
LMICs	Low- and Middle-Income Countries
MoLGRDC	Ministry of Local Government Rural Development and Cooperatives
MoU	Memorandum of Understanding
NAP	National Action Plan
NGO	Non-Governmental Organization
PPP	Public Private Partnership
SDC	Society Development Committee
SNV	Netherlands Development Organization

TACH	Total Annualized Cost per Household
TWG	Technical Working Group
URBAN WASH	Urban Resilience by Building and Applying New Evidence in Water, Sanitation, and Hygiene
USAID	United States Agency for International Development
USD	United States Dollars

1.0 BACKGROUND

In Bangladesh, around 94% of the population relies on on-site sanitation systems, but only 29% have access to safely managed sanitation (Brosse et al., 2017; JMP, 2023). After nearly eradicating open defecation, Bangladesh faces a new challenge to improve fecal sludge management (FSM), and address the emptying, treatment, and disposal of on-site sanitation. Since 2007, the national government has been investing in FSM infrastructure with the construction of 11 fecal sludge treatment plants (FSTPs) in secondary towns, and a target of 100 FSTPs across the country (Zaqout & Hueso, 2020). Meanwhile, a handful of municipalities and supporting non-governmental organizations (NGOs) have spent almost a decade implementing different FSM service provision models at the city level, but with roughly 21% of Bangladesh's urban population living in poverty, questions of scaling affordable and financially sustainable FSM services remain (Brosse et al., 2017).

Previous studies of FSM approaches in Lusaka, Maputo, and Faridpur demonstrated that **FSM remained cost-prohibitive for the poor, who continued to rely on informal services** for emptying containment facilities (Brosse, Renouf, and Nath 2017; Zaqout et al. 2021; Drabble et al. 2019;). To balance affordability and cost recovery, cities have attempted to implement a mix of direct and indirect subsidies to expand FSM service provision among the poor. Direct subsidies are received by households in the form of cash or targeted discounts, while indirect subsidies can include payments or transfers to service providers. However, the diversity and combinations of financing mechanisms continue to require investigation and refinement to understand best practices for implementing pro-poor subsidies at scale (Blackett & Hawkins, 2017; Evans et al., 2009).

In Bangladesh, municipalities, with the support of NGOs, have been applying a mix of direct and indirect subsidies to expand FSM service provision. Practical Action has been supporting FSM services in Faridpur since 2014 through a community-led model where informal manual emptiers are organized into professionalized emptying cooperatives that enter into service agreements with the municipality. In parallel, cities like Kushtia have been implementing a traditional public private partnership model with private sector actors entering service contracts with the municipal government. The models highlight key differences in terms of the actors responsible for distributing direct subsidies to poor households, and the types of indirect subsidies benefitting service providers. Understanding where subsidies are operating in these two models, and whether low-income households are benefitting from services under either arrangement, could contribute to a key knowledge gap in the sector on identifying where and what to subsidize along the FSM value chain to achieve citywide affordable and sustainable services.

The Urban Resilience by Building and Applying New Evidence in Water, Sanitation, and Hygiene (URBAN WASH) is a five-year USAID research and learning activity (2021-2026) funded by the Bureau for Resilience, Environment, and Food Security and led by Tetra Tech. URBAN WASH generates evidence through applied research to promote sustainable, equitable, and climate-resilient WASH policies and programming in urban and peri-urban areas. A primary goal of URBAN WASH is to address knowledge gaps of service providers and government institutions in USAID priority countries and to strengthen the evidence base for decision-making.

URBAN WASH is conducting applied research on scalable approaches for pro-poor, city-wide fecal sludge management (FSM) services. To conduct this research, URBAN WASH is partnering with an NGO (Practical Action) and a municipality (Kushtia municipality) to understand the financial mechanisms (including subsidies) underlying existing FSM models in two municipalities (Faridpur and Kushtia), and the extent to which different FSM service models reach the poor. Discussions

between URBAN WASH, partners, and key local stakeholders throughout 2024 shaped a research agenda with the following priority questions:

1. **Identifying subsidies**[1]: What level of direct and indirect operating subsidies are currently provided for emptying, transportation, and treatment services in each model? What scale of services are subsidies sustaining?
2. **Reaching the poor:** To what extent are [direct and indirect] subsidies for emptying, transportation, and treatment reaching the poor? What challenges or barriers limit demand for, or access to, formalized FSM services among poor and/or marginalized communities?
3. **Good practices:** What best practices for implementing FSM subsidies emerged from the experience of governmental and non-governmental actors over the last 5-10 years? What are the barriers to scale and how might these be addressed?

[1] For the purposes of this study, subsidies are defined as all funds that fill the gap between user fees and the cost of service, including donor funds and transfers from the national government. See Chapter 2 for more detailed definitions and discussion on subsidy types.

2.0 LITERATURE REVIEW OF FSM SUBSIDIES

Subsidies occur when a user pays less for a service than it costs to provide that service. Subsidies have been employed in the water and sanitation sectors to help achieve targets for universal access. However the majority of subsidies have gone to networked services, particularly piped water, often benefitting wealthier users rather than the poorest (Andres et al., 2019; Komives et al., 2005).

Compared to subsidies for water and wastewater management, subsidies for on-site sanitation and fecal sludge management remain limited, despite numerous studies documenting the gap between costs of on-site sanitation services and household ability and willingness-to-pay (Burt et al., 2019; Delaire et al., 2021; Mpanang'ombe et al., 2021; Peletz et al., 2020) Where subsidies for on-site sanitation exist, they have largely been directed towards provision of household or community containment (toilets) (Evans et al., 2009; USAID, 2023).

Additionally, urban on-site sanitation faces complex and costly challenges. Safe disposal sites and/or fecal sludge treatment facilities are often located far from service areas, creating large fuel expenses for service providers who must empty and transport sludge. In some cases, the cost of emptying and transportation account for up to 30% of total sanitation costs (Wilcox et al., 2024). Service providers cannot pass the full cost onto households since households are not willing or able to pay cost-reflective prices. A previous study of sanitation costs across five cities in Ghana, Kenya, and Bangladesh showed that less than 10% of households were willing to pay full market prices (Delaire et al., 2021). Additionally, service providers using mechanical emptying approaches are unable to maximize economies of scale when pit latrines cannot be emptied by exhauster trucks because they are inaccessible from the road, or the sludge is too thick. In these situations, service providers often lose revenue to informal manual emptiers and/or illegal dumping (Brosse et al., 2017; Burt et al., 2019; Wilcox et al., 2024). These challenges require further investigation into efficient and effective subsidies, and the policies that support them, to ensure that fecal sludge is safely managed and disposed without excessive burden on households or financial losses for service providers.

While subsidies can be categorized based on the source of funding (e.g. public/governmental vs. private/donor funds), this study categorizes subsidies based on their intended purpose, and each purpose may encompass different sources of funding (See Table 1). **Hardware subsidies** are targeted to infrastructure or capital equipment provision, such as the construction and operation of collection and treatment facilities, pipes, and toilets**.** Alternatively, **software subsidies** support the enabling environment for service provision and include activities such as promotion of hygiene behaviors, sanitation marketing, financial management, and market research. Insufficient funding for essential FSM software elements may reduce the viability or quality of services and therefore reduce the effectiveness of subsidies for hardware elements. (Evans, van der Voorden and Peal, 2009).

Hardware subsidies can take on **direct** or **indirect** forms. Hardware subsidies can be "direct" in the form of cash, vouchers, tax credits, or targeted discounts to recipient households. For this study, cross-subsidies are defined as a type of direct hardware subsidy because low-income households are targeted for lower tariffs, paid for through transfers from higher tariffs for high-income households. Alternatively, hardware subsidies can be "indirect" in the form of payments to a service provider (e.g. from a municipality or utility), support for small-scale providers (e.g. pit emptiers) to offset operational costs

and lower tariffs, or in the form of physical infrastructure such as equipment to offset capital costs. (Evans, van der Voorden and Peal, 2009).

