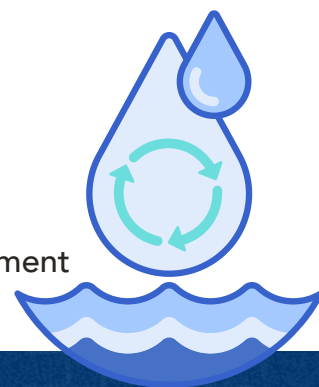


Integrated Municipal Information System (IMIS)

Strengthening Public Data Systems for Non-Sewered Sanitation Management



Under the Local Government Act 2009, City Corporations and municipalities are mandated to provide waste management services including sanitation and waste collection in the city areas. The non-sewered sanitation system in Bangladesh is primarily managed by the city authority, WASH utilities and local private operators.

These entities are responsible for overseeing the collection, transportation, and disposal of fecal sludge from on-site sanitation facilities such as septic tanks and pit latrines. Coordination among utilities and other implementing agencies is also necessary to ensure effective management and to address the challenges of urban sanitation comprehensively.

The Integrated Municipal Information System (IMIS) is an open-source GIS-based Digital Public Infrastructure (DPI) which functions as both a municipal information system and a software solution, integrating data, processes, and services to enhance municipal governance—particularly in sanitation management with Citywide Inclusive Sanitation (CWIS) approach to achieve SDG 6.2. It offers municipalities data-driven decision-making tools to strengthen governance across various sectors. By leveraging open-source technologies and Geographic Information Systems (GIS), it facilitates:

- Planning, management, and monitoring of sanitation systems using the CWIS approach.
- End-to-end FSM (Faecal Sludge Management) service chain oversight, including real-time data tracking.
- Generation and visualization of CWIS indicators for performance assessment.
- Intuitive dashboards for tracking CWIS indicators, Key Performance Indicators (KPIs), and other essential municipal governance metrics.

IMIS as a sub-national public data system contributes to national-level monitoring by feeding data into centralized systems, supporting CWIS indicators and other critical metrics for achieving sanitation targets. Beyond sanitation management, with its modular and scalable design, Base IMIS empowers local authorities by providing a unified, data-driven framework that enhances efficiency, accountability, and service delivery in municipal governance.

In 2020, the Department of Public Health Engineering of Bangladesh implemented the National Sanitation Dashboard (NSD) to visualise city-level sanitation and solid waste data at the national level. The dashboard provides information on onsite sanitation situation and available service facilities of 11 City Corporations and 53 municipalities. This centralized platform provides a comprehensive overview of the sanitation landscape across the country.

IMIS is currently implemented in 10+ cities in Bangladesh. IMIS platform is designed to be connected to the NSD for real-time data sharing for evidence generation and monitoring.

Operational Level



Key components and functionalities

The key features of the IMIS are:

- Spatial context for municipal data - infrastructure, services, and resources.
- Efficient storage and management of municipal data, including infrastructure and essential services.
- Integration of CWIS data to support planning, management, and evaluation of sanitation systems and services.
- Decision support tools for decision-making based on spatial analysis and modelling.
- Real-time dashboard for monitoring KPIs and CWIS indicators.
- User-friendly interfaces with access control features.
- Scalability to adapt to the evolving technology and information needs.
- Mainstreaming CWIS service chain into the city's business process.
- Interoperable with external data sources, including tax/revenue, public health, emergency response data and more.
- Robust security measures to safeguard sensitive data, ensuring city data privacy compliance.

The IMIS has 10 functional modules, of which core seven modules manage sanitation systems and services in CWIS approach, whereas remaining three value-added modules enhance complementary municipal services, including property tax collection, solid waste management, and water supply billing.

Integration and Decision Making

The IMIS has three value-added modules which enhance complementary municipal services, integrating property tax collection, solid waste management, and water supply billing information. Further, the IMIS has Urban Management Decision Support System (UMDSS), which is a powerful module for spatial analysis, mapping, and decision-making.

Data Sources and Reliability

IMIS data framework details out the data layers requirements (spatial/non spatial) and attributes information required that have been curated based on the requirements of CWIS approach and efficient Faecal Sludge Management (FSM). During the establishment of IMIS, base IMIS data layers are generated based on the combination of census survey and already available datasets within the municipality.

- **Urban data:** Data about the city's urban pattern, topography, environmental data, and related aspects.
- **Sanitation data:** Data pertaining to the sanitation systems, micro-level containment and services.
- **Revenue data:** Data related to revenue collection associated with sanitation services.
- **Business operation data:** Data generated during the process of delivering sanitation services.

Once the IMIS is operationalized, data in IMIS gets updated by responsible departments of the municipality in real time

User Interoperability

IMIS anchors all data and service information on taxpayers' holding code or house number adopted by municipality to facilitate the integration of multiple data and service streams. By applying the concept of a 'One ID for all services,' IMIS is a powerful digital tool with the possibility for exponential growth.

In summary, the IMIS is a sub-national public data system that has the capability of managing sanitation data in the city level that enables the municipality in evidence-based decision-making and producing data for the national data system (NSD) for monitoring sanitation situation at the national level.

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