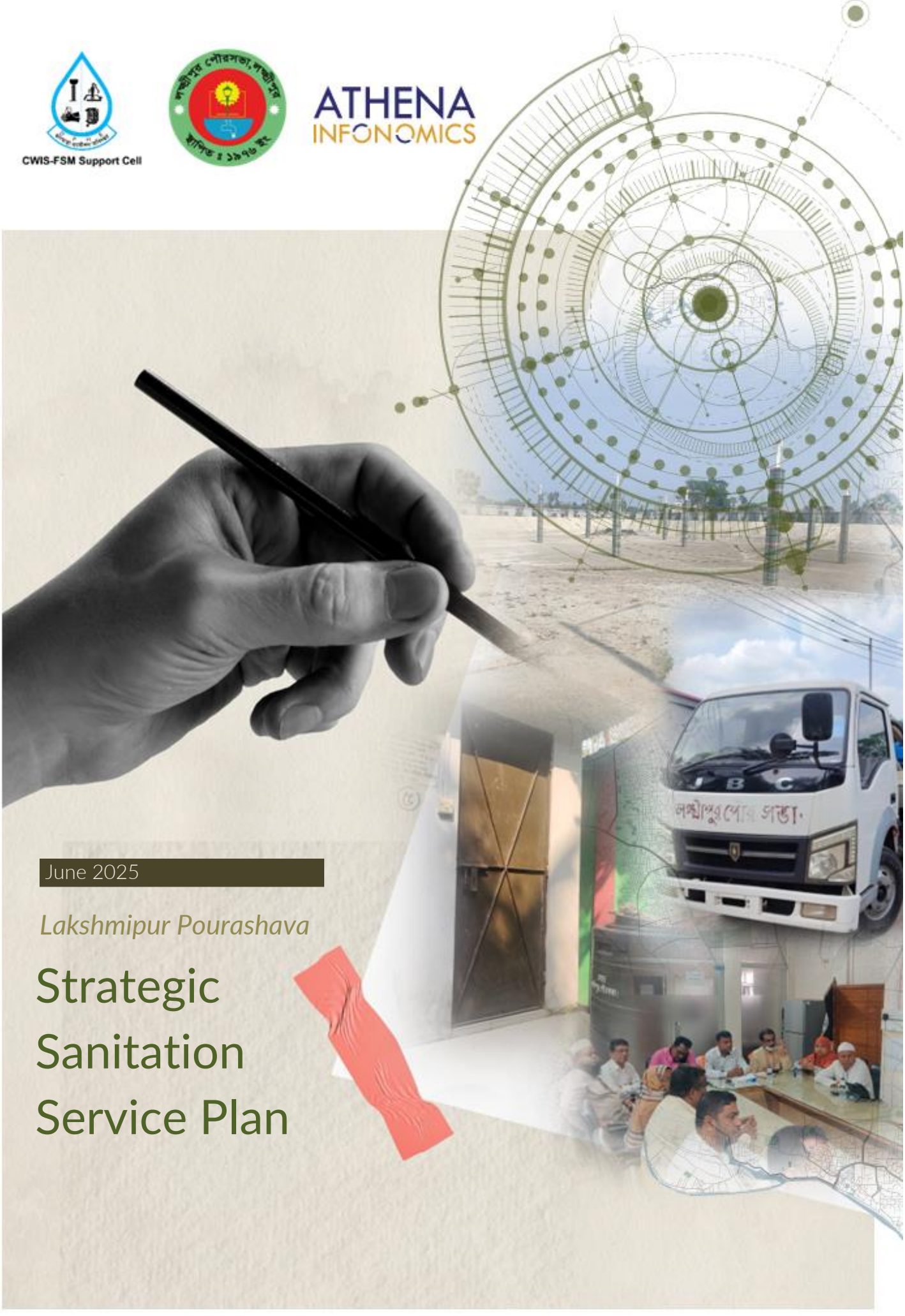
CWIS-FSM Support Cell

ATHENA INFONOMICS



June 2025

Lakshmipur Pourashava

Strategic Sanitation Service Plan

Acknowledgement

This assignment was commissioned by Gates Foundation, coordinated by Roshan Shrestha and Neelima Thota, in response to the request by Islamic Development Bank, coordinated by Habibur Rahman, Nasser Mohammed Yakubu, and Bipin Dangol.

Special thanks are due to the officials of the Department of Public Health Engineering, whose contributions were coordinated by Md. Shafiqul Hassan and Dilruba Farzana.

The research was conducted by Athena Infonomics, with key contributions from Ramkrishna Paul, Mithra Vasudevan, Ashraful Islam and Sonia Shahid. The team benefited from the advisory support of Y. Malini Reddy.

In addition, we extend our sincere thanks to Abdullah Al-Muyeed, Sanjoy Mukherjee, Md. Tawhidur Rahaman, Rifat Binte Jia and Monzur Morshed for their expert advisory support and editorial guidance, and to Niranjana Ramakrishnan for her support with design.

Our heartfelt thanks go to Lakshmipur Pourashava, particularly Md. Alauddin (Ex-PNO), AKM Shamsu Uddin (Ex-Assistant Engineer), Md. Julfikar Hossain (Executive Engineer), Mojammel Hossain (Social Development Officer), Md. Fazle Rabbani (Sanitary Inspector), and the wider Lakshmipur team for their invaluable input and collaboration in co-developing the service plan.

Finally, we acknowledge the valuable contributions and insights provided by Practical Action, Global Water and Sanitation Center of Asian Institute of technology, International Training Network of Bangladesh University of Engineering and Technology, SNV Bangladesh and WaterAid Bangladesh, and members of the FSM Network who participated in interviews and consultations.

List of Acronyms

SSSP	*Strategic Sanitation Service Plan*
CWIS	*Citywide Inclusive Sanitation*
FSM	*Faecal Sludge Management*
DPHE	*Department of Public Health Engineering*
EXEN	*Executive Engineer*
PNO	*Poura Nirbahi Officer*
PIC	*Planning Implementation Committee*
LIC	*Low-Income Community*
IMIS	*Integrated Municipal Information System*
SBCC	*Social and Behavior Change Communication*
KAP	*Knowledge, Attitudes, and Practices*
SNS	*Shashthyo Nirapotta Scheme*
FSTP	*Faecal Sludge Treatment Plant*
PT	*Public Toilet*
CT	*Community Toilet*
LGI	*Local Government Institution*
LGD	*Local Government Division*
LGED	*Local Government Engineering Department*
BNBC	*Bangladesh National Building Code*
NAP-IRF	*National Action Plan for Institutional and Regulatory Framework*
DoE	*Department of Environment*
DAE	*Department of Agricultural Extension*
OSS	*On-Site Sanitation*
HR	*Human Resources*
PRSP	*Poverty Reduction Strategy Paper*
MHM	*Menstrual Hygiene Management*
SFD	*Shit Flow Diagram*
NGO	*Non-Governmental Organization*
BBS	*Bangladesh Bureau of Statistics*
PWD	*Persons with Disabilities*
USD	*United States Dollar*
BDT	*Bangladeshi Taka*
IaDB	*Inter-American Development Bank*

Executive Summary

Sanitation service Planning is crucial for a city to keep waste away from residents and maintain public health hygiene in urban areas. This document sets out key steps and process guidelines that local government authorities can take up to achieve inclusive and safe solutions to mitigating health risks along the sanitation value chain – safe access, safe containment, safe transportation and disposal, safe treatment and safe reuse.

The process begins with the formation of a dedicated team, responsible for the development and execution of the strategic sanitation service plan. The team will include stakeholders who are directly engaged in the sustaining of city's sanitation efforts and monitoring of sanitation-related performance indicators.

The team will begin with a thorough baseline survey and CWIS situation assessment with city profiling and climate vulnerability assessment. The CWIS baseline assessment discusses how the current institutional and governance framework addresses sanitation service delivery for the whole city and for low-income communities, especially residents living in slums or abashons. It reviews how the local regulatory framework adopts the national mandate and upgrades it with local sanitation regulatory requirements. It analyzes the financial mechanisms at play to sustainably manage operational and maintenance expenditures for both sanitation infrastructure and sanitation services. Finally, it studies the conduciveness of sanitation infrastructure and facilities based on the city's topographical and climate vulnerability perspectives.

The SSSP, then, identifies the gaps in each area, highlighting the strategy that will lead to achieving 'access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations by 2030', in line with SDG 6.2. The action plan further provides costed interventions phased out in yearly installments with key performance indicators outlined for the planning implementation team. The total cost to reach 100% safely managed sanitation by 2030 in Lakshmipur will be 27 crore BDT, with annual revenue generated from sanitation service delivery at 2.11 crore BDT and annual expenditures for sanitation service operations and maintenance at 54.12 Lakh BDT (Scenario 1 from the EquiServe analysis). This is based on the structure of the current Development Project Proposal (DPP) of the Department of Public Health Engineering. Lakshmipur's scenario models show a strong case in financial sustainability of the investment.

The EquiServe tool evaluates the developed scenarios to determine funding requirements and measure progress within the agreed upon timelines towards achieving safely managed sanitation and recommended viable ways to improve revenue and reduce expenses. The SSSP ends with a rapid service system assessment tool to measure and report on quarterly and annual progress and outcomes from implementing the interventions and a digital knowledge management system to retain insights and learnings from progresses made on sanitation efforts.

Table of Contents

Section 1: Strategic Roadmap

The Strategic Sanitation Service Plan (SSSP) is developed through engaging public service providers with different actors to analyse their service system and identify strategic interventions, covering policies, people, infrastructure, processes, business service delivery models, and technologies that are optimized to advance customer trust, loyalty, and service experience.

The output outlines how Lakshmipur municipality (and other stakeholders) will build up its ability to deliver sanitation services over time and space, ensuring that its resources (internal and external) are equal to the interventions that the service authority has determined are required to extend and maintain safe, equitable, and sustainable sanitation.

Figure 1 Process flow to allocating sanitation investments effectively to achieve safe, equitable, sustainable sanitation service delivery for a city

Section 1.1 Planning Implementation team / Committee (PIC)

Athena Infonomics and DPHE CWIS-FSM Support Cell developed the Strategic Sanitation Service Plan using the EquiServe tool in a two-day workshop conducted in Lakshmipur with Pourashava officials and local DPHE officials. During the workshop, the SSSP process was introduced, the scenario analysis using the EquiServe tool was demonstrated, and the challenges, priorities, and gaps in the current CWIS situation were identified. A Planning Implementation Committee was formed for the SSSP, endorsed by the mayor, which also included elected representatives, a ward councillor and a female councillor. The specific responsibilities of each committee member were clearly defined and committed to fulfilling the requirements and execution of the SSSP.

Table 1 Roles of Responsibilities of sanitation service planning implementation team

Role	Responsibility
Pourashava Staff members	
Md. Alauddin PNO/Pouro Nirbahi Officer	*Monitor and report on the quarterly progress in implementing the interventions under SSSP with EXEN*
Md. Fazle Rabbani Sanitary Inspector	*Tracking the implementation of the interventions in the agreed timeline and devising alternative plans, in case, of delays or implementation challenges with EXEN*

Role	Responsibility
Md. Julfikar Hossain Executive Engineer	*Mobilizing resources to implement the interventions in the agreed timeline.* *Reporting back to the PIC Committee with regular weekly progress*
AKM Shamsu Uddin Asst. Engineer (Water Supply & Sanitation)	
ABM Ashraf Uddin Draftsman	*Provide regular assessments on impact of interventions in the town's master plan and climate-related effects on the town's infrastructure.*
Pran Gopal Das Accounts Officer	*Ringfencing the sanitation budget by updating the pourashavas financial books on sanitation revenue and Expenses for the upcoming year.*
Ashraf Ali Assistant Tax Assessor	*Executing the Tariff revision for desludging services for the upcoming year.*
Juyel Hossain Conservancy Supervisor	*Executing scheduled desludging services to households and institutions* *Overseeing the support extended to the workers cooperative and formalizing engagement with Pourashava.*
Faiz Ahmmed Conservancy Inspector	
Md. Shamsul Alam Assistant Engineer (Roads & Drainage)	*Implementing penalty mechanism for illegal connections to the drains* *Guiding the dispute mechanism in illegal connections through the citizens grievance redressal*
Md. Ishaq Sub-Assistant Engineer – Civil	
Mojammel Hossain Social Development Officer	*Monitoring OSS upgradation and sanitation service delivery to the low-income communities and reporting back to the PIC committee.* *Implementing SBCC campaigns with councillors by driving awareness campaigns and implementing by-law regulations.*
Elected Representatives of the People	
Jashim Uddin Mamun (Ward 10) Ward councillor (committee member for FSM)	*Implementing SBCC campaigns with social development officer by driving awareness campaigns and implementing by-law regulations*
Shahim Akter (Ward 1, 2, 3) Female councillor (committee member for FSM)	
Local DPHE office staff members	
Bilkis Aktar EXEN/Executive Engineer	*Monitor and report on the quarterly progress in implementing the interventions under SSSP with PNO* *Tracking the implementation of the interventions in the agreed timeline and devising alternative plans, in case, of delays or implementation challenges with Sanitary Inspector*
Md. Nasiruddin Assistant Engineer	
Sohel Chandra Das Budget	*Track and report on budget spending to the PIC Committee with regular weekly progress*

The responsibilities were designed based on the interventions designed by the PIC, further elaborated in the next sections.

Section 2: City Profile

Lakshmipur Pourashava, a category "A" Pourashava, is divided into 15 administrative wards and covers an area of 28.26 square kilometers. It is situated in Lakshmipur district along the Meghna riverbank in the coastal region of Bangladesh. According to 2022 Bangladesh census, the Pourashava is home to a population of 132,230[1]. The population consists of 50.12% males and 49.88% females, with an average household size of 4.15. Approximately 1.5% of the urban population in Lakshmipur district are persons with disabilities (PWD). For this study, we have projected the 2022 population and household data to 2024 and 2030 for future planning purposes, using the Geometric Increase Method with the district's population growth rate of 1.01%.