TABLE 1: TYPES OF SUBSIDIES RELEVANT TO SANITATION.

	HARDWARE SUPPLY	SOFTWARE SUBSIDY
Direct Subsidy	Cash, vouchers, or targeted discounts to households, including transfers from high- to low-income households (cross-subsidies).	N/A
Indirect Subsidy	Public sector provision of infrastructure (e.g. toilets, pipes, trucks, treatment plants). Payments or assistance to municipality, utility, and private/community service providers (e.g. annual payments from the central government, subsidized loans to purchase equipment, free disposal costs for emptiers, etc.)	Funds or services for capacity building, financial management, marketing etc.

A review of on-site sanitation financing in six countries (Vietnam, Bangladesh, India, Senegal, Ecuador and Mozambique) found that partial public funding can trigger increases in access to basic on-site household sanitation and that there are a wide range of relevant finance options and approaches in practice. For example, projects in Bangladesh and India offered subsidies for software activities and for limited and targeted hardware subsidies for poor households, while projects in Senegal and Ecuador adopted a relatively high hardware subsidy (Trémolet, Kolsky and Perez, 2010). The study asks implementers to consider what form and level of public funding makes sense in a specific context and to further study other elements of the sanitation value chain such as emptying, desludging, and reuse. Since Tremolet et al's review, several studies have attempted to do just that. Table 2 summarizes recent studies with relevant lessons for implementing sanitation subsidies and related knowledge gaps.

TABLE 2: SUMMARY OF LESSONS AND KNOWLEDGE GAPS FROM RECENT LITERATURE STUDYING COSTS AND SUBSIDIES ACROSS THE FSM SERVICE CHAIN.

CONTEXT	RELEVANT LESSONS FOR SANITATION SUBSIDIES
Dhaka, Bangladesh (Brosse et al., 2017)	Targeting mid- to higher income customers (residential and commercial) helped SWEEP, a small-medium private emptying and transportation enterprise, cover its operational costs and become profitable five months after its launch in April 2015. An initial focus on high income customers theoretically allows the business to introduce differential pricing for low-income customers.
Kisumu, Kenya (Peletz et al., 2020)	WTP in low-income neighborhoods was too low to support safe emptying services at market prices and low-cost informal manual emptiers likely contributed to weak demand for safe emptying services, affecting the overall sustainability of the FSM service chain.
Balantyre, Malawi (Mpanang'ombe et al., 2021)	Uptake of vouchers (direct subsidies) for pit emptying was low among low-income unplanned or informal areas, suggesting the need to explore other forms of subsidies to reduce household costs.

Based on recent studies of FSM costs and subsidies along different parts of the service chain, the following cross-cutting knowledge gaps remain:

- Identify where and what to subsidize in the FSM value chain to achieve affordable prices for low-income areas.
- Understand cost bottlenecks in the FSM chain that result in higher costs for emptiers, and in turn households, to try to target subsidies at that level.
- Assess if differential emptying prices for high and low-income customers effectively allow low-income customers to benefit from formalized FSM services and the role of low-cost manual emptiers in reducing demand for safe services among low-income households.

3.0 BANGLADESH CONTEXT

Similar to other low- and middle-income countries (LMICs), Bangladesh's FSM sector is largely informal, with small-scale private providers filling the gap left by the public sector in providing emptying services for rural and urban households who rely on onsite sanitation systems. The only sewerage network in the country is in Dhaka, and it serves roughly 20 to 30 percent of households and institutions (Brosse et al., 2017). To address this challenge, and to discourage illegal manual desludging, stakeholders in Bangladesh pushed for policies and regulations alongside donor and state-funded infrastructure provision to strengthen FSM at the local level. Over a decade later, at least ten municipalities in Bangladesh provide formal FSM services under different service delivery models[2] (Local Government Division MoLGRDC, 2020). Understanding the institutional framework supporting these models provides insight into different FSM actors, their roles, and how service delivery models evolve in light of new policies, regulations and budget priorities. The following sections detail the institutional framework guiding FSM service provision, possible subsidies operating within each model, and the rationale for selecting Faridpur and Kushtia for further study of FSM subsidies.

3.1 INSTITUTIONAL FRAMEWORK FOR FSM

The Ministry of Local Government Rural Development and Cooperatives (MoLGRDC), and within it, the Local Government Division, is in charge of leading the planning, policy development, implementation guidance and monitoring of FSM, securing funding from central government and development partners and disbursing funds among implementing agencies including municipalities (Brosse et al., 2017; Local Government Division MoLGRDC, 2017). The Local Government Engineering Department (LGED) is an engineering agency overseen by the Ministry and charged with developing infrastructure and providing related technical support to local governments. The Department of Public Health and Engineering (DPHE) is the national lead agency which implements projects for provision of drinking water supply and waste management (DPHE, n.d.). DPHE houses a CWIS-FSM Support Cell which advocates for implementing a citywide inclusive sanitation (CWIS) approach within DPHE and with local governments (CWIS-FSM Support Cell, 2024).

At the local government level, city corporations and municipalities are responsible for solid, liquid and industrial waste management according to the 2009 Local Government Act. The Paurashava (Municipality) Act 2009 requires each Paurashava to incorporate FSM into their Master Plan (Brosse et al., 2017; Local Government Division MoLGRDC, 2017).

In 2017, MoLGRDC published the Institutional and Regulatory Framework for FSM (IRF-FSM) with a primary objective of identifying approaches to implement FSM services in Paurashavas and to define specific roles and responsibilities of various institutions and stakeholders for effective implementation (Local Government Division MoLGRDC, 2017). The IRF-FSM states that Paurashavas must create a standing committee on "health, water, and sanitation" to oversee activities related to planning and implementation of FSM services. This standing committee is expected to work with the "tax and levy" committee to fix fees and charges for FSM services. There is also a commitment that the national government will provide funding support for infrastructure that requires significant investment such as treatment plants and vacutugs (trucks that extract fecal sludge from septic tanks and pit latrines and transport them to a disposal site) (Local Government Division MoLGRDC, 2017). This commitment

