



# 15 years of Performance Assessment of Water and Sanitation Services in India

**UNC Water and Health  
Conference 2024**

**October 16, 2024**

**Dhruv Bhavsar**

**With support from team at the  
Center for Water and Sanitation, CRDF,  
CEPT University**

**CWAS** CENTER  
FOR WATER  
AND SANITATION

**CRDF** CEPT RESEARCH  
AND DEVELOPMENT  
FOUNDATION

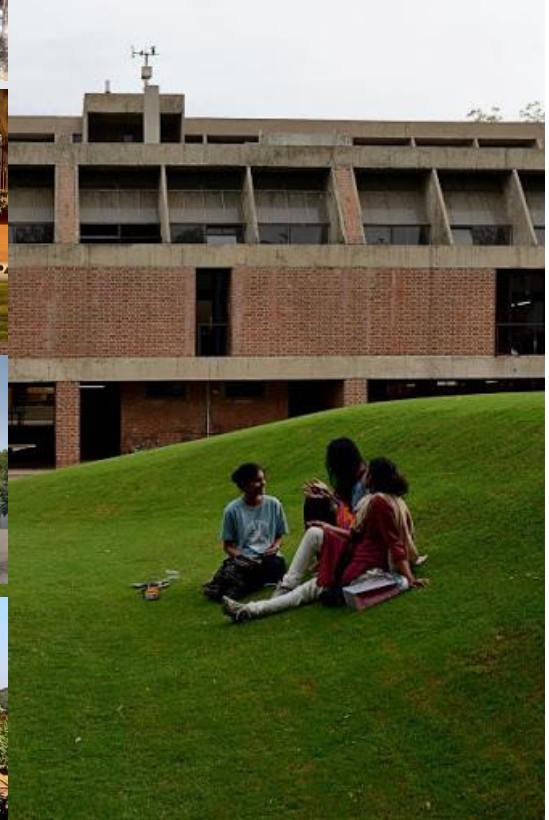
**CEPT  
UNIVERSITY**

# About CWAS, CEPT University

**CEPT University's core focus is human habitat.** Located in Ahmedabad, its education, research and advisory activities strive to improve the lives of people in India's villages, towns and cities.

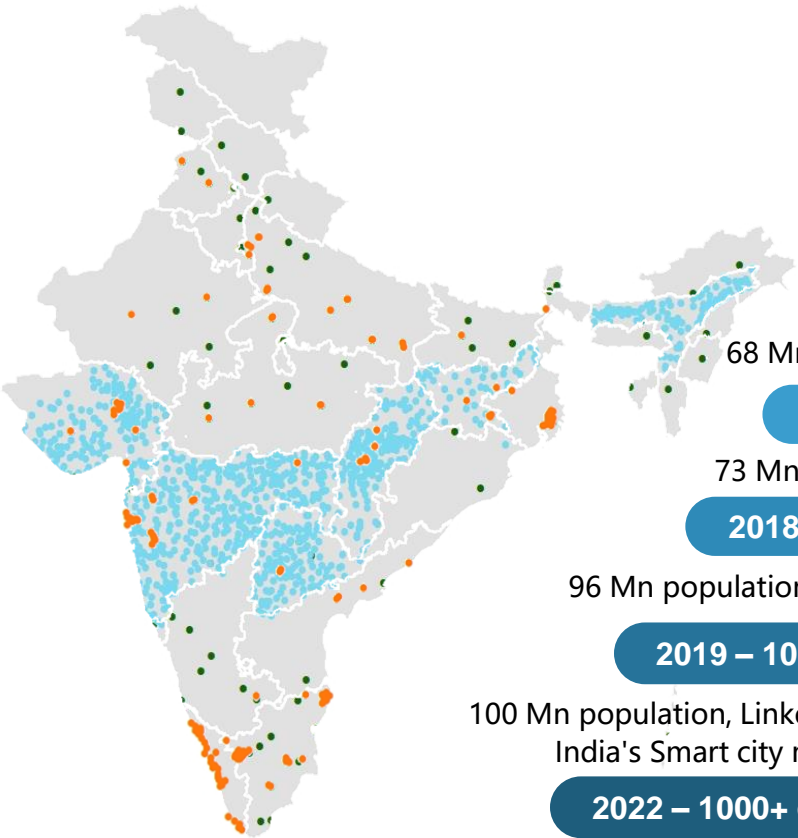
**CEPT Research and Development Foundation (CRDF)** is established by the University to manage their research and capacity building activities. The Center for Water and Sanitation (CWAS) is among the first center to be established.

**CWAS began its work in 2009** with focus on improving water and sanitation services in India. It carries out activities related to action research and capacity building – working closely with city and state governments in Maharashtra, enabling them to improve delivery of services. CWAS also has information on 800+ cities' WASH services delivery. Its recent focus is on making cities and villages water secure and climate resilient





# Our 15 years journey on Benchmarking Practices to Support Performance Monitoring.. From Two States of India to National level...