Table 2: Population and household forecast – Lakshmipur Pourashava

Lakshmipur Pourashava	2022		2024 F		2030 F	
	Population	Household	Population	Household	Population	Household
Ward No. 01	9,515	2,315	9,708	2,362	10,312	2,509
Ward No. 02	10,130	2,350	10,336	2,398	10,978	2,547
Ward No. 03	6,309	1,495	6,437	1,525	6,837	1,620
Ward No. 04	7,054	1,700	7,197	1,734	7,645	1,842
Ward No. 05	7,779	1,852	7,937	1,890	8,430	2,007
Ward No. 06	11,365	2,813	11,596	2,870	12,316	3,049
Ward No. 07	13,076	3,197	13,341	3,262	14,171	3,465
Ward No. 08	8,134	1,937	8,299	1,976	8,815	2,099
Ward No. 09	7,649	1,843	7,804	1,881	8,289	1,997
Ward No. 10	12,024	2,897	12,268	2,956	13,031	3,140
Ward No. 11	10,051	2,500	10,255	2,551	10,892	2,710
Ward No. 12	9,348	2,247	9,538	2,293	10,131	2,435
Ward No. 13	4,939	1,182	5,039	1,206	5,352	1,280
Ward No. 14	6,290	1,480	6,418	1,510	6,817	1,604
Ward No. 15	8,567	2,050	8,741	2,091	9,284	2,221
Total	**132,230**	**31,858**	**134,915**	**32,505**	**143,300**	**34,525**

The literacy rate for individuals aged 15 years and above stands at 80.72%, with male literacy at 81.79% and female literacy slightly lower at 79.72%. The Pourashava is served by 26 government primary schools, 8 private primary schools, 9 high schools, 3 colleges, 1 university, 4 technical and vocational institutions, and 9 madrasas, along with 13 healthcare facilities[2]. In terms of employment, 32,389 people are employed, with 7% engaged in agriculture, 18% in industry, and the majority, 75%, in services. Financial inclusion indicators show that 34.12% of the population has an account in a financial institution, while 43.6% use mobile banking services. Regarding housing, 43.26% of households reside in pucca structures, 16.52% in semi-pucca structures, 40.19% in kancha structures, and a minimal 0.03% in jhupri dwellings. Ownership statistics indicate

[1] BBS (2024). Population and Housing Census 2022 – District Report: Lakshmipur

[2] Lakshmipur Pourashava – At a glance: https://lakshmipurpourashava.gov.bd/%e0%a6%8f%e0%a6%95-%e0%a6%a8%e0%a6%9c%e0%a6%b0%e0%a7%87-%e0%a6%aa%e0%a7%8c%e0%a6%b0%e0%a6%b8%e0%a6%ad%e0%a6%be/

that 73.87% of households own their dwelling unit, while 21.17% rent but have another dwelling unit elsewhere. Additionally, 3.9% of households rent without owning any other dwelling, 0.5% live rent-free but own a unit elsewhere, and 0.56% live rent-free without owning any other dwelling. In case of public places, the municipality features 1 bus stand, 19 easybike or rickshaw stands, 5 bazaars, 6 shopping centers, 1 children's park, 1 stadium, 1 auditorium, and 1 playground.

Section 2.1 Climate Vulnerability and its impact on sanitation services

Vulnerability to cyclones is found to be very high in Lakshmipur[3], with it being among the coastal districts that make up Bangladesh's Coastal Zone[4]. The city was inundated with floods for over a week in August 2024, indicating a low disaster management capacity of local authorities. Lakshmipur is seen to have inadequate drainage facilities, which barriers the flow of water to the coasts[5]. Climate vulnerability, overall, is seen to highly affect the level of service and quality of facilities that the city has.

In terms of climate, Lakshmipur experiences a tropical climate with warm and humid conditions that are generally favourable for the area. The annual average temperature ranges from a maximum of 34.3°C to a minimum of 14.4°C[6]. The region receives an average annual rainfall of 3,302 mm, with the heaviest rainfall occurring in July during the monsoon season, which lasts from May to September. The rest of the year remains relatively dry. Topographically, Lakshmipur is one of the areas with the lowest land elevation, located on Meghna riverbank of low-lying tidal zones with average elevation of 9 meters above sea level[7]. Lakshmipur Pourashava is highly vulnerable to coastal and climate hazards[8], and faces significant challenges in constructing and managing infrastructure, such as buildings, roads, drainage systems, water supply, toilets, sewerage, and waste management. The Pourashava is particularly vulnerable to climate change-related disasters, including cyclones, storms, tidal floods, flash floods, waterlogging, salinity, and riverbank erosion which severely impact infrastructure and disrupt the livelihoods of residents and affect essential services such as water supply, sanitation, and waste management[9]. Although the Pourashava serves as a refuge during extreme events, its poor infrastructure makes it unsafe and inadequate for supporting coastal populations[10].

---

[3] Sarkar, S. K., Rudra, R. R. & Santo, M. M. H. Cyclone vulnerability assessment in the coastal districts of Bangladesh. *Heliyon* **10**, e23555 (2024).

[4] H. Ahmad, Bangladesh Coastal Zone Management Status and Future Trends, 2019, pp. 1–6, https://doi.org/10.24105/2473-3350.22.466.

[5] Dhaka tribune, 'Nobody wants to reach remote areas in Lakshmipur', 26th August 2024, https://www.dhakatribune.com/bangladesh/356202/%E2%80%98nobody-wants-to-reach-remote-areas-in-lakshmipur%E2%80%99

[6] Lakshmipur District – Geographic contact: https://www.lakshmipur.gov.bd/en/site/page/9UuY-%E0%A6%AD%E0%A7%8C%E0%A6%97%E0%A6%B2%E0%A6%BF%E0%A6%95-%E0%A6%AA%E0%A6%B0%E0%A6%BF%E0%A6%9A%E0%A6%BF%E0%A6%A4%E0%A6%BF

[7] Elevation of Lakshmipur: https://elevation.maplogs.com/poi/lakshmipur_bangladesh.534896.html

[8] Mullick, M. R. A., Tanim, A. H., & Islam, S. S. (2019). Coastal vulnerability analysis of Bangladesh coast using fuzzy logic based geospatial techniques. *Ocean & coastal management*, *174*, 154-169.

[9] Rahman, S., & Rahman, M. A. (2015). Climate extremes and challenges to infrastructure development in coastal cities in Bangladesh. *Weather and Climate Extremes*, *7*, 96-108.

[10] Mahmood, R., Ahmed, N., Zhang, L., & Li, G. (2020). Coastal vulnerability assessment of Meghna estuary of Bangladesh using integrated geospatial techniques. *International Journal of Disaster Risk Reduction*, *42*, 101374.

Regarding water supply, 2022 census reveals that Lakshmipur Pourashava sources drinking water from various options. Tube-wells, both deep and shallow, are the primary source for 50.75% of households, while 48.88% rely on tap or piped water supply. A small portion of the population, 0.06%, use bottled or jar water, and 0.03% draw water from wells. Additionally, 0.28% of households rely on surface water sources, such as ponds, rivers, canals, or lakes. The baseline study conducted by Athena Infonomics revealed that Lakshmipur Pourashava has established a piped water supply system, which includes three overhead tanks and three water treatment plants[11]. Currently, 9,000 connections serve 8,700 households and 300 commercial establishments, with each connection costing BDT 500 per month. The water network covers all 15 wards, with a total pipeline length of 63 kilometers, currently reaching 60% of the holdings. Regular water quality tests ensure that supply maintains a pH level between 0.6 and 0.8 and is free from iron and arsenic. The town relies on 3,665 tube wells and 202 deep tube wells to supply water, particularly to the rural outskirts. However, the city's groundwater levels are gradually declining, especially in wards 11 through 15. Groundwater pollution is a significant concern, with high levels of manganese, iron, hardness, and arsenic. Surveys revealed that in 63% of households, the drinking water source, that is, tubewells are located less than 10 meters from the toilet, raising concerns about potential fecal contamination.

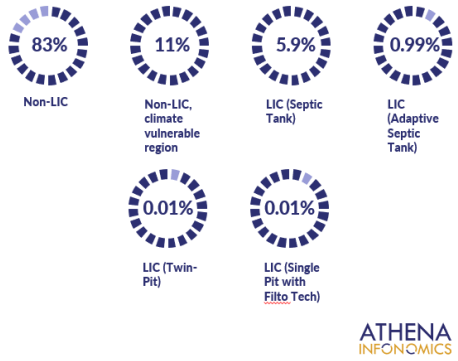
In terms of climate change, the pourashava falls among moderately vulnerable regions, directly impacting its water resources and availability and quality of sanitation services. When examining the sanitation infrastructure and services, it was found that the level of resilience required to tackle climate risks, such as iron levels, arsenic release into ground water, frequency of cyclones and floods, and corrosion and clogging of pipes and fixtures, further complicates infrastructure maintenance for households/institutions in ward 2 & ward 3 of the pourashava. The applicable sanitation technology for each the wards, basis the climate assessment is listed in Table 3.

Table 3 Applicable sanitation technology, basis Climate Assessment

In 2025

26,652 HH will require upgraded containment technologies

WARD	2022		2024 F		2030 F	
	Popn	HH	Popn	HH	Popn	HH
1	9,515	2,315	9,708	2,362	10,312	2,509
2	10,130	2,350	10,336	2,398	10,978	2,547
3	6,309	1,495	6,437	1,525	6,837	1,620
4	7,054	1,700	7,197	1,734	7,645	1,842
5	7,779	1,852	7,937	1,890	8,430	2,007
6	11,365	2,813	11,596	2,870	12,316	3,049
7	13,076	3,197	13,341	3,262	14,171	3,465
8	8,134	1,937	8,299	1,976	8,815	2,099
9	7,649	1,843	7,804	1,881	8,289	1,997
10	12,024	2,897	12,268	2,956	13,031	3,140
11	10,051	2,500	10,255	2,551	10,892	2,710
12	9,348	2,247	9,538	2,293	10,131	2,435
13	4,939	1,182	5,039	1,206	5,352	1,280
14	6,290	1,480	6,418	1,510	6,817	1,604
15	8,567	2,050	8,741	2,091	9,284	2,221
Total	132,230	31,858	134,915	32,505	143,300	34,525



[11] Baseline study in five selected cities in the purview of Citywide Inclusive Sanitation (CWIS) framework – Lakshmipur.

Section 3: Sanitation Service System Functions

Section 3.1 Institutional and Governance

Strategy I – Lakshmipur aims to establish an effective institution that ensures every resident's waste is safely managed, creating waste-free communities. Sanitation infrastructure and service delivery systems protect workers, households and the wider community at all stages from access/containment to disposal/reuse. Hiring, infrastructure development, service planning, and service delivery are made through public discourse, incorporating needs, values, constraints, and voices of residents and workers, especially from the marginalized, women and girls and those without formal land tenure or access to sanitation. Occupational health and safety standards are consistently met, protecting sanitation workers' health and rights. Commitment to safe, inclusive urban sanitation is demonstrated through transparent budget allocations and spending, driven by principles of equity and accountability. Autonomous accountability systems exist to empower marginalized communities while service authorities receive political support to implement institutional reforms.

Baseline	Interventions for institutional & governance reforms
• The total strength of Pourashava is 140 full-time staff & 130 contractual employees. Pourashava staff receive timely salaries, and all key positions are filled. • The Conservancy Chief oversees sanitation services, supported by the Engineering, Health & Sanitation departments. • The Engineering Department manages FSM, includes Chief Engineer, Assistant Engineer, 2 drivers, 8 helpers & 3 FSTP staff. • Informal workers are hired if additional support is needed. The use of informal workers for additional support in FSM highlights a gap in workforce planning, which affects service consistency and quality. • Working in sanitation services always poses significant health risks for sanitation workers. However, to mitigate these risks, there is currently no health insurance scheme in place.	• ***Formation of Sanitation Cooperatives model –*** *Challenges related to human resources, particularly in retaining sanitation workers and drivers can be addressed by forming a cooperative organization. The registered cooperative with 82 members will oversee their regular job placement, ensure OHS during service delivery and signup to 'Shashthyo Nirapotta Scheme (SNS)' for health & social security benefits. The cooperative can, additionally, be engaged through service contracts to manage public toilets (prioritizing the female workers), deliver desludging services and/or manage the FSTP.* • ***SNS Scheme for all Workers –*** *Municipality to facilitate in monitoring that every worker is registered to an SNS scheme, where 56 workers are signed up. Female workers will be, additionally, supported with maternity and childcare benefits.*
• The absence of clear monitoring and evaluation practices could hinder the ability to identify and address issues proactively, impacting overall service effectiveness. The same reiterates the gap in collection, analysis, and use of data to inform decision-making, which could limit the efficiency of resource allocation and service delivery. • Monitoring and tracking should be enhanced using the Integrated Municipal Information System (IMIS)	• ***IMIS for improving data systems strengthening*** *– Lakshmipur to create a comprehensive database on sanitation infrastructure, service coverage, and SDG performance indicators. Creating user-friendly interfaces and dashboards accessible to the public will encourage public discourse.* • *Combining data from multiple sources, such as socioeconomic indicators, geographic information systems (GIS), and demographics, will help the pourashava to report on the city's sanitation needs and challenges and report on their successes.*

Baseline	Interventions for institutional & governance reforms
	• *Quarterly & annual reporting for public discourse will also enable transparency, accountability, and informed resource allocation in sanitation planning and management.* • *Lakshmipur will inform the stakeholders on its' present IT capabilities and initiate training initiatives to equip them on necessary IT skills.*
• The awareness campaigns and Social and Behavior Change Communication (SBCC) efforts by the Pourashava are inadequate in promoting the importance of improved sanitation services. This results in low usage of vacuum truck services and connections of septic tanks to the drainage system	• ***Awareness generation and SBCC*** *– Municipality run regular awareness campaigns on septic tank emptying among residents, in schools. Their SBCC campaign will further adopt a structured approach to assessing community knowledge, attitudes, and practices (KAP) regarding sanitation services, enabling identification of key issues and development of targeted campaigns. It will include formative research for gathering insights into community behaviors and needs to enhance community participation, promote sustainable sanitation behaviors, and improve public health outcomes, which will be measured, tracked and reported on. Athena's guidance note on SBCC campaigns provide a step-by-step approach to executing programs*[12]. • ***Gendered programming in SBCC*** *– Lakhimpur's communication approach will include measures to address the needs of women, girls and vulnerable communities, specifically for public toilet management, menstrual hygiene management in households and institutions, maternity hygiene, and safeguarding female sanitation workers.*
• Capacity building programs should be extended to informal workers who are part of sanitation workforce to ensure they are adequately trained and protected. • Regular training and capacity-building programs are funded through the development budget or ongoing projects. • The Executive Engineer trained in institutional reforms and governance, while faecal sludge staff received training in health, safety, and gender-transformative sanitation approaches.	• ***Mentor City Program –*** *Lakshmipur city is recognized as a mentor city where other pourashavas can learn from to develop their sanitation portfolio, that is, in planning and promoting improved sanitation infrastructure and service facilities.* • ***Regular training programs and capacity building to be taken up as part of pourashavas regular operations. Trainings for emptiers, masons, toilet producers, PT & FSTP operators on operations, maintenance and on occupational health and safety.***
DPHE aims to enhance gender sensitivity and inclusivity across all the pourashavas, particularly for their responsibilities towards gender inclusive WASH services[13]. The gender balance in both the pourashava and its partners, such as the sanitation workers cooperatives and private service providers will be improved through targeted interventions. The CWIS -FSM Support Cel has developed a Training Manual on '*Gender Inclusion in WASH services*' to enhance efforts for delivering on effective *Gender Action Plans*.	

