

# Discussion note on PAS CWIS Assessment Framework

# **Discussion note on PAS CWIS Assessment Framework**

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**Center for Water and Sanitation  
CRDF, CEPT University**

## Acknowledgments

This note has been prepared as part of our ongoing work on city wide inclusive sanitation (CWIS) focusing on how the self-reported data on sanitation reported by urban local bodies under Performance Assessment System (PAS) could be used to assess performance of cities towards provision of inclusive sanitation services. The note also describes the need for adopting the CWIS approach and how leading global organizations in the WASH sector have been advocating on the need of implementing the CWIS approach.

The note provides a brief on the themes that have been covered under PAS and how they are related to the CWIS framework that has been developed by BMGF (Bill & Melinda Gates Foundation). Based on the themes that have co-relation indicators have been designed using data from PAS and those have been used to arrive at the PAS-CWIS index.

The PAS-CWIS index is then used to prepare the PAS-CWIS Ladder wherein the index is plotted against service outcome and system function. The PAS-CWIS ladder assesses performance of sanitation service provision from a CWIS perspective. Interactive dashboards have been prepared for three PAS states. The dashboard displays performance at both State and city level. The PAS-CWIS ladder could be used as an advocacy tool for government and other stakeholders to take informed decisions regarding implementing and improving inclusive and safe sanitation.

We would like to thank Radu Ban, Roshan Shrestha, Sakshi Gudwani and Neeta Goel from the BMGF team for their valuable inputs. This Discussion Note was prepared by the CWAS team including Dhruv Bhavsar, Aasim Mansuri, Jaladhi Vavaliya, Arwa Bharmal, Dhvani Shah, Kasturi Kalwar and Gaurav Kushwaha, under the guidance of Meera Mehta and Dinesh Mehta.

## Table of Contents

<b>1. Background .....</b>	<b>1</b>
1.1. <i>Overview of CWIS.....</i>	<i>1</i>
1.2. <i>Emerging commitment towards CWIS by global organizations .....</i>	<i>2</i>
1.3. <i>Citywide Inclusive Sanitation in India.....</i>	<i>7</i>
<b>2. Overview of PAS CWIS Assessment Framework .....</b>	<b>8</b>
2.1 PAS- CWIS Index.....	10
2.2 PAS- CWIS Performance Ladder .....	12
2.3 Application of the PAS-CWIS ladder for three Indian States .....	13
2.4 PAS CWIS Performance Dashboard .....	13
2.5 Applicability and Scale up of the PAS-CWIS Ladder.....	15
<b>Annexures .....</b>	<b>16</b>
Annexure I: Seven CWIS Principles .....	16
Annexure 2: CWIS Framework.....	17
Annexure I: List of 26 Indicators .....	17
Service Outcome Indicators.....	17

# 1. Background

## 1.1. Overview of CWIS

Sanitation is recognised as a global development priority through SDG 6 and its Target 6.2 which calls for adequate and equitable safe sanitation for all and ending open defecation. The citywide inclusive sanitation (CWIS) approach addresses this call for inclusive sanitation. Organization across the world working in the sanitation sector have signed a ‘Call to Action’ for implementing the CWIS concept.

CWIS is a new encompassing approach, for urban sanitation, The call to action highlighted the need for long-term planning, technical innovation, institutional reforms, and financial mobilization, as well as political will and technical and managerial leadership for systems change.

The Atlanta workshop resulted in the citywide inclusive sanitation (CWIS) concept and “Call to Action” (BMGF, 2016) signed by over 70 organizations and individuals. CWIS was characterized as: *Everyone benefits from adequate*

*sanitation service delivery outcomes; human waste is safely managed along the whole sanitation service chain; effective resource recovery and re-use are considered; a diversity of technical solutions is embraced for adaptive, mixed and incremental approaches; and onsite and sewerage solutions are combined, in either centralized or decentralized systems, to better respond to the realities found in developing country cities<sup>1</sup>.*

During the Manila conclave in 2019, a broad consensus on aligning the CWIS principles to the SDGs was obtained. The refined definition of CWIS was: *A public service approach to planning and implementing urban sanitation systems to achieve outcomes summarized by SDG 6: safe, adequate, equitable, and sustainable sanitation for everyone in an urban area, paying special attention to the needs of the poor, the marginalized, and of women and girls, a comprehensive set of seven CWIS principles (Annex 1), and service framework (Figure below).*



Figure: Evolution of CWIS.

<sup>1</sup> Source: Policy brief on Citywide Inclusive Sanitation: A Public Service Approach for Reaching the Urban Sanitation SDGs by Alyse Schrecongost and others. Bill & Melinda Gates Foundation, Seattle, WA, United States. [Link to document](#)



Source: Policy brief on Citywide Inclusive Sanitation: A Public Service Approach for Reaching the Urban Sanitation SDGs by Alyse Schrecongost and others. Bill & Melinda Gates Foundation, Seattle, WA, United States. [Link to document](#)

## 1.2. Emerging commitment towards CWIS by global organizations

After the call to action in 2016, during the Atlanta workshop where a growing group of many organisations have shown interest in aligning their work to the CWIS principles. The call to action urged stakeholders to embrace a radical shift in urban sanitation practices deemed necessary to achieve citywide inclusive sanitation. This has indirectly also influenced the government to integrate aspects of CWIS across the sanitation value chain.