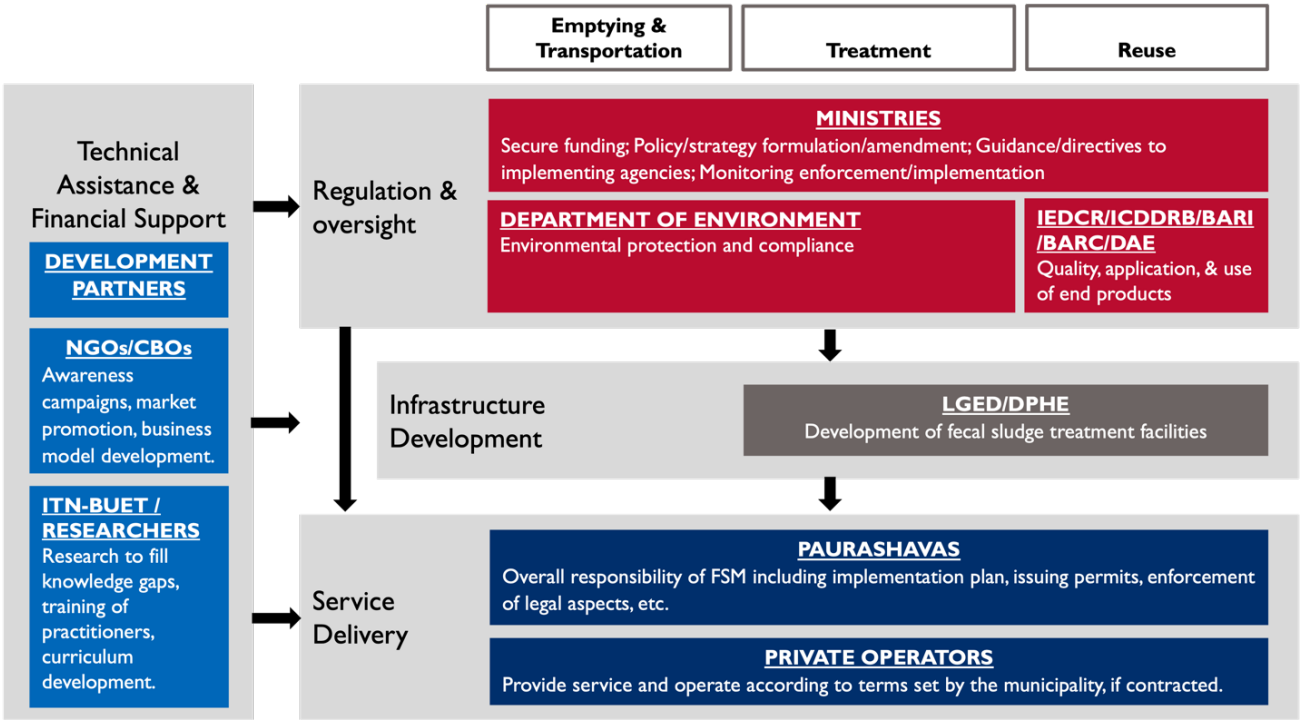
[2] Service delivery models refer to the arrangements and responsibilities of one or more actors providing services.

is reiterated in the 2020 National Action Plan (NAP) to chart actions towards "rapid implementation of FSM in all 329 Paurashavas" across the country by 2030 (Local Government Division MoLGRDC, 2020).

Despite national funding commitments, municipalities often face challenges accessing national funds, and these challenges limit development and maintenance of infrastructure. A 2021 case study of FSM services in two Bangladeshi towns (Sakhipur and Jhenaidah) revealed that these two municipalities did not view intergovernmental transfers from annual development funds as a reliable funding option due to the requirement for municipalities to apply and compete for funding (WaterAid & Athena Infonomics, 2021). Another study of FSM services in four towns (Jhenaidah, Lakshmipur, Chowmuhani, and Narsigndi) found that municipalities lacked the capacity and willingness to deliver FSM services given "legal and financial restrictions set by the central government." This included confusion over the responsibility of funding ancillary infrastructure like access roads to treatment plants (Zaqout and Hueso, 2020). Notably, some municipalities have successfully accessed donor funds without going through the central government, but existing literature does not elaborate on the ease or difficulty of doing so.

While the IRF-FSM is unclear on how municipalities should access national funds, it does suggest different pathways for municipalities to raise their own revenue. For example, it recommends a combination of emptying fees and taxes, with fees determined based on volume of extracted fecal sludge while sanitation taxes/charges could be determined based on water use or a proportion of the holding tax (property tax). To balance revenue with affordability, the framework recommends that taxes/surcharges for low-income households in slums should be "subsidized or fully waived and covered by government funds to Paurashava." This direct subsidy to the household is suggested along with other indirect subsidies. For example, there is a suggestion to provide emptiers a "discharge incentive" to dump collected fecal sludge at the treatment plant and create a more affordable collection fee for poorer households (Local Government Division MoLGRDC, 2017). Not all these suggestions take place in practice, as described further in Section 3.3.

Figure 1: Institutional framework for FSM services in Bangladesh according to the IRF-FSM[3]



3.2 FSM SERVICE MODELS AND CITY SELECTION

The IRF-FSM builds on the experiences of municipalities that began FSM service provision before any regulatory framework was in place and does not prescribe any one service delivery model as the ideal. The diversity of models, including different actors (public/private/community-based) and different financial arrangements between actors represents not only the diversity of municipal contexts present within Bangladesh but also the variety of models used by international NGOs that have supported particular cities, including WaterAid, SNV, Practical Action, and WSUP. By maintaining the diversity of possible operational models, government officials hope to expand service provision among more municipalities. This is also the objective of the national government's CWIS Mentor Cities program which aims to provide municipalities with exposure to best practices and lessons from leading local governments in the sector (ITN-BUET, n.d., 2022).

In a recent training manual aimed at building municipal capacity to advance FSM service provision in Bangladesh, the International Training Network Center (ITN-BUET) categorized four FSM business models currently in operation within the country: (1) Public Sector model, in which the local government takes the lead in providing FSM services, (2) Community-Led Service Level Agreement Model in which a group from marginalized communities take an active role in FSM under service agreements with the local government, (3), Public-Private Partnership (PPP) Model, in which there is

[3] IEDCR/ICDDRB/BARI/BARC/DAE are a handful of agencies involved in regulating end-products. They include the Institute of Epidemiology, Disease Control and Research (IEDCR), International Center for Diarrheal Disease and Research Bangladesh (ICDDRB), Bangladesh Agricultural Research Institute (BARI) and Bangladesh Agricultural Research Council (BARC).

collaboration between the local government and private sector entities, and (4) Hybrid model which combines elements of public, private and community participation (ITN-BUET, 2024).

Figure 2: Summary of FSM service provision models in some cities of Bangladesh (ITN-BUET)

Location	Collection	Transport	Treatment	Resource Recovery
Khulna City Corporation	Public Sector in one zone, Public Private Partnership in three zones		Public Private Partnership	
Faridpur	Community-Led Service Level Agreement Model		Public Private Partnership	
Meherpur	Community-Led Service Level Agreement Model		Public Sector	Absent
Jhenaidah	Public Private Partnership			
Kushtia	Public Private Partnership			
Lakshmipur	Public Sector			Absent
Benapole	Public-Private Partnership			Absent
Sakhipur	Hybrid			

Conversations with stakeholders reveal possible hardware and software subsidy elements present across most models. For example, the donation of vacutug (mechanized emptying) trucks from the national government and/or international donors is common across service delivery models. Similarly, many service delivery models rely on software support from NGOs helping design contractual arrangements between different actors, modeling financial flows, and developing planning tools. However, the models also highlight key differences in terms of the actors responsible for distributing direct subsidies to poor households, and the types of indirect subsidies benefitting service providers. These differences offer an opportunity to understand outcomes across subsidy implementation models. The following sections explain URBAN WASH's city selection process and details of the selected cities.