[12] Athena Infonomics, 'Process Brief. Implementing SBCC Campaigns: A Step-by-Step Guide to Enhancing FSM Service Delivery'. Published for Department of Public Health Engineering, Government of Bangladesh in 2024.

[13] Government of Bangladesh, Department of Public Health Engineering, 'Training Manual Gender Inclusion in WASH Services for DPHE officials'. Published in January 2024.

Baseline	Interventions for institutional & governance reforms
Athena's guidance note on Sanitation Service Contracts with the Private Sector, provides a step-by-step approach to developing strong partnerships for service management[14]. The service contracts, updated annually with the operators, require Lakshmipur pourashava to specify preventive maintenance plans for pourashava's sanitation assets (PTs, desludging vehicles and treatment plant) based on criticality analysis to prioritize any additional investments needed. It will also include standard operating procedures for O&M of all assets and an asset management strategy aligning with strategic planning cycles. It will also include business continuity and emergency preparedness plans in case of any disasters or natural calamities. The private operators will regularly update the pourashava on damaged toilet containment systems and any assets, of any irregularities such as illegal disposals in open surfaces, drains, waterbodies, and monitor effluent quality / other environmental risk metrics.	

Section 3.2 Regulatory principles in sanitation service delivery

Strategy II – Lakshmipur seeks to create inclusive, equitable and safe sanitation regulations, where legal mandates are grounded in urban planning principles, without restrictions based on land tenure, technological structures, or local political boundaries. Needs of workers (formal or informal, temporary or permanent, transient or non-transient) and downstream communities are reflected in the mandates to effectively resolve any disputes and citizen grievances.

Baseline	Interventions for regulations in sanitation service delivery
• The Pourashava, as stated in the Pourashava Act and reinforced by the IRF-FSM, is responsible for the collection, transportation, treatment, and disposal of faecal sludge, ensuring the safety of emptiers, the public, and the environment. The Pourashava may engage private sector entities or NGOs for FSM. The Pourashava has the authority to set fees for the collection and transportation of faecal sludge. • The Environment Conservation Rules, 2023, issued by Department of Environment (DoE), set the standards for wastewater/effluent disposal that must be followed by anyone discharging into the environment. • The Bangladesh Standards and Guidelines for Sludge Management, published by the DoE in 2015, define the disposal standards for treated biosolids. The faecal sludge treatment plant (FSTP) in Lakshmipur Pourashava must adhere to these discharge standards and conduct quarterly tests to monitor effluent and biosolid disposal. • IRF-FSM encourages collaboration with Dept. of Environment (DoE), Dept. of Agricultural Extension (DAE), & institutes to operationalize treatment facilities that reuse treated by-products. Reuse standards in Bangladesh are set	• ***Local level bylaw*** *- The bylaw addresses effective collaboration among multiple agencies - Pourashava, DPHE, LGED, DoE, and DAE – to reduce delays and inefficiencies in implementing the initiatives. It further addresses mechanisms in enforcement of environmental compliance, legal standards, discharge standards, and conducting regular monitoring of effluent and biosolid disposal, with adequate guidelines to manage sanitation service delivery.* • *It defines the process of engaging sanitation workers cooperatives/private service providers as partnering entities. It includes processes to follow in operationalizing compliance with national standards and reuse standards for treated biosolids.* • *Furthermore, regulations are strengthened to consider gender-related implications, such as safety measures ensured in construction of community and public toilets.* • *The bylaw further provides guidelines to scheduled desludging, to regularly, update emptying of all septic tanks and latrines.* • *The bylaw will address processes for new connections, disconnections, payment systems, digital complaint resolution verification system. It will specify processes for conducting quarterly / annual customer satisfaction surveys and the creation of a customers' ombudsman.*

[14] Athena Infonomics, 'Process Brief: Unlocking Potential: A Framework for Sanitation Service Contracts with the Private Sector'. Developed & Published for the Department of Public Health Engineering, Government of Bangladesh on 2024.

Baseline	Interventions for regulations in sanitation service delivery
by various government authorities based on usage categories, such as the Ministry of Fisheries for fish feed and the Ministry of Agriculture for agricultural reuse.	
• Institutional & Regulatory Framework for FSM (IRF-FSM) and National Action Plan (NAP-IRF) for Pourashavas define the Pourashava authority's roles in faecal sludge management, including implementation, permitting, legal enforcement, and environmental compliance. • Regulation for not connecting septic tanks to the drainage system exists, however, most households & institutions connect their septic tanks to the city's drainage network. Pourashava is authorized to place fines to them, however, the amount of fines & process of dispute resolution is not clearly defined.	• ***Penalty mechanism*** *– Pourashava is establishing a citizens' grievance management cell for sanitation, to monitor any violations that harm the environment or public health. Specific ongoing violations include directly connecting septic tanks to drains and construction of latrines without proper privacy or safety features, in place, as specified in BNBC codes.* • *The cell will put together a dispute resolution mechanism that will discourage future violations in faecal sludge management and in sanitation systems.*

Section 3.3 Financial Structure

Strategy III – Lakshmipur aims to align service levels, affordability and availability with pricing structures, channeling adequate financial support is given to the poorest to access safe, climate resilient sanitation technology and services. Activity-based accounting of costs and revenues informs investment and finance decisions, with clear, inclusive performance targets in service quality. Climate change, water, and energy resource constraints are considered in investment planning and allocations.

Baseline	Interventions for Financial Structure
Lakshmipur Pourashava's finances come from its own revenue (water tax, property tax, vacant land tax, trade licenses, user charges) and development grants (block grants from LGD, NGO donor funds). According to the Pourashava Budget Rules 1999, Lakshmipur Pourashava can set its own tax rates and service fees for sanitation. Lakshmipur Pourashava consistently meets revenue collection targets and receives block grants as a Class A municipality. The grant for 2020-2021 was BDT 75 lakh, with own revenue collections totaling BDT 12 crores. The grant for 2022-2023 is expected to remain constant at BDT 1.18 crores.	
• Although revenue is generated from user fees for public toilets and vacuum truck services, these fees do not fully cover operational and maintenance costs, leading to financial gaps that could affect service quality. The Pourashava has implemented a uniform tariff structure across all private and institutional properties. This approach leads to inequity in service charges and generates less revenue. • The current financial structure is focused more on meeting immediate operational needs, with less emphasis on long-term financial planning, which could hinder the Pourashavas ability to invest in future infrastructure, adapt to changing conditions, or respond to unforeseen financial challenges, particularly as the population grows and sanitation demands increase. The budget allocation for	• ***Tariff structure revision*** *- Reassessment of the current tariff structure, which charges a flat rate of 1 taka per liter of faecal sludge collected from both residential and institutional properties is required.* • *Tariff for non-low-income communities can be charged a rate of 1 taka per liter of faecal sludge collected* • *Tariff for low-income communities can be charged a rate of 0.5 taka per liter of faecal sludge collected, however, the low-income communities will be identified through either their own pro-poor support programs or through NGO-supported programs to poor communities* • *Tariff for institutions, such as educational institutions and health care facilities, and commercial buildings, can be charged a rate of 2 taka per liter of faecal sludge collected. This is because such institutions*

Baseline	Interventions for Financial Structure
sanitation primarily covers operational costs and maintenance, with less emphasis on investing in innovative technologies or practices that could enhance service delivery and sustainability in the long term. Without such investments, the Pourashava may struggle to adapt to changing conditions or improve service efficiency.	*accommodate many individuals at a time and require more frequent desludging services.*
• Pourashava is expected to generate revenue from leasing nine public toilets to private entrepreneurs, expecting an annual income of BDT 18 lakh. User fees at these toilets are collected by operators, who use the funds for operations and profit. The Pourashava allocated BDT 700,000 for public toilet upgrades and maintenance in 2022-2023. • Community toilet operations and maintenance are managed by local committees using revenue from user fees, while upgrades are funded by Pourashava. • Additional sanitation revenue comes from user fees for vacuum truck emptying services, generating BDT 60,000 monthly. • The total projected income from public toilet leases and desludging fees for 2022-2023 is BDT 25 lakh. • Major expenses include salaries for sanitation workers, vacuum truck operations and maintenance, and upkeep of FSTP. • Sanitation services do not have their own ringfenced budget, while piped water supply services have.	• ***Sanitation ringfencing*** *– Similar to Water, Lakshmipur will report the sanitation revenue and expenses separately and ringfence the budget for sanitation in 2024-2025.* • *In terms of infrastructure development funding support, they receive development funds (from LGD, DPHE, LGED) for FSTP expansion; PT/CT construction; procurement of desludging vehicles. Part of the funding is also allocated for software components like SBCC and IMIS.* • *In terms of Sanitation revenue, the pourashava receives lease fees from PTs and desludging fees.* • *In terms of Sanitation expenses, the pourashava spends on salaries of sanitation workers and FSTP staff, maintenance of desludging trucks and equipment, and maintenance of the FSTP.*

Section 3.4 Sanitation Infrastructure and Service facilities

Lakshmipur Pourashava reveals 95% of households have access to individual household toilet facilities (IHHL), however, access to IHHL among low-income communities is lower, at 86%, underscoring the need for targeted measures to address this gap. To serve the needs of both the floating population and low-income communities, the city has 8 public toilets and more than 142 community toilets. However, these facilities lack inclusive designs, failing to meet the needs of physically disabled individuals, women, girls, and other vulnerable groups. In case of public toilets, the average daily footfall varies between 500-520 users, of which more than 66% are usually male users, 31% female and 3% transgenders. Regarding toilet containment, only 7% of households are connected to septic tanks, while 93% use pit latrines. Alarmingly, over 9% of household sanitation systems discharge faecal waste into open drains via illegal outlets. The emptying of pit latrines is primarily done manually, with 84% of pit latrines in the city requiring manual emptying. More than 100 manual emptiers are currently active in the Lakshmipur Pourashava. On the other hand, households with septic tanks rely on Pourashavas emptying service, which is supported by 2 large vacuum trucks. The service fee is 1,500 BDT per trip for a 1500-liter vacuum truck, with a tipping fee of 300 BDT. For a 2000-liter vacuum truck, the fee is 2,000 BDT per trip, with a 400 BDT tipping fee. Additionally, Pourashava provides 50% subsidy or free service to lower-income households and selected institutions. Pourashava operates a 5 KLD FSTP, with a current utilization

rate of 60%. Despite an increase in safely managed sanitation, from 30% in 2022 to 36% in 2023, the treatment facility's capacity remains limited, servicing only 3% of the municipality's total needs.

Table 4 Lakshmipur city's baseline conducted by Athena Infonomics, reveals the current scenario in sanitation infrastructure and service facilities

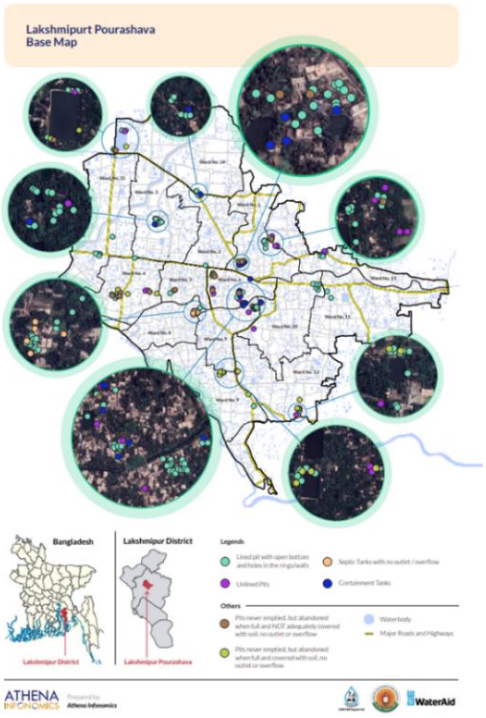
Containment and Storage	Emptying and Transport	Treatment and Re-use
Access to Sanitation Facilities • 93% - Pit Latrines of which 89% are lined • 7% - Septic Tanks • 8 PT • 142 community toilets **Sharing Practices** 95% of pit latrine are individual **Accessibility:**	**Toilet Facility Emptying** 84% of pit latrine Average no of years to empty 3- 4 years 27% population gets emptied of which 13% is from contained system **Emptying methods** No of VT -2 No of manual emptiers – > 100 manual emptiers **Cost of emptying** • Vacuum truck - 1,500 BDT per trip • Manual - 2,000 BDT per trip, with BDT 400 tipping **Transport of FS To the treatment Plant** **Formalization of operators** • Licensed and free market **SOPs for FSM** • No SOPs for FSM	• 5 KLD fecal sludge treatment plant utilization rate stands at 60% **SOPs for FSTPs** • No SOPS **Market for FS derived products from WWTP/FSTP sludge (fertilizer, briquettes)** • Not specified

Strategy IV – Lakshmipur aims to ensure that containment, disposal, reuse of fecal waste are managed to protect groundwater and environmental health, where sanitation hardware investments and service delivery models prioritize resource recovery to incentivize safe fecal waste management. Pourashava authorities employ viable business models to reach diverse customer segments, engaging private sector service providers, where appropriate, to execute safe, equitable, sustainable sanitation services.

Interventions for safely managed sanitation service delivery

The interventions designed to improve sanitation infrastructure is intended to significantly increase to Lakshmipur percentage in safely managed sanitation among both LIC and non-LIC communities.

Photo 1 Mapping sanitation hotspots of Lakshmipur city



User Interface and Containment: The current sanitation infrastructure in Lakshmipur Pourashava shows that 21.29% of households still use unimproved facilities or only have access to basic sanitation services. To address this, a focused strategy should be implemented, prioritizing individual household latrines (IHHL) and community toilets, particularly in slum areas. Capacity building is also essential, with a focus on training and registering certified masons by the pourashava. Social and behavior change interventions, grounded in formative research, are critical for long-term success. Notably, the existing public toilet facilities lack gender inclusivity and do not accommodate physically challenged individuals, necessitating refurbishments. There is need for 10 additional public toilets, as identified in discussions with the Pourashava Planning Implementation Committee, where its' operation and maintenance can be managed by sanitation cooperatives, that is, its female members.

