



# PAS-SLB in the context of SDG 6

Center for Water and Sanitation  
CEPT University

# SLB-PAS at CEPT

- Investments in “infrastructure” or “service delivery?”
- In 2009, a major **research grant** from Bill and Melinda Gates Foundation was made to CEPT University for developing a **Performance Assessment System (PAS)**
- It was implemented through **Government of Gujarat (UDD) and Government of Maharashtra (UD and WSSD)** with support from UMC and AILSG
- In 2013, Ministry of Urban Development, Government of India, designated CEPT as National Technical Support center for Service Level Benchmark and suggested to the state governments to use the PAS portal of SLB
- Over the years, PAS work has extended to other states – Chhattisgarh, Telangana, Jharkhand and Assam.

[www.pas.org.in](http://www.pas.org.in)



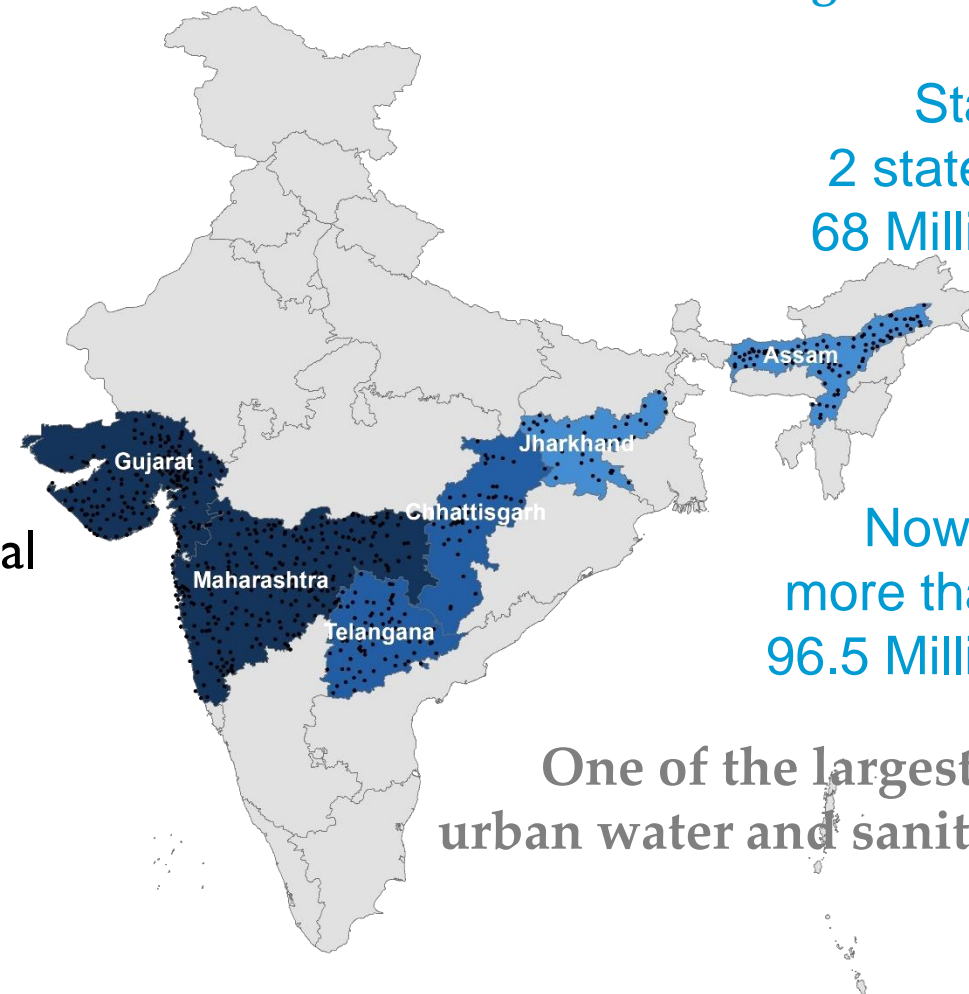
Water Supply  
Services



Wastewater  
Management



Solid waste  
Management

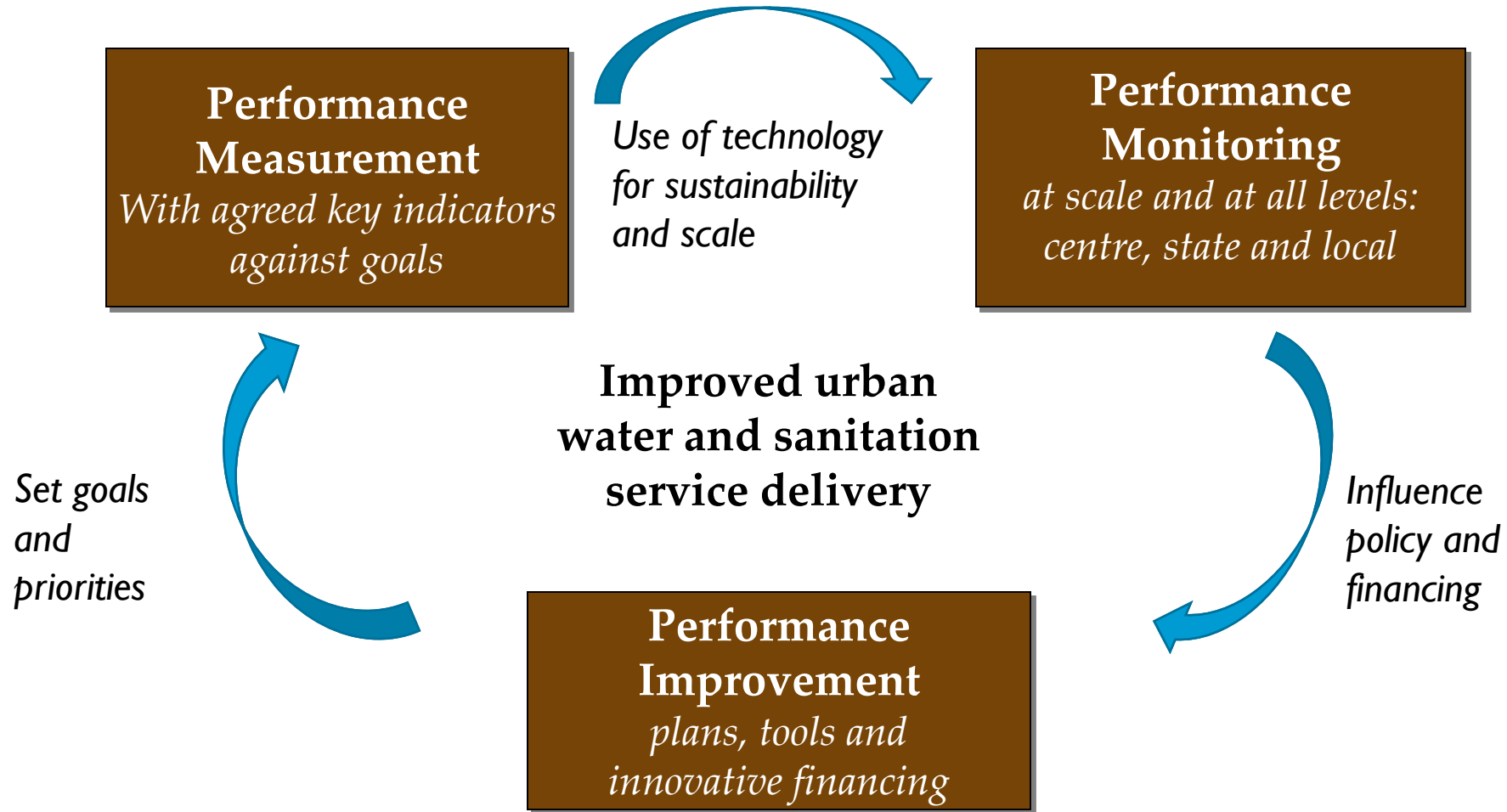


Started with  
2 states, 416 Cities  
68 Million population