2009 – 416 cities

68 Mn population, 2 states

2015 – 463 cities

73 Mn population

2018 – 900+ cities

96 Mn population, 6 states

2019 – 1000+ cities

100 Mn population, Linked with India's Smart city mission

2022 – 1000+ cities

Aligned with City Finance Portal of Government of India

From paper based disaggregated data....

....to IT enabled information system



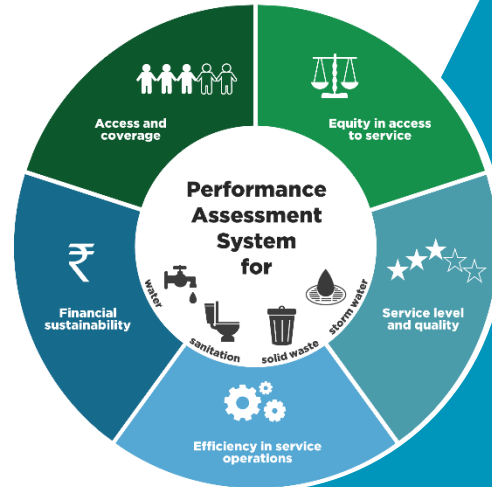
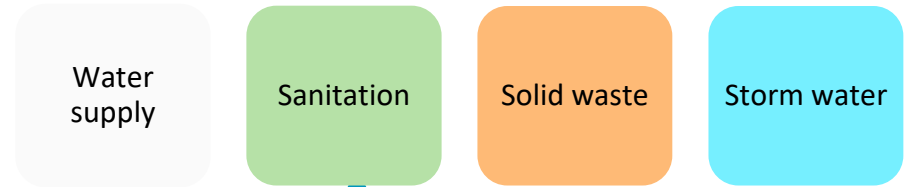
# Performance Assessment System – Aligning with the Service Level Benchmarking (SLB) for urban water and sanitation in India

## NATIONALLY OWNED

National Technical Partner for SLB  
Rolled out with State Governments

## E-PLATFORM: Framework suited to local context

Online module  
Inbuilt validation checks  
Scientific system for calculating indicators  
Comparative dashboards



5 Themes

...to match with goals /targets of delivery of water supply and sanitation services

32 Key Performance Indicators

... for performance assessment

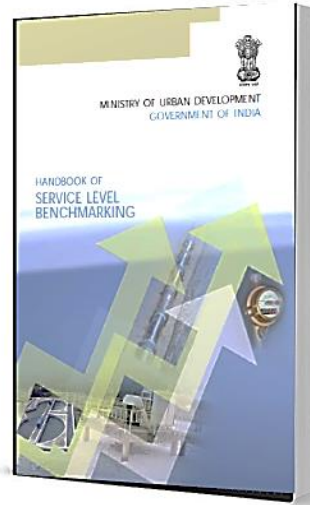
100 Local Action Indicators

...drilled down indicators for actions for performance improvement

# Government ownership and commitment is a key to sustain

## Working with all levels of government:

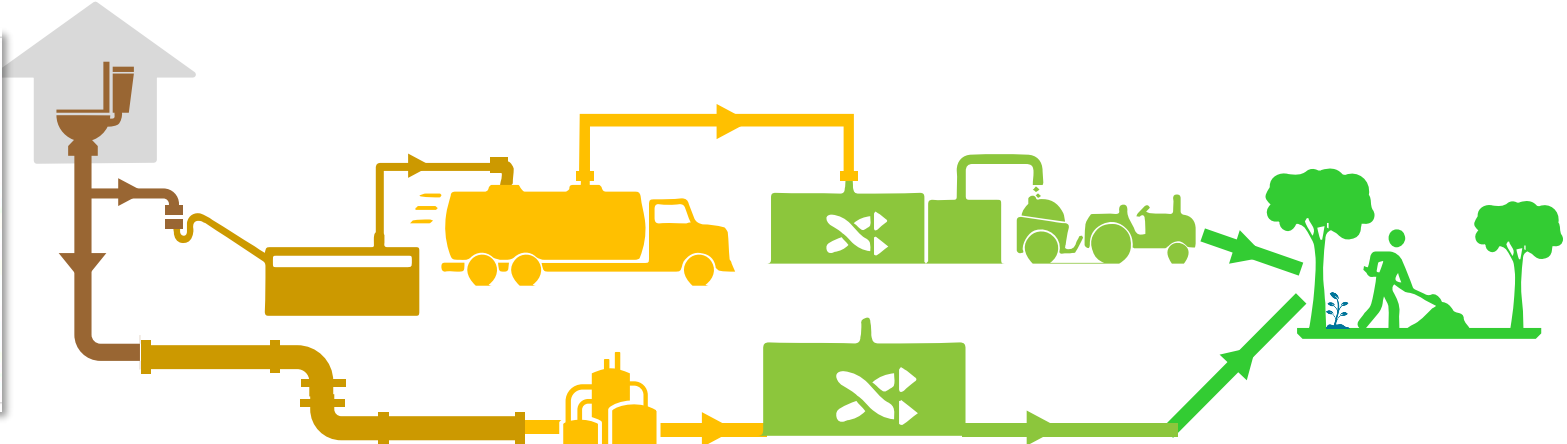
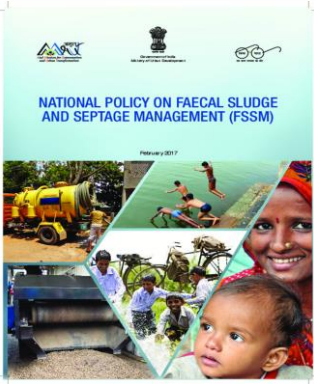
- a) the **central government** which funds various programmes, suggested key service outcomes,
- b) **state governments** regulate urban local bodies, and they both fund, and monitor services,
- c) **city level** where the urban local governments have the responsibility to both build infrastructure and deliver services as well as collect taxes and charges related to water and sanitation.