Table 5 Interventions for user interface, containment & storage upgradation

Technological upgradation	Actions to be taken
Containment system - Septic tanks, Twin Pits and its market	# of containment systems will be upgraded with septic tank with soak pits # of containment systems will be upgraded with twin pits, for agrarian households where road accessibility of desludging truck is low. # of containment systems will be upgraded with adaptive septic tanks that is raised, outlet seal, and additional chamber to address the needs of households requiring suitable climate-resilient sanitation technologies
Community and Public Toilets upgradation	# of community toilets constructed for # of households with MHM facilities and PWD accessibility. # of public toilets constructed for # of public spaces with # separate female toilets chambers, 1 woman's changing room facilities, with MHM facilities and PWD accessibility. In addressing gender implications, mechanisms for menstrual hygiene management (MHM) and adequate lightning facilities will be installed for safety measures.
Retraining of Masons and Toilet Producers	50 masons and toilet producers retrained with construction skills on improved latrine production and installation.
Retraining of informal manual emptiers to upgraded livelihood options	100 manual emptiers supported with options for livelihood development and rural entrepreneurship. # manual emptiers absorbed/integrated into pourashava conservancy staff for sanitation.

Emptying and Transportation: In Lakshmipur Pourashava, faecal sludge generation amounts to 41.80 m^3 per day, but the current desludging capacity—limited to 20 m^3 per day with one 2 m^3 vehicle and two 1.5 m^3 vehicles—falls short of this demand. Despite the existing capacity, the actual collection efficiency is only 3 m^3 per day, highlighting the need for targeted interventions. A dedicated Social and Behavior Change Communication (SBCC) campaign is essential to raise awareness and drive demand, potentially linked with seasonal offers, vouchers, or subsidies to encourage participation.

Treatment and Reuse: The current Faecal Sludge Treatment Plant (FSTP) in Lakshmipur Pourashava has a capacity of 5 m^3 per day. However, only 60% of this capacity is being utilized, where increased efforts by pourashava, in demand-generating measures, such as awareness campaigns and enhanced regulations, is maximizing its use. The need for an additional FSTP is evident, in the face of expanding population and increasing demand. To ensure the efficient operation and maintenance of the FSTP, these responsibilities could be delegated to cooperatives, supported by focused capacity-building initiatives. Additionally, developing a business model, potentially involving co-treatment with solid waste, could further enhance the sustainability and economic viability of the FSTP, turning waste into a resource.

Photo 2 City's sanitation workers in emptying & transport services, FSTP management

Table 6 Interventions for emptying, transportation, treatment and reuse upgradation

Technological upgradation	Actions to be taken
Desludging vehicle – 5 trips per day	Two 2 m^3 and Two 1 m^3 desludging vehicles, considering 5 trips / day, to be procured. This would collectively increase emptying and transport capacity of the pourashava by 24 m^3 per day.
FSTP upgradation	Nature-based treatment plant with 50 m^3 per day capacity with upgraded facilities for co-treatment with solid waste.

Section 4: Sanitation Service Strategy Development

Mapping the effect of interventions in the city's SFD and the SFD for LIC communities within the city. The second SFD depicts safely managed sanitation among the low-income communities of the city, while the first SFD depicts safely managed SFD for the whole city.

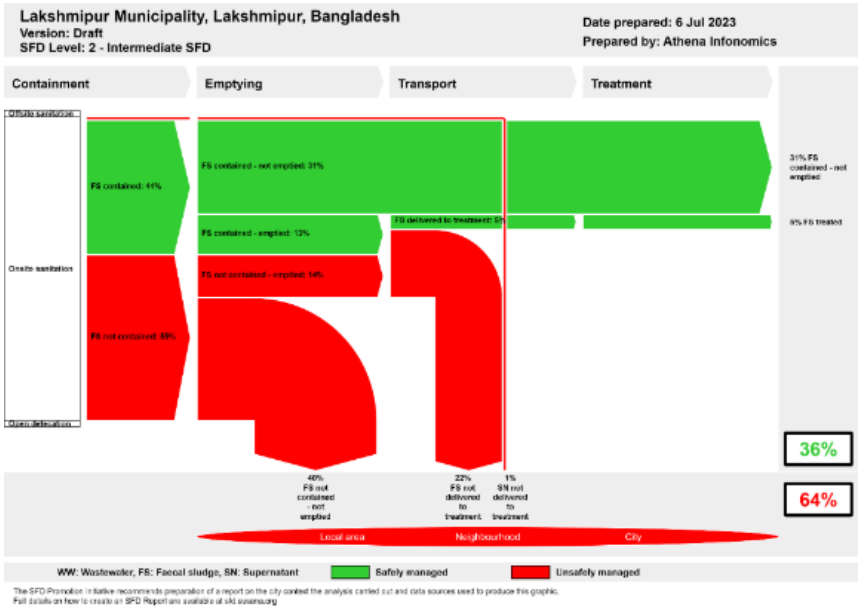


Figure 3 Shit flow diagram of Lakshmipur municipality in 2023

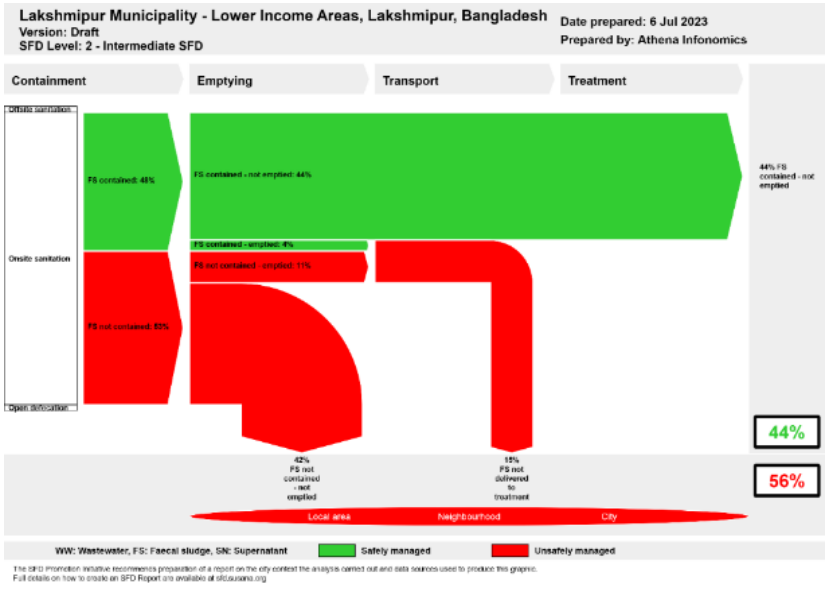


Figure 2 Shit flow diagram of low-income communities in Lakshmipur city in 2023

Section 4.1 Interventions, source of fund and impact on city's public health

We developed the costed interventions based on needs identified for Lakshmipur Pourashava. Table 7 lists assumptions based on which the short-, medium- and long-term interventions were developed for the pourashava to reach the goal of achieving SGD 6.2 by 2030.

Table 7 Assumptions based on which interventions were developed

Sl.	Intervention	Source of Fund	Unit Cost	Timeline	Reach	Impact
1	Technology upgradation (Septic Tank with soak pit) - LIC [Scenario 1]	Secured grant fund from DPHE for LIH/ Vulnerable communities	105,000	2 years (2025-2026)	1,496	# LIC households reached with improved sanitation technology
	Technology upgradation (Twin pits) - LIC [Scenario 2]		25,000			
2	Technology upgradation for more climate vulnerable regions - LIC (Adaptive septic tank)	Secured grant fund from DPHE for LIH/ Vulnerable communities	130,000	2 years (2025-2026)	189	# LIC households reached with improved sanitation technology
	Technology upgradation for more climate vulnerable regions - LIC (Single pit with FilTo Tech)		14,000			
3	Public toilet upgradation	To be determined	1,321,000	2 years (2026-2027)	5,200	# additional pedestrians reached, out of which # are female and # are transgenders
4	Consultation cost on By-law development and dissemination	Secured grant fund from DPHE	300,000	1 year (2025)	10	# of regulatory initiatives led to improving safely managed waste
5	Upgrading dispute resolution mechanism for penalty on illegal connections	To be determined	200,000	1 year (2025)	100	% of illegal disposal of sewage into drains stopped
6	Baseline Assessment and Development of SSSP	Secured grant fund from DPHE	1,500,000	1 year (2025)	100	% of initiatives implemented led to improved safely managed waste

Sl.	Intervention	Source of Fund	Unit Cost	Timeline	Reach	Impact
7	3 auto-rickshaws with miking instruments {1 auto-rickshaw per 5 wards]	To be determined	300,000	6 years (2025-2030)	32,505	% households reached with increased knowledge on safe containment systems and emptying practices.
8	Salaries of 3 auto-rickshaw drivers over 12 months	To be determined	720,000			
9	Annual maintenance of the auto-rickshaws	To be determined	150,000			
10	Quarterly rallies	To be determined	200,000			
11	Targeted announcements by local representatives (sms, public rally)	To be determined	40,000			
12	Posters and billboards	To be determined	600,000			
13	Capacity building on Integrated Municipal Information Systems (IMIS) include blanket survey LIC households with unimproved sanitation	Secured grant fund from DPHE	2,200,000	1 year (2025)	100	% HHs and Instts reached through building monitoring & supervision capacity of # pouro staff
14	Sanitation cooperatives membership with SNS	To be determined	100,000	1 year (2025)	56	# workers registered in Cooperative with # signed up in SNS
15	Technology upgradation - Non-LIC (Septic Tank with soak pit)	Self-financed by non-LIC households	-	6 years (2025-2030)	22,010	# HHs with improved latrines and safe containment systems

Sl.	Intervention	Source of Fund	Unit Cost	Timeline	Reach	Impact
16	Technology upgradation for more climate vulnerable regions - Non-LIC (Single pit with FilTo Tech / Adaptive septic tank)	Self-financed by non-LIC households	-	6 years (2025-2030)	2,957	
17	Training to Masons and Toilet Producers on sanitation technologies (2 days training program for 20 masons)	To be determined	1,000	5 years (2025-2029)	100	# masons and toilet producers with improved skills in latrine construction
18	Livelihood Development & Rural Entrepreneurship support to manual emptiers	Pourashava PRSP fund / Secured grant fund from DPHE	50,000	2 years (2025-2026)	100	# manual emptiers benefitted financially from improved livelihood
19	Desludging vehicles	Secured grant fund from DPHE	3,400,000 4,150,000	1 year (2025)	26,652	# HHs reached with desludging services every two years
20	Upgradation of FSTP	Secured grant fund from DPHE	40,000,000	1 year (2026)	26,652	% of FS safely disposed in treatment plant

Section 4.2 Phasing of Costed Interventions over a 6-year period

Short term interventions focus on user interface enhancements and regulatory interventions to improve immediate sanitation management. Medium term interventions build on these efforts by incorporating demand enhancement through Social and Behavior Change Communication (SBCC) initiatives and capacity-building programs, further strengthening the system. Long term interventions add additional infrastructure assets, including new desludging vehicles and an extra Faecal Sludge Treatment Plant (FSTP), to address increasing demand and ensure long-term sustainability. Two scenarios are developed which will support providing guidance when alternative action plans are required. Scenario 1, as shown in Table 8, is the planned list of costed interventions till 2030, while scenario 2, as shown in

Table 9, is the alternative in places where scenario 1 can't be executed.

Table 8 SCENARIO 1 with costed interventions in achieving safely managed sanitation by 2030

Scenario 1				Phase 1		Phase 2		Phase 3											
Sl.	Intervention	Source of Fund	Remarks	Cost (2025)	Reach (2025)	Cost (2026)	Reach (2026)	Cost (2027)	Reach (2027)	Cost (2028)	Reach (2028)	Cost (2029)	Reach (2029)	Cost (2030)	Reach (2030)	Total Cost	Total Reach	Impact
1	Technology upgradation - LIC (Septic Tank with soak pit)	Secured grant fund from DPHE for LIC/ Vulnerable communities	Discrete item / Funding includes construction and admin cost	78,540,000	748	78,540,000	748									**157,080,000**	**1,496**	# LIC households reached with improved sanitation technology
2	Technology upgradation for more climate vulnerable regions - LIC (Adaptive septic tank)	Secured grant fund from DPHE for LIC/ Vulnerable communities	Discrete item / Funding includes construction and admin cost	12,285,000	95	12,285,000	95									**24,570,000**	**189**	
3	Public toilet upgradation	To be determined	Discrete item			6,605,000	2,600	6,605,000	2,600							**13,210,000**	**5,200**	# additional pedestrians reached, out of which # are female and # are transgenders
4	Consultation cost on By-law development and dissemination	Secured grant fund from DPHE	Dependent on FSTP construction			300,000	10									**300,000**	**10**	# of regulatory initiatives led to improving safely managed waste
5	Upgrading dispute resolution mechanism for penalty on illegal connections	To be determined	Dependent on FSTP construction Assuming that all complies with			200,000	25		25		20		20		10	**200,000**	**100**	% of illegal disposal of sewage into drains stopped

Scenario 1				Phase 1		Phase 2		Phase 3										
Sl.	Intervention	Source of Fund	Remarks	Cost (2025)	Reach (2025)	Cost (2026)	Reach (2026)	Cost (2027)	Reach (2027)	Cost (2028)	Reach (2028)	Cost (2029)	Reach (2029)	Cost (2030)	Reach (2030)	Total Cost	Total Reach	Impact
			disconnecting FS outlets to drains or open water/surface areas															
6	Baseline Assessment and Development of SSSP	Secured grant fund from DPHE	Discrete item, updated at quarterly periods	1,500,000	20		20		20		20		20			**1,500,000**	**100**	% of initiatives implemented led to improved safely managed waste
7	3 auto-rickshaws with miking instruments	Secured grant fund from DPHE	Discrete item, implemented on regular work periods	300,000	17	300,000	17	300,000	17	300,000	17	300,000	17	300,000	17	**1,800,000**	**100**	
8	Salaries of 3 auto-rickshaw drivers over 12 months	Secured grant fund from DPHE	Discrete item, implemented on regular work periods	720,000	17	720,000	17	720,000	17	720,000	17	720,000	17	720,000	17	**4,320,000**	**100**	
9	Annual maintenance of the auto-rickshaws	Secured grant fund from DPHE	Discrete item, implemented on regular work periods	150,000	17	150,000	17	150,000	17	150,000	17	150,000	17	150,000	17	**900,000**	**100**	
10	Quarterly rallies	Secured grant fund from DPHE	Discrete item, implemented on regular work periods	200,000	17	200,000	17	200,000	17	200,000	17	200,000	17	200,000	17	**1,200,000**	**100**	
11	Targeted announcements by local representatives (sms, public rally)	Secured grant fund from DPHE	Discrete item, implemented on regular work periods	40,000	17	40,000	17	40,000	17	40,000	17	40,000	17	40,000	17	**240,000**	**100**	
12	Posters and billboards	Secured grant fund from DPHE	Discrete item	600,000	17	600,000	17	600,000	17	600,000	17	600,000	17	600,000	17	**3,600,000**	**100**	% households reached with increased knowledge on safe containment systems and emptying practices.
13	Capacity building on Integrated Municipal Information Systems (IMIS) include blanket survey LIC households with unimproved sanitation	Secured grant fund from DPHE	Discrete item, updated annually	2,200,000	100											**2,200,000**	**100**	% HHs and Instts reached through building monitoring & supervision capacity of # pouro staff