### Bill and Melinda Gates Foundation (BMGF)

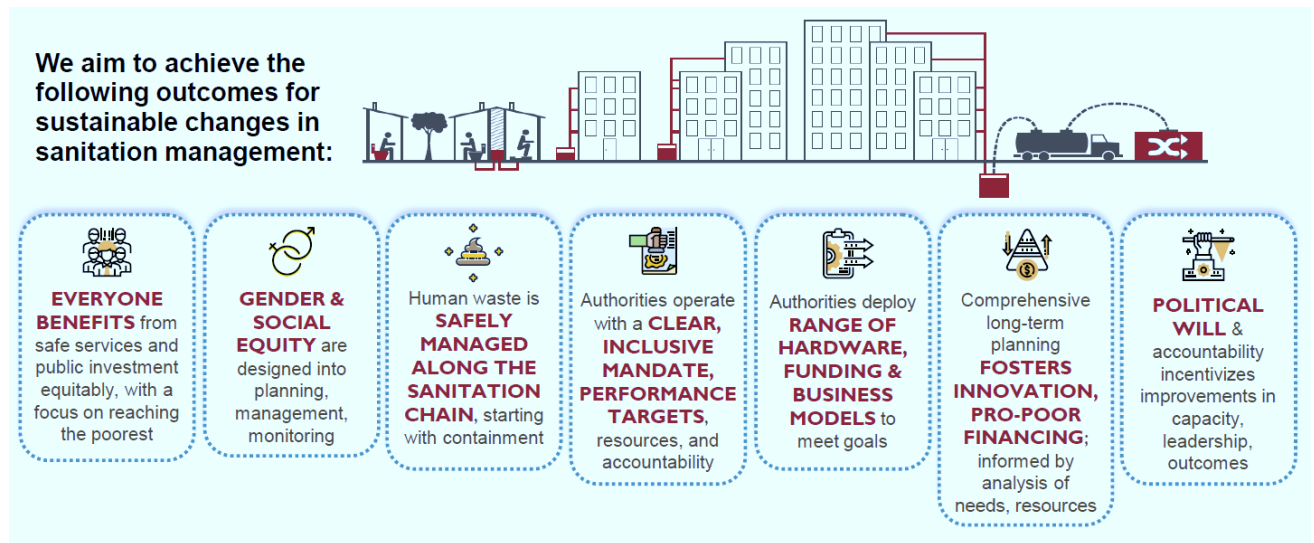
BMGF has set up the goal to *enable widespread use of safely managed, sustainable sanitation services that contribute to positive health, economic, and gender equality outcomes for the world's poorest people*<sup>2</sup>. In order to achieve this goal, the foundation has been given top priority to accelerating the development of safe, non-sewered sanitation systems and technologies within their water, sanitation, and hygiene continuum. BMGF along with Emory University, Plan International, The University of Leeds, WaterAid and, the World Bank have come together as a group of practitioners to galvanize the CWIS agenda by sharing conversations globally and mobilizing contributions from decision-makers and other practitioners across disciplines<sup>3</sup>.

Based on the CWIS framework, the foundation has been supporting organizations in implementing the CWIS framework and has been now working on demonstrating and

<sup>2</sup> Source: Official website of Bill and Melinda Gates Foundation. [Link to webpage](#)

<sup>3</sup> Source: World Bank Blogs. [Link to webpage](#)

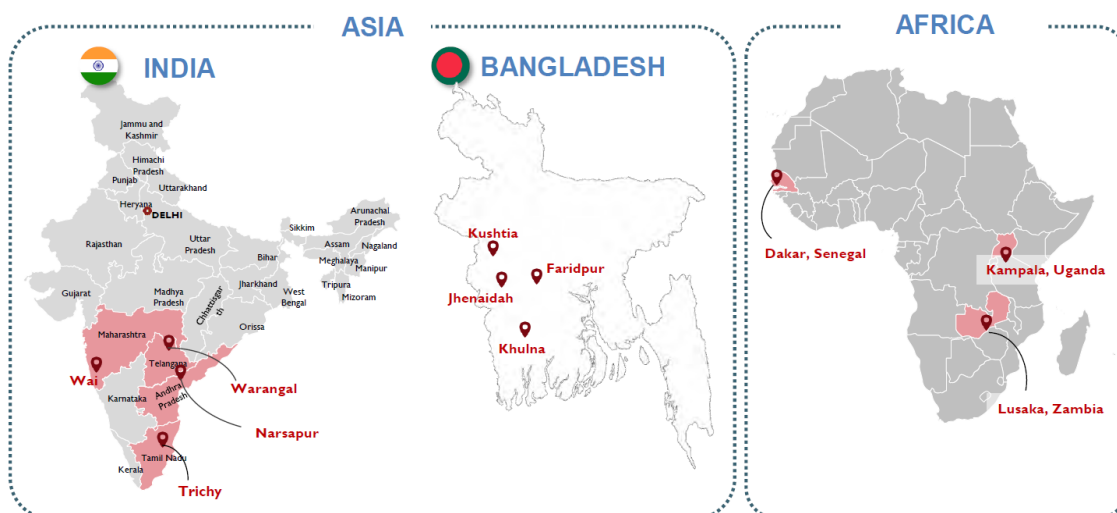
replicating the CWIS models. A set of CWIS outcomes have also been developed which are based on the CWIS principles and the framework explained in section 1.1.



Source: Presentation on Gates Foundation Revealed: How We Work, and How We Partner with ADB by Roshan Shrestha, Bill and Melinda Gates Foundation. [Link to document](#)

BMGF has partner with various organization working in the sanitation sector to influence policy advocacy, support model CWIS cities, setting up multi stakeholder platforms, and developing technical resources all of these efforts are taken to implement CWIS principles.

As part of supporting model CWIS cities, BMGF has selected eight cities across Sub-Saharan Africa and South Asia that are redesigning their urban sanitation service systems with a CWIS approach. This approach is aimed at advancing safe, equitable, and sustained services across each city, with a focus on ensuring services reach women, girls, and low-income communities. The eight CWIS cities represent a diverse range of demographic, geographic, and sanitation system characteristics. Each city is taking its unique path to overcome challenges and achieve common CWIS goal.



In India, there are 4 CWIS model cities. Each of these cities is supported by a anchor partners (local technical organizations). CWAS has been supporting the municipal council of Wai in Maharashtra to become a model CWIS city<sup>4</sup>.

Under a BMGF grant, Athena Infonomics has designed a Monitoring, Learning, and Evidence (MLE) platform for urban Faecal Sludge Management (FSM). The project has two components — data ecosystem strengthening, and evidence and learning. The first component aims to create a global indicator protocol and platform for urban FSM. This will involve 8 pilot cities that are part of BMGF’s “City Wide Inclusive Sanitation (CWIS)” program. The second seeks to aggregate and analyze evidence on effective interventions in urban FSM to promote peer learning and information exchange.

**CWIS OUTCOMES**

**CWIS SYSTEM FUNCTIONS**

EQUITY SAFETY SUSTAINABILITY CWIS Service Framework RESPONSIBILITY ACCOUNTABILITY RESOURCE PLANING AND MANAGEMENT

Read more about the Foundation's CWIS initiative

Read more about other organizations' CWIS approaches

**CITIES**

OVERVIEW KHULNA NARSAPUR TRICHY WAI WARANGAL DAKAR KAMPALA LUSAKA

The eight CWIS cities represent a diverse range of demographic, geographic, and sanitation system characteristics. Each city is taking its unique path to overcome challenges and achieve common CWIS goals. Click on the city to learn more about their CWIS initiatives.