Now **6 states**,  
more than **900 cities**  
96.5 Million population

One of the largest databases for  
urban water and sanitation globally

# PAS Approach – moving to a virtuous cycle

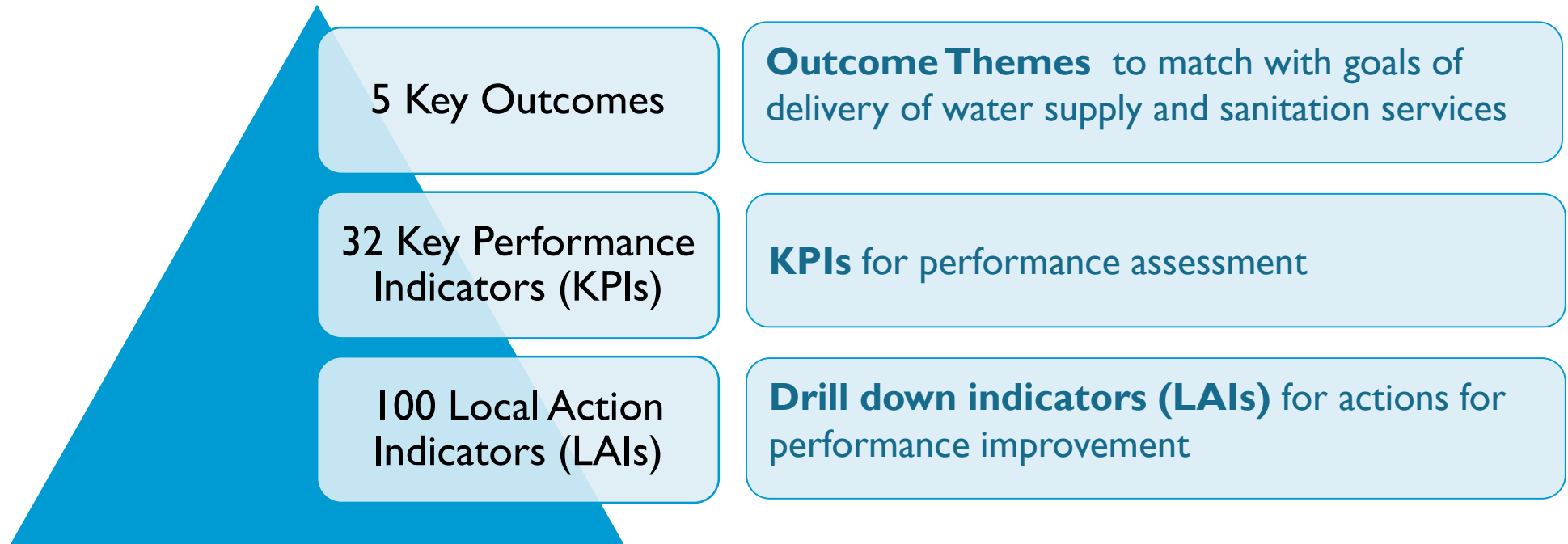


**Measure and monitor performance to reward and learn from success and demonstrate results**

# PAS-SLB Framework

Aligned with the Government of India Initiative, Service Level Benchmarks (SLB)

In addition, it captures performance of **onsite sanitation** and **equity related indicators**