Scenario 1				Phase 1		Phase 2		Phase 3										
Sl.	Intervention	Source of Fund	Remarks	Cost (2025)	Reach (2025)	Cost (2026)	Reach (2026)	Cost (2027)	Reach (2027)	Cost (2028)	Reach (2028)	Cost (2029)	Reach (2029)	Cost (2030)	Reach (2030)	Total Cost	Total Reach	Impact
14	Technology upgradation - LIC (Septic Tank with soak pit)	Self-financed by non-LIC households	Dependent Item, based on impact of SBCC		3,668		3,668		3,668		3,668		3,668		3,668	-	**22,010**	# HHs with improved latrines and safe containment systems
15	Technology upgradation for more climate vulnerable regions - Non-LIC (Single pit with FilTo Tech / Adaptive septic tank)	Self-financed by non-LIC households	Dependent Item, based on impact of SBCC		493		493		493		493		493		493		**2,957**	
16	Training to Masons and Toilet Producers on sanitation technologies	To be determined	Discrete item	40,000	20	40,000	20	40,000	20	40,000	20	40,000	20			**200,000**	**100**	# masons and toilet producers with improved skills in latrine construction
17	Sanitation cooperatives membership with SNS	To be determined	Discrete item	100,000	56											**100,000**	**56**	# workers registered in Cooperative with # signed up in SNS
18	Livelihood Development & Rural Entrepreneurship support to manual emptiers	Pourashava PRSP fund / Secured grant fund from DPHE	Dependent Item, based on number of manual emptiers who need resettlement support	2,500,000	50	2,500,000	50									**5,000,000**	**100**	# manual emptiers benefitted financially from improved livelihood
19	Desludging vehicles	Secured grant fund from DPHE	Only includes CAPEX for Desludging vehicles	15,100,000	20		20		20		20		20			**15,100,000**	**100**	% HHs reached with desludging services every two years
20	Upgradation of FSTP	Secured grant fund from DPHE	Only includes CAPEX for FSTP			40,000,000	20		20		20		20		20	**40,000,000**	**100**	% of FS safely disposed in treatment plant
															BDT	**271,520,000**		
															USD	**2,468,364**		

Table 9 SCENARIO 2 with costed interventions in achieving safely managed sanitation by 2030

Scenario 2				Phase 1		Phase 2		Phase 3											
Sl.	Intervention	Source of Fund	Remarks	Cost (2025)	Reach (2025)	Cost (2026)	Reach (2026)	Cost (2027)	Reach (2027)	Cost (2028)	Reach (2028)	Cost (2029)	Reach (2029)	Cost (2030)	Reach (2030)	Total Cost	Total Reach	Impact
1	Technology upgradation (Twinpit) - LIC	Secured grant fund from DPHE for LIH/ Vulnerable communities	Discrete item / Funding includes construction and admin cost	21,062,500	748	21,062,500	748									**42,125,000**	**1,496**	# LIC households reached with improved sanitation technology
2	Technology upgradation for more climate vulnerable regions - LIC (Single pit with FilTo Tech)	Secured grant fund from DPHE for LIC/ Vulnerable communities	Discrete item / Funding includes construction and admin cost	1,323,000	95	1,323,000	95									**2,646,000**	**189**	# LIC households reached with improved sanitation technology
3	Public toilet upgradation	To be determined	Discrete item			6,605,000	2,600	6,605,000	2,600							**13,210,000**	**5,200**	# additional pedestrians reached, out of which # are female and # are transgenders
4	Consultation cost on By-law development and dissemination	Secured grant fund from DPHE	Dependent on FSTP construction			300,000	10									**300,000**	**10**	# of regulatory initiatives led to improving safely managed waste
5	Upgrading dispute resolution mechanism for penalty on illegal connections	To be determined	Dependent on FSTP construction Assuming that all complies with disconnecting FS outlets to drains or open water/surface areas			200,000	25		25		20		20		10	**200,000**	**100**	% of illegal disposal of sewage into drains stopped
6	Baseline Assessment and Development of SSSP	Secured grant fund from DPHE	Discrete item, updated at quarterly periods	1,500,000	20		20		20		20		20			**1,500,000**	**100**	% of initiatives implemented led to improved

Scenario 2				Phase 1		Phase 2		Phase 3										
Sl.	Intervention	Source of Fund	Remarks	Cost (2025)	Reach (2025)	Cost (2026)	Reach (2026)	Cost (2027)	Reach (2027)	Cost (2028)	Reach (2028)	Cost (2029)	Reach (2029)	Cost (2030)	Reach (2030)	Total Cost	Total Reach	Impact
																		safely managed waste
7	3 auto-rickshaws with miking instruments	Secured grant fund from DPHE	Discrete item, implemented on regular work periods	300,000	17	300,000	17	300,000	17	300,000	17	300,000	17	300,000	17	**1,800,000**	**100**	% households reached with increased knowledge on safe containment systems and emptying practices.
8	Salaries of 3 auto-rickshaw drivers over 12 months	Secured grant fund from DPHE	Discrete item, implemented on regular work periods	720,000	17	720,000	17	720,000	17	720,000	17	720,000	17	720,000	17	**4,320,000**	**100**	
9	Annual maintenance of the auto-rickshaws	Secured grant fund from DPHE	Discrete item, implemented on regular work periods	150,000	17	150,000	17	150,000	17	150,000	17	150,000	17	150,000	17	**900,000**	**100**	
10	Quarterly rallies	Secured grant fund from DPHE	Discrete item, implemented on regular work periods	200,000	17	200,000	17	200,000	17	200,000	17	200,000	17	200,000	17	**1,200,000**	**100**	
11	Targeted announcements by local representatives (sms, public rally)	Secured grant fund from DPHE	Discrete item, implemented on regular work periods	40,000	17	40,000	17	40,000	17	40,000	17	40,000	17	40,000	17	**240,000**	**100**	
12	Posters and billboards	Secured grant fund from DPHE	Discrete item	600,000	17	600,000	17	600,000	17	600,000	17	600,000	17	600,000	17	**3,600,000**	**100**	
13	Capacity building on Integrated Municipal Information Systems (IMIS) include blanket survey LIC households with unimproved sanitation	Secured grant fund from DPHE	Discrete item, updated annually	2,200,000												**2,200,000**	-	% HHs and Instts reached through building monitoring & supervision capacity of # pouro staff
14	Technology upgradation - Non-LIC (Septic Tank with soak pit)	Self-financed by non-LIC households	Dependent Item, based on impact of SBCC		3,668		3,668		3,668		3,668		3,668		3,668	-	**22,010**	# HHs with improved latrines and safe containment systems

Scenario 2				Phase 1		Phase 2		Phase 3											
Sl.	Intervention	Source of Fund	Remarks	Cost (2025)	Reach (2025)	Cost (2026)	Reach (2026)	Cost (2027)	Reach (2027)	Cost (2028)	Reach (2028)	Cost (2029)	Reach (2029)	Cost (2030)	Reach (2030)	Total Cost	Total Reach	Impact
15	Technology upgradation for more climate vulnerable regions - Non-LIC (Single pit with FilTo Tech / Adaptive septic tank)	Self-financed by non-LIC households	Dependent Item, based on impact of SBCC		493		493		493		493		493		493		**2,957**	
16	Training to Masons and Toilet Producers on sanitation technologies	To be determined	Discrete item	40,000	20	40,000	20	40,000	20	40,000	20	40,000	20			**200,000**	**100**	# masons and toilet producers with improved skills in latrine constructio n
17	Sanitation cooperatives membership with SNS	To be determined	Discrete item	100,000	56											**100,000**	**56**	# workers registered in Cooperativ e with # signed up in SNS
18	Livelihood Development & Rural Entrepreneursh ip support to manual emptiers	Pourashav a PRSP fund / Secured grant fund from DPHE	Dependent Item, based on number of manual emptiers who need resettlement support	2,500,000	50	2,500,000	50									**5,000,000**	**100**	# manual emptiers benefitted financially from improved livelihood
19	Desludging vehicles	Secured grant fund from DPHE	Only includes CAPEX for Desludging vehicles	7,550,000	20		20		20		20		20			**7,550,000**	**100**	# HHs reached with desludging services every two years
20	Upgradation of FSTP	Secured grant fund from DPHE	Only includes CAPEX for FSTP			20,000,00 0	20		20		20		20		20	**20,000,000**	**100**	% of FS safely disposed in treatment plant
															BDT	**107,091,00 0**		
															USD	**973,555**		

It is important to note that in Scenario 2, the cost of FSTP is lower due to the reduced capacity requirement compared to the other scenarios.

Table 10 SCENARIO 3 with costed interventions in achieving safely managed sanitation by 2030

Scenario 3				Phase 1		Phase 2		Phase 3										
Sl.	Intervention	Source of Fund	Remarks	Cost (2025)	Reach (2025)	Cost (2026)	Reach (2026)	Cost (2027)	Reach (2027)	Cost (2028)	Reach (2028)	Cost (2029)	Reach (2029)	Cost (2030)	Reach (2030)	Total Cost	Total Reach	Impact
1	Technology upgradation - LIC (Septic	Secured grant fund from DPHE	Discrete item / Funding	70,686,00 0	673	70,686,00 0	673									**141,372,0 00**	**1,346**	# LIC households reached

Scenario 3				Phase 1		Phase 2		Phase 3										
Sl.	Intervention	Source of Fund	Remarks	Cost (2025)	Reach (2025)	Cost (2026)	Reach (2026)	Cost (2027)	Reach (2027)	Cost (2028)	Reach (2028)	Cost (2029)	Reach (2029)	Cost (2030)	Reach (2030)	Total Cost	Total Reach	Impact
	Tank with soak pit)	for LIC/ Vulnerable communititi es	includes contruction and admin cost															with improved sanitation technology (Septic tank)
2	Technology upgradation for more climate vulnerable regions - LIC (Adaptive septic tank)	Secured grant fund from DPHE for LIC/ Vulnerable communititi es	Discrete item / Funding includes contruction and admin cost	11,056,500	85	11,056,500	85									**22,113,000**	**170**	# LIC households reached with improved sanitation technology (Adaptive Septic tank)
3	Technology upgradation (Twinpit) - LIC	Secured grant fund from DPHE for LIH/ Vulnerable communititi es	Discrete item / Funding includes contruction and admin cost	1,870,000	75	1,870,000	75									**3,740,000**	**150**	# LIC households reached with improved sanitation technology (TwinPit)
4	Technology upgradation for more climate vulnerable regions - LIC (Single pit with FilTo Tech)	Secured grant fund from DPHE for LIC/ Vulnerable communititi es	Discrete item / Funding includes contruction and admin cost	132,300	9	132,300	9									**264,600**	**19**	# LIC households reached with improved sanitation technology (Single Pit with FilTo Technology)
5	Public toilet upgradation	To be determined	Discrete item			6,605,000	2,600	6,605,000	2,600							**13,210,000**	**5,200**	# additional pedestrians reached, out of which # are female and # are transgenders
6	Consultation cost on By-law development and disemminatio n	Secured grant fund from DPHE	Dependent on FSTP construction			300,000	10									**300,000**	**10**	# of regulatory initiatives led to improving safely managed waste
7	Upgrading dispute resolution mechanism for penalty on illegal connections	To be determined	Dependent on FSTP construction Assuming that all complies with			200,000	25		25		20		20		10	**200,000**	**100**	% of illegal disposal of sewage into drains stopped

Scenario 3				Phase 1		Phase 2		Phase 3										
Sl.	Intervention	Source of Fund	Remarks	Cost (2025)	Reach (2025)	Cost (2026)	Reach (2026)	Cost (2027)	Reach (2027)	Cost (2028)	Reach (2028)	Cost (2029)	Reach (2029)	Cost (2030)	Reach (2030)	Total Cost	Total Reach	Impact
			disconnecting FS outlets to drains or open water/surface areas															
8	Baseline Assessment and Development of SSSP	Secured grant fund from DPHE	Discrete item, updated at quarterly periods	1,500,000	20		20		20		20		20			**1,500,000**	**100**	% of initaitives implemented led to improved safely managed waste
9	3 auto-rickshaws with miking instruments	Secured grant fund from DPHE	Discrete item, implemented on regular work periods	300,000	17	300,000	17	300,000	17	300,000	17	300,000	17	300,000	17	**1,800,000**	**100**	% households reached with increased knowledge on safe containment systems and emptying practices.
10	Salaries of 3 auto-rickshaw drivers over 12 months	Secured grant fund from DPHE	Discrete item, implemented on regular work periods	720,000	17	720,000	17	720,000	17	720,000	17	720,000	17	720,000	17	**4,320,000**	**100**	
11	Annual maintenance of the auto-rickshaws	Secured grant fund from DPHE	Discrete item, implemented on regular work periods	150,000	17	150,000	17	150,000	17	150,000	17	150,000	17	150,000	17	**900,000**	**100**	
12	Quarterly rallies	Secured grant fund from DPHE	Discrete item, implemented on regular work periods	200,000	17	200,000	17	200,000	17	200,000	17	200,000	17	200,000	17	**1,200,000**	**100**	
13	Targeted announcements by local representatives (sms, public rally)	Secured grant fund from DPHE	Discrete item, implemented on regular work periods	40,000	17	40,000	17	40,000	17	40,000	17	40,000	17	40,000	17	**240,000**	**100**	
14	Posters and billboards	Secured grant fund from DPHE	Discrete item	600,000	17	600,000	17	600,000	17	600,000	17	600,000	17	600,000	17	**3,600,000**	**100**	
15	Capacity building on Integrated Municipal Information Systems (IMIS) include blanket survey LIC households with	Secured grant fund from DPHE	Discrete item, updated annually	2,200,000	100											**2,200,000**	**100**	% HHs and Instts reached through building monitoring & supervision capacity of # pouro staff