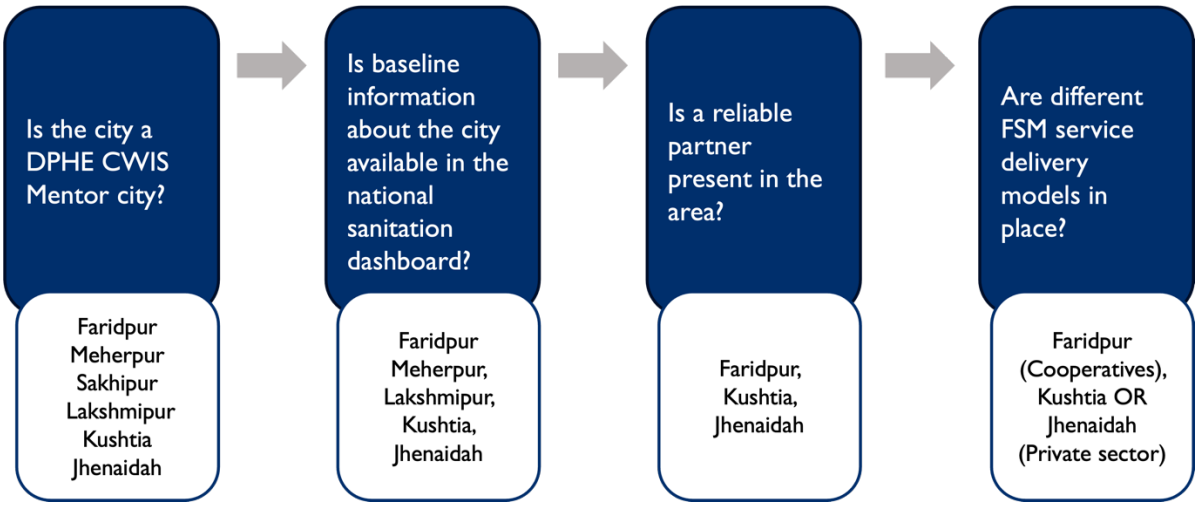
CITY SELECTION

Scoping conversations with experts from four NGOs, a research center, and a donor, resulted in a candidate list of fifteen municipalities as possible study cities for research on FSM subsidies. Among these, six had been confirmed as CWIS Mentor Cities by DPHE's selection process with other sector stakeholders (Faridpur, Meherpur, Sakhipur, Lakshmipur, Kushtia, and Jhenaidah). URBAN WASH prioritized selection of CWIS Mentor Cities to fill knowledge gaps on subsidies, as mentor cities will be well-positioned to share best practices with policy makers and implementors in the future. Within the

mentor cities, URBAN WASH considered the following factors to narrow down the selection to two cities:

1) Availability of city-level baseline sanitation information to inform research design
2) Presence of a reliable partner to facilitate and support research.
3) Difference in FSM service models to ensure lessons for a wider range of contexts.

Figure 3: Summary of URBAN WASH selection process



Faridpur, and Kushtia or Jhenaidah emerged as leading candidates based on the above selection process. In each of these cities, scoping conversations confirmed that the FSM models were not reliant on external donor funding for continued operations. In Faridpur, Practical Action Bangladesh had been supporting what ITN-BUET categorized as a community-led service level agreement model, while in Kushtia and Jhenaidah, the municipalities had been pursuing a traditional public private partnership model. URBAN WASH utilized available data from the Bangladesh National Sanitation Dashboard to compare key city characteristics and ruled out Jhenaidah due to much lower density than the other two cities (Table 3). Evidence of operating subsidies in each city are described in further detail in Section 3.3.

Table 1: Summary of city characteristics from the Bangladesh National Sanitation Dashboard and stakeholder discussions

TABLE 3: SUMMARY OF CITY CHARACTERISTICS FROM THE BANGLADESH NATIONAL SANITATION DASHBOARD AND STAKEHOLDER DISCUSSIONS

	FARIDPUR	**KUSHTIA**
NGO Support	Practical Action	SNV
Area (sq km)	19.07	13.32
Population	164,000	123,000

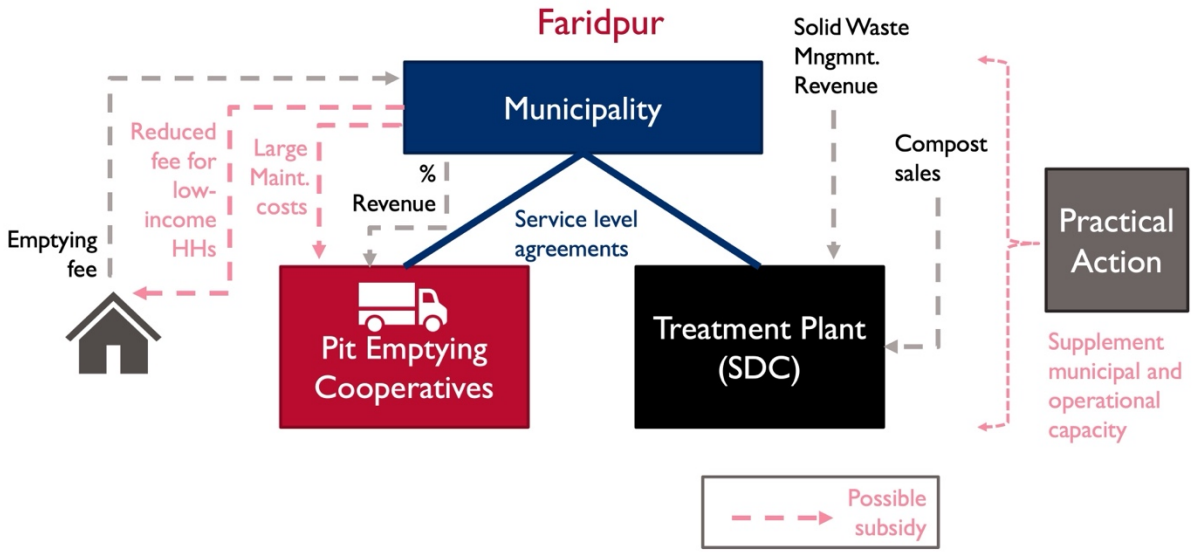
Density (pop/sq.km.)	8,587	9,240
Municipal Wards	9	12
FS Generation (m3/day)	34	32
% Safely Managed Sanitation	36%	26%
Examples of direct subsidies	Reduced emptying rates for low-income households administered by the municipality	Reduced emptying rates for low-incor households administered by the contractor.
Examples of indirect (operating) subsidies	Major maintenance of emptying equipment; Municipal management of customer requests and payments for emptying	Major maintenance of emptying equipment; Treatment plant electricit bills and employee salaries

3.3 CITY DETAILS AND KNOWLEDGE GAPS

FARIDPUR

Practical Action has been implementing FSM subsidies in Faridpur since 2014 through a community-led service level agreement model. In this model, informal manual emptiers are organized into professionalized water cooperatives by an NGO. The cooperatives then enter into service agreements with the municipality to provide emptying services to households. The municipality engages with the cooperatives through a local NGO (Society Development Committee – SDC) which also operates the treatment plant and is involved in household solid waste collection and composting.

Figure 4: Operating arrangements for the Faridpur FSM model



The municipality provides financial support to the cooperatives and SDC in several forms: i) payments for large maintenance expenditures of equipment, ii) worker health insurance, iii) direct management of

customer requests and payments, and iv) expenses linked to the compost certification process. This financial support is partly funded by donors as well as the municipality. According to Practical Action, more than 75% of the initial capital costs of setting up the model in Faridpur originated from loans taken out by the Bangladesh government while the remainder came from donors. These costs included purchase of land for the treatment plant, vacuum equipment, plant construction, and capacity building/training of workers. The municipality also has budget line items for the operation of the vacuum tankers and other small purchases as needed. Notably, financial arrangements between the municipality and the operators have changed over time. Faridpur had a reverse tipping fee for emptiers in the original model implemented in 2016, which was removed before 2020 leading to the current model. The municipality also collected equipment rental costs from the cooperatives before changing to a model where they directly receive household revenue and share a percentage of it with the cooperatives.

In addition to financial support for the emptiers and the treatment plant, the municipality also supports direct subsidies to households in "slums or low-income communities" (ITN-BUET, 2021). The service rate of emptying and transportation for low-income households is reduced by 42% for the first trip, 30% for the second trip, and 13% for all subsequent trips (Table 4).

TABLE 4: SERVICE RATE OF FS EMPTYING AND TRANSPORTATION PER TRIP IN FARIDPUR (ITN-BUET, 2021)

TRIP NO.	TYPICAL HOUSEHOLD	SLUM/LOW INCOME COMMUNITY
1st trip	BDT 1,200 / USD 10	BDT 700 / USD 5.90
2nd trip	BDT 1,000 / USD 8.40	BDT 700 / USD 5.90
3rd trip and above	BDT 800 / USD 6.70	BDT 700 / USD 5.90

A 2020 study by the University of Leeds found that the municipality's coverage of capital and large maintenance costs for the equipment enabled the Faridpur cooperatives to remain profitable (Practical Action & University of Leeds, 2021). ITN-BUET's 2021 performance assessment of Faridpur's FSM services came to a similar conclusion about the cooperatives profitability. The assessment also found that the treatment plant was operating at a loss and that the operator, SDC, was subsidizing fecal sludge treatment from the profits of their solid waste management revenue (ITN-BUET, 2021). Although these studies have assessed profits and losses for the emptiers and the treatment plant, they have not highlighted the municipality's indirect or direct financial support to these actors within the city-wide system. These studies have also not assessed the number of households that have benefitted from reduced emptying fees.