## 5 Key Outcome Themes

Access and coverage

Service levels and quality

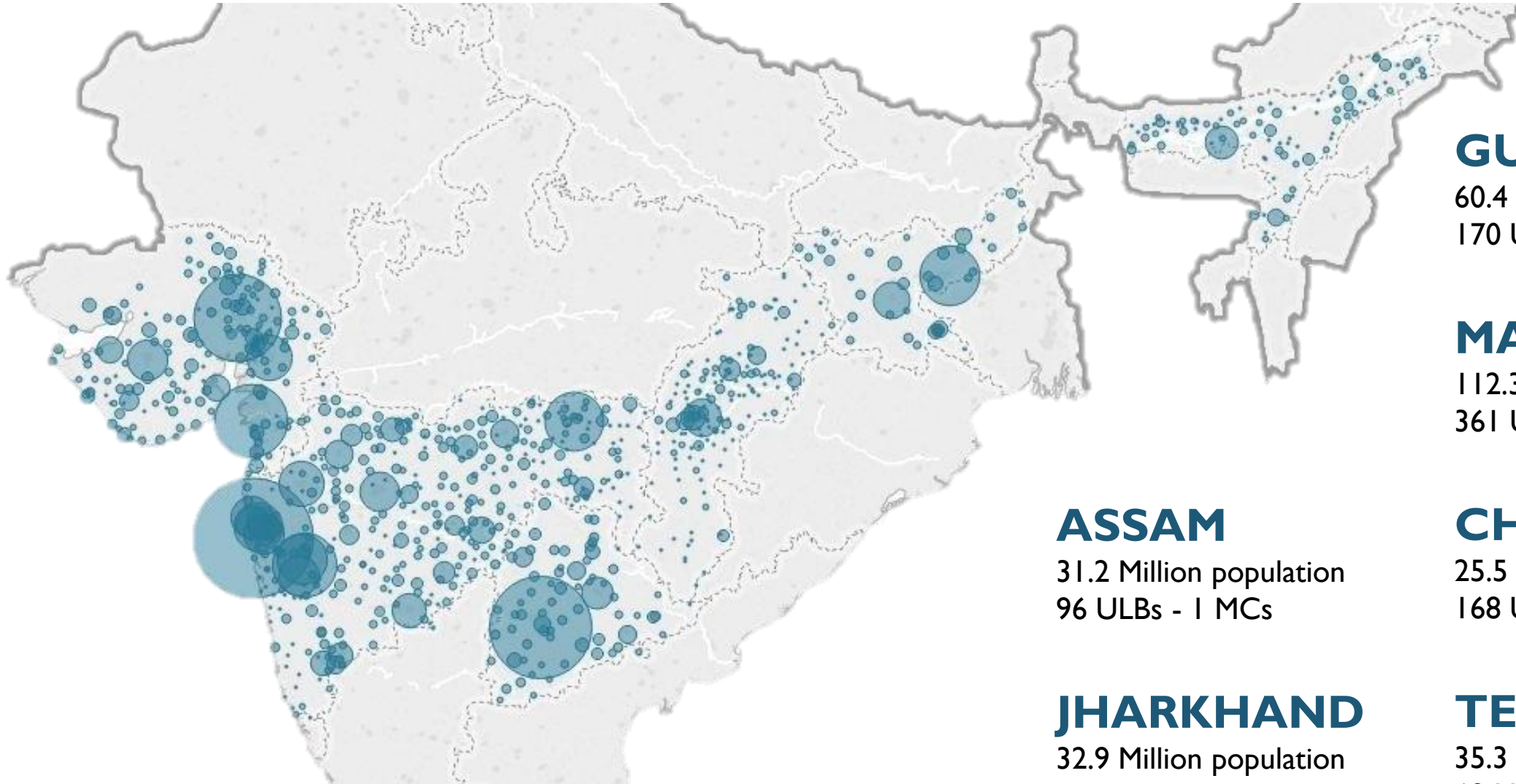
Financial sustainability

Efficiency in service operations

Equity in service delivery



# Six states in India | 900+ ULBs



## GUJARAT

60.4 Million population  
170 ULBs - 8 MCs

## MAHARASHTRA

112.3 Million population  
361 ULBs - 26 MCs

## ASSAM

31.2 Million population  
96 ULBs - 1 MCs

## CHHATTISGARH

25.5 Million population  
168 ULBs - 12 MCs

## JHARKHAND

32.9 Million population  
43 ULBs - 6 MCs

## TELANGANA

35.3 Million population  
69 ULBs - 6 MCs