Scenario 3				Phase 1		Phase 2		Phase 3										
Sl.	Intervention	Source of Fund	Remarks	Cost (2025)	Reach (2025)	Cost (2026)	Reach (2026)	Cost (2027)	Reach (2027)	Cost (2028)	Reach (2028)	Cost (2029)	Reach (2029)	Cost (2030)	Reach (2030)	Total Cost	Total Reach	Impact
	unimproved sanitation																	
16	Technology upgradation - Non-LIC (Septic Tank with soak pit)	Self-financed by non-LIC households	Dependent Item, based on impact of SBCC		3,668		3,668		3,668		3,668		3,668		3,668	-	**22,010**	# HHs with improved latrines and safe containment systems
17	Technology upgradation for more climate vulnerable regions - Non-LIC (Single pit with FilTo Tech / Adaptive septic tank)	Self-financed by non-LIC households	Dependent Item, based on impact of SBCC		493		493		493		493		493		493		**2,957**	
18	Training to Masons and Toilet Producers on sanitation technologies	To be determined	Discrete item	40,000	20	40,000	20	40,000	20	40,000	20	40,000	20			**200,000**	**100**	# masons and toilet producers with improved skills in latrine construction
19	Sanitation cooperatives membership with SNS	To be determined	Discrete item	100,000	56											**100,000**	**56**	# workers registered in Cooperative with # aigned up in SNS
20	Livelihood Development & Rural Entrepreneurship support to manual emptiers	Pourashava PRSP fund / Secured grant fund from DPHE	Dependent Item, based on number of manual emptiers who need resettlement support	2,500,000	50	2,500,000	50									**5,000,000**	**100**	# manual emptiers benefitted financially from improved livelihood
21	Desludging vehicles	Secured grant fund from DPHE	Only includes CAPEX for Desludging vehicles	15,100,000	20		20		20		20		20			**15,100,000**	**100**	% HHs reached with desludging services every two years
22	Upgradation of FSTP	Secured grant fund from DPHE	Only includes CAPEX for FSTP			40,000,000	20		20		20		20		20	**40,000,000**	**100**	% of FS safely disposed in treatment plant
				107,194,800		**135,399,800**		**8,655,000**		**2,050,000**		**2,050,000**		**2,010,000**	**BDT**	**257,359,600**		
															USD	**2,339,633**		

It is important to note that a key assumption in Scenario 3 is that the implementation team may encounter resistance from local communities regarding the pre-selected technologies. This resistance could stem from a lack of available land for construction or a preference for alternative technologies that better align with the community's current needs. Therefore, while developing the scenarios, alternative technologies were considered alongside those selected by the current program.

Section 4.3 Annual Budgeting on Sanitation Services over a 10-year period

Concurrently, the pourashava engages through service contracting operators to support in the operations of maintenance of the public toilets, desludging services and FSTP management. The service contracts will specify clear and incremental performance targets set for coverage / service levels for the private operators. We have deliberated on the financial strategy in Table 8Table 11 *and*

Table 12 with revenues and expenditures based on both scenarios, pourashava can budget as the number of sanitation services accessed by households and institutions and quality of service improves.

Table 11 Annual sanitation revenue and expenditures based on SCENARIO 1

Scenario 1				Phase 1		Phase 2				Phase 3															
Sl.	Annual Expenditures	Source of Fund	Remarks	2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035		Total Cost
1	Service Contracting with Private operators of desludging (business model)	Pourashava own funds	O&M for 1 driver & 2 helpers for each of 5 vehicles and fuel / vehicle maintenance expenses	4,200,000	9317	4,200,000	9751	4,200,000	10184	4,200,000	10617	4,200,000	11051	4,200,000	11508	4,200,000	11942	4,200,000	12375	4,200,000	12808	4,200,000	13242	4,200,000	13675	**46,200,000**
2	Service Contracting with Private operators of FSTP (business model)	Pourashava own funds	Operations and maintenance expenses include salary of 3 staff and office expenses	720,000		720,000		720,000		720,000		720,000		720,000		720,000		720,000		720,000		720,000		720,000		**7,920,000**
																								BDT	**54,120,000**
																								USD	**492,000**

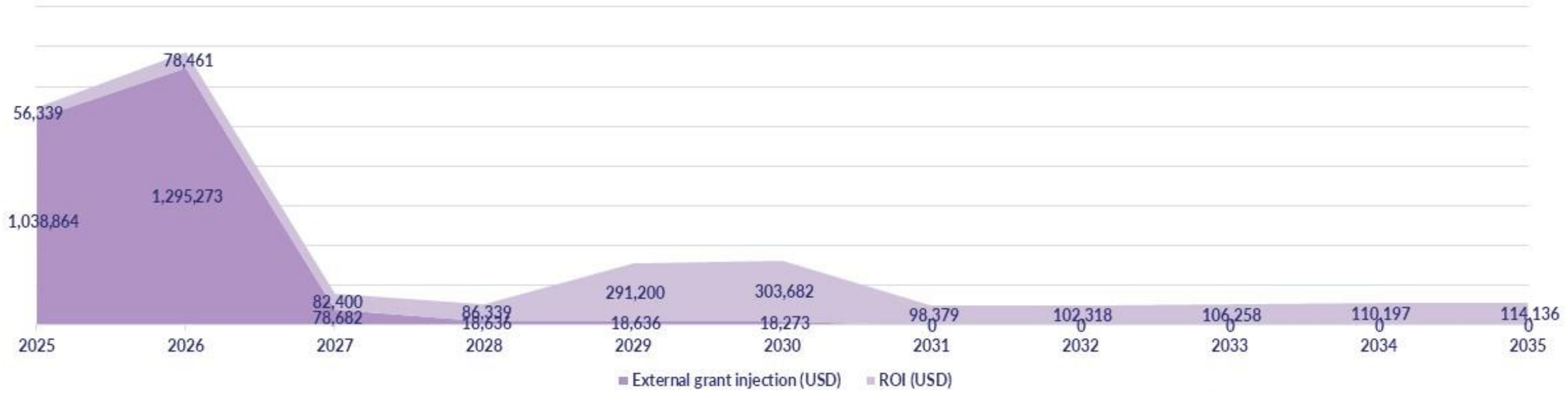
Sl	Annual Revenue	Source of Revenue	Remarks	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	Total Revenue
1	Public Toilet Leasing fees	Sanitation Cooperative	BDT 2 lakh per PT per year is the	1800000	3800000	3800000	3800000	3800000	3800000	3800000	3800000	3800000	3800000	3800000	**39,800,000**

Scenario 1				Phase 1		Phase 2		Phase 3																	
Sl.	Annual Expenditures	Source of Fund	Remarks	2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035		Total Cost
			current lease fees																						
2	Desludging fees	Households/Instts	On average, BDT 1000 per cum is charged for emptying	9317333	9317	9750667	9751	10184000	10184	10617333.33	10617	33152000	11051	34525000	11508	11941667	11942	12375000	12375	12808333	12808	13241667	13242	13675000	13675	**171,588,000**
																								BDT	**211,388,000**
																								USD	**1,921,709**

The pourashava will earn an annual sanitation revenue taka 1.35 crore which is a significant growth over the current revenue of 25.5 lakh, as demonstrated in Table 11.

SCENARIO 1

SCENARIO 1	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
External grant injection	114,275,000	142,480,000	8,655,000	2,050,000	2,050,000	2,010,000					
External grant injection (USD)	1,038,864	1,295,273	78,682	18,636	18,636	18,273					
Sanitation Accounts											
Annual Revenue	11,117,333	13,550,667	13,984,000	14,417,333	36,952,000	38,325,000	15,741,667	16,175,000	16,608,333	17,041,667	17,475,000
Annual Expenditures	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000
ROI	6,197,333	8,630,667	9,064,000	9,497,333	32,032,000	33,405,000	10,821,667	11,255,000	11,688,333	12,121,667	12,555,000
ROI (USD)	56,339	78,461	82,400	86,339	291,200	303,682	98,379	102,318	106,258	110,197	114,136



- **Grant Injection of USD 2,468,364 (Scenario 1)**
  - Leads to Annual Sanitation Return on Investment of USD 129,974 on average

ATHENA INFONOMICS

Table 12 Annual sanitation revenue and expenditures based on SCENARIO 2

Scenario 2				Phase 1		Phase 2		Phase 3																	
Sl.	Annual Expenditures	Source of Fund	Remarks	2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035		Total Cost
1	Service Contracting with Private operators of desludging (business model)	Pourashava own funds	O&M for 1 driver & 2 helpers for each of 2 vehicles and fuel / vehicle maintenance expenses	1,680,000	4659	1,680,000	4875	1,680,000	5092	1,680,000	5309	1,680,000	5525	1,680,000	5754	1,680,000	5971	1,680,000	6188	1,680,000	6404	1,680,000	6621	1,680,000	6838	**18,480,000**
2	Service Contracting with Private operators of FSTP (business model)	Pourashava own funds	Operations and maintenance expenses include salary of 3 staff and office expenses	720,000		720,000		720,000		720,000		720,000		720,000		720,000		720,000		720,000		720,000		720,000		**7,920,000**
																								BDT	**26,400,000**
																								USD	**240,000**

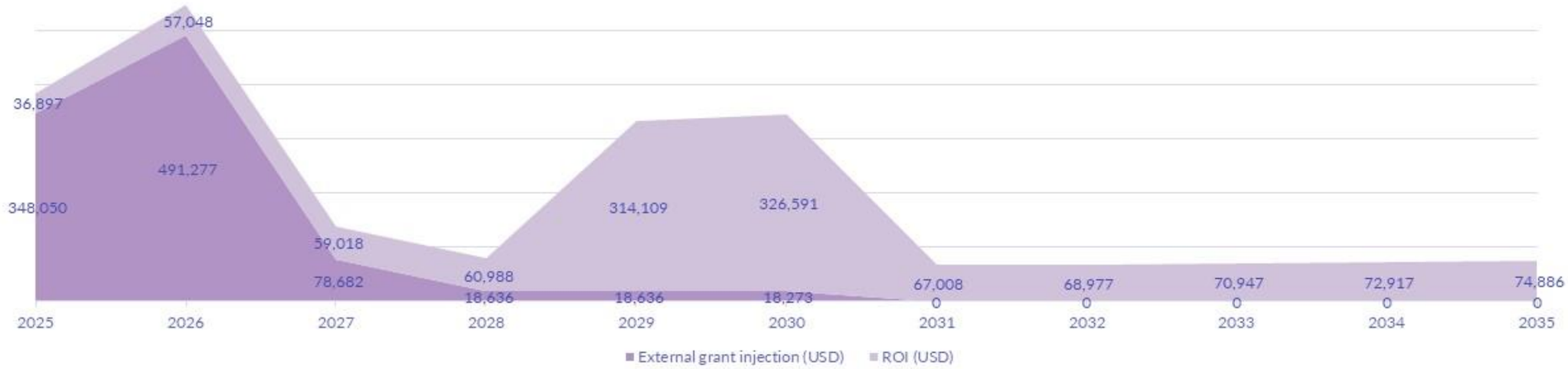
Sl	Annual Revenue	Source of Revenue	Remarks	2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035		Total Revenue
1	Public Toilet Leasing fees	Sanitation Cooperative	BDT 2 lakh per PT per year is the current lease fees	1800000		3800000		3800000		3800000		3800000		3800000		3800000		3800000		3800000		3800000		3800000		**39,800,000**
2	Desludging fees	Households/Insttts	On average, BDT 1000 per cum is charged for emptying	4658667	4659	4875333	4875	5092000	5092	5308666.667	5309	33152000	5525	34525000	5754	5970833	5971	6187500	6188	6404167	6404	6620833	6621	6837500	6838	**119,632,500**
																								BDT	**159,432,500**
																								USD	**1,449,386**

The pourashava will earn an annual sanitation revenue taka 86.7 lakh which is a significant growth over the current revenue of 25.5 lakh, as demonstrated in

Table 12.

SCENARIO 2

SCENARIO 2	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
External grant injection	38,285,500	54,040,500	8,655,000	2,050,000	2,050,000	2,010,000					
External grant injection (USD)	348,050	491,277	78,682	18,636	18,636	18,273					
Sanitation Accounts											
Annual Revenue	6,458,667	8,675,333	8,892,000	9,108,667	36,952,000	38,325,000	9,770,833	9,987,500	10,204,167	10,420,833	10,637,500
Annual Expenditures	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000	2,400,000
ROI	4,058,667	6,275,333	6,492,000	6,708,667	34,552,000	35,925,000	7,370,833	7,587,500	7,804,167	8,020,833	8,237,500
ROI (USD)	36,897	57,048	59,018	60,988	314,109	326,591	67,008	68,977	70,947	72,917	74,886



- **Grant Injection of USD 973,555 (Scenario 2)**
  - Leads to Annual Sanitation Return on investment of USD 109,944 on average

ATHENA INFONOMICS

Table 13 Annual sanitation revenue and expenditures based on SCENARIO 3

Scenario 3				Phase 1		Phase 2				Phase 3																
Sl.	Annual Expenditures	Source of Fund	Remarks	2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035		Total Cost
1	Service Contracting with Private operators of desludging (business model)	Pourashava own funds	O&M for 1 driver & 2 helpers for each of 5 vehicles and fuel / vehicle maintenance expenses	4,200,000	8386	4,200,000	8776	4,200,000	9166	4,200,000	9556	4,200,000	9946	4,200,000	10358	4,200,000	10748	4,200,000	11138	4,200,000	11528	4,200,000	11918	4,200,000	12308	**46,200,000**
2	Service Contracting with Private operators of FSTP (business model)	Pourashava own funds	Operations and maintenance expenses include salary of 3 staff and office expenses	720,000		720,000		720,000		720,000		720,000		720,000		720,000		720,000		720,000		720,000		720,000		**7,920,000**
				4,920,000		**4,920,000**		**4,920,000**		**4,920,000**		**4,920,000**		**4,920,000**		**4,920,000**		**4,920,000**		**4,920,000**		**4,920,000**		**4,920,000**		**BDT** **54,120,000**
																										USD **492,000**