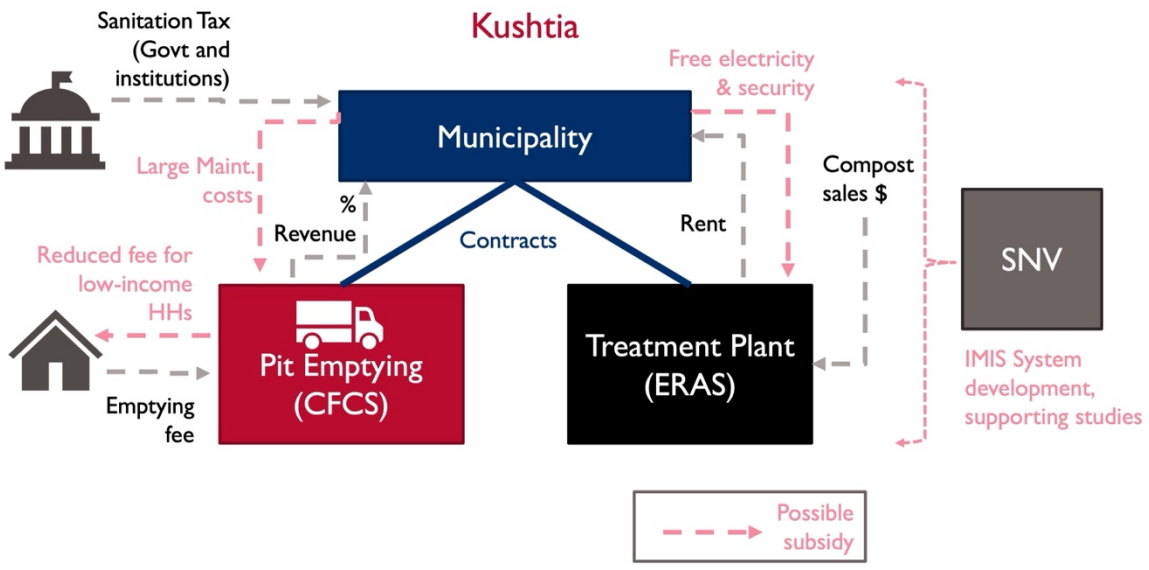
According to Practical Action, the model has increased safe disposal of fecal sludge in Faridpur from 10% to 48%, with 30-40% of households receiving the service. Additionally, workers can take out loans from the cooperative's profits to fund basic needs such as home repairs. As of October 2024, Practical Action reported that the municipality had not renewed their service level agreement with the emptying cooperatives, choosing instead to employ individuals to carry out emptying services directly. This will allow the municipality to retain the profits that were previously being shared with the cooperatives. According to conversations with Practical Action, direct subsidy elements within the model will stay the

same but transfers of revenue from the municipality to the cooperatives will no longer take place. During URBAN WASH's data collection timeline (roughly February through June 2025), the new model will have been in place for three to four months and robust financial data on the new model may not be available for analysis. URBAN WASH will continue to study the cooperative model due to its longstanding operation in Faridpur since 2017, and its replication across other municipalities in Bangladesh. However, URBAN WASH will take advantage of data collection activities to capture qualitative reasons for the recent shift in service delivery model.

KUSHTIA

Kushtia municipality has been implementing formalized FSM services since 2016. Although the municipality initially provided services, in 2021 service provision was outsourced to private operators with the support of SNV Bangladesh. Under the agreement between the municipality and the current private operator for emptying and transportation (Chourhash Fultola Kalyan Committee - CFCS), the operator is responsible for all aspects of emptying service, including managing customer requests, fuel costs, and staff salaries. The operator pays a "royalty" to the municipality based on a percentage of the revenue generated from the emptying service and is responsible for meeting performance targets set by the municipality. In 2023, the municipality changed private operators because the original party (AID Foundation) was unable to fulfill performance targets. Kushtia has a second contract with a private operator (Environmental Resource Advancement Services - ERAS) for the FSTP constructed by the national government. Under this contract, the operator is responsible for most FSTP operational costs, including staff salaries and maintenance, and pays the municipality annual rent for use of the FTSP. The operator retains all revenue generated from the sale of compost produced at the plant and became profitable after four years of operation.

Figure 5: Operating arrangements in Kushtia's FSM model



Similar to Faridpur, Kushtia provides financial support to both private operators in the following forms: i) use of emptying equipment owned by the municipality, ii) payments for large maintenance expenditures of emptying equipment, iii) use of municipal building for emptying operations including office space and staging area for equipment, iv) free electricity to the treatment plant and v) salaries for

three security guards for the treatment plant. Beyond royalties and rent, municipal spending is funded by a sanitation tax that was introduced in 2014. The sanitation tax rate is 6% based on a property's rental value and collected from government and institutional customers annually along with the holding (property) tax.

In addition to indirect subsidies from the municipality to the private operators, stakeholders confirmed that direct subsidies play a role as low-income households pay a reduced rate for emptying service. Table 5 shows the existing fee structure for emptying and transportation publicized by the municipality, which includes reductions based on type of emptying facility rather than household income. However, scoping conversations with operators suggest that subsidies are distributed on a case-by-case basis upon submission of a service request form by a prospective customer after which CFCS gives them a quote for how much they will charge for the job. If the customer indicates that they are unable to afford the quoted price, CFCS makes a judgment call on whether to offer them a reduced rate. The operator claims that 20% of the households using their service are low-income, although this has not been verified independently.

Unlike Faridpur, Kushtia municipality relies on an Integrated Municipal Information System (IMIS) developed by SNV to track customer information and performance of the operator.

Table 2: Kushtia municipality emptying and transportation fee structure

Details	Trip	Vacutug Size and Service Charge				
		1,000 Liter	1,500 Liter	2,000 Liter	4,000 Liter	VAT
Septic tank	First trip	BDT 1,000 / USD 8.40	BDT 1,300 / USD 10.90	BDT 1,500 / USD 12.60	BDT 2,000 / USD 16.75	15%
	Every subsequent trip	BDT 500 / USD 4.20	BDT 550/ USD 4.60	BDT 600 / USD 5.00	BDT 1,000 / USD 8.40	
Pit latrine	First trip	BDT 800 / USD 6.70				15%
	Every subsequent trip	BDT 400 / USD 3.35				

Within each model, the following key knowledge gaps remain:

- **Subsidies for operational expenditures**: Beyond the funding for capital expenses provided by national governments and donors, there is very little information on how much money local governments are allocating to support operational expenditures for ongoing FSM services. Furthermore, past studies have focused on the profitability of private actors in the sanitation chain (i.e., emptiers and treatment plant operators) without investigating municipal and/or international financial support required for profitability of those actors.
- **Subsidies for software elements**: There is a lack of accounting for the cost of software elements that are provided by NGOs to municipalities that otherwise lack skilled personnel

and/or strong systems to operate and expand FSM services. Given the donor-funded nature of these elements, they are a type of subsidy operating within the models.

- **Reaching the poor:** Although municipalities are advertising their fee structures for FSM services as "pro poor," there is no publicly available information or assessment on whether low-income households are utilizing and benefitting from FSM services.

