

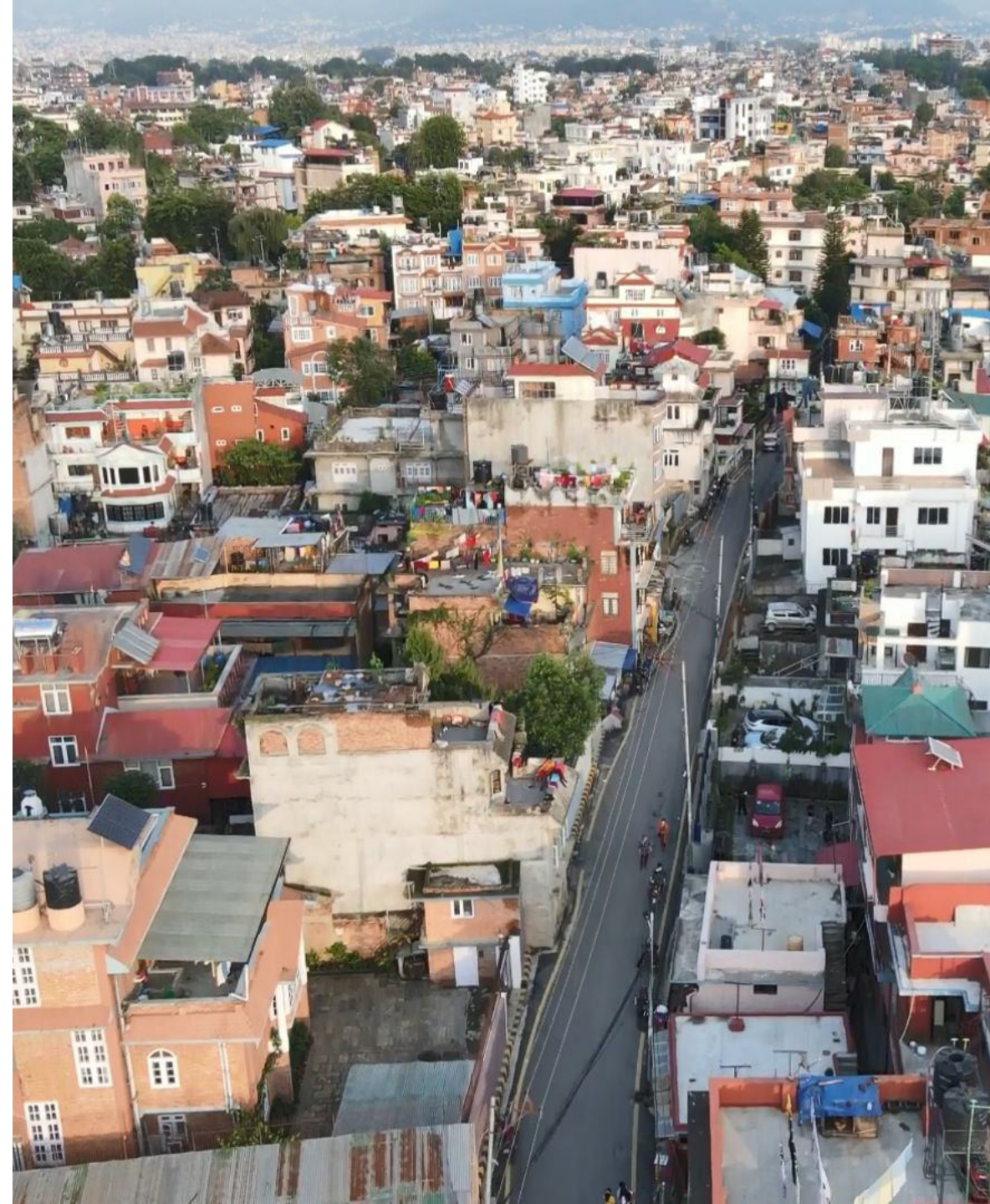
INTEGRATED MUNICIPAL INFORMATION SYSTEM (IMIS)

CATALYZING CWIS APPROACH TO ACHIEVE SDG 6.2 OUTCOMES

Today, 55% of the world's population lives in urban areas, a proportion that is expected to increase to 68% by 2050, adding another 2.5 billion people to urban areas with close to 90% of the increase taking place in Asia and Africa.

- UN DESA, 2018

Due to this growth, managing Sanitation System and Services has been difficult as a result achieving SDG 6.2 is a great challenge for Government and Urban Local Bodies in these regions.