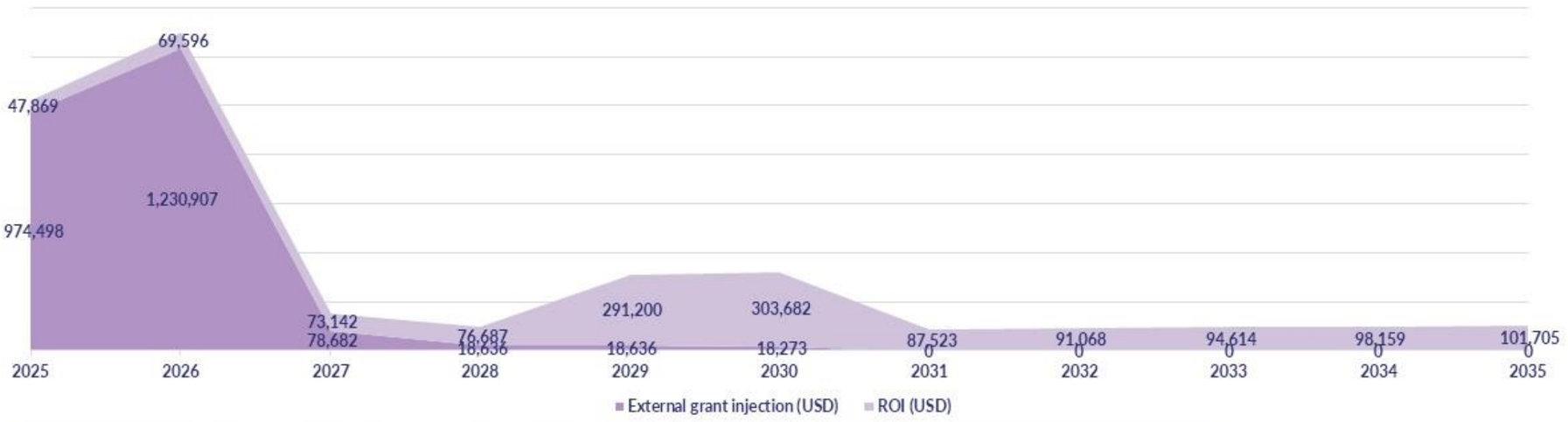
Sl	Annual Revenue	Source of Revenue	Remarks	2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035		Total Revenue
1	Public Toilet Leasing fees	Sanitation Cooperative	BDT 2 lakh per PT per year is the current lease fees	1800000		3800000		3800000		3800000		3800000		3800000		3800000		3800000		3800000		3800000		3800000		**39,800,000**
2	Desludging fees	Households/Insttts	On average, BDT 1000 per cum is charged for emptying	8385600	8386	8775600	8776	9165600	9165.6	9555600	9556	33152000	9946	34525000	10358	10747500	10748	11137500	11138	11527500	11528	11917500	11918	12307500	12308	**161,196,900**
				10,185,600		**12,575,600**		**12,965,600**		**13,355,600**		**36,952,000**		**38,325,000**		**14,547,500**		**14,937,500**		**15,327,500**		**15,717,500**		**16,107,500**		**BDT** **200,996,900**
																										USD **1,827,245**

The pourashava will earn an annual sanitation revenue taka 1.25 crore which is a significant growth over the current revenue of 25.5 lakh, as demonstrated in

Table 13.

SCENARIO 3

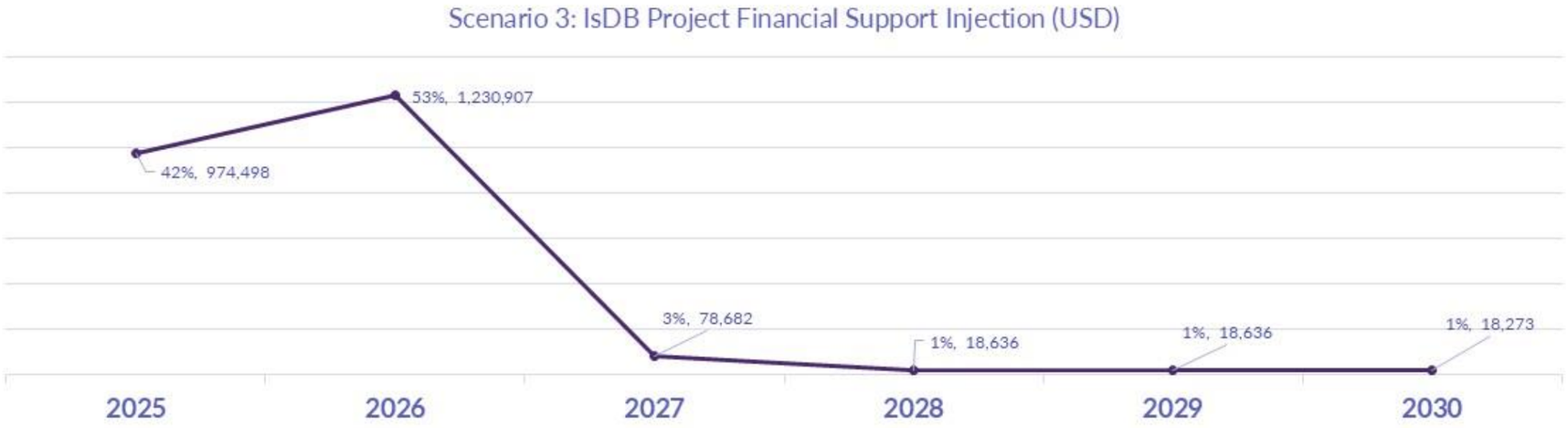
SCENARIO 3	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
External grant injection	107,194,800	135,399,800	8,655,000	2,050,000	2,050,000	2,010,000					
External grant injection (USD)	974,498	1,230,907	78,682	18,636	18,636	18,273					
Sanitation Accounts											
Annual Revenue	10,185,600	12,575,600	12,965,600	13,355,600	36,952,000	38,325,000	14,547,500	14,937,500	15,327,500	15,717,500	16,107,500
Annual Expenditures	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000	4,920,000
ROI	5,265,600	7,655,600	8,045,600	8,435,600	32,032,000	33,405,000	9,627,500	10,017,500	10,407,500	10,797,500	11,187,500
ROI (USD)	47,869	69,596	73,142	76,687	291,200	303,682	87,523	91,068	94,614	98,159	101,705



- **Grant Injection of USD 2,339,633 (Scenario 3)**
  - Leads to Annual Sanitation Return on investment of USD 121,386 on average

ATHENA INFONOMICS

SCENARIO 3



Immediate term
Baseline Assessment
IMIS implementation & blanket survey
Sanitation Cooperative, bridging SNS & GAP
Sanitation by-law & dispute resolution

Short term
Containment technology upgradation for LIC
Technology upgradation for desludging
Technology upgradation for Treatment

Medium term
Public toilet construction & upgradation, bridged with Gender Action Plan
Livelihood and resettlement program as part of PRSP (poverty reduction strategy plan)

Long term
Training Programs and Capacity building Initiatives – Masons, Emptiers, toilet producers, municipality staff; SBCC execution
Technology upgradation for non-LIC

ATHENA INFONOMICS

Section 4.4 Business Model for PT, Desludging services and FSTP management

The training manual '[Service and Business Models for Sustainable FSM In Municipalities]' developed by the CWIS-FSM Support Cell of Department of Public Health Engineering illustrates four service models, which are in practice in Bangladesh. Based on the learnings gathered from implementing the four models in different pourashavas, we recommend the following to manage the public toilets and support the desludging and FSTP operations[15].

1. For *Public Toilet operations & maintenance* – The registered Sanitation Workers Cooperative will engage in a '*Community-Led Service Level Agreement Model*' to economically empower the marginalized groups to operate and maintain the PTs through a community lease. The cooperative will employ its members in operations while reporting on key performance indicators to the municipality daily on the IMIS. The cooperative will pay a fixed lease fee to the pourashava every year.

Executive Summary

The proposed business aims to manage and maintain public toilet facilities in Lakshmipur Pourashava through a leasing model. With increasing urbanization and a growing emphasis on sanitation, this venture will ensure clean, accessible, and sustainable public toilets while generating steady revenue through lease agreements with the municipality.

Business Model Canvas		
Key Partners	**Key Activities**	**Value Propositions**
- Lakshmipur Pourashava - Sanitation Cooperatives - Local NGOs - Cleaning service providers	- Daily maintenance - Revenue collection - Facility upgrades - Community engagement	- Clean, safe, and accessible toilets - Employment for locals - Improved public health - Revenue for municipality
Customer Relationships	**Customer Segments**	**Key Resources**
- Feedback systems - Community outreach - Maintenance hotline	- General public - Commuters - Local businesses	- Skilled staff - Cleaning equipment - Lease agreements - Maintenance tools
Channels	**Cost Structure**	**Revenue Streams**

[15] Government of Bangladesh, Department of Public Health Engineering, 'Training Manual Service and Business Models for Sustainable FSM in Municipalities'. Published in January 2024.

- On-site signage - Local media - Pourashava website	- Staff salaries - Cleaning supplies - Utilities - Repairs	- Lease fees (BDT 2 lakh/PT/year) - Advertising inside facilities - Optional pay-per-use model

Financial Projections (2025–2035) - *assumes stable lease rates and full occupancy of available PTs*

- Initial Year (2025): 9 PTs leased → BDT 1.8 million
- From 2026 onward: 19 PTs leased → BDT 3.8 million/year
- Total 11-Year Revenue: BDT 39.8 million

Social & Environmental Impact

- Health: Reduces open defecation and spread of diseases.
- Employment: Creates jobs for cleaners and maintenance staff.
- Environment: Promotes hygiene and waste management.
- Gender Inclusion: Facilities designed for women, children, and people with disabilities.

Implementation Plan

Phase	Timeline	Activities
Setup	Q3 2025	Secure lease, hire staff, procure supplies
Launch	Q4 2025	Begin operations, community awareness
Scale	2026–2027	Expand to all PTs, introduce digital feedback
Sustain	2028–2035	Maintain quality, explore new revenue streams

2. For *Desludging services* – The emptiers will be hired through a private entity and will engage in a '*Hybrid Model - LGI Owned and Operated by Private Sectors*' to manage the vacuum truck services. Each vacuum truck requires one driver and two helpers, in addition to expensing fuel, and other maintenance of the trucks. The pourashava will divide service regions into different private service providers for each of the 5 trucks and license them gradually as their key performance indicators on service coverage and service delivery improves. The private operators will report back to the pourashava daily on the IMIS. The pourashava will pay the private service operators for all the expenses they incur, in addition to a percentage of service fees received from households based on performance targets achieved. (Example – BDT 100 per 1000 liter of FS emptied in household and BDT 200 per 1000 liter of FS emptied in institution)

Executive Summary

This business model outlines a financially sustainable and socially impactful desludging service for faecal sludge management (FSM) in Lakshmipur Pourashava. The Pourashava contracts private operators to manage a fleet of five desludging vehicles. The service is funded through user fees and municipal support, ensuring safe collection, transport, and disposal of faecal sludge. With over 113,000 households and institutions served over 11 years, the model demonstrates strong revenue potential and public health benefits.

Business Model Canvas		
Key Partners	**Key Activities**	**Value Propositions**
- Lakshmipur Pourashava - Private desludging operators - FSTP operators - NGOs (e.g., SNV, WaterAid)	- Sludge collection & transport - Vehicle maintenance - Customer service - Coordination with FSTP	- Safe, hygienic desludging - Convenient on-demand service - Affordable pricing - Environmental protection
Customer Relationships	**Customer Segments**	**Key Resources**
- Service hotline - Scheduled visits - Feedback system	- Households - Institutions - Commercial establishments	- 5 desludging vehicles - 1 driver & 2 helpers per vehicle - Fuel & maintenance budget - Booking system
Channels	**Cost Structure**	**Revenue Streams**
- Door-to-door outreach - Pourashava website - Local media	- Staff salaries - Fuel & maintenance - Admin & logistics	- Desludging fees (BDT 1,000/cum) - Pourashava support - Potential donor grants

Financial Overview (2025–2035) - *this model is highly profitable and scalable, with strong cost recovery and potential for reinvestment*		
Metric		**Value (BDT)**
Total Expenditures		46,200,000
Total Revenues		161,196,900
Net Surplus		114,996,900
HHs/Institutions Served		113,828

Social & Environmental Impact

- Health: Reduces open defecation and waterborne diseases.
- Environment: Prevents sludge dumping into drains and water bodies.
- Equity: Affordable access for low-income households.
- Employment: Sustains 15+ jobs (drivers, helpers, admin).

Implementation Plan

Phase	Timeline	Activities
Setup	Q3 2025	Contract private operators, vehicle readiness, staff training
Launch	Q4 2025	Begin operations, public awareness campaigns
Scale	2026–2028	Expand service coverage, integrate digital booking
Sustain	2029–2035	Maintain quality, explore carbon credits and donor partnerships

3. For *FSTP operations and maintenance* – Managing a Nature-based faecal sludge treatment plan will require one manager and two plant operators, in addition to expensing on utility bills and office miscellaneous costs. However, for a co-compost plant, it will also require a team of solid waste workers. The private entity will engage in a '*Hybrid Model - LGI Owned and Operated by Private Sectors*' to manage the daily operations of the FSTP and report back to the pourashava on the IMIS. Their key performance indicators will be tracked on daily volume of FS received / safely treated, the treatment plant will be capable of treating 100% of the FS generated in the city. The pourashava will pay the private service provider for all the expenses they incur, in addition to a variable income for the entrepreneur, which is based on the number of trucks that disposed FS in the FSTP. (Example – BDT 100 per 1000 liter disposed / per truck).

Executive Summary

This business model proposes a public-private partnership (PPP) for the operation and management of the Fecal Sludge Treatment Plant (FSTP) in Lakshmipur Pourashava. Pourashava will contract a private operator to manage the FSTP, ensuring safe disposal of fecal sludge, environmental compliance, and resource recovery. The model is financially supported by the Pourashava's own funds, with potential for revenue generation through desludging services, lease fees from public toilets, compost sales and any other service fees.