## PAS is aligned to national service level benchmark initiative

- MoU with the Government of India for Regional Workshops for training across India
- MoUs with State governments for support to state and city governments for assembling and publishing their data through the PAS module
- Results published in State Gazette
- Support to various users and regulatory agencies of the government

# Adapting SLB Framework for the Indian context – FSM Benchmarking



Indicators for onsite sanitation systems

**1. Coverage of toilets**

**2. Coverage of adequate sanitation systems (Septic tanks + sewer connections)**

**3. Collection efficiency of sanitation system (Desludging+ sewerage + grey water)**

**4. Adequacy of treatment capacity of sanitation system (FSTP + STP)**

**5. Quality of treatment of sanitation system (FSTP+STP)**

**6. Extent of reuse and recycling in sanitation system (FSTP + STP)**

Indicators to track equity in service delivery

Coverage of toilets, water supply connections, door to door solid waste collection in slums

Coverage of sewerage connections in slums

# Digital systems are needed for achieving scale

Information exists with cities...

Journey from a paper based to online system



Industry-academic partnership



...but paper based and fragmented  
– not collated, analyzed or reported

Digital platform working at scale

- Online module for self reporting
- Inbuilt validation checks
- Scientific system for calculating indicators
- Comparative dashboards
- Local language supported

Maintained in isolation and usually not shared





# Gradually built ULB capacity

## Reduced time for annual assessments

with partners: Urban management Centre and All Indi Institute of Local Self-governments

City visits and workshops in years 1,2,3



Self assessment on online modules by year 5



- ✓ State Govt. support
- ✓ Trainings and capacity building workshops
- ✓ Hand holding support
- ✓ Translation in local languages



2008-09

2009-10

2010-11

2011-12

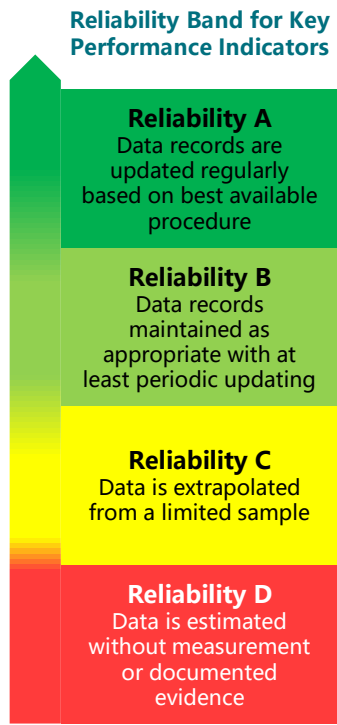
2012-13

	2009				2010				2011				2012				2013								
	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	
Round 1(2008-09)																									
Round 2 (2009-10 and 2010-11)																									
Round 3 (2011-12)																									
Round 4 (2012-13)																									



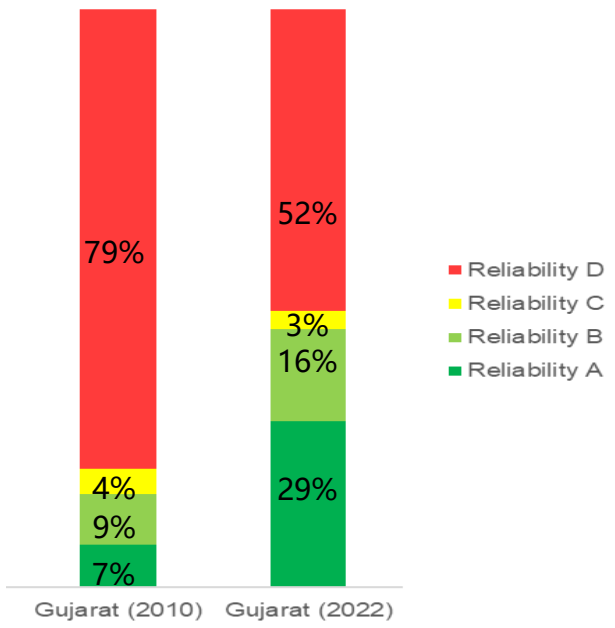
# Gradual but consistent strengthening of data quality

## Systematic Approach for Data Reliability Assessment



- Automatically calculates the reliability for an indicator with a set of questions that address the conditions in each reliability band as listed in the SLB Handbook.
- Ensures a transparent and consistent comparison across all cities.
- It also informs cities about the quality of their existing data systems, and encourages cities/state to focus on data system strengthening.
- Ideally, water and sanitation information should be linked to municipal operations and property tax database

Over the past decade reliability of data is seen to be increasing



# Data Systems Strengthening to improve data quality

- Provision in the PAS portal for uploading supporting data

## PERFORMANCE ASSESSMENT SYSTEM (PAS) PROJECT BesaPipla

General Information

Water Supply

Sewerage and Drainage

Solid Waste Management

ULB's Undertaking

### General Information: FY 2022-2023

#### Upload Documents

\* Please ensure all fields are completed accurately, and attach the necessary files.