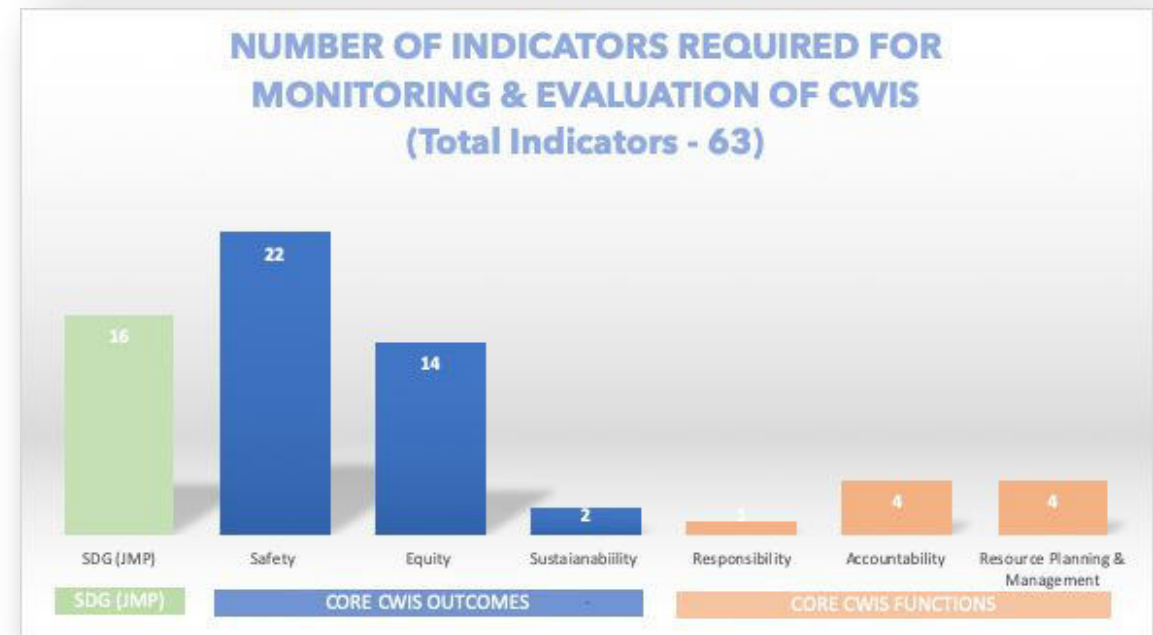
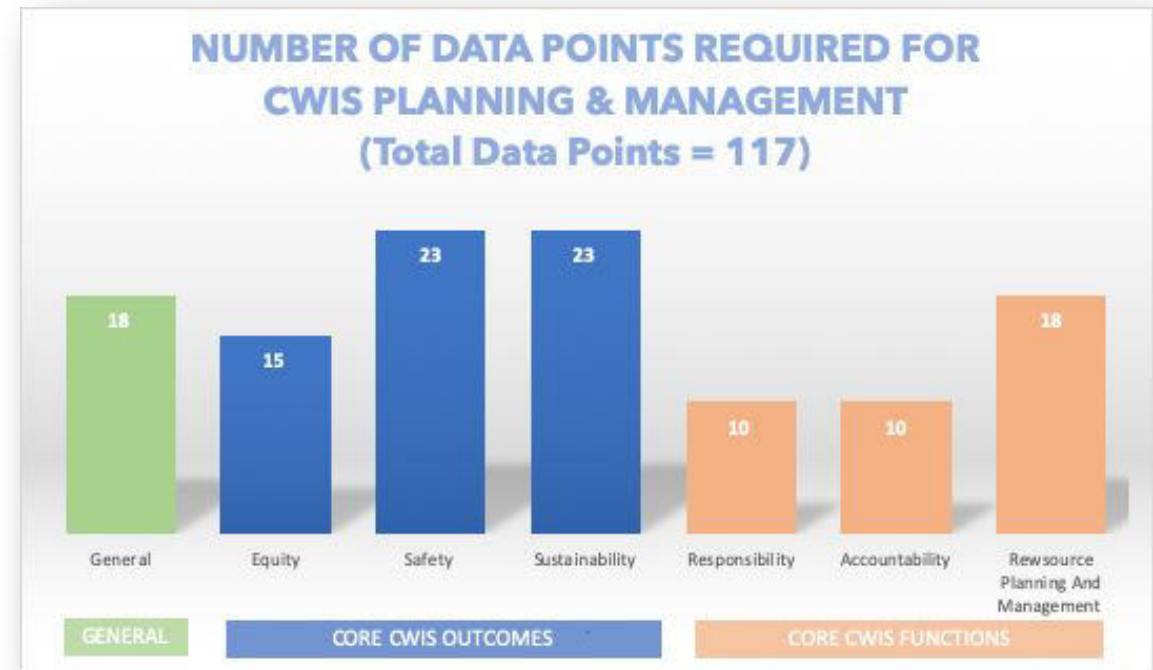
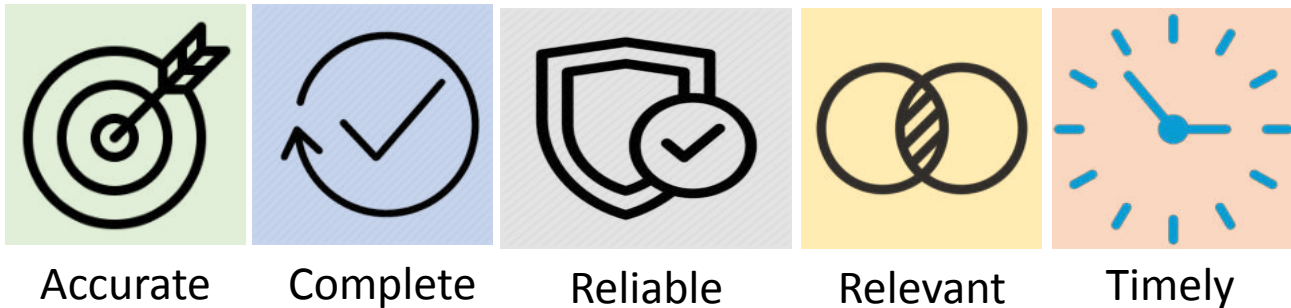
CITYWIDE INCLUSIVE SANITATION SERVICE FRAMEWORK

CWIS focuses on promoting approaches to ensuring everyone in an urban area is served by safe, equitable, and financially viable sanitation services & systems. Systems are designed to reach the poor and to ensure human waste is safely managed along the whole sanitation service chain (safe containment to safe disposal/reuse).

CORE CWIS OUTCOMES	EQUITY 	SAFETY 	SUSTAINABILITY 
	Services reflect fairness in distribution and prioritization of service quality, prices, deployment of public finance/ subsidies	Services safeguard customers, workers and communities from safety and health risks by reaching <i>everyone</i> with safe sanitation	Services are reliably and continually delivered based on effective management of human, financial and natural resources
CORE CWIS FUNCTIONS	RESPONSIBILITY	ACCOUNTABILITY	RESOURCE PLANNING AND MANAGEMENT
	Authority(s) execute a clear public mandate to ensure safe, equitable and sustainable, sanitation services for all	Authority's(ies)' performance against its mandate is monitored and managed with data, transparency, and incentives	Resources–human, financial, natural, assets–are effectively managed to support execution of mandate across time/space

CITYWIDE INCLUSIVE SANITATION (CWIS) – ‘SUCCESS DETERMINANTS’