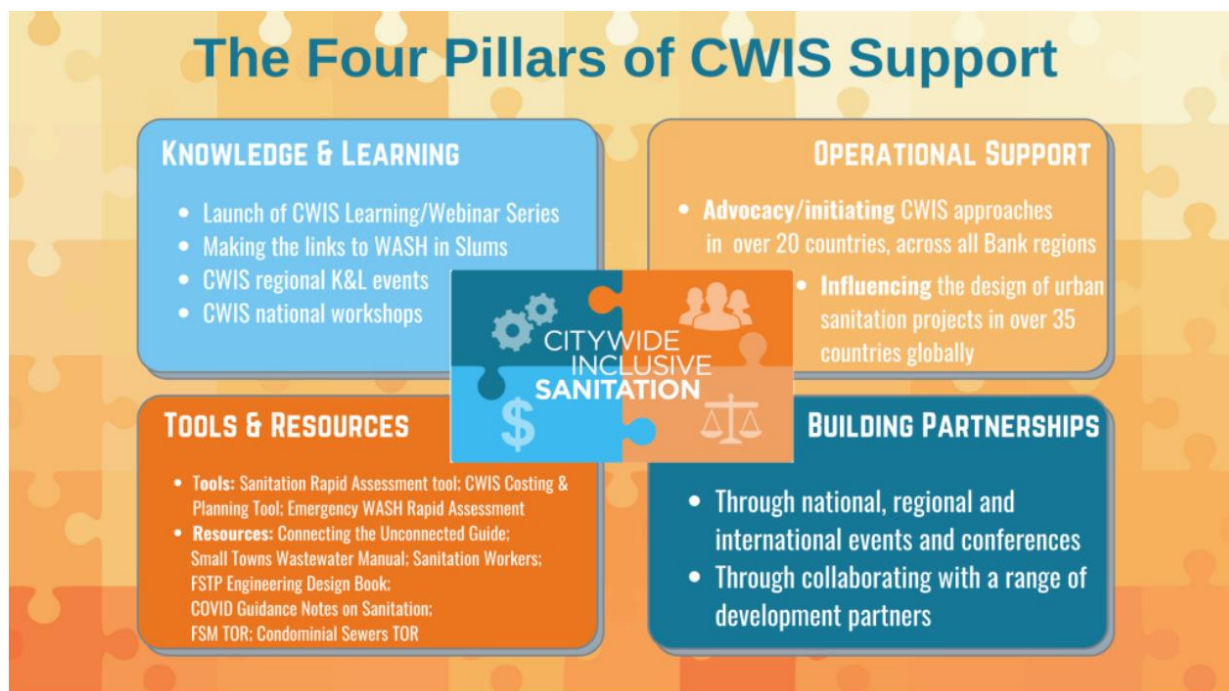
Source: Official website of Athena Infonomics. [Link to website](#)

<sup>4</sup> Source: Presentation on Wai - Citywide Inclusive Sanitation by CWAS. [Link to document](#)



## World Bank:

Together with other key development partners, the World Bank has been at the forefront of the growing CWIS movement. The Bank's CWIS initiative, funded by the Global Water Security and Sanitation Partnership (GWSP), promotes alignment of Bank's urban sanitation projects with the CWIS agenda through support to Bank teams and their government counterparts under four pillars: Knowledge and Learning; Operational Support; Tools and Resources; and Building Partnerships<sup>5</sup>.



Much of the CWIS team's work focuses on sharing urban sanitation experiences, innovations and approaches from around the world, making these accessible to Bank and government project teams in order to positively affect urban sanitation investments. To date, this support has assisted in the identification, design and implementation of sanitation interventions in over 25 countries, influencing some USD 6 billion of investments with over 14 million direct and indirect beneficiaries.

To further these Citywide Inclusive Sanitation outreach and engagement efforts, the World Bank is launching its [CWIS Web Hub](#), where tools, resources, good practice documentation and other materials are collated to further support CWIS advocacy, design and implementation.

## Asian Development Bank (ADB)

ADB is part of the group of organizations that have been on the forefront of implementing the CWIS principles. ADB has over the years increased their investments in sanitation with a focus on implementing the CWIS principles through these projects<sup>6</sup>. Apart from investing in projects, ADB has developed CWIS guidance notes under which thematic notes have been

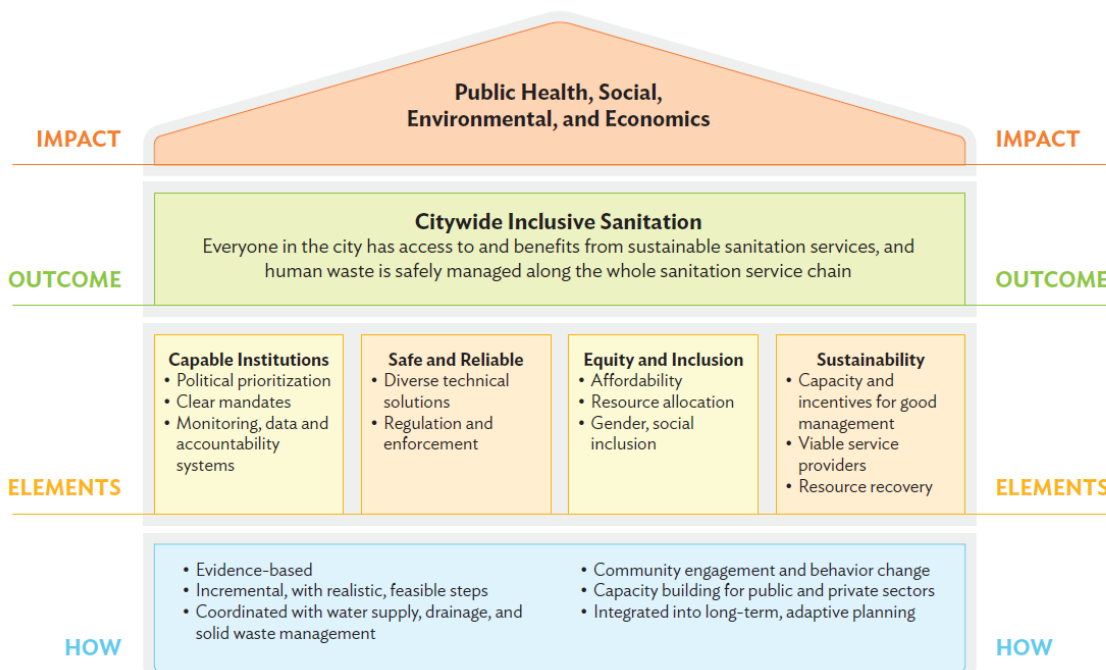
<sup>5</sup> Source: CWIS Web Hub by World bank. [Link to document](#)

<sup>6</sup> Source: Presentation on ADB and Inclusive Sanitation by Norio Saito, ADB at Online Sanitation Dialogue 2021

prepared on what is CWIS and why it is needed, Addressing Gender Equality and Social Inclusion in Urban Sanitation Projects and Inclusive Financial Mechanisms: Improving Access to Sanitation Services for Poor Households. ADB with support from BMGF have been conducting online courses on CWIS under various topics ([Link to webpage](#)).