Source: SLB-PAS (2015-16), Urban Local body

# Service Provision

## Gujarat Chhattisgarh Telangana

ULB provides Water supply, Sanitation and SWM services in the cities

## Maharashtra

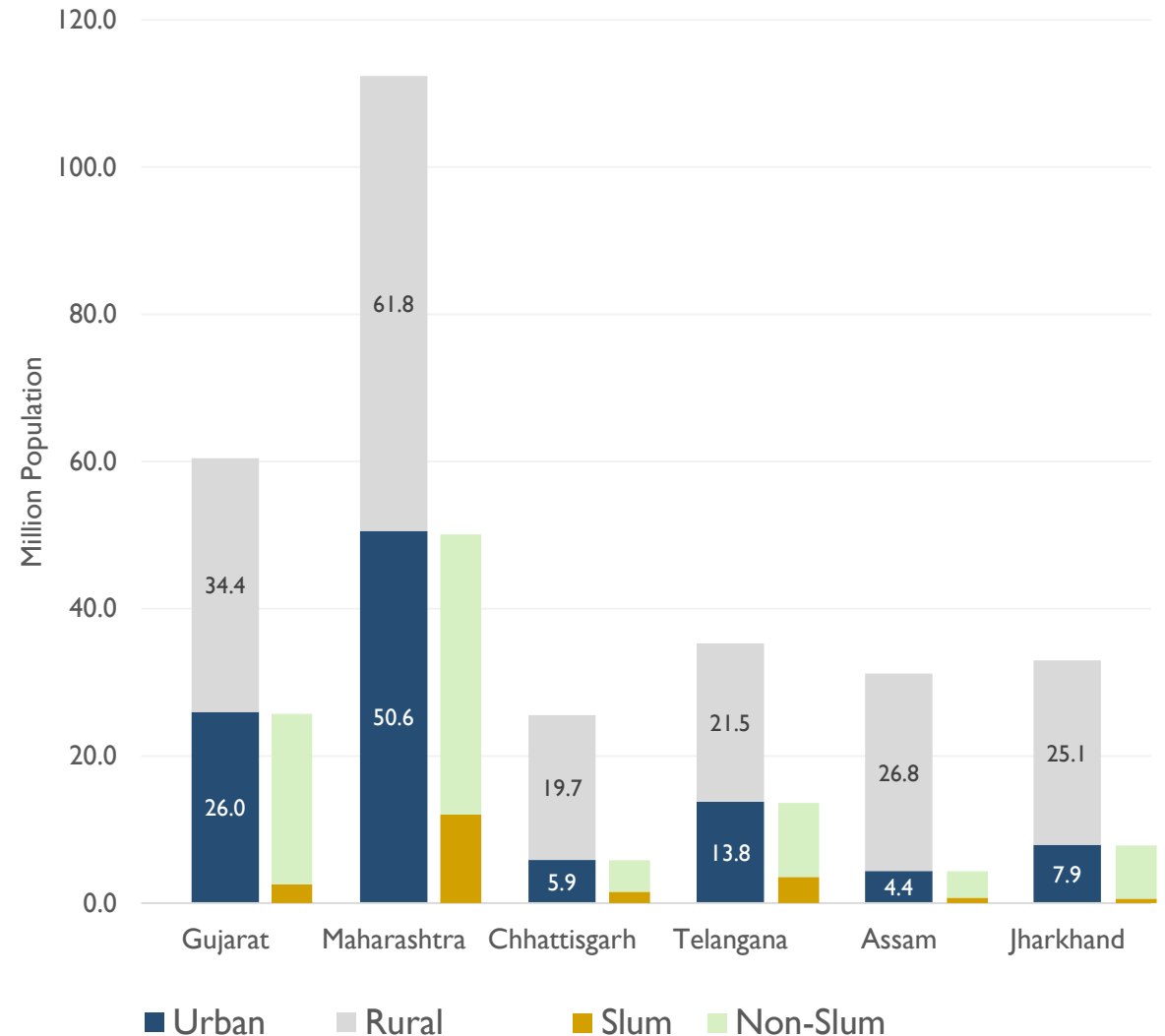
Water supply services is provided by ULBs in most of the cities and in some cities by Maharashtra Jeevan Pradhikaran (MJP) and few under PPP, Sanitation and SWM services by ULBs

## Assam

Water supply is provided by ULBs and/or Public Health Engineering Department (PHED) or Assam Urban Water Supply and Sewerage Board (AUWSSB), while Sanitation and SWM under ULB's Health department