Availability of Data and Information for Planning, Management and M&E of CWIS



ACCELERATORS OF SDG 6.2

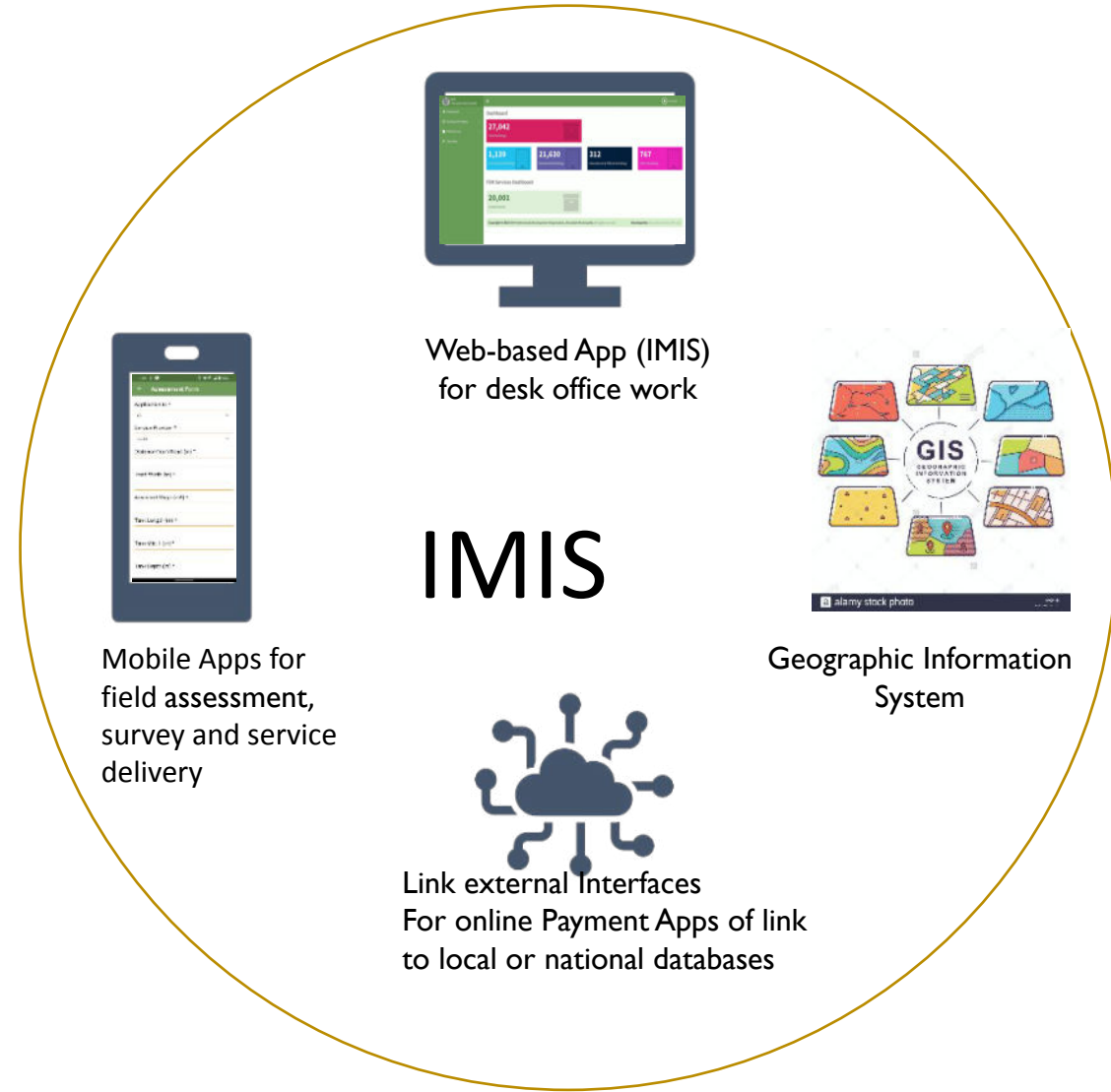
UN Water SDG 6 Global Acceleration Framework has identified **data and information** as one of the five accelerators of SDG 6.2 outcomes.



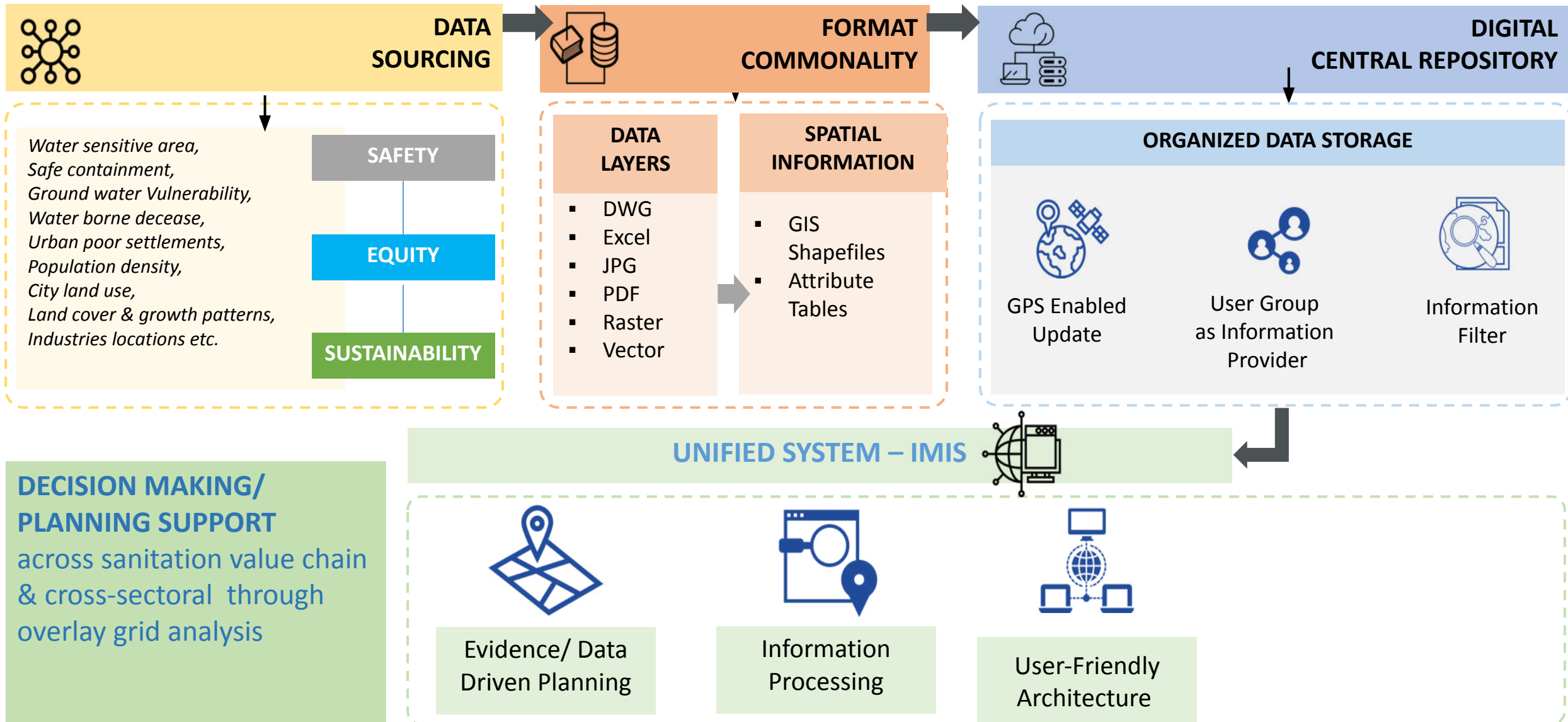
IMIS is an **Information System** developed to catalyze **CWIS** approach, and achieve **SDG 6.2 Outcomes**

It is a **convergence** of web, mobile and GIS technologies developed on open source software platform

it brings **Innovation** in overall city's sanitation system and services **fostering good Governance.**