The approach towards CWIS by ADB is that everyone in an urban area has access to and benefits from adequate and sustainable sanitation services. And all human waste is managed safely along the whole sanitation service chain. CWIS comprises four elements—capable institutions, safety and reliability, equity and inclusion, and sustainability—with associated actions to achieve the desired outcome

### Citywide Inclusive Sanitation House by ADB



Source: CWIS Guidance Note by ADB, [Link to document](#)

Since the convening for ‘Call to Action’ at Emory University in 2016, the Citywide Inclusive Sanitation (CWIS) principles have strongly resonated with a growing number of development partners as well as government and service providers across the globe. Sector partners have initiated to align their work programs with the broader CWIS principles along with influencing their government and private sector counterparts. A cumulative shift in mindsets is being gradually achieved due to the fact that CWIS principles are not prescriptive and redundant in nature but provide a general guidance on how to provide sanitation service delivery taking a flexible, practical and inclusive approach.

### 1.3. Citywide Inclusive Sanitation in India

As mentioned in previous sections, under a BMGF funded project CWIS principles are implemented in four Indian cities of Wai (Maharashtra), Narsapur (Andhra Pradesh), Warangal (Telangana) and Trichy (Tamilnadu). Each of these model cities have been taking a unique path to overcome challenges and achieve common CWIS goals. Lessons learnt from these cities would help other cities to adopt and adapt their interventions for implementing the CWIS principles.

It also has to be recognized that Government of India's flagship program, the Swachh Bharat Mission (SBM) and the service level benching (SLB) programs also address many aspects of CWIS but these are not captured in way that actually assess or report on CWIS readiness of cities. So, using the current programs and schemes on sanitation that are being implemented by the government it is possible to assess the progress of cities with respect to the CWIS principles.

In order to do such an assessment, information at city level is required this is where the Performance Assessment Systems (PAS) which is being used by over 1000 Indian cities can be used. The key performance indicators in PAS are distinguished for service delivery outcomes (or main goals of public services) and intermediate operational outcomes that reflect the plans and reforms needed to achieve the service delivery goals.



## 2. Overview of PAS CWIS Assessment Framework

Most of the programs and schemes for sanitation focus on service delivery and its monitoring which is reported by ULBs to higher government authorities. But other aspects on optimization of resources, enabling environment, partnerships with stakeholders, policy level alignment and other such areas on the overall governance which are equally important to assess and monitor are often missed out. Also, only service delivery may not give a clear picture on sustainability in the longer term. In some way, the above mentioned aspects are integrated and followed by government but these have not been assessed in a way that one can say that a city is CWIS compliant or not.

In order to assess and monitor performance of cities with respect to the CWIS principles, it is important that there is sufficient information that is available which is reported by government. This is where, the Performance assessment system (PAS) database can be used to not only monitor the service level benchmarks but also on financial sustainability, resource management, responsibility and mandate etc.

The PAS framework was developed with an idea of creating the necessary institutional incentives at both state and local levels can be leveraged here to firstly assess cities performance and then to take informed policy level decisions. The PAS information which is now available for more than 1000 cities can be used to assess and monitor CWIS performance of cities not only at a city level but also at State level. Based on a linkage between the CWIS principles and the PAS-SLB, a PAS-CWIS framework and PAS-CWIS Index has been developed. Indicators have been developed using the base information from PAS-SLB, the indicators are then given weightage to arrive at PAS-CWIS index for each city.

The CWIS model cities by BMGF which has been demonstrated in detail in selected four cities but if the present situation needed to be reviewed at state and it will enable them to take appropriate action and also align to the national flagship programs. Hence the PAS-CWIS framework which will help in the first-hand assessment of cities is crucial in scaling up efforts for inclusive sanitation.

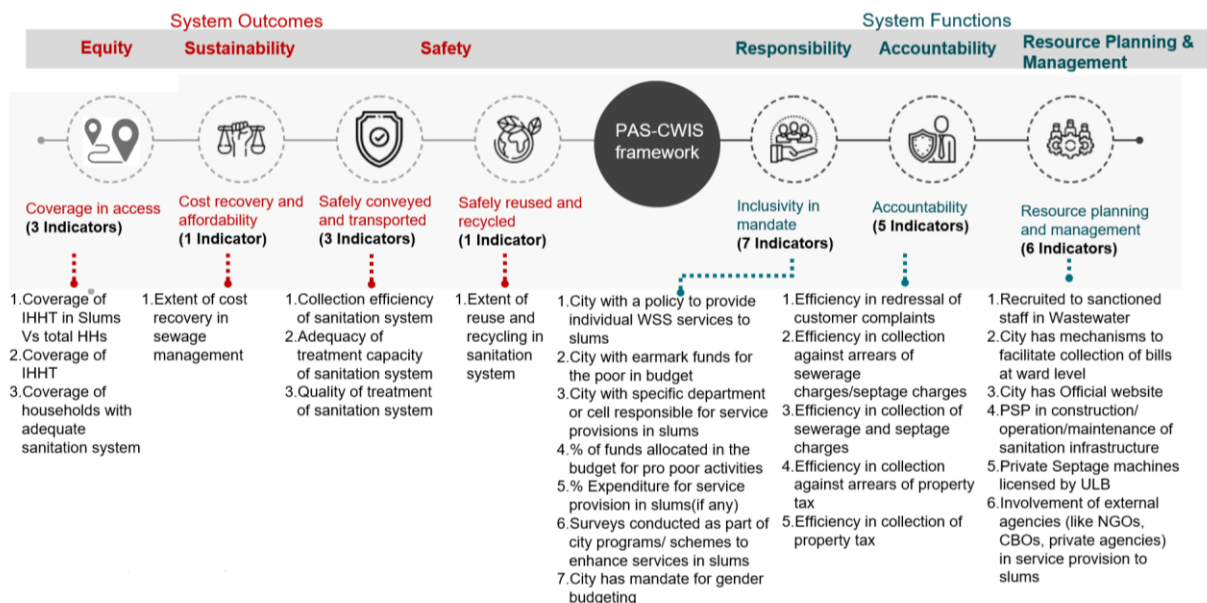
### **The PAS-CWIS Assessment Framework**

A correlation between the PAS framework which is based on service level benchmarking (SLB) and the CWIS framework was conducted. As explained in previous sections, CWIS Framework consist of three service outcomes and three system functions. These outcomes can only be achieved through a service delivery system that demonstrates the core CWIS functions of Responsibility, Accountability, and Resource Planning and Management.

Under each of the outcome, corresponding thematic areas under which PAS information which is available was plotted. Based on this, indicators from the PAS framework were derived which correspond to the CWIS framework. Some of these indicators are used directly from the PAS framework and others have been derived using direct data points from the PAS checklist. **26 PAS CWIS indicators** have been formulated.



Across the 5 focus areas of PAS and 6 San benchmarks, indicators for PAS CWIS framework have been generated. These 26 in. Using these 26 indicators, CWIS status of any Indian city can be calculated using PAS indicators on citywide assessment of sanitation service delivery including on-site sanitation, equity and governance. Refer Annexure 3 for the complete list of indicators with definitions.



## 2.1 PAS- CWIS Index

The indicators are normalized in order to make them comparable. After obtaining the **indicator value**, indicator index (IIn) is calculated using the below formula.