1. Total population of city (Present Year) \*

Select document

Choose File No file chosen

2. Total households in city (Present Year) \*

Select document

Choose File No file chosen

3. To  
 Select document  
 Property tax survey revision report- Property tax database  
 Any other population survey if available for eg. IHHL survey etc  
 Demand and Collection Book (DCB) register  
 Certified copy of report generated from IWBP/ MAINET/ e-governance portal

Choose File No file chosen

Please ensure that the number of properties exceeds the number of households in cities. Exclude open plots and abandoned properties from the total count.

Digital Property Assessment Form –  
Integrating water and sanitation data points in  
property tax assessment form

## XXXX Municipal Council

District-XXXX, State-XXXXX

Property Assessment Form (Financial Year 2023-24)

Inspection details

Old property number

Particulars

(1) Property details as per records

(2) Property details as per spot verification

Owner's Name

Owner's Name

Owner's Name

Name of Occupant

Name of Occupant

Name of Occupant

Address of the Property

Address of the Property

Address of the Property

Mailing address

Mailing address

Mailing address

Description of property

Description of property

Description of property

Area (sq.m)

Area (sq.m)

Area (sq.m)

Ward Number

Ward Number

Ward Number

Census Number

Census Number

Census Number

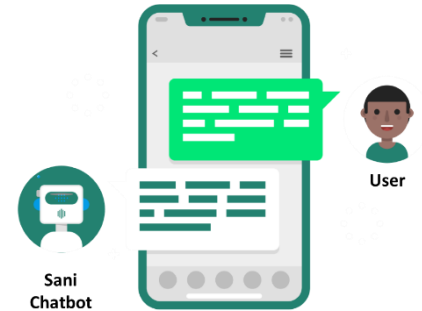
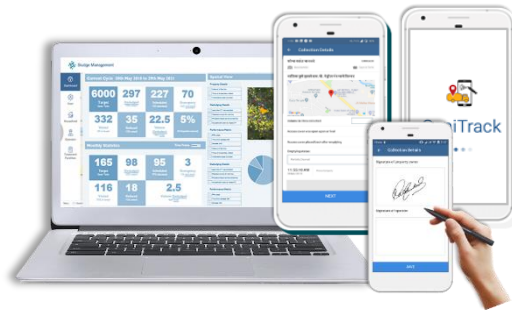
# Monitoring needs at local level for sanitation



SaniTab

SaniTrack

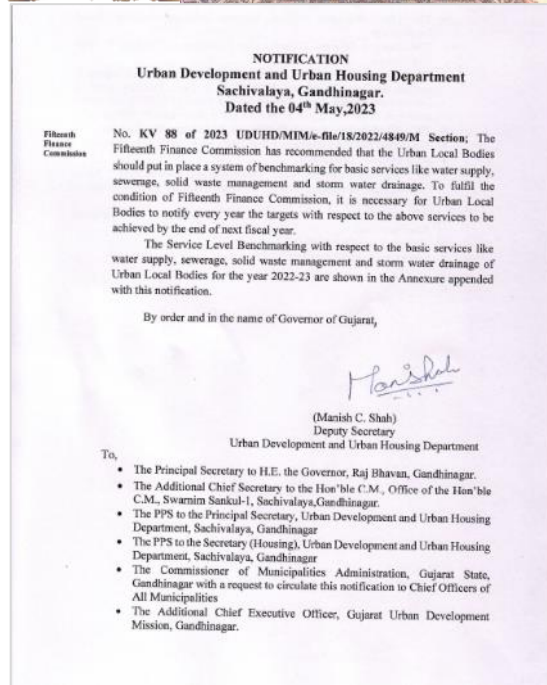
SaniChatBot



# Financial incentives for sustaining PAS - Institutionalized through intergovernmental fund transfers



- The 13th, 14th and 15th Finance Commission of the national government endorsed operationalizing of SLB Process. It linked national government grants to cities to service level benchmarks
- State Governments notify by the end of a fiscal year the service level benchmarks and targets and inform the Ministry of Housing and Urban Affairs



**13<sup>th</sup> FC:**  
(FY 2010-15)  
**USD 2.8**  
**Billion**

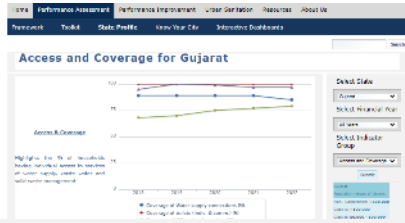
**14<sup>th</sup> FC:**  
(FY 2015- 20)  
**USD 10.9**  
**Billion**