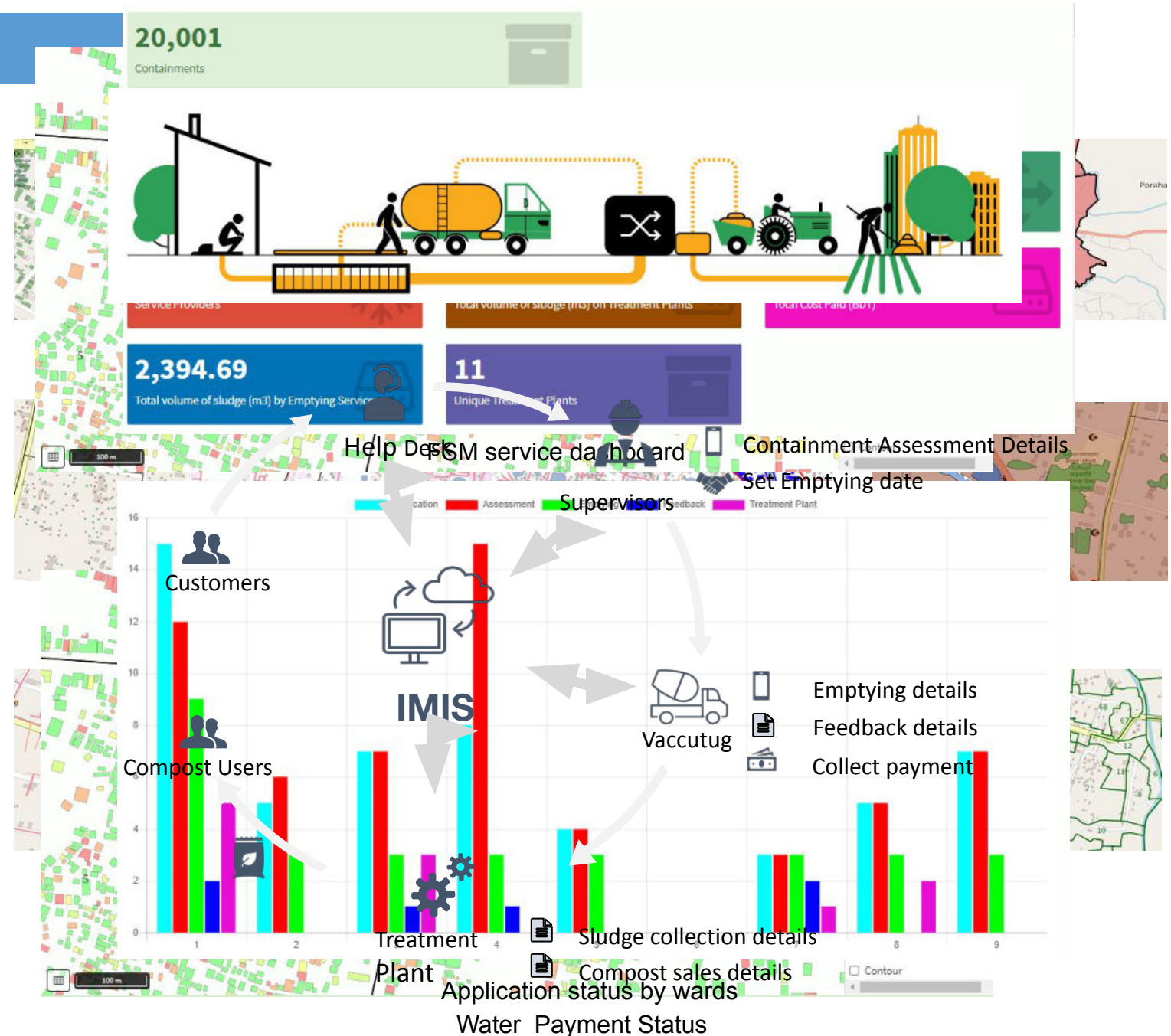


IMIS - An aggregation of Tools, Resources and Process Innovation

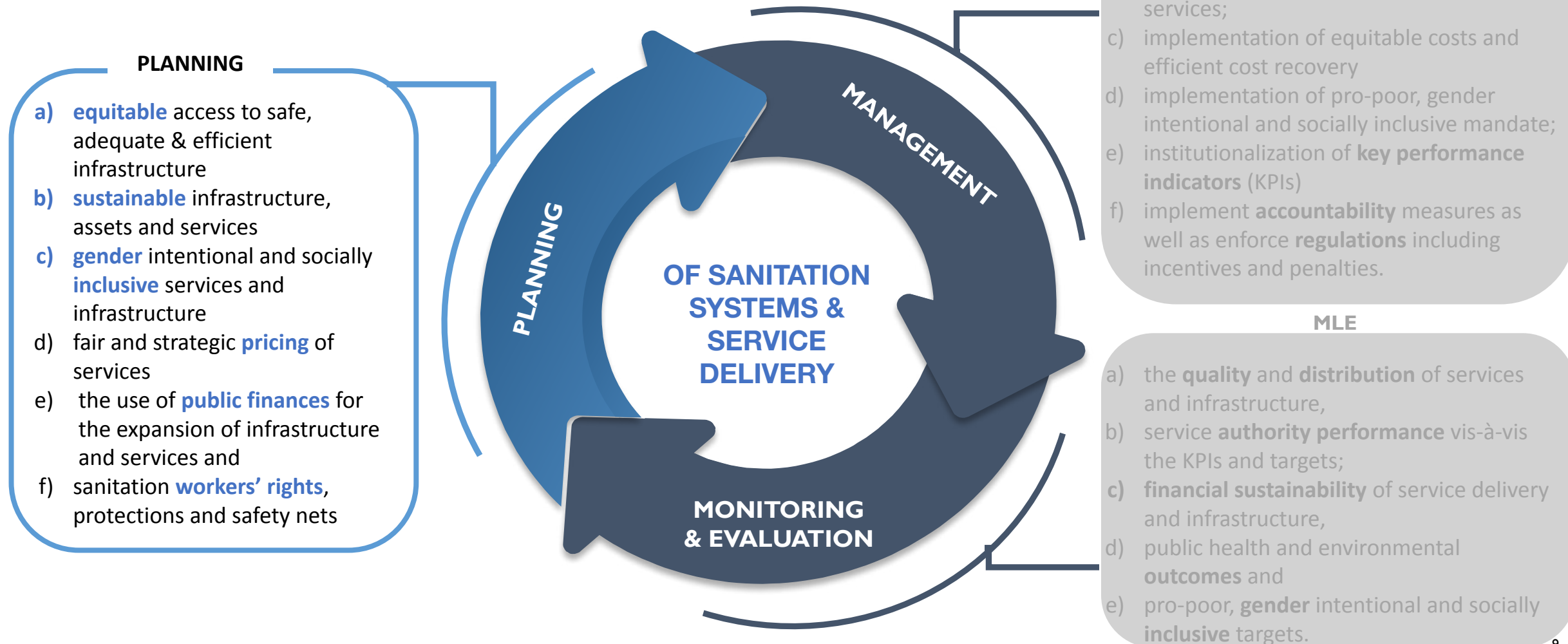


IMIS Landscape

- Municipal GIS and CWIS database of the town
- Tools for sanitation planning, infrastructure investment planning and decision-making
- Business process mainstreaming Sanitation Value Chain with municipality's regular business process
- Dashboard for real-time monitoring and evaluation of CWIS system and service
- Interoperability system to integrate with external data sources – tax payments, health, emergency response, and other spatial data source