Understanding where subsidies are operating in these two models, and whether low-income households are benefitting from services, could contribute to a key knowledge gap in the sector on identifying where and what to subsidize along the FSM value chain to achieve citywide affordable and sustainable services. Furthermore, key distinctions in subsidy distribution mechanisms and subsidy types between the two models can deepen the sector's understanding of possible outcomes using different subsidy implementation methods. For instance, Faridpur municipality distributes direct subsidies to households while Kushtia municipality lets the private emptying contractor distribute direct subsidies instead. Faridpur municipality also relies on different indirect subsidies than Kushtia (e.g. municipal management of customer requests in Faridpur versus payment of utility bills in Kushtia). Possible differences in outcomes between the two models could include the overall service capacity of private or community operators, and the wealth profile of households that receive direct subsidies.

4.0 RESEARCH DESIGN

4.1 RESEARCH QUESTIONS

URBAN WASH will utilize a mixed-methods approach to answer the following research questions in each of the two cities which address priority knowledge gaps:

1. **Identifying subsidies**: What level of direct and indirect operating subsidies are currently provided for emptying, transportation, and treatment services in each model? What scale of services (or service capacity) are subsidies sustaining?
2. **Reaching the poor:** To what extent are [direct and indirect] subsidies for emptying, transportation, and treatment reaching the poor? What challenges or barriers limit demand for, or access to, formalized FSM services among poor and/or marginalized communities?
3. **Good practices:** What best practices for implementing FSM subsidies emerged from the experience of governmental and non-governmental actors over the last 5-10 years? What are the barriers to scale and how might these be addressed?

4.2 STUDY DESIGN

The study will assess the current costs (including capital and operating expenses) and revenues of the FSM model in each city for each actor (municipality, emptier, treatment plant operator, NGO/Donor) in the service chain. For actors that provide services beyond FSM (i.e. the municipality and NGOs), we will limit financial analysis to costs and revenues associated with FSM only, to the extent possible. Cost and revenue analysis will determine current transfers (i.e. indirect subsidies) between actors in the service chain and direct subsidies to households. Information collected for cost and revenue analysis will also contribute to estimates of existing service capacity within the FSM model compared to required capacity based on population and fecal sludge generation volumes.

The team will also conduct household surveys among customers and non-customers of these FSM services. Household surveys will be used to determine the socioeconomic profile of customers and non-customers over the past three years to assess whether poor and/or marginalized households are benefitting from direct or indirect subsidies, and understand barriers to use of the services by low-income households.

4.3 DATA COLLECTION

As summarized in Table 6, URBAN WASH will utilize a combination of secondary data requests, in-depth interviews with implementors and supporters, and household surveys to answer the research questions. For each actor, URBAN WASH will select at least one key informant who is an expert on financial and operational questions and one key informant who can speak to relationships with other actors and negotiations in service agreements. Key informants will be selected by the research team in conjunction with suggestions from the research partners and the actors themselves (Faridpur municipality, Kushtia municipality, Practical Action, SNV, cooperatives, private service providers).

RESEARCH QUESTION 1: STRUCTURED INTERVIEWS AND SECONDARY DATA

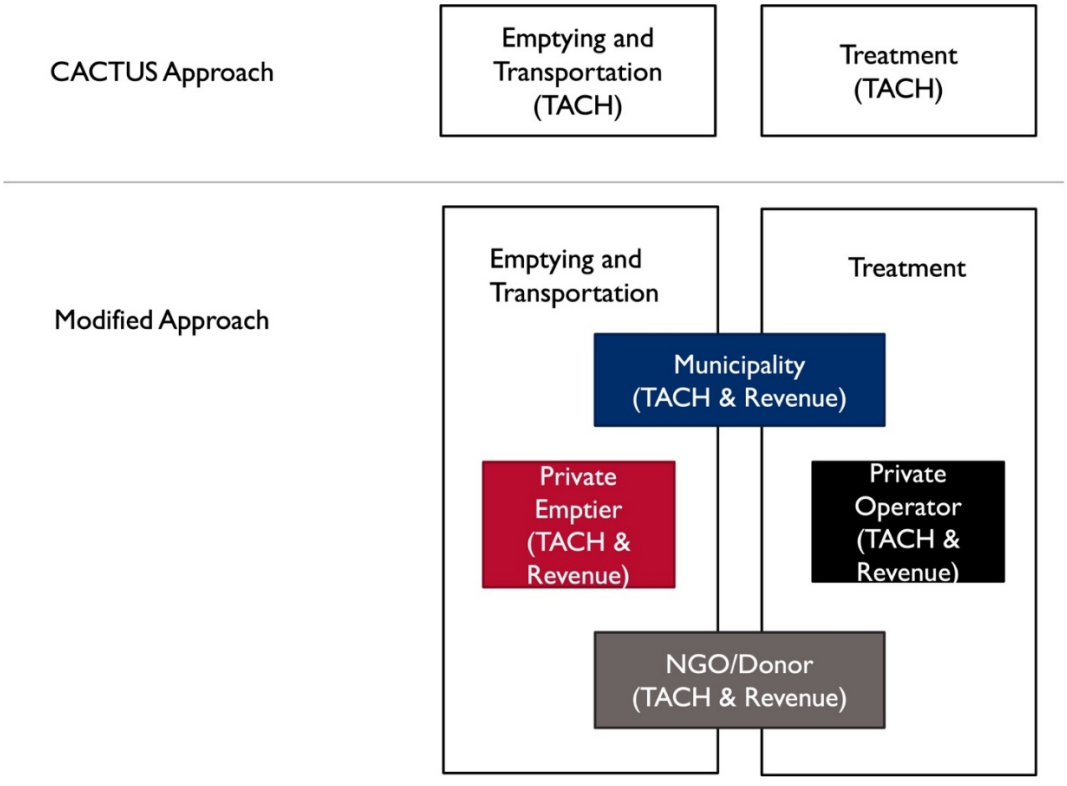
To identify existing indirect subsidies in each model, URBAN WASH will complement secondary data with 16 in-depth structured interviews across the municipality, the emptiers, the treatment operators, and the supporting NGOs (2 interviews per actor, per city).

Interviews with the municipality and service providers will utilize structured questions to document the operating costs of service provision as well as the revenue collected from emptying fees, re-use/compost sales, and sanitation taxes. Interviews with NGOs will focus on programmatic costs for supporting the municipality and/or service providers with technical assistance over the same period.

The study will capture costs using methodology and workbooks developed by CACTUS (Climate and Costs in Urban Sanitation). CACTUS collects empirical data from urban sanitation projects and has created a process for normalizing the data for comparable cost estimates. However, CACTUS estimates exclude subsidies, revenues, and transfers between the steps of the sanitation chain (for example, from emptiers to treatment plants). To answer research question 1, URBAN WASH will modify the CACTUS approach in the following ways:

1) CACTUS provides workbooks to calculate the total annualized cost per household (TACH) for each step in the sanitation chain, depending on the type of technology used. For each step, we will separate costs by actor (the municipality, the contracted service provider, and the supporting NGO/donor) to delineate costs between those actors (Figure 6). Using this approach, if one actor does not incur a cost due to an indirect subsidy (e.g. no capital expense, no electricity bills, no large maintenance costs), the actual cost of those inputs will be captured under a different actor, depending on the source.
2) We will add revenue categories for each actor based on taxes, tariffs, and transfers collected by each actor. URBAN WASH will begin with data requests for municipal budgets and financial records for the past three years to fill in relevant revenue data within the workbooks and to tailor interview questions to information gaps. We will account for receipts that are specifically earmarked for FSM or sanitation services, unless the municipality identifies that general taxes are contributing to FSM services (e.g. municipal staff salaries are paid through general taxes).