## Jharkhand

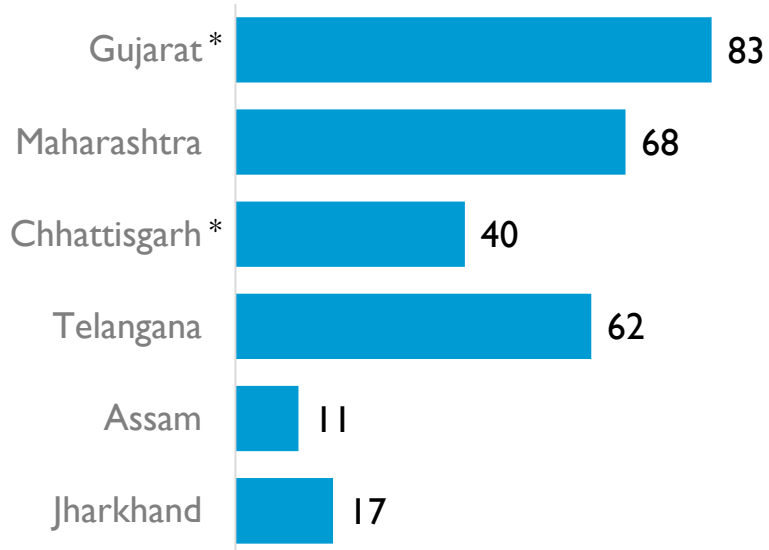
Water supply is provided by ULBs and/or Public Health Engineering Department (in most cases, WS production, treatment and supply by PHED while tax collection by ULBs), Sanitation and SWM services by ULBs



Source: SLB-PAS (2015-16), compiled from web portal [www.pas.org.in](http://www.pas.org.in)

# Coverage of Services

## Households with water supply connections (%)



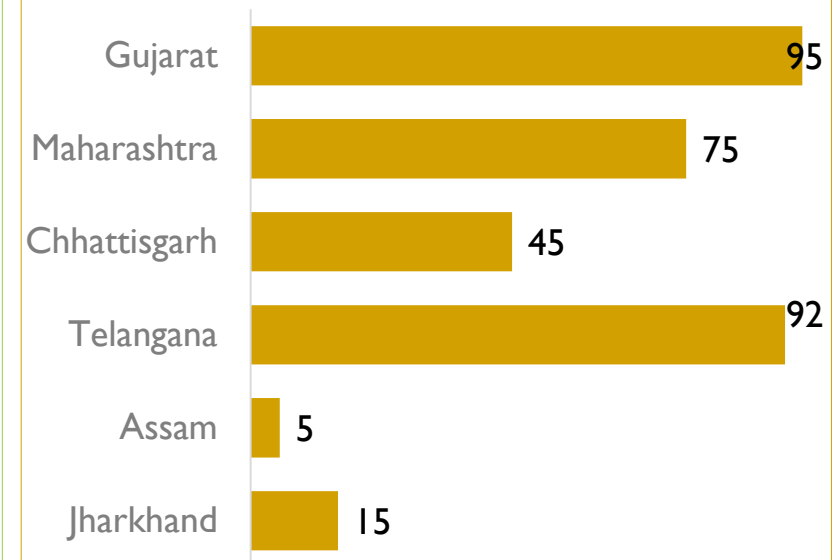
### Note-

- **Maharashtra** – 2.2 HHs/connection – more bulk water connections to apartment and society layout
- **Assam** - Water supply services usually not provided by ULB in most cities. Public taps/Tanker supply/Private wells also common.

## Coverage of Toilets (%)

- **Gujarat** – High coverage of individual toilets and low dependency on community toilets
- **Maharashtra** – ~10% HHs dependent on community toilets
- **Chhattisgarh** – Efforts are required to move towards ODF
- **Telangana** Efforts are required to move towards ODF, no community toilets in most of the cities
- **Assam** – High coverage – culturally low open defecation – HHs have access to toilets but ~20% insanitary toilets
- **Jharkhand** – Efforts are required to move towards ODF, Less dependency on community toilets