WHAT IMIS WILL FACILITATE – INCLUSIVE AND SUSTAINABLE PLANNING

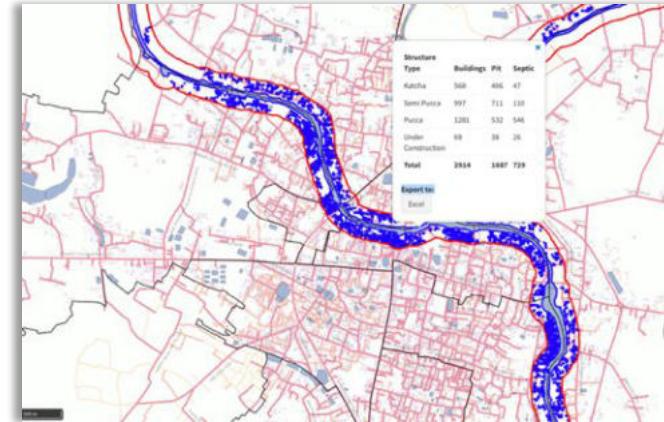


DATA-DRIVEN PLANNING AND DECISION MAKING



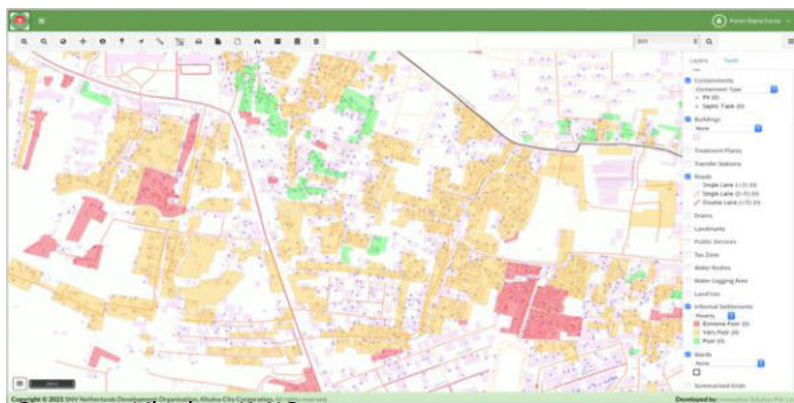
What is the current sanitation system and settlement pattern in the area ?

1



What is the status of containments in X m from river center (Planning for river protection)

2



Where are the low income settlements and their socio-economic status ?

3



Revenue collection status, useful for risk analysis to investment in a specific area

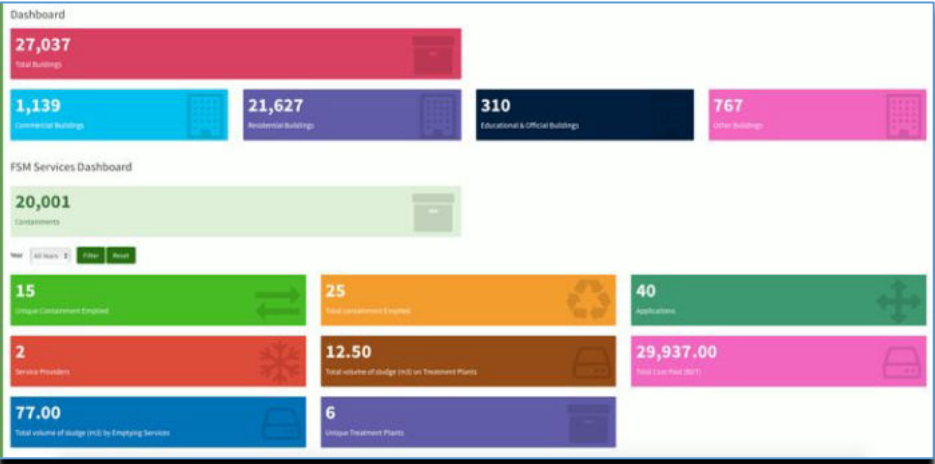
4

Source: Khulna IMIS

WHAT IMIS WILL FACILITATE – PROMOTE EFFICIENT MANAGEMENT

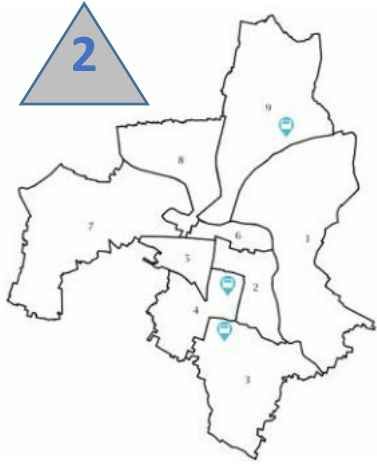


DATA-DRIVEN MANAGEMENT OF SERVICE DELIVERY



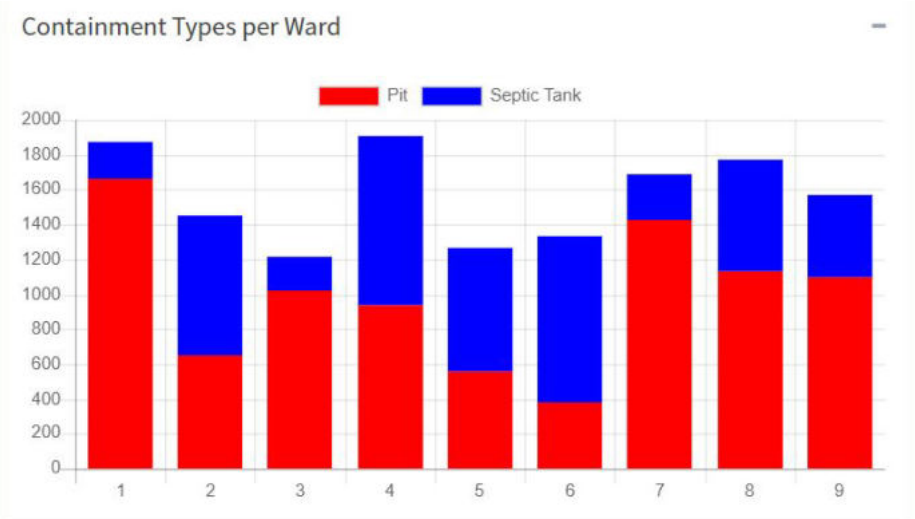
1

Main Dashboard



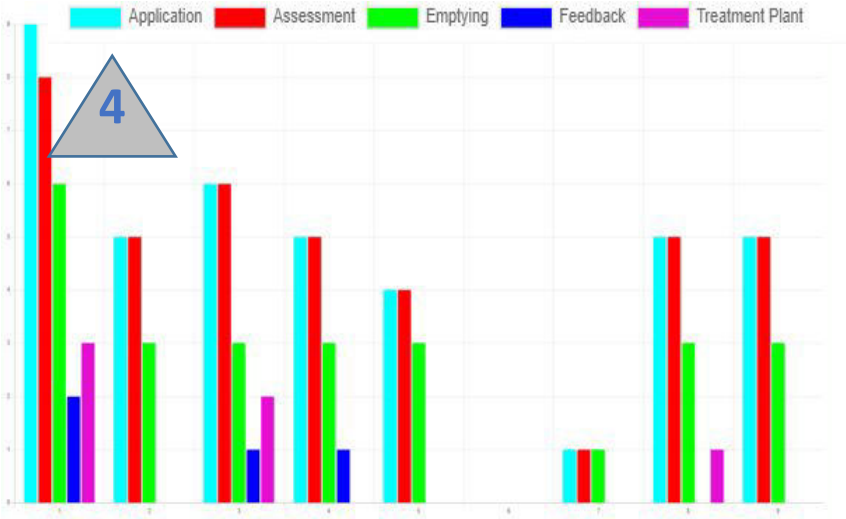
2

Where are locations of the containments that need to be emptied on X date ?