**Indicator Index = IIn=**

$$\frac{(\text{Indicator value} - \text{Min value of that indicator})}{(\text{Max Value of that indicator} - \text{Min value of that indicator})}$$

After obtaining the Indicator index, the **Dimension Index** is calculated for each of the **focus areas** of:

### Service Outcomes

1. Coverage in Access
2. Cost Recovery and affordability
3. Safely conveyed and transported
4. Safely reused and recycled

### System Functions

5. Inclusivity in Mandate
6. Accountability
7. Resource Planning and Management

**Dimension Index** is then calculated for each of the focus areas.

**Dimension Index (DI) =**

$$\frac{\text{Sum Indicator Indexes (IIn) of each focus area}}{\text{Number of Indicator (n)}}$$

For example=DI1= (II1+II2+II3)/3. Where, IIn-index indicator value of nth indicator

Focus Area	Total count of indicators-per focus area
1	3
2	1
3	4
4	7
5	5
6	6
<b>Total</b>	<b>26</b>

The indicators are given weightage based on the number of indicators that are there in each of the focus area based on which the PAS-CWIS Index is calculated.

**PAS CWIS Index =**

(Sum of Dimension Indexes (DI) of n indicators) \*(Weightage of respective

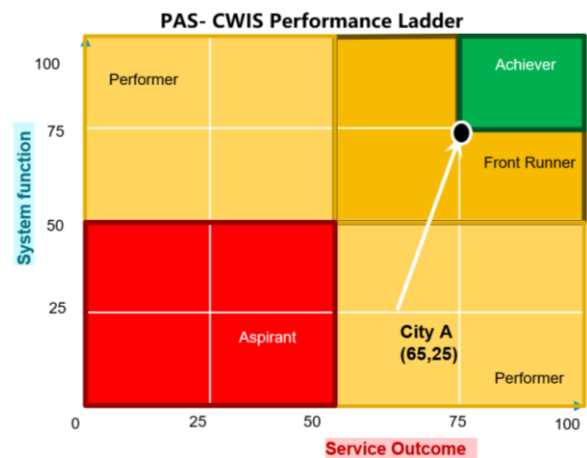
i.e. **PAS CWIS Index = (DI1\*12%) +(DI2\*4%)+(DI3\*15%)+(DI4\*27%)+(DI5\*19%)+(DI6\*23%)**

Themes	Total count of indicators-theme wise	Weightage =(Focus area wise count of indicators/Total Indicators)
1	3	=3/26= 12%
2	1	4%
3	4	15%
4	7	27%
5	5	19%
6	6	23%
Total	26	

Thus for each city, a PAS-CWIS index can be generated based on the 26 indicators. Through this index performance across cities and states can be done.

## 2.2 PAS- CWIS Performance Ladder

It is important to plot the cities performance on system function and service outcome in order to identify where they are placed in comparison to other cities. Such plotting would also help the city government identify areas of improvement. The PAS-CWIS performance ladder is designed achieve such performance assessment. Using the PAS-CWIS Index, PAS-CWIS sanitation ladder tool is developed which will help to monitor performance of cities for across service outcome and system function.



The PAS-CWIS ladder is based on the functions of the two sectors Service outcome along x-axis against System Function along y-axis. The graph is divided into 5 assessment titles based on the median score obtained from the performance of the total number of cities in the state.

	Performance	System Function	Service Outcome
Q1	Achiever	>75%	>75%
Q2	Front Runner	< or =75% and >50%	< or =75% and >50%
Q3	Performer	<Or = 50%	<Or = 50%
Q4	Aspirant	<50%	<50%

The logic of assessment titles is to provide cities with indicators to evaluate their own performance and facilitate peer to peer learning along with ranking on the basis of their performance. In addition to assessment and ranking, the framework intends to help cities understand their current status regarding citywide inclusive sanitation and make efforts to improve their efforts in specific sectors. Based on the overall scores, the cities shall be given the corresponding titles.

The ladder can help cities make informed decisions, eg: while a city may have attained high service outcomes but this progress might not be sustainable unless system functions are improved.



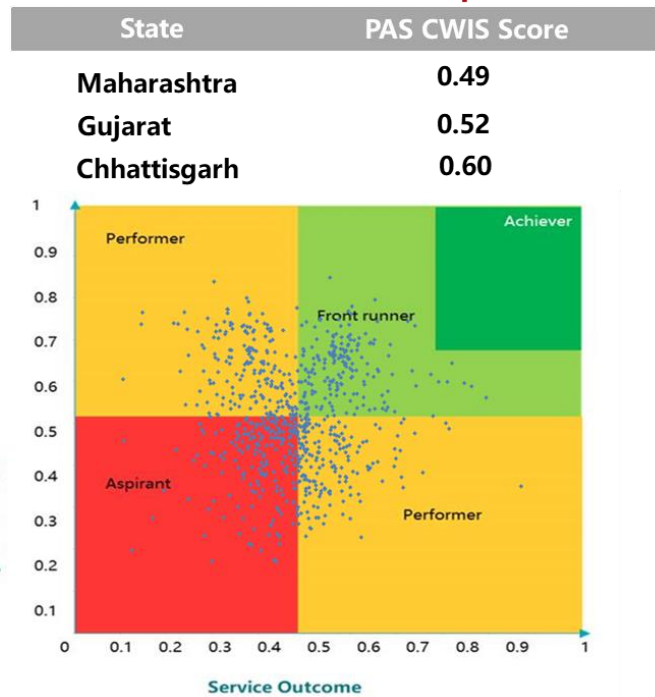
### 2.3 Application of the PAS-CWIS ladder for three Indian States

Using the PAS databased for two Indian states of Gujarat, Maharashtra and Chhattisgarh the PAS-CWIS Index of all cities in these three states were plotted on the PAS-CWIS Ladder.

An interactive dashboard has also been designed to view results as per user preference. It provides aggregate value at state level as well as specific performance snapshots of cities. It helps the viewer to view their performance theme wise at state and local level quickly.