Business Model Canvas		
Key Partners	**Key Activities**	**Value Propositions**
- Lakshmipur Pourashava - Private FSM operators - NGOs (e.g., SNV, WaterAid) - Local farmers	- FSTP operations - Sludge reception & treatment - Compost production - Monitoring & reporting	- Safe, hygienic sludge disposal - Organic compost for agriculture - Improved sanitation services - Environmental protection
Customer Relationships	**Customer Segments**	**Key Resources**
- Service contracts - Hotline for desludging - Farmer engagement	- Households - Commercial establishments - Farmers - Pourashava	- Skilled staff (3) - Treatment infrastructure - Office & logistics support - Compost packaging tools
Channels	**Cost Structure**	**Revenue Streams**
- Pourashava contracts - Farmer cooperatives - Local markets	- Staff salaries - O&M costs - Utilities & logistics	- Pourashava service contract (BDT 720,000/year) - Compost sales - Potential tipping fees

- Office expenses

Financial Projections (2025–2035) - *funded entirely by Pourashava's own budget. Potential to offset costs through compost sales and service innovations.*
• Year (2025 – 2035) → Annual Expenditure BDT 720,000 • Total 11 years → Expenditure amounts to BDT 7,920,000
Social & Environmental Impact
• Health: Reduces risk of waterborne diseases and environmental contamination. • Environment: Prevents untreated sludge discharge into open drains and water bodies. • Agriculture: Promotes use of organic compost, reducing chemical fertilizer dependency. • Employment: Sustains jobs for 3 staff and supports local service providers.

Implementation Plan

Phase	Timeline	Activities
Setup	Q3 2025	Contract signing, staff recruitment, SOP development
Launch	Q4 2025	Begin operations, public awareness campaigns
Scale	2026–2027	Expand sludge collection coverage, initiate compost marketing
Sustain	2028–2035	Maintain service quality, explore PPP enhancements and cost recovery

Section 4.5 Outcomes with Scenario Modelling developed using EquiServe

EquiServe is a scenario planning tool to analyze different sanitation market levers and be intentional about priorities in equity, safety, sustainability. Each scenario is costed, in line with the unit cost and total number of units reached for each intervention[16]. In the case of Lakshmipur pourashava, they have secured most of the funding required to achieve safely managed sanitation in line with SDG 6.2. The impact simulation will demonstrate the level of equity, environmental and financial outcomes achieved against each scenario.

Three scenarios were modeled in EquiServe, each incorporating different technology upgrade options aimed at subsidizing low-income (LIC) households to achieve improved sanitation and climate-resilient facilities. The objective was to assess how flexibility in technology choices—both during the grant planning and implementation stages—can reduce overall grant dependency.

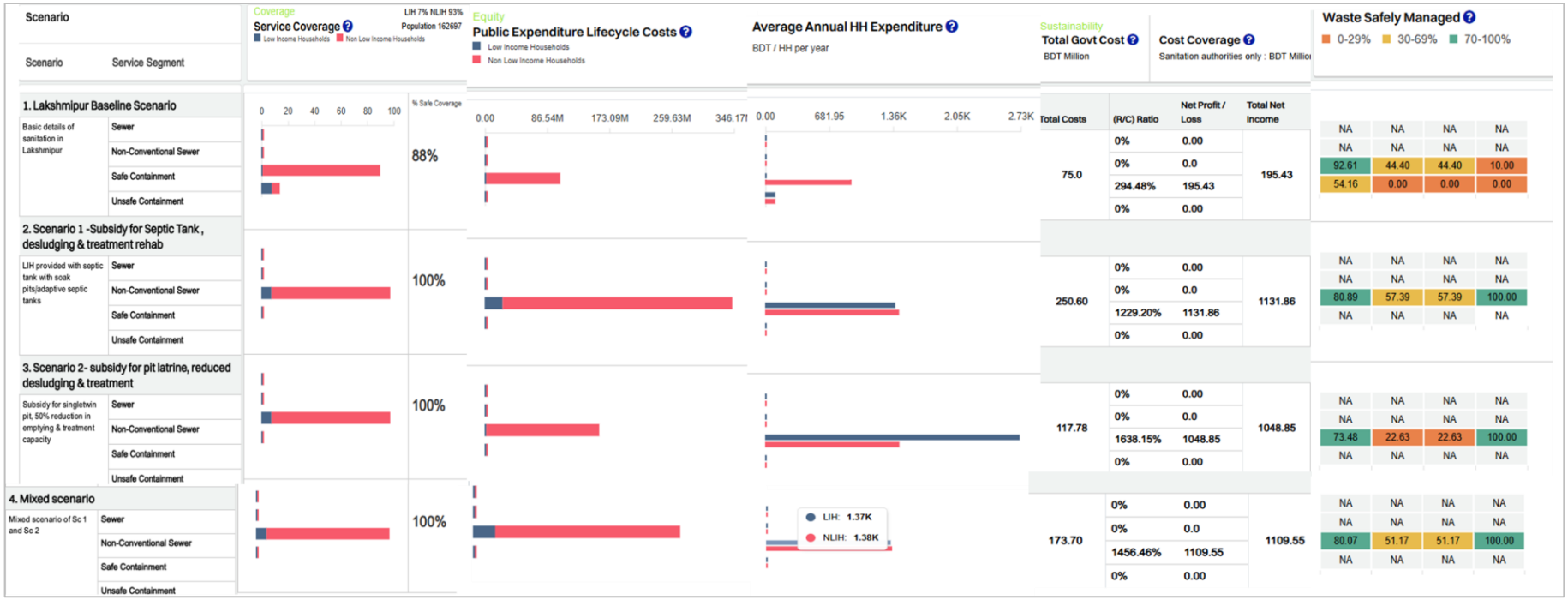
- Scenario 1 assumes that all LIC households are provided with septic tanks with soak pits or adaptive septic tanks. This results in a total subsidy requirement of BDT 19.5 crore.
- In contrast, Scenario 2 explores the use of more cost-effective technologies such as twin pits and single pits with FilTo systems. This significantly reduces the subsidy requirement to BDT 4.2 crore—a potential 67% reduction in grant funding needs. Additionally, emptying requirements drop by 50%, leading to a corresponding reduction in the number of emptying vehicles needed. Non-subsidized households may also adopt these low-maintenance options, further easing the burden on treatment infrastructure.
- Scenario 3 introduces a blended asset approach, where 90% of LIC households receive septic tanks, while the remaining 10% are supported with twin pits and single pits. This hybrid model balances infrastructure investment with community needs and cost efficiency.

A key insight from the EquiServe modelling is that creative asset blending and diversified financing strategies can be tested in advance to optimize grant allocations. Scenario 1 is currently planned for implementation, but the EquiServe dashboard remains a valuable tool for simulating future scenarios. As strategic planning is intended to be a dynamic, evolving process, the dashboard supports ongoing updates and refinements.

Below is a snapshot from the dashboard comparing Equity, Safety, and Sustainability across the three scenarios:

[16] Athena Infonomics. 'EquiServe - Advancing Equity in Sanitation Services: Tool User Guide'. 2023. https://cdn.prod.website-files.com/63d90e61a0e28dfae7d9556b/65536039b8c57145676965c3_Tool%20User%20Guide_%20Equiserve.pdf

EquiServe System View



Visit: https://app.equiserve.io/en

Login sspbangladesh7@gmail.com

Section 4.6 Rapid Service System Assessment, on quarterly and annual basis

Athena's rapid service system assessment tool will support to deliver on quarterly/annual assessments by the pourashava[17]. The municipality level of service performance will enable strategic planning outputs, emphasizing internal functions and systems that improve risk prediction and management for delivering inclusive sanitation services. This guidance note and its accompanying Excel-based tool provides the tea, with a comprehensive framework for assessing the maturity of the pourashavas internal systems, establishing a baseline, identifying and setting targets, allocating budgets and tracking progress. This is inspired by frameworks such as IaDB's Aquarating and the World Bank's Utility of the Future, which draw on experiences and examples of service systems in more mature contexts for local service authorities to reference as they draw up their plans.

This section describes the service system to be assessed during the drafting process of strategic sanitation service plan, and subsequent activities that should be addressed in the service plan output. The nine service system areas are identified and further explained below.

1. **Physical asset management** – looks at the asset management strategy and investment plans that are aligned with strategic planning cycles
2. **Planning** – looks at the comprehensive scenario modelling and impact simulation conducted to measure equity, environment and financial sustainability.
3. **Accounting and financial management** – looks at regularly monitoring financial systems and reporting to track revenue, costs, subsidies through financial controls.
4. **Customer management** – looks at disaggregating customer data by demographics, location, service level, preferences, service history, customer segments (such as gender), and integrate it into the IMIS.
5. **Business management** – looks at partnerships formed to improve capabilities where gaps exist, and knowledge management systems adopted to retain and transfer knowledge.
6. **Risk management** – Integrating physical asset risk management into planning, budgeting, operations and monitoring risk-based design standards for physical technologies and infrastructure.
7. **Human resource management** – Training programs for skills development, HR policies for recruitment, development retention and separation and HR administration through information systems.
8. **Procurement** – Periodical audits to ensure procurement compliance, training in procurement policies, procedures and qualified/accredited vendors created.
9. **Environmental management** – Environment risks identified with mitigations plans, environment metrics, indicators tracked, and climate action plan in place.

[17] Athena Infonomics, 'Strategic Sanitation Service Planning: Guidance Note on Service System Assessments'. Published in January 2024.

This guidance document is complemented by an Excel tool that allows users to self-assess where the municipality stands across the nine service areas. The team will compile the learnings and progress against each intervention and report either on a quarterly or annual basis.

The baseline service system assessment for Lakshmipur pourashava was done for 2024 and is shown in Figure 4. It is crucial that the team execute a monitoring mechanism, with regular meetings with PIC members, to present the updated service system levels. People, policies and processes must be central to any truly strategic plan. This is an opportunity to engage multiple teams and members of staff into the strategic planning journey, ensuring buy-in to the change management evolution and ensuring that the strategic plan itself is realistic and responsive to internal organizational progress and external progress towards service targets. The tool enables self-assessment across the service outcome areas, based on a qualitative rubric which assigns a numeric score to indicate the level of progress made. The scores range from 0 to 4, each representing a distinct stage in the progress towards achieving the specified service system outcomes.

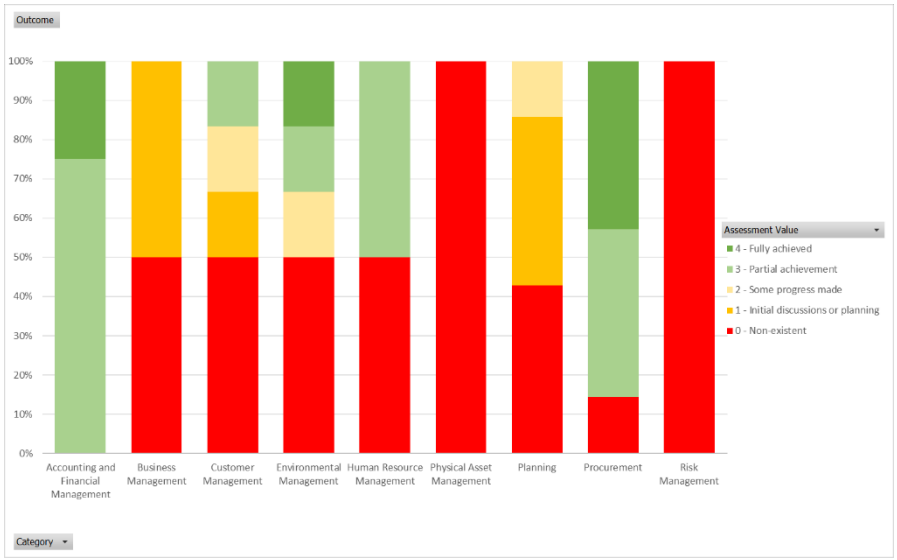


Figure 4 Rapid sanitation service assessment status of Lakshmipur municipality, as of 2024

Assessment Score	Definition:
Not applicable	This outcome is not relevant, suitable, or capable of being applied or used in this context
0 - Non-existent	No progress has been made towards achieving this outcome
1 - Initial discussions or planning	No tangible progress has been made, but written evidence of planning/strategising towards this outcome is available
2 - Some progress made	The first steps towards achieving this outcome have been made. This can be demonstrated by tangible progress against a baseline.
3 - Partial achievement	Some variation of this outcome is incorporated into regular operations, however it isn't fully integrated or effective.
4 - Fully achieved	This outcome is fully and effectively incorporated into regular operations.

In terms of knowledge management efforts, the pourashava will develop regularly reporting of project outputs and service system improvement assessments, where the assigned team with specific roles will report back on the list in Table 14, based on their tracked progresses and retain the documents digitally in the pourashavas knowledge archives and upload in their website portalTable 1.

Table 14 Regular knowledge products from sanitation service planning implementation team

Responsibilities	Lead Team Member
1. *Quarterly progress reports, developed, in coordination with EXEN (DPHE)*	PNO/Pouro Nirbahi Officer
	Sanitary Inspector
	Local DPHE Office
2. *Weekly reports on resource mobilization against agreed timeline*	Executive Engineer
	Asst. Engineer (Water Supply & Sanitation)
3. *Quarterly environmental impact assessments against implemented interventions*	Draftsman
4. *Annual ringfenced sanitation budget for the financial year 2024-2025*	Accounts Officer
5. *Revised tariff structure for desludging services, disaggregated by non-LIC households, LIC households, Institutions*	Assistant Tax Assessor
6. *Scheduled desludging service report (weekly) with no. of desludging services provided & volume of FS disposed in FSTP*	Conservancy Supervisor
7. *Service contract with sanitation workers cooperative*	Conservancy Inspector
8. *Quarterly report on disputes and grievance redressal in executing updated sanitation by-laws*	Assistant Engineer (Roads & Drainage)
	Sub-Assistant Engineer – Civil
9. *Weekly reports on no. of containments upgraded to LIC* 10. *Weekly reports on no. SBCC campaigns executed, with support from councillors*	SDO/Social Development Officer
11. *Annual report on changed behaviours in in toilet usage and desludging within communities, with support from SDO*	Ward councillor (committee member for FSM)
	Female councillor (committee member for FSM)
12. *Weekly reports on project budget spending*	Local DPHE office

Contact Us

Sonia Shahid
Senior WASH Consultant (Bangladesh Representative)
Email: sonia.s@athenainfonomics.com
Mobile: +88 018352 00357

www.athenainfonomics.com

Athena Infonomics is a global data solutions group that applies social science research, data analytics, and technology to provide global development leaders with user-centric, context-specific outcomes. Founded in Chennai, India in 2010, Athena now has offices in India, the United States, the United Kingdom, and Kenya, alongside program hubs spanning Sub-Saharan Africa and South Asia. Having worked on more than 200 projects across practices with various clients, we have built a reputation for meaningful outcomes delivered by a skilled, energetic, committed, and passionate team. This work is gaining recognition: in 2022 alone, we were included in *The Financial Times*' Asia-Pacific High-Growth Companies list and India's Growth Champions list, compiled by *The Economic Times*.