3

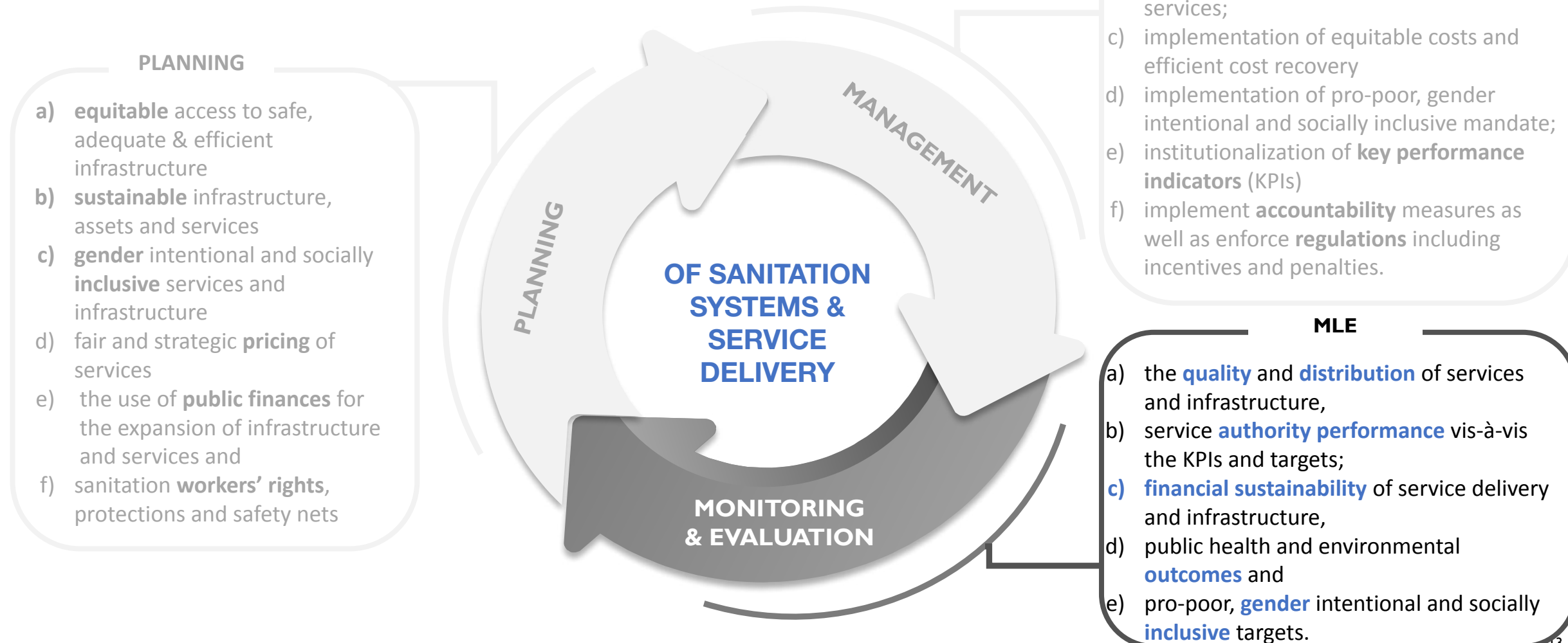
What is the status of containments in wards ?



4

What is the status of emptying requests ?