**15<sup>th</sup> FC:**  
(FY 2021-26)  
**USD 15.1**  
**Billion**



# Dashboards for different user groups, and enable time series comparisons across cities

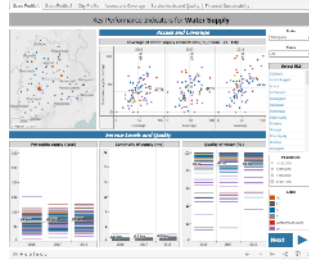
- Time series comparisons across
- Review the year wise improvement of the ULB using [know your city](#) tab
- State can assess thematic performance on [state profile](#) tab.
- Identify areas for improvement- using [interactive dashboards](#)



**State profile:** State can assess thematic performance at state and city level

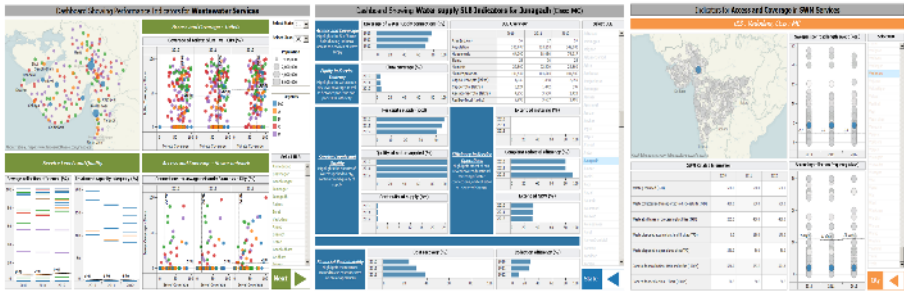


Customized dashboard

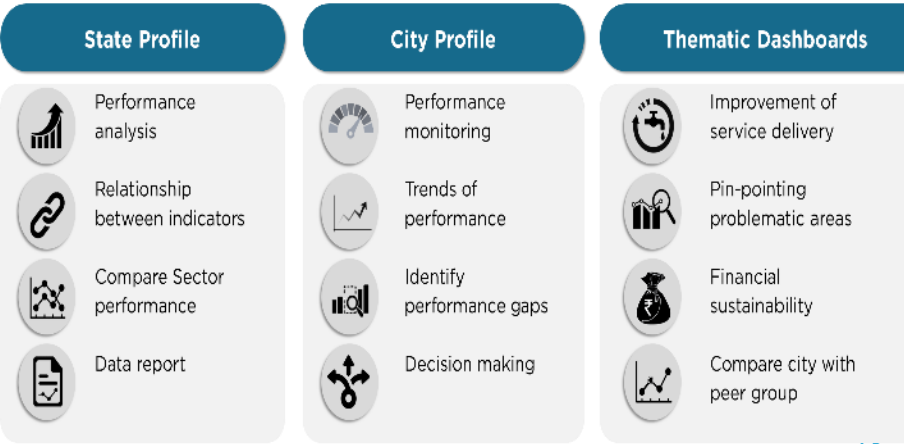


Interactive dashboard

**Know your city and Compare Your city :** city can compare itself with another city based on its respective class or district



Steps to interact with data at city level



# Wide range of users – Towards data driven governance



## GOVERNMENT AGENCIES

City/State governments, SFCs for policy making, assessments for improvement plans, reporting



## FINANCIAL INSTITUTIONS

ADB, World Bank - information for project identification, selection and formulation



## REGULATORS

CAG, State Technical Boards - To assess regulatory compliance



## RESEARCHERS

Academicians, students of planning or technology colleges



## CONSULTANTS

For consulting assignments in preparation of Vision documents, City Development Plans, City Sanitation Plans

## Research papers journals



### Performance Assessment System for Evidence-based Decision Making in Water and Sanitation Services: Implementation Experience and Lessons Learned

Abstract: This paper reports on the implementation of the Performance Assessment System (PAS) in the context of the Water and Sanitation Services (WSS) in the city of Pune, India. The PAS is a tool for assessing the performance of WSS providers and is based on a set of indicators that cover the entire WSS value chain, from service delivery to customer satisfaction. The PAS is a data-driven tool that provides a clear and concise overview of the performance of WSS providers and is used for decision-making and for identifying areas for improvement.

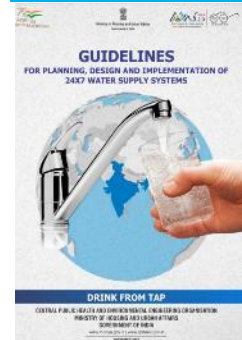
**KEYWORDS:** Performance Assessment System (PAS), Evidence-based Decision Making, Water and Sanitation Services (WSS), Implementation Experience, Lessons Learned.