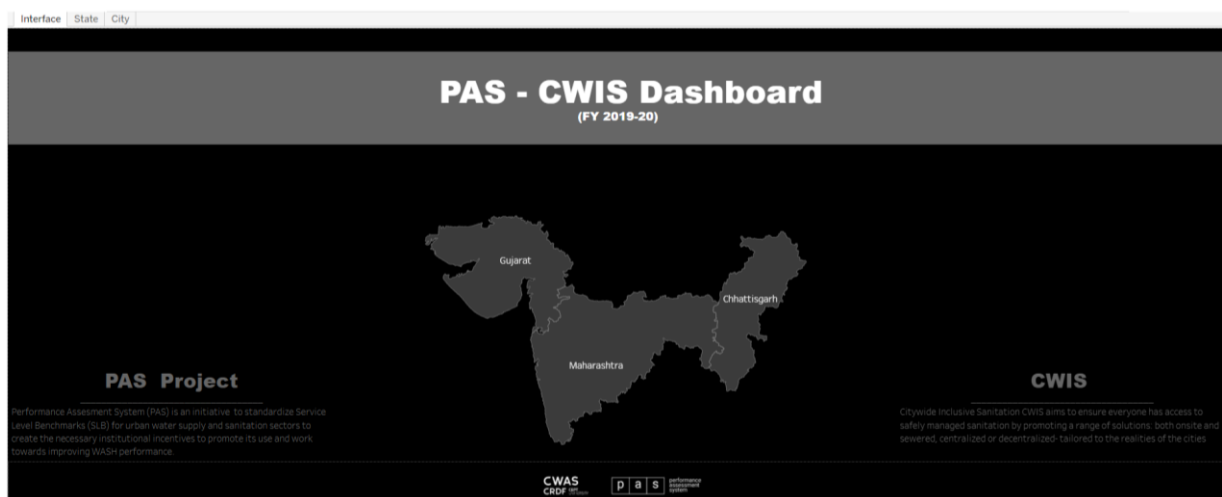
Based on the ladder positioning a city can plan for improvement in system function sector or service outcome sector accordingly.

#### PAS CWIS State wise Overall performance

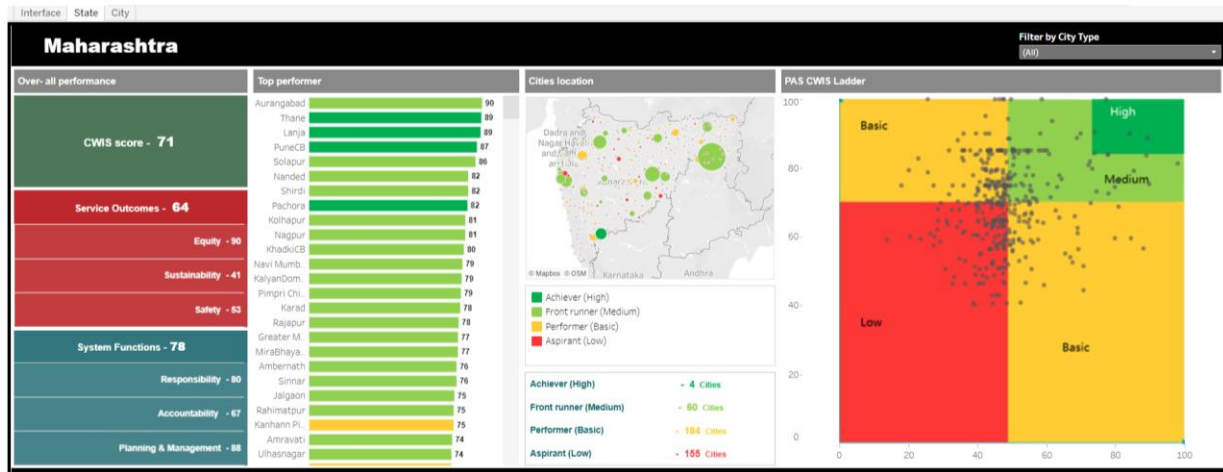


### 2.4 PAS CWIS Performance Dashboard

The PAS CWIS Sanitation dashboard is an interactive dashboard providing insights and a wide range of technical analysis. They provide aggregate value at state level as well as specific performance snapshots of cities. It helps the viewer to view their performance theme wise at state and local level quickly.



The PAS CWIS Dashboard is divided into 2 parts: State level and city level, depicting Sanitation performance across all two levels. Under the state performance dashboard the state can gauge the overall sectoral performance and thematic performance.



Overall PAS CWIS score of the state is indicated as an average of sectoral scores. The sanitation ladder provides an insight on the performance of the state based on concentration of cities in the performance quadrant. State level advocacy on policies and programs could be done.

The city level analysis is available in the City tab. The dashboard provides a quick analysis of the overall PAS CWIS performance of the city, sectoral performance, thematic performance and indicator level performance of the city. Report cards could be generated to assess performance and to identify areas that require improvement.



The analysis at varied levels helps city gain an overall picture of performance as well as grassroots level picture. This helps for a greater assimilation of performance to drive better decision making for improvement in PAS CWIS performance.

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## 2.5 Applicability and Scale up of the PAS-CWIS Ladder

The PAS CWIS dashboard is an attempt to provide a user-friendly experience to a variety of stakeholders City authorities, funders, academicians, researchers to gain an insight on the existing status of inclusive and sustainable sanitation in Indian cities. It also provides a road map to improve city performance in Inclusive sanitation using CWIS principle through the PAS-CWIS Sanitation ladder.

The assessments using the PAS- CWAS performance ladder provides the State and city governments with an easy-understood advocacy tool that can be used to support decision-making on inclusive urban sanitation planning and programming. Broader policy level advocacy for supporting the CWIS principles would be possible. Certification of cities will help government attract external funding from philanthropic organizations and CSR which have focus on aspects of inclusivity. The PAS- CWIS assessment could also help cities improve their performance for ESG.

# Annexures

## Annexure I: Seven CWIS Principles

### SEVEN PRINCIPLES FOR CITYWIDE INCLUSIVE SANITATION

- 1. EVERYONE IN AN URBAN AREA, INCLUDING THE URBAN POOR, BENEFITS FROM EQUITABLE SAFE SANITATION SERVICES**

  - Everyone. Legal mandate is based on urban planning principles, without restrictions based on land tenure, hardware type, or local political boundaries; Transient, permanent, worker, and downstream communities' needs are met;
  - Equitable. Prices reflect service levels, affordability; availability and legitimacy of public finance is decoupled from hardware type or on-plot/off-plot siting; subsidized finance prioritized for the poorest;
  - Safe. Users' waste is safely managed and all communities are free of others' waste.
- 2. GENDER AND SOCIAL EQUITY ARE DESIGNED INTO PLANNING, MANAGEMENT, MONITORING**

  - Those who are marginalized, without formal land tenure or access to sewers, women, and children are intentionally engaged in decision making systems;
  - Users' and workers' needs, values, constraints, and voices are understood and incorporated into hiring, service delivery planning, and service delivery;
  - Workers' health and rights are protected by occupational health and safety measures.
- 3. HUMAN WASTE IS SAFELY MANAGED ALONG SANITATION SERVICE CHAIN, STARTING WITH CONTAINMENT**

  - Infrastructure and service delivery systems protect workers, households, communities at all stages from containment through disposal/reuse;
  - Containment and connections are managed to protect groundwater and environmental health;
  - Hardware investments and service models position resource recovery as a tool to incentivize safe waste management.
- 4. AUTHORITIES OPERATE WITH A CLEAR, INCLUSIVE MANDATE, PERFORMANCE TARGETS, RESOURCES, AND ACCOUNTABILITY**