WHAT IMIS WILL FACILITATE – EFFECTIVE MONITORING & EVALUATION

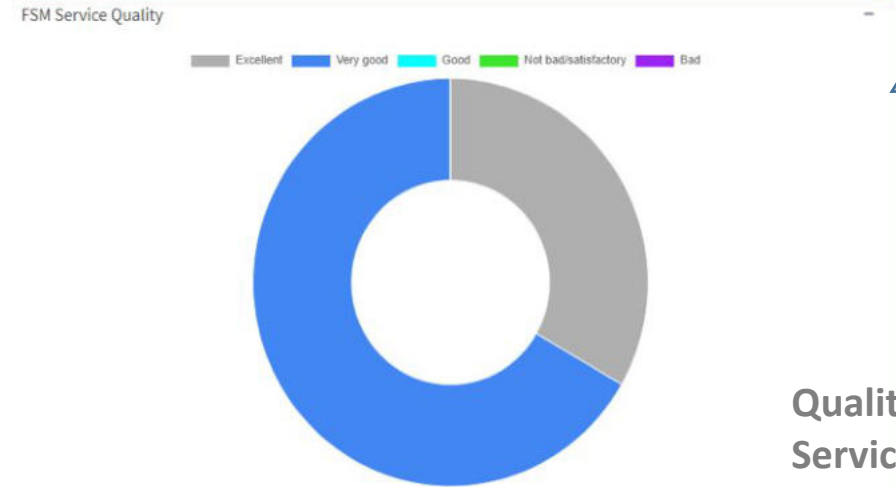


MONITORING AND EVALUATION OF INFRASTRUCTURE & SERVICE DELIVERY



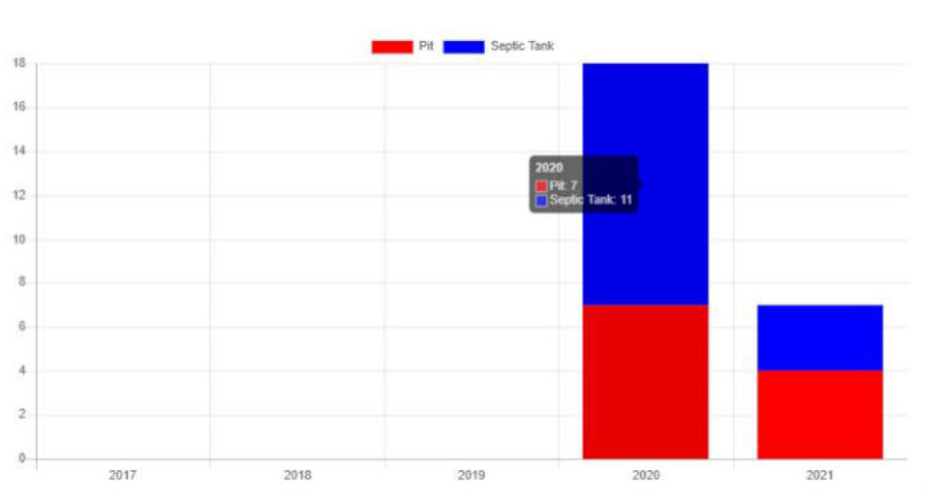
1

Total Revenue Collected by Ward



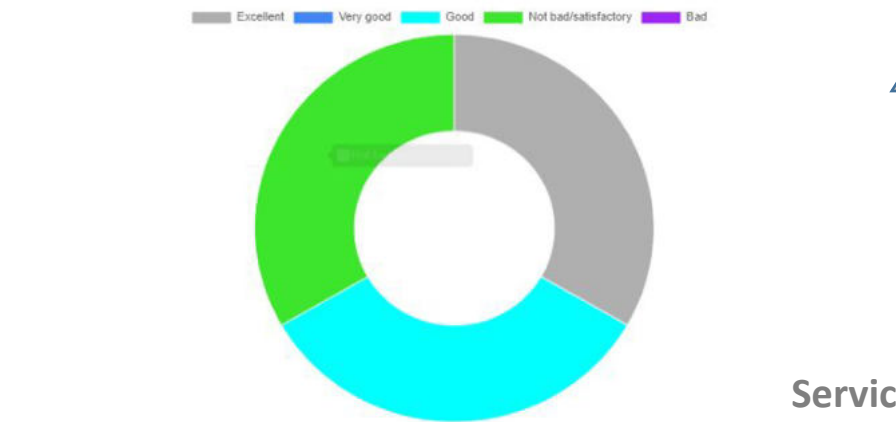
2

Quality of Service



3

Total Containments Emptied in the Year

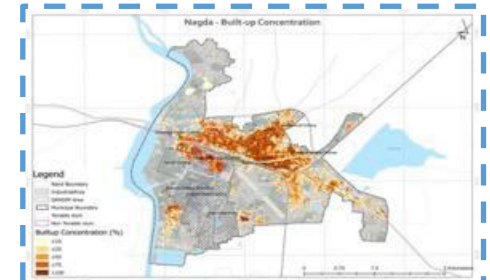


4

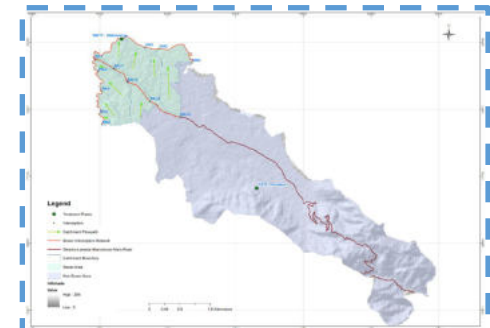
Service Efficiency

MORE QUESTIONS IMIS CAN ANSWERS

- *What is the settlement topology of the town or the area ?
(Population Density, Built-up Density, Planned & Unplanned Area, Low Income Settlements, etc.)*
- *Which areas are served by Sewerage System which are not ?*
- *What type of sanitation system exists in area not served by sewerage ?
(location of containments by type, corresponding buildings & road network)*
- *What is the status of containment ?
(Total number of containments by type, emptying status, etc.)*
- *Where are the areas vulnerable to groundwater pollution or flood prone areas ?
(On site sanitation is not suitable for such area)*
- *What is the topography of the area ?
(Selection of the system determines by the terrain of the targeted area)*
- *What is the current status of revenue collection in the town ?
(Investing in less revenue collection areas have high risk for sustainability)*



Settlement Pattern of Nagada



Sewerage / Non-sewerage Area in Mahalaxmi



DEM & Water Danger Line, Nagada

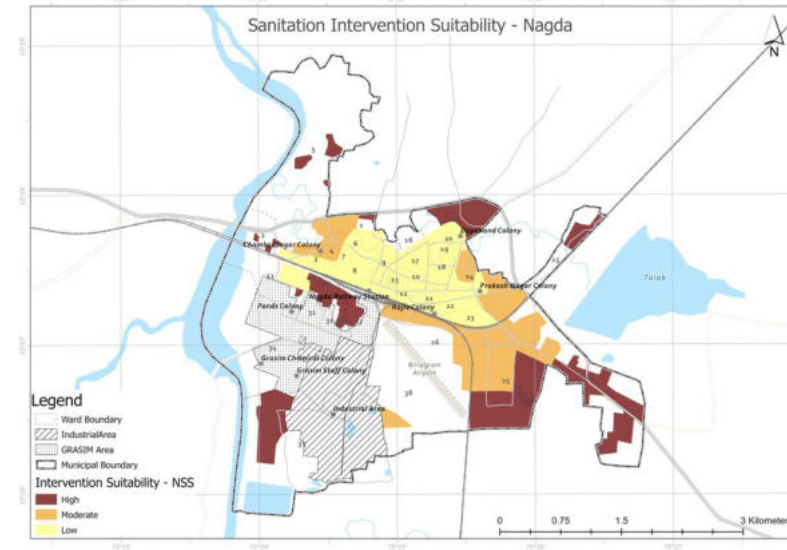
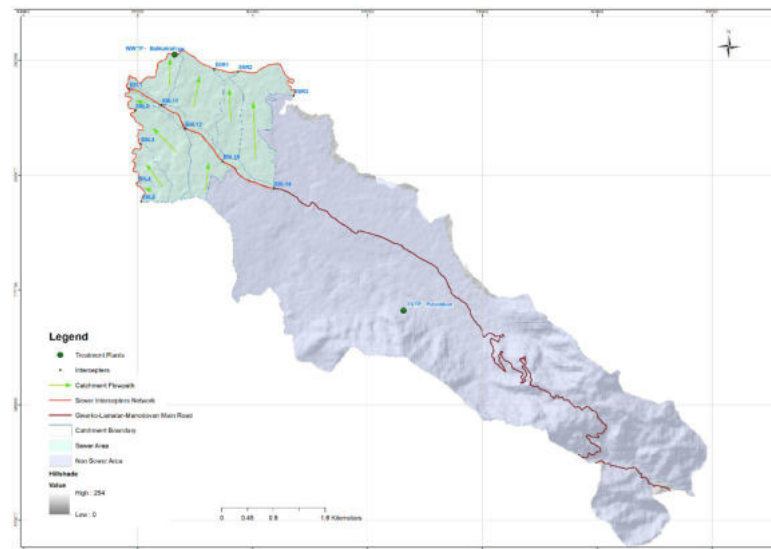
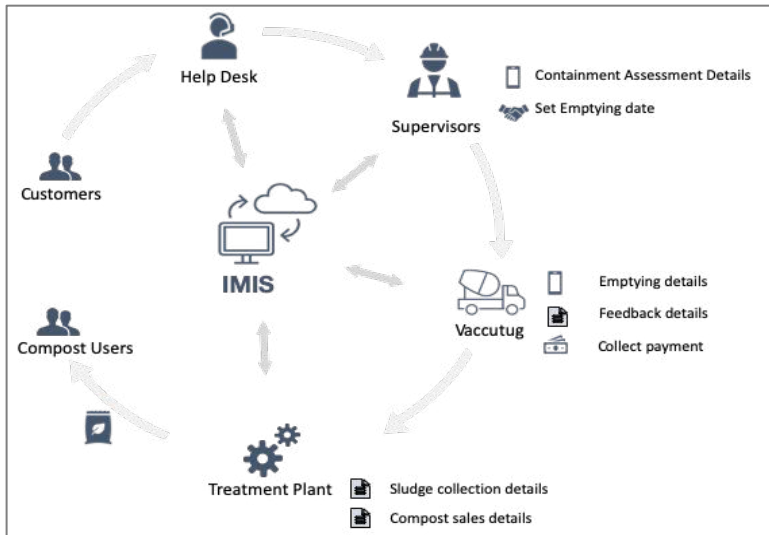
FIELD APPLICATIONS