## International reports



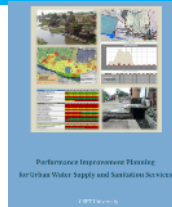
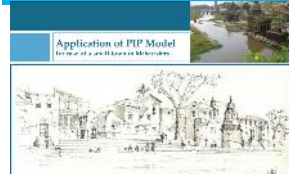
SEWAH Sustainable Extension for Water and Health City water compendium, Making cities water positive, 2022

## Government reports

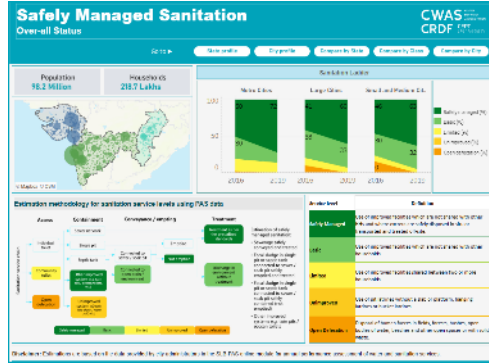


Guidelines for planning, design and implementation of 24x7 water supply systems

## Performance improvement plans and decision making tools



# Enable information to be used for a variety of city level assessments

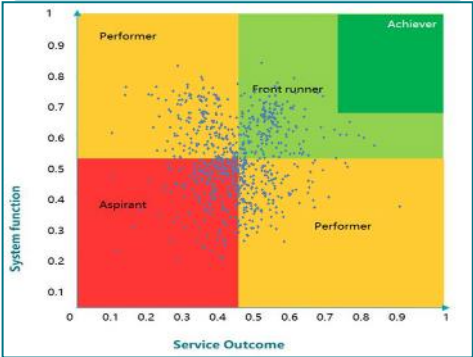


Monitoring safely managed services (SDG 6.2)