  - Mandate for urban sanitation is clearly defined, assigned to service authority(ies) without overlap, explicitly prioritizes serving the poor, and is reflected in the authority's key performance indicators;
  - Processes exist to establish performance levels and set progressive targets for achieving them;
  - Service authority performance targets are monitored and tied to regulatory penalties and incentives;
  - Financing and revenue opportunities are designed to sufficiently support implementation of mandates.
- 5. AUTHORITIES DEPLOY A RANGE OF FUNDING, BUSINESS, AND HARDWARE APPROACHES—SEWERED / NON-SEWERED—TO MEET GOALS**

  - Sanitation service mandates are technology agnostic; planning and investments support incremental and integrated systems that prioritize resources for achieving safety, equity, and sustainability;
  - Service authorities may deploy a range of business models to reach different customer segments within a city efficiently and equitably.
- 6. COMPREHENSIVE LONG-TERM PLANNING FOSTERS DEMAND FOR INNOVATION AND IS INFORMED BY ANALYSIS OF NEEDS/RESOURCES**

  - Investment and finance decisions are based on activity-based accounting of costs and revenues and inclusive performance targets;
  - Investment and planning are informed by climate change, water, and energy constraints;
  - Performance incentives foster service authority capacity, responsiveness, and innovation;
  - Investment planning and prioritization processes are documented, transparent, engage relevant stakeholders;
  - Processes are coordinated with those of other urban investments and services, e.g. neighborhood upgrades, water services, storm water and greywater management, roads.
- 7. POLITICAL WILL AND ACCOUNTABILITY SYSTEMS INCENTIVIZE SERVICE IMPROVEMENTS IN PLANNING, CAPACITY, AND LEADERSHIP**

  - Commitment to safe inclusive urban sanitation is demonstrated at multiple levels of government;
  - Budget allocations and expenditures are transparent and set based on equity and performance accountability;
  - Accountability systems such as performance regulators are designed to be autonomous and independent and to empower marginalized voices;
  - Service authorities have support from politicians for effective institutional reforms, like tariff-setting and enforcement.

Source: Policy brief on Citywide Inclusive Sanitation: A Public Service Approach for Reaching the Urban Sanitation SDGs by Alyse Schrecongost and others. Bill & Melinda Gates Foundation, Seattle, WA, United States. [Link to document](#)

## Annexure 2: CWIS Framework

\*Public Goods are the elements of sanitation service delivery system characterized by market failures –technically, non-excludability and non-rivalry. Practically, they are the elements of sanitation service that are outside of individuals’ direct private interests and can include safe on-site containment, network connections, transporting waste to safe disposal, and other activities required for long-term protection of water, land and public health along value chain.

<b>Service Outcomes</b>	<b>EQUITY</b> ‘Fairness’ in distribution and prioritization of services, service quality, service prices, and use of public finance/subsidies	<b>SAFETY</b> All human waste is managed to protect public goods* for customers, workers and all communities	<b>SUSTAINABILITY</b> Management of revenues and resources--financial, labor, energy, water--sustain performance
<b>System Functions</b>	<b>RESPONSIBILITY</b> Authority or authorities execute a clear mandate to ensure inclusive, safe sanitation services	<b>ACCOUNTABILITY</b> Performance is monitored and managed with transparency, data, incentives and penalties	<b>RESOURCE PLANNING &amp; MANAGEMENT</b> Resources are managed to support implementation of mandate and achieve goals across time / space

Source: Policy brief on Citywide Inclusive Sanitation: A Public Service Approach for Reaching the Urban Sanitation SDGs by Alyse Schrecongost and others. Bill & Melinda Gates Foundation, Seattle, WA, United States. [Link to document](#)

## Annexure I: List of 26 Indicators

### Service Outcome Indicators

<b>Theme 1</b>	<b>Coverage in Access</b> (Access to sanitation facilities for poor and non-poor in a city)		
<b>Indicators</b>	<b>Description</b>	<b>Method of scoring</b>	<b>Remarks</b>
<b>Coverage of IHHT in Slums Vs total HHs</b>	Ratio of (Coverage of individual toilets in slums/Coverage of IHHT)	<b>Ratio method</b> If ratio > or = 1, then city gets full marks If ratio is <1, then city gets proportional marks out of 1	In case city has no slums, the city will automatically get full marks since there is no further scope for improvement.

<b>Coverage of IHHT</b>	Total number of properties with access to individual toilets as a percentage of total number of properties in the city.	<b>Benchmarking Method</b> (Benchmark =100%) if (Coverage of IHHT / Benchmark) > or = 1, then city gets full marks if (Coverage of IHHT / Benchmark) <1, then city gets proportional values out of 1	IHHT= Individual Household Toilet
<b>Coverage of households with adequate sanitation system</b>	Percentage of households with individual toilets connected with adequate sanitation systems (sewer network/ septic tank / double pit system) to total households in the city	<b>Benchmarking Method</b> (Benchmark =100%) if (Coverage of households with adequate sanitation system/ Benchmark) > or = 1, then city gets full marks if (Coverage of households with adequate sanitation system/ Benchmark)<1, then city gets proportional values out of 1	Included from San Benchmark in PAS

<b>Theme 2</b>	<b>Cost recovery and Affordability</b> (Subsidisation of sanitation services, and Authorities deploy range of approaches for funding, to meet cost recovery)		
<b>Indicators</b>	<b>Description</b>	<b>Method of scoring</b>	<b>Remarks</b>
Extent of cost recovery in sewage management	Percentage of total operating revenues from sewerage related charges to total operating expenses	<b>Benchmarking Method</b> (Benchmark =100%) if (Extent of cost recovery in sewage management/ Benchmark) > or = 1, then city gets full marks if (Extent of cost recovery in sewage management/ Benchmark) <1, then city gets proportional values out of 1	For cities with cost recovery of sewage management greater than 100%, the city gets full marks i.e. 1

Theme 3	Safely conveyed and treated (Human waste is safely managed along sanitation service chain)		
Indicators	Description	Method of scoring	Remarks
Adequacy of treatment capacity of sanitation system	Weighted average of adequacy of treatment plant capacity available for each sanitation system, weighted by share of households dependent on each sanitation system.	<b>Benchmarking Method</b> (Benchmark =100%) if (Adequacy of treatment capacity of sanitation system/ Benchmark) > or = 1, then city gets full marks if (Adequacy of treatment capacity of sanitation system/ Benchmark) <1, then city gets proportional values out of 1	Sanitation systems include sewer network/ septic tank / twin pit system
Quality of treatment of sanitation system	Weighted average of quality of treatment of each sanitation system, weighted by share of households dependent on each sanitation system.	<b>Benchmarking Method</b> (Benchmark =100%) if (Quality of treatment of sanitation system/ Benchmark) > or = 1, then city gets full marks if (Quality of treatment of sanitation system/ Benchmark) <1, then city gets proportional values out of 1	For cities with cost recovery of sewage management greater than 100%, the city gets full marks i.e. 1
Collection efficiency of sanitation system	Weighted average of collection efficiency of each sanitation system, weighted by share of households dependent on each sanitation system.	<b>Benchmarking Method</b> (Benchmark =100%) if (Collection efficiency of sanitation system/ Benchmark) > or = 1, then city gets full marks if (Collection efficiency of sanitation system/ Benchmark) <1, then city gets proportional values out of 1	For cities with Efficiency in collection of sewerage charges greater than 90%, the city gets full marks i.e. 1