Figure 6: Summary of the modified CACTUS Approach proposed under URBAN WASH



Recognizing the difficulty in capturing accurate financial data due to limited recall and/or limited documentation, URBAN WASH will utilize the following methods to triangulate the accuracy of financial data: (1) offer in-person visits to take photographs of records that cannot be shared physically or electronically; (2) obtain consent letters from municipal or business leadership before conducting visits and interviews; (3) compare reported costs between the two cities; and (4) compare reported costs to data in the CACTUS database and/or previous studies;

To identify the scale of services that subsidies are sustaining, URBAN WASH will capture information on volume and capacity of assets under operation to understand the maximum number of households that could be served under the existing model. To estimate required service capacity for 100% safely managed sanitation, URBAN WASH will consult past baseline studies to identify total fecal sludge generation volumes within the city.

RESEARCH QUESTION 2: HOUSEHOLD SURVEYS

To determine who is currently benefitting from subsidies, 200 household surveys will be deployed in each municipality (400 total surveys) across FSM model customers and non-customers (including those who might be dumping illegally or hiring illegal manual emptiers).

In each municipality, 75 surveys will utilize purposive sampling to interview households that have used the city's FSM services within the previous two years. Customers of the municipality's emptying service will be identified using commercial records or customer receipts from the municipality and/or private service provider (scoping confirmed that Kushtia uses an IMIS customer database while the city of Faridpur maintains customer records). Within the customer list, URBAN WASH will request the municipality and/or private operator to identify any customers that have received direct subsidies (discounts on emptying fees) due to being "low-income," as defined by the municipality or service provider. Depending on the volume of identifiable customers, respondents will be randomly selected from the customer list, ensuring representation from direct subsidy recipients and non-recipients. URBAN WASH will also follow up with the municipality or private operator to request further information on what qualified specific customers for subsidies and how the magnitude of the subsidy was determined.

To understand if low-income households know about the model's emptying services, the reduced cost for emptying, and why they may not be using it, the remaining 125 surveys will be population representative within low-income areas in the city[4]. URBAN WASH will request the municipality and/or research partner to identify low-income areas within the city and select up to three from different wards of the city. If low-income areas have not been mapped by the municipality, URBAN WASH will map the boundaries of the communities in order to determine community populations and proportionally distribute surveys across the communities. Households will be randomly selected within the chosen low-income areas.

Surveys will include questions on the following:

- Household demographics (gender, age, caste, tenancy)
- Type of sanitation facilities
- Wealth (7-question EquityTool for Bangladesh to determine asset-based wealth scores)
- Monthly basic expenses
- Municipal emptying service: Knowledge, use, cost, satisfaction, frequency of need, barriers

[4] 125 surveys will allow for a margin of error of 9%, given 95% confidence level, 50% sample proportion and population of 160,000.

- Direct subsidy for emptying: knowledge, access, barriers
- Availability and cost of alternative options (i.e., manual emptying or release into waterways)

RESEARCH QUESTION 3: SECONDARY DATA, SEMI-STRUCTURED INTERVIEWS, AND HOUSEHOLD SURVEYS

URBAN WASH will request existing and past service level agreements between the municipality and the service providers in each city, as well as any performance reports provided from the service providers to the municipality. Semi-structured interviews will follow a review of secondary data to deepen URBAN WASH's understanding of changes and best practices over years of implementation. Interview questions will ask about challenges with service provision, reasons behind changes to service level agreements, barriers to expansion (including barriers for domestic or international funding), and recommendations for the future. URBAN WASH will also inquire if external events such as extreme weather or political disruptions impacted service levels over the past three years. These questions will be asked after the structured interview questions designed for research question 1.

Responses to household surveys will provide the customer perspective on best practices to sustain and scale the FSM services. Surveys will provide insights into alternative options available to households, knowledge of the city's pro-poor tariffs, and satisfaction with city services.

TABLE 6: SUMMARY OF DATA COLLECTION ACTIVITIES CORRESPONDING TO URBAN WASH'S RESEARCH QUESTIONS

	SECONDARY DATA	IN-DEPTH INTERVIEWS (16)	HOUSEHOLD SURVEYS (400)
Research Question 1 (Identifying subsidies)	• Tariff for emptying/disposal and sanitation tax structure • Municipal budgets • Financial records • Customer records	• Operating costs and revenues • Capital costs • Existing service capacity (active equipment, treatment plant volumes, serviceable roads)	
Research Question 2 (Reaching the poor)	• Customer records • Subsidy recipients • Low-income areas		• Uptake in low-income areas • Wealth and demographics of existing customers • Wealth and demographics of low-income households Ease of accessing subsidy
Research Question 3 (Best Practices)	• Service Level Agreements	• Challenges to service provision	• Challenges with emptying

	• Performance reports submitted to municipal standing committee	• Changes over the years • Recommendations	• Alternative options • Knowledge of city service • Satisfaction with city service

4.4 DATA ANALYSIS

RESEARCH QUESTION 1: FINANCIAL ANALYSIS AND SERVICE LEVEL ANALYSIS

URBAN WASH will begin by mapping the financial flows within each city's FSM model using financial records, municipal budgets, and the data collected from the interviews. We will directly capture notes from the interviews into the modified CACTUS template with line items for the different revenues and costs. By delineating revenues and costs, URBAN WASH will be able to identify resulting indirect subsidies based on the difference between the costs of service provision and the revenues from sales for each actor (NGO, municipality, emptier, treatment plant operator). URBAN WASH will then compare the amount of financial flows over time within each city and between cities. URBAN WASH will also identify any external factors corresponding with changes in costs and revenues over time such as extreme weather events and/or political changes. In case of cost data gaps, URBAN WASH will refer to the CACTUS database for mean or median costs for missing categories from similar contexts, and/or consider using costs from the other city.

To assess the level of services that subsidy implementation is enabling, URBAN WASH will utilize interview responses to estimate existing desludging, treatment, and composting capacities, and compare these to required capacities for 100% safely managed sanitation (annual fecal sludge generation volume). Existing and required capacities for safely managed sanitation will be determined based on methods outlined by ITN-BUET's Training Manual on service and business models for sustainable FSM in municipalities (ITN-BUET, 2024). The training manual proposes methods for calculating existing capacity based on available equipment and workers rather than demand, since demand may be lower than the capacity. URBAN WASH will also use financial records to compare existing percent uptake of emptying services city-wide (number of total customers/total households) with existing capacity for services. Capacity levels and percent uptake will be determined for each year that URBAN WASH is provided data over the past three years.

RESEARCH QUESTION 2: DEMOGRAPHIC AND WEALTH ANALYSIS TO ASSESS STATUS OF REACHING THE POOR

The household survey will collect socioeconomic and demographic information, such as household head gender and age, caste, and tenancy status, which we will use to construct socioeconomic profiles for customers and households in low-income communities. We will determine household wealth based on responses to EquityTool questions. The Equity Tool employs a weighted combination of parameters to derive index scores representing wealth or poverty levels. A distribution of the sampled household population is created by giving each member of a household that household's index score. We will construct wealth quintiles within our sampled population and define the bottom two quintiles as poor (Rutstein & Johnson, 2004).

To understand the extent to which subsidies are reaching the poor (research question 2), URBAN WASH will triangulate wealth outcomes from the two types of sampling approaches: First, purposively sampling customers of FSM services will allow URBAN WASH to estimate the proportion of customers

who are within the bottom two wealth quintiles. Second, representative sampling in select low-income communities will allow URBAN WASH to calculate the proportion of poor households who have utilized the municipality's emptying services. Within these two groups, URBAN WASH will also disaggregate data across demographic groups to understand uptake among women headed households, the elderly, and low-caste populations.

Additionally, we will evaluate the cost of emptying services (from customer receipts) as a percentage of reported basic household monthly expenditures and compare this fraction between different wealth quintiles. For non-customers who have utilized alternative emptying options, we will repeat the analysis using reported costs.