ESG assessment for cities



PAS-CWIS performance ladder



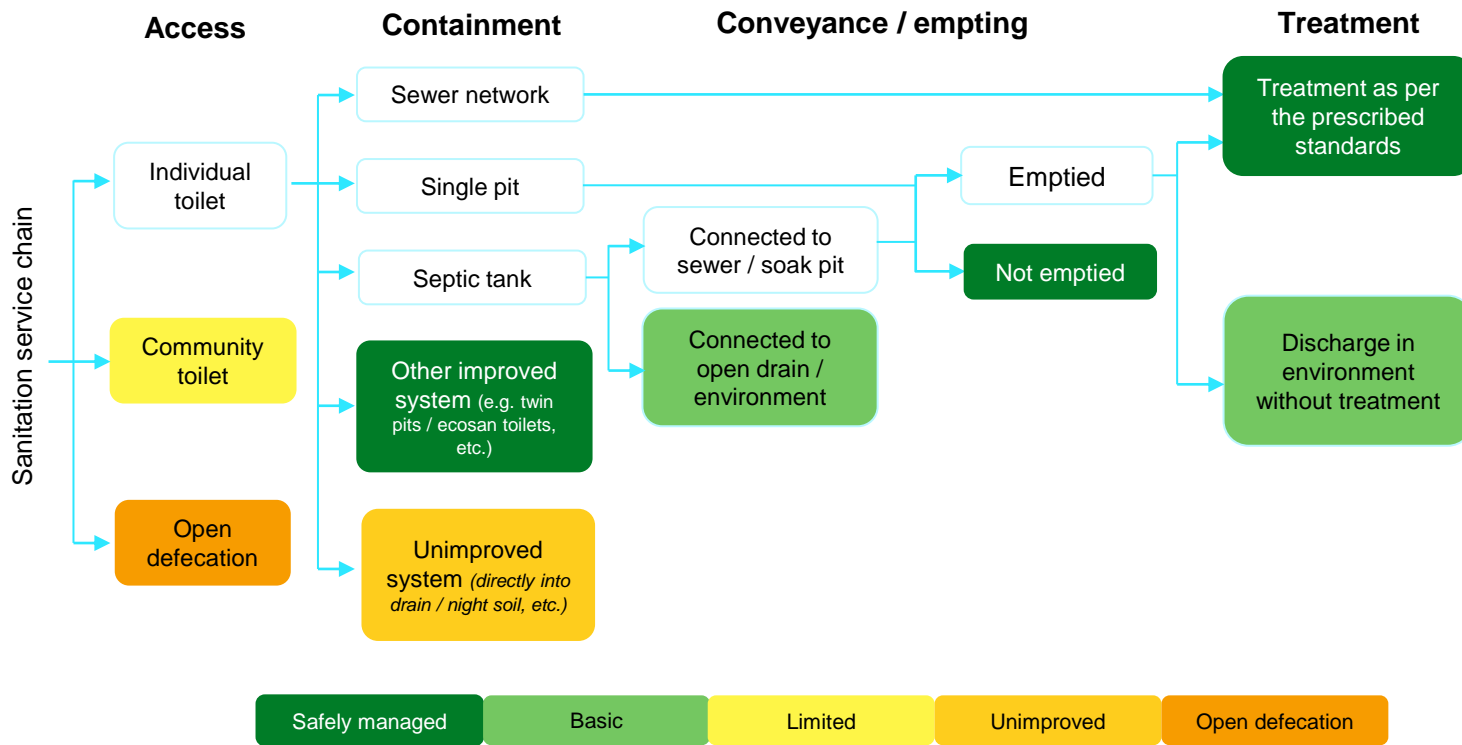
Credit worthiness of cities



Assessment of water governance



# Methodology for Safely managed sanitation services using PAS data

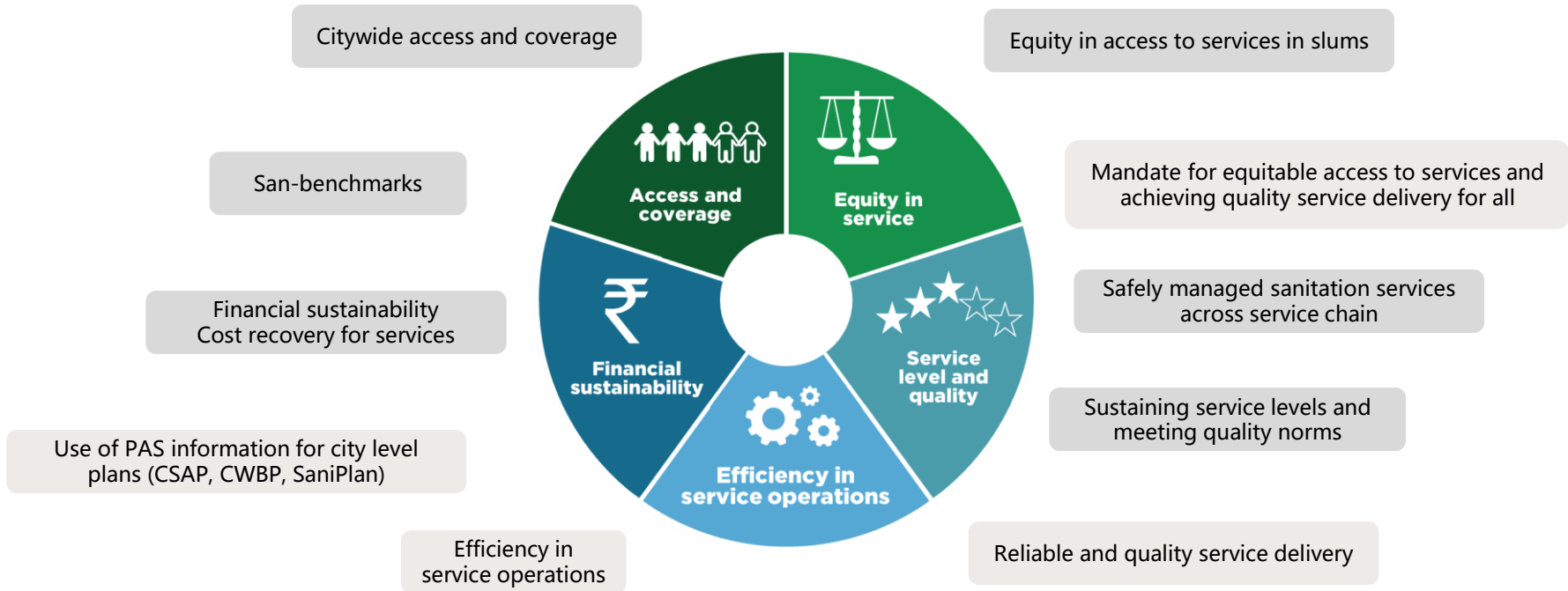


## Estimation of safely managed sanitation:

- Sewerage safely conveyed and treated
- Fecal sludge in single pit or septic tank connected to sewer / soak pit safely emptied and treated
- Fecal sludge in single pit or septic tank connected to sewer / soak pit safely contained (not emptied)
- Other improved systems e.g. twin pits / ecosan toilets



# PAS framework capturing key CWIS elements



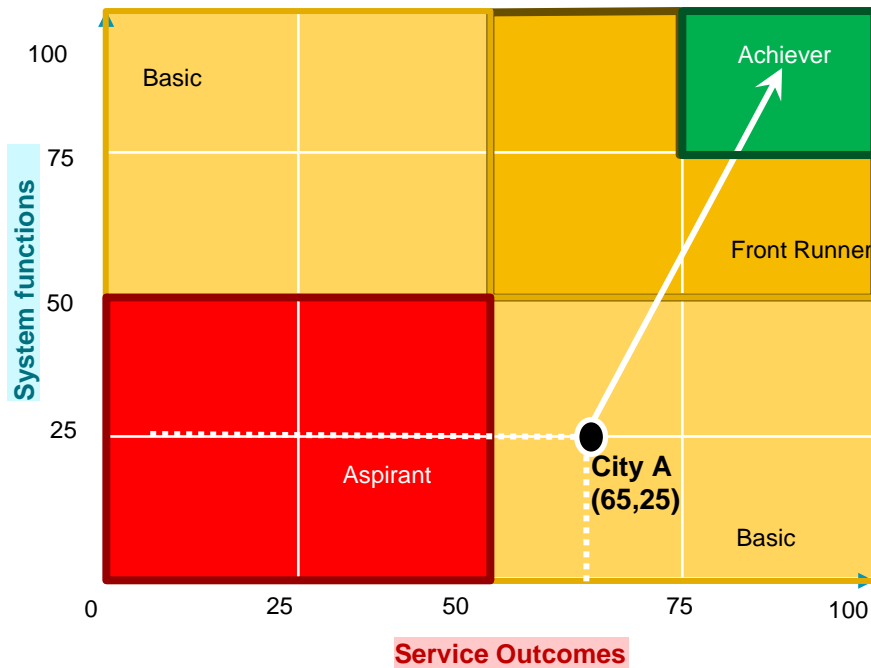
# PAS framework capturing key CWIS elements



