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Shahid, Sonia

School of Business and Entrepreneurship, Independent University, Bangladesh (IUB)

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Bangladesh: Leveraging Digital Tools for Targeted Investments

Sonia Shahid¹, Ramkrishna Paul², Dilruba Farzana³, Habibur Rahman⁴

^{1,2} Governance and Service Delivery, Athena Infonomics

³ Department of Public Health Engineering, Government of Bangladesh

⁴ Islamic Development Bank

¹sonia.s@athenainfonomics.com, ²ramkrishna.p@athenainfonomics.com, ³dilruba.farzana@gmail.com,

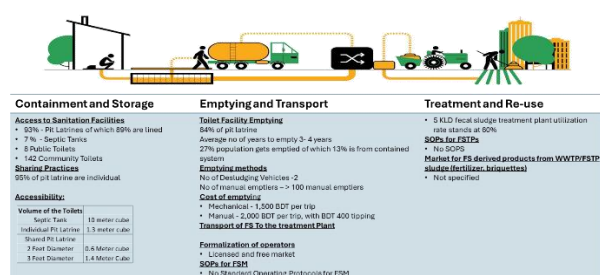
⁴MDHRahman@isdb.org

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Abstract: Urban areas in Bangladesh are grappling with serious sanitation issues due to rapid population growth and insufficient infrastructure. To tackle this, the Department of Public Health Engineering, with support from development financial institutions, launched a strategic initiative to create Strategic Sanitation Service Plans (SSSPs). Lakshmipur was selected as a model town for this effort. With technical support from Athena Infonomics, the planning process involved reviewing existing systems, identifying service gaps, and designing targeted interventions. Digital tools like the EquiServe Tool were instrumental in modeling scenarios and planning investments, helping identify cost-effective and practical solutions. These tools ensured efficient resource use and improved public health outcomes¹. The Lakshmipur case highlights the value of a structured, data-driven approach to urban sanitation. The lessons learned can guide other government bodies and financial institutions in scaling similar efforts, ensuring sustainable and impactful sanitation planning across Bangladesh's urban centers.

Keywords - Inclusive Sanitation Planning; Innovative Digital Tools; Investment Planning

I. INTRODUCTION



Enabling environment;



Urban areas in Bangladesh face significant sanitation challenges due to rapid population growth and inadequate infrastructure. Effective sanitation service planning is crucial to keep waste away from residents and maintain public health and hygiene. To address these issues, the Department of Public Health Engineering, with support from development financial institutions such as the Islamic

Development Bank and the Gates Foundation, has implemented a comprehensive initiative focused on developing Strategic Sanitation Service Plans (SSSPs). Lakshmipur, one of the model towns in this initiative, required a strategic approach to enhance its sanitation services. This document outlines key steps and process guidelines for local and national government authorities to implement inclusive and safe solutions, mitigating health risks along the sanitation value chain—from safe access and containment to transportation, disposal, treatment, and reuse. It also provides guidance for development financial institutions on how to better target their financial support.

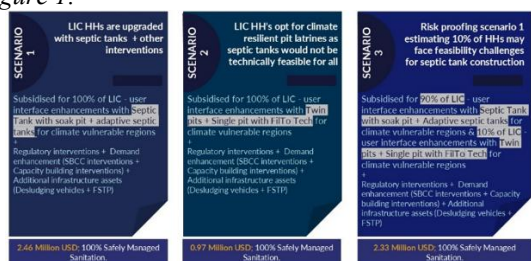
II. METHODOLOGY

During the development of the strategic sanitation service plan, Athena Infonomics provided technical assistance (TA) support to DPHE and Lakshmipur Pourashava. The planning process began with a review of the Pourashava master plan, which revealed several gaps. These included limited situational analysis, overlooked non-sewered sanitation aspects such as emptying and transport, and a failure to consider the financial burden on households. Additionally, there was a weak analysis of mandate gaps and overlaps, leading to uncoordinated efforts and neglected areas of the sanitation chain. The capacity of public data systems to aid and operationalize service improvements was rarely assessed, and the financial health of service authorities was often ignored, resulting in sub-optimal investments. Furthermore, staffing capacities were not adequately evaluated, and targets were adopted without realistic roadmaps. Plans tended to equate infrastructure with services, focusing on technical specifications rather than customer acceptability and willingness to pay³.