RESEARCH QUESTION 3: QUALITATIVE ANALYSIS AND SUMMARY STATISTICS TO IDENTIFY BEST PRACTICES

To identify best practices for implementing FSM subsidies, URBAN WASH will review transcripts of responses to the semi-structured interview questions using deductive coding, using a list of three to five themes relative to changes, challenges, and successes with the model over the years. We will conduct a second analysis using inductive coding, i.e., identifying new themes that strongly emerge from the transcripts. We will summarize each theme (the three to five themes used for deductive coding plus the inductively identified themes) with key takeaways and illustrative quotes. We will complement qualitative findings with relevant quantitative findings from the household survey such as reasons for no demand for services from non-customers including availability of alternative options and/or difficulty accessing emptying services.

4.5 FIELDWORK MANAGEMENT, QUALITY ASSURANCE, AND ETHICAL CONSIDERATIONS

URBAN WASH will request secondary data virtually and follow up in-person during field visits to Faridpur and Kushtia when the in-depth interviews will also take place. The Dhaka-based research associate, supported by the local engagement and project manager will conduct interviews during two field visits to each city (four visits total). Aquaya staff will virtually oversee the Dhaka-based team and provide in-person support during project milestones such as enumerator training and data validation workshops, in addition to conducting the analysis.

URBAN WASH will recruit four enumerators and one supervisor to map survey communities and conduct the household surveys. We expect that each enumerator will be able to complete four surveys a day. Enumerators will collect data on Android phones/tablets using ODK survey software. The supervisor will be responsible for logistics, spot checking data, and community entry.

Quality control measures for this study include the following:

- Using a small data collection team;
- Piloting the household survey prior to the start of data collection, and adjusting questions as needed;
- Daily data reviews;
- Supervisor spot checks on a minimum of 10 percent of surveys, and
- Triangulating data from secondary data sources, interviews, and household surveys, when possible.

Given the ongoing political changes, URBAN WASH will monitor the security situation closely to ensure that no team members are put at risk during data collection activities. The Dhaka-based team will

provide regular updates, particularly before and during scheduled field activities. URBAN WASH will proactively communicate delays or changes in schedule in case of security challenges. As much as possible, URBAN WASH will also continue remote data collection during such periods.

URBAN WASH will obtain ethical research approval from necessary institutions. All data collected in this study will be kept confidential and will only be accessible by URBAN WASH staff on password-protected computers. No identifiable information will be used in the outputs of this study.

4.6 POTENTIAL RISKS AND MITIGATION STRATEGIES

TABLE 7: POTENTIAL RISKS AND MITIGATION STRATEGIES

POTENTIAL RISKS	MITIGATION STRATEGIES
Delayed MoU with Kushtia municipality.	Complete data collection in Faridpur before moving to Kushtia.
Delayed field visits due to political instability.	Proceed with secondary data requests and request partners on the ground in each city to set up virtual meetings for in-depth interviews.
Incomplete financial data.	Where possible, refer to the CACTUS database or second city for cost estimates to fill gaps. If historic operating costs are unavailable, consider reducing the scope of question 1 to a one-year financial analysis of both cities instead of a multi-year analysis. If revenues from transfers and taxes are unavailable, continue mapping remaining costs and revenues to identify indirect subsidies, even though the source of the indirect subsidy may not be identified.

5.0 ENGAGEMENT

URBAN WASH will maintain regular engagement with local partners to ensure that the research is relevant, timely, and accessible to the sector. URBAN WASH has established a technical working group (TWG) comprised of stakeholders who are local researchers, implementors, and/or policy and decision makers within Bangladesh's FSM sector (see Section 5.1 for further details). URBAN WASH has also hired an in-country consultant to serve as a liaison between URBAN WASH researchers and local stakeholders. The Dhaka-based consultant will continue to work closely with the research team and stakeholders to maximize exposure and opportunity for uptake of research findings in-country, leveraging in-country networks with FSM policymakers, practitioners, academics, consultants, and NGOs to achieve this.

5.1 TECHNICAL WORKING GROUP

In February 2024, URBAN WASH attended the FSM convention in Dhaka, organized by the national FSM network, and connected with several key stakeholders for the project. After a dozen one-on-one consultations with stakeholders, including those identified during the FSM convention, literature, and recommendations from partners, URBAN WASH invited individuals from nine organizations/local governments to join the TWG. In July 2024, URBAN WASH hosted the inaugural Technical Working Group meeting and co-design workshop where 10 participants validated the proposed research questions and discussed opportunities to influence and support other activities in the sector, including DPHE's CWIS Support Cell, that is assessing the financial capabilities of 150 municipalities by 2025 and will be designing support mechanisms for these municipalities. Municipal staff from Faridpur and Kushtia were unable to attend the meeting, although they were provided updates after. See Table 7 for a list of organizations who have joined and/or been invited to join the TWG.

TABLE 8: BANGLADESH TWG MEMBERS

BANGLADESH TWG MEMBER ORGANIZATIONS
Practical Action Bangladesh
WaterAid Bangladesh
SNV Bangladesh
Water and Sanitation for the Urban Poor (WSUP Bangladesh)
International Training Network Center at Bangladesh University of Engineering and Technology (ITN-BUET)
Faridpur Municipality
Kushtia Municipality

5.2 MEETINGS, WORKSHOPS, AND CONFERENCES

URBAN WASH will provide the TWG quarterly email updates on the status and timeline of the project, offering opportunities for virtual meetings if desired by members of the group. URBAN WASH will meet with the research partners (Practical Action and Kushtia Municipality) on a monthly basis to provide project updates and follow up on requests related to data collection and analysis. Finally, URBAN WASH will schedule quarterly calls with USAID/Bangladesh to provide updates and identify opportunities for collaboration.

After data collection and preliminary data analysis, URBAN WASH will invite the TWG for an in-person workshop to validate the findings, discuss recommendations, and identify opportunities for further dissemination and engagement in the sector. Local dissemination opportunities include the FSM convention in Dhaka, while global dissemination opportunities include sector conferences such as UNC Water and Health.

6.0 DELIVERABLES AND TIMELINE

URBAN WASH will prepare to begin data collection by March 2025. Data collection will last approximately five months (roughly two and a half months for each city). Data analysis will follow data collection, lasting approximately four months before preliminary results are presented to the TWG in October 2025. By February 2026, URBAN WASH will produce a report highlighting the findings from each research question. URBAN WASH will also draft a journal manuscript, co-authored with research partners, for submission by April 2026. Participation in local and international conferences will be determined based on collaboration with the engagement manager in Dhaka, the research partners, and the TWG. See the table below for a summary of the timeline.

Table 9: Summary of timeline and deliverables

Activity	2024		2025												2026					
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Study design and refinement																				
Draft study design and inception report - submit to USAID		X																		
Share research design with municipalities/research partners																				
Revise inception report from USAID and partner comments																				
Receive IRB approval (Approximately 2 months)					X															
Review/revise data collection tools																				
Finalize MoU with Kushtia municipality					X															
Field work																				
Hire enumerators and prepare training materials																				
Train enumerators and pilot tools																				
Request customer data and select respondents for purposive surveys (city 1)																				
Data collection (interviews and household surveys) in city 1																				
Request customer data and select respondents for purposive surveys (city 2)																				
Data collection (interviews and household surveys) in city 2																				
Request remaining secondary data (both cities)																				
Data analysis																				
Analyze financial flows																				
Clean and analyze household survey data																				

Analyze qualitative data																				
Reporting Outcomes																				
Share preliminary results with USAID																				
Draft report and submit to USAID																	X			
Draft journal manuscript																				X
Engagement and Dissemination																				
TWG Validation workshop														X						
Local Dissemination (TBD)																				
International Dissemination (TBD)																				

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