# Monitoring CWIS at scale

## Tracking performance on service outcomes v/s system functions using PAS information

PAS- CWIS Performance quadrants



Performance quadrant assessment as an advocacy tool to support decision making for achieving CWIS goals

- Developing city/state level sector reform plans
- Developing sectoral investment plan – resource planning and mobilization
- Thematic service level improvement plan based on the quadrant scores

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

# What set PAS apart?

## Inclusive

- Indicators include onsite systems
- Indicators on equity in service
- Available in local languages

## Data reliability

- Standardized system to report on quality and reliability of indicators based on source of data
- Inbuilt validation checks

## Financial sustainability

- Indicators on Financial sustainability for cost recovery, collection efficiency etc.

## Government ownership and responsibility

- Work at scale annually – not a one off pilot!
- Self assessment portal – information reported by officers from city governments
- Indicators on human resources, complaint redressal and resource planning and management

## Assessing safe and sustainable services across the full service chain

- Monitor service provision rather than just infrastructure - Efficiency in service operations , service level and quality



# Achieving scale in India for Sanitation Monitoring – Since 2009, sustained and growing

No Pilots or projects... operate at Scale

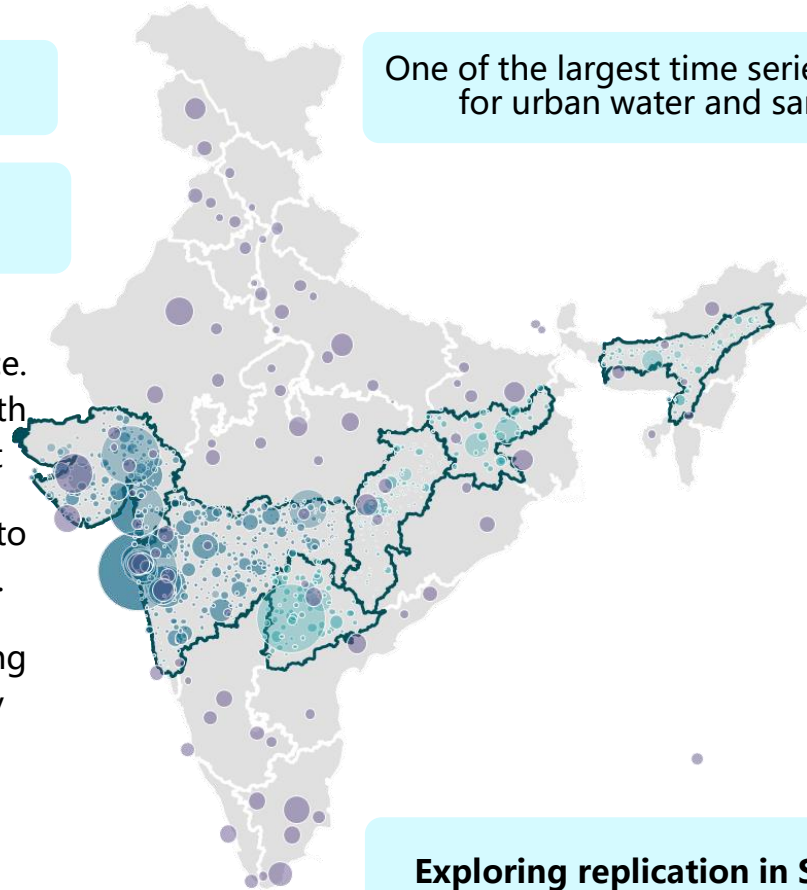
One of the largest time series databases for urban water and sanitation

Mainstreamed by working with all three tiers of Governments

- Scaling up benchmarking activities require patience. It takes time for consultative process with utilities/service providers for them to see value in it
- In a developing country context, it is necessary to have adequate funding for benchmarking activities.
- Government ownership is crucial. Linking benchmarking with financial incentives is necessary
- Need to have a versatile approach for varied uses

Exploring PAS-Climate linkages

Exploring replication in South Asia



# Our Partners



**Ministry of Housing  
and Urban Affairs**  
Government of India



**Smart City**  
MISSION TRANSFORM-NATION



Government of  
Maharashtra



सत्यमेव जयते  
ગુજરાત સરકાર



झारखण्ड सरकार

অসম চৰকাৰ



GOVERNMENT OF ASSAM



**TATA** CONSULTANCY SERVICES



# Thank you

pas@15

To know more visit us at :

<https://cwas.org.in/>

**Global South  
Academic Conclave  
WASH and Climate 2025**  
21st – 23rd February 2025, Ahmedabad



## About us

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.

**CWAS** CENTER FOR WATER AND SANITATION

**CRDF** CEPT RESEARCH AND DEVELOPMENT FOUNDATION

**CEPT UNIVERSITY**