To address these gaps, Athena Infonomics, in collaboration with the Pourashava, developed a strategic sanitation service plan for Lakshmipur. The process began with forming a dedicated team responsible for developing and executing the plan. This team included stakeholders directly involved in sustaining the city's sanitation efforts and monitoring sanitation-related performance indicators. A Planning Implementation Committee, endorsed by the mayor, was established for the SSSP. This committee comprised elected representatives and municipality staff members, including the sanitary inspector, executive engineer, accounts officer, conservancy supervisor, social development officer, and local DPHE office staff members.

III. INSIGHTS & FINDINGS

A. Baseline Assessment: As a first step, Athena conducted a baseline assessment in 2023-24 to evaluate the current situation of WASH service delivery within the city. Interviews were conducted with Pourashava staff, healthcare and educational institutions, sanitation service providers including private operators, treatment plant operators, and community members, in addition to surveys with households. The household sample size was statistically representative with a confidence interval of 95% and a margin of error of 3%. A non-response rate of 15% was also factored in. The sample represented residents from all income groups and was distributed across all wards. The baseline included a city profile of Lakshmipur, a climate vulnerability assessment, and an evaluation of sanitation infrastructure and facilities based on the needs of each ward². Findings from the baseline study is presented in *figure 1*.



B.

Intervention Design: The SSSP identified gaps in regulatory mechanisms, technological interventions, institutional strengthening, and financial mechanisms. Athena collaborated with development sector partners working in Lakshmipur to develop interventions to mitigate these gaps and costed the different components being implemented (*refer figure 2*). Additionally, Athena developed process documents to provide ongoing assistance and guidance to the municipality's team, ensuring skills transfer.

C. Scenario Modeling: Athena developed three scenarios (*refer figure 3*) and utilized the [EquiServe Tool](#) to identify the most feasible scenario that minimizes investment risks for the municipality. This tool assessed funding requirements, tracked progress within agreed timelines towards achieving safely managed sanitation, and suggested effective strategies to enhance revenue and reduce expenses. Based on the tool's data, while Scenario 1 is the currently adopted investment scenario, Scenario 2 was proposed, which achieves 100% safely managed sanitation with a 60% reduction in investment value. Alternatively, Scenario 1 could be replaced with Scenario 3, which is more realistic. Scenario 3 accounts for the fact that not all households in lower-income settlements can implement septic tanks due to space constraints and would instead rely on alternative onsite sanitation systems, such as climate-adaptive single and twin pit systems. This approach would also result in a lower investment amount compared to Scenario 1.

IV. CONCLUSION

The strategic sanitation service planning exercise in Lakshmipur underscores the importance of following a structured process while developing a sanitation plan⁴. This process should be co-developed with local stakeholders to ensure that the plan is tailored to the specific needs and challenges of the community. Engaging stakeholders such as elected representatives, municipality staff, and local DPHE office members fosters ownership and accountability, which are crucial for the successful implementation and sustainability of the plan.

Digital tools like the EquiServe play a vital role in decision-making and making informed choices. In the context of scenario modeling, data and evidence from the ground, analyzed using the EquiServe tool, demonstrated that there can be alternative options to the initially chosen interventions. These alternatives can drive the most impact out of the investments made, ensuring that resources are used efficiently and effectively. For instance, Scenario 2, which achieves 100% safely managed sanitation with a 60% reduction in investment value, and Scenario 3, which considers space constraints in lower-income settlements, provide more feasible and impactful solutions compared to the initially adopted Scenario 1.

Insights from this planning exercise can be scaled up and adopted by other government agencies and development financial institutions. By following a similar structured process and leveraging digital tools for data analysis and scenario modeling, these entities can develop effective and sustainable sanitation plans. This approach ensures that investments are targeted and optimized, leading to improved sanitation services and better public health outcomes in urban areas.

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