Theme 3	Safely Reused and recycled (Human waste is safely disposed along sanitation service chain)		
Indicators	Description	Method of scoring	Remarks
Extent of reuse and recycling in sanitation system	Weighted average of extent of reuse of treated wastewater and sludge after adequate treatment as a percentage of wastewater and sludge received at the treatment plant, weighted by share of household dependent on each sanitation system	<b>Benchmarking Method</b> (Benchmark =20%) if (Extent of reuse and recycling in sanitation system/ Benchmark) > or = 1, then city gets full marks if (Extent of reuse and recycling in sanitation system/ Benchmark) <1, then city gets proportional values out of 1	Sanitation systems include sewer network/ septic tank / twin pit system

### System Function indicators

Theme	Inclusivity in mandate (There is a Policy for inclusive access to Service delivery, Institutional facility for slum service provision, financial allocation for affordability in sanitation service, & Resource planning for inclusive service)		
Indicators	Description	Method of scoring	Remarks
Does the ULB have a policy to provide individual WSS services to slums?	if the ULB has policy or provides individual water supply and sanitation services to slum settlements	<b>Binary marking</b> If Yes=1, if No=0	PAS data points last collected in 2017.
Does the ULB earmark funds for the poor in budgetary allocation?	if the ULB allocates funds in the municipal budget for slum settlements.	<b>Binary marking</b> If Yes=1, if No=0	
Does the ULB have a specific department or cell (e.g. UCD) responsible for service provisions in slums?	whether the ULB has a dedicated department responsible for services to slum settlements	<b>Binary marking</b> If Yes=1, if No=0	
% of funds allocated in the budget for pro poor activities	Percentage of funds allocated in the budget for activities related to slum settlements.	Maximum range value- (Max - 30%)	
% expenditure for service provision in slums to total ULB expenditure	Percentage of expenditure incurred in service provision to slum settlements	Maximum range value- (Max - 35%)	



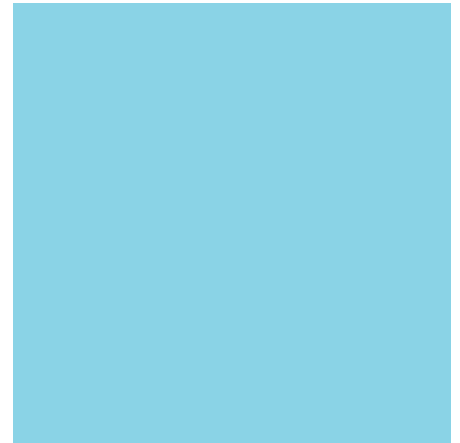
Have any surveys been conducted as part of programs/ schemes to enhance services in slums?	if any surveys have been carried out by city to assess services to slums.	<b>Binary marking</b> If Yes=1, if No=0	
Is there any mandate for gender budgeting	whether the ULB has a mandate for gender budgeting	<b>Binary marking</b> If Yes=1, if No=0	Datapoint collected from State Team CWAS

<b>Theme</b>	<b>Accountability</b> (Accountability system is embedded in sanitation system for service improvement in planning, capacity and leadership)		
<b>Indicators</b>	<b>Description</b>	<b>Method of scoring</b>	<b>Remarks</b>
Efficiency in redressal of customer complaints	Total number of waste water related complaints redressed within time as stipulated in service charter of the ULB, as a percentage of the total number of waste water related complaints received in the year	<b>Benchmarking Method</b> (Benchmark =80%) if (Efficiency in redressal of customer complaints/ Benchmark) > or = 1, then city gets full marks if (Efficiency in redressal of customer complaints/ Benchmark)<1, then city gets proportional values out of 1	Arrear: money that is owed and should have been paid earlier to ULB in lieu of the sanitation services
Efficiency in collection against arrears	Ratio of (Collection against arrears/ Arrears at the beginning of current year)	<b>Ratio method</b> If ratio = 1, then city gets full marks If ratio is <1, then city gets proportional marks out of 1	
Efficiency in collection of sewerage charges	Percentage of current year revenues collected from waste water related taxes and charges as a percentage of total billed amounts (for waste water)	<b>Benchmarking Method</b> (Benchmark =90%) if (percentage Efficiency in collection of sewerage charges/	For cities with Efficiency in collection of sewerage charges greater than 90%, the

		Benchmark) > or = 1, then city gets full marks if (percentage Efficiency in collection of sewerage charges/ Benchmark) <1, then city gets proportional values out of 1	city gets full marks i.e. 1
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Theme	Resources planning and management (City manages Human resources, participates in Collaborative Practises and plans using Data management system)		
Indicators	Description	Method of scoring	Remarks
Recruited to sanctioned staff in WW (%)	Percentage of recruited to sanctioned staff in the city for wastewater	<b>Ratio method</b> If ratio = 1, then city gets full marks If ratio is <1, then city gets proportional marks out of 1	
Does the ULB have various mechanisms to facilitate collection of bills at ward level like e-kiosks+ civic centres+etc?	if the ULB has mechanisms to facilitate bill collection like e-kiosks, etc.	<b>Binary marking</b> If Yes=1, if No=0	
Does the ULB have official council website	An official website of the ULB exists	<b>Binary marking</b> If Yes=1, if No=0	
PSP in construction/operation/maintenance of sanitation infrastructure	Presence of private sector participation in construction, operation and maintenance of STP	<b>Binary marking</b> If Yes=1, if No=0	
Involvement of external agencies (like NGOs, CBOs, private agencies) in service provision to slums	Other agencies like NGOs and other local organizations are involved in service provision	<b>Binary marking</b> If Yes=1, if No=0	

<p>Private Septage machines licensed by ULB</p>	<p>whether machines owned by private agencies are used by ULB to empty septic tanks.</p>	<p><b>Binary marking</b> If Yes=1, if No=0</p>	
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## CENTER FOR WATER AND SANITATION

The Center for Water and Sanitation (CWAS) is a part of CEPT Research and Development Foundation (CRDF) at CEPT University. CWAS undertakes action-research, implementation support, capacity building and advocacy in the field of urban water and sanitation. Acting as a thought catalyst and facilitator, CWAS works closely with all levels of governments - national, state and local to support them in delivering water and sanitation services in an efficient, effective and equitable manner.