Support municipalities in delivering efficient emptying service, maintaining status of containments, M&E of city's sanitation status and performance of service delivery, providing tools for planning & decision making (4 towns in Bangladesh)

Life Cycle Cost Analysis in Mahalaxmi Municipality, Nepal

- Scenario setting (OSS/SS/Hybrid)
- Sanitation Systems designing
- Costing of the systems
- Economic Analysis of the System

Suitability Analysis of Sanitation Intervention in six towns of Madhya Pradesh, India



IMIS COMPONENTS

DATA COLLECTION ON SWM RELATED ITEMS

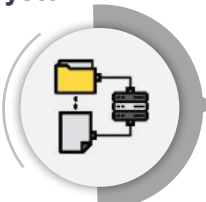
- Record and assess the information using spatial visualization of buildings with their water bill payment
- Spatial visualization of
- Enables users to visualize area areas served by SWM service & Sludge collection

provided by year

FSM Monitoring & Evaluation System



Fecal Sludge Information Management System



Septic Tank Inspection Support System



Water Supply Information Support System



Building Information Management System



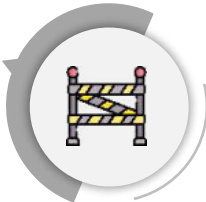
Property Tax Collection Support System



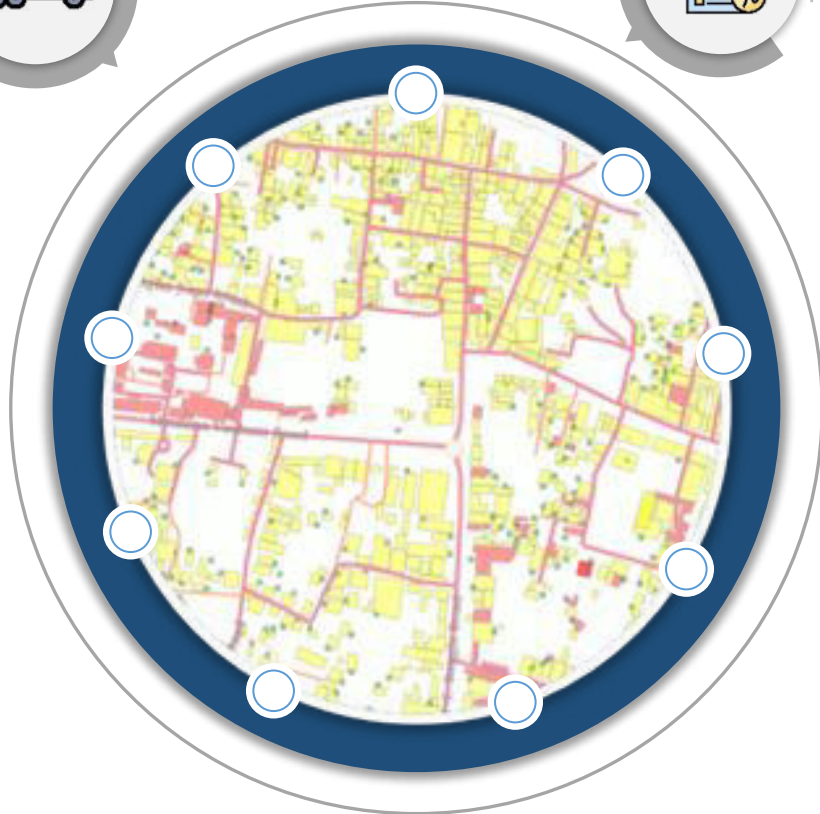
Urban Management Decision Support System



Utility Information Management System (Roads, Drainage)



SWM Information Support System



CASE STUDIES FROM BANGLADESH AND INDIA

	Funded by Foundation		Leveraging – WB Funded		Leveraging – ADB Funded
	Bangladesh				India
	Jhenaidah	Khulna	Jashore	Gazipur	Madhya Pradesh
Coverage	27,036 (buildings)	156,051 (buildings)	8,600 (Ward #5) out of 43,358 (buildings)	85,000 (buildings) [one Zone out of 8]	8(towns – Phase 1) 52 (towns – Phase 2)
	20,001 (containments)	67,330 (containments)	5200 (containments ward #5)	76,000 (containments)	
Features	FSM services, Holding Tax, Water Service, Revenue Status	FSM services, holding tax, trading license	FSM services, holding tax	FSM, Sewer system, water supply, holding tax	FSM, sewer system, water supply, holding tax
Layers	Buildings, Roads, Drains, Containments, Water Bodies, FSTP, Water Connections				
Users	Pourashava	Conservancy Dept – FSM Services Tax Dept – Holding Tax & Trade License	Conservancy Dept – FSM Services Tax Dept – Holding Tax	Conservancy Dept – FSM Services & sewer Tax Dept – Holding Tax	Municipality
Status			Pending final customization & training	Under data collection, Pending final customization & training	Under conceptualization

STEPS TO IMPLEMENT IMIS



GIS DATA CREATION

- Collection of available GIS data
- Gap analysis
- Digitization of missing data layers using high resolution satellite image
- Field verification and establishment of base GIS database

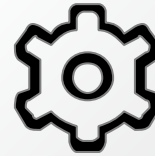
2-3 Months
(20,000 Buildings)



CENSUS SURVEY & ATTRIBUTE DATA CREATION

- Collect available attribute data and integrate with GIS data
- Gap analysis
- Conduct survey for attribute information of buildings, containments, utilities, etc of ULB
- Establish attribute database

3-4 Months



IMIS CUSTOMIZATION & SETUP

- Analyze the system's functional requirements including value added functionalities
- Analyze the ULB's policy guidelines and business process
- System customization & set up in the ULB's server
- SOP Customization

1-2 Months



DATA MIGRATION

- Migration of the Data in the Server and make system ready for training

0.5 Months



TRAINING & LAUNCHING

- Conduct Hands on training for operation to relevant departments
- Get feedback from trainees and update the system accordingly
- Prepare sustainability plan for system implementation
- Launch the system

0.5 Months