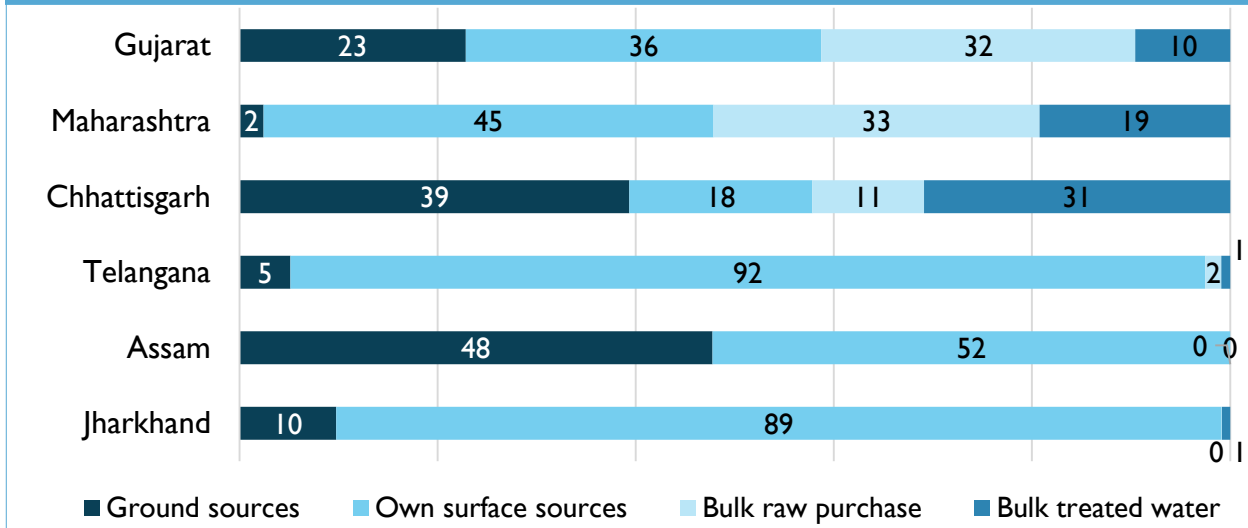
## Households covered by D2D waste collection (%)



Source: SLB-PAS (2015-16), compiled from web portal [www.pas.org.in](http://www.pas.org.in)

# Efficiency in Water Supply services

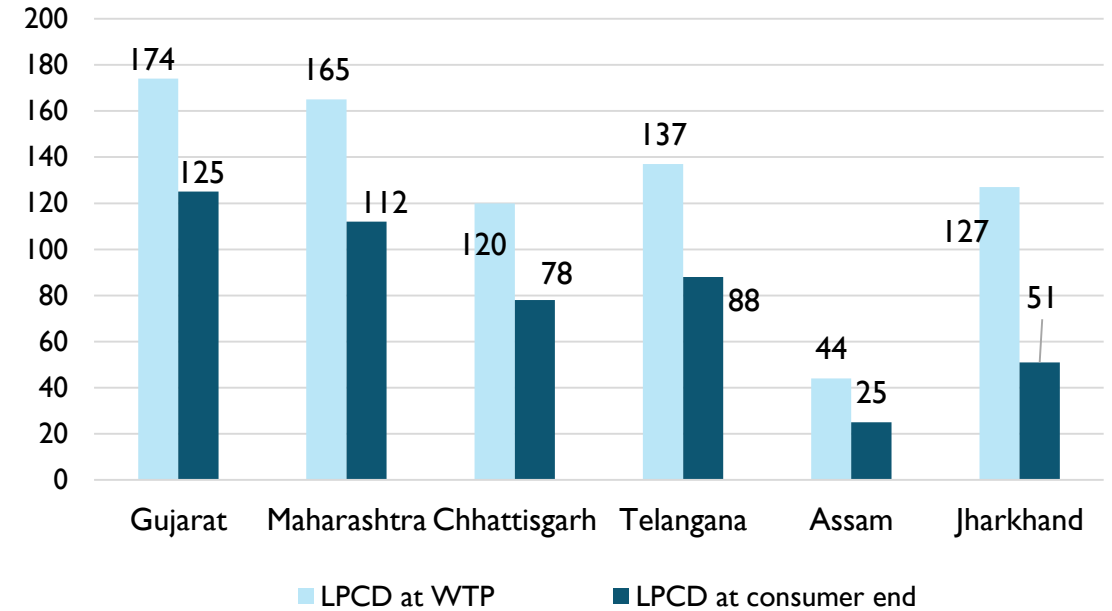
Source of Municipal supply (%)



Continuity of supply

| State        | hrs/day | days / month | Cities supplying water daily |
|--------------|---------|--------------|------------------------------|
| Gujarat      | 2.1     | 27           | 57%                          |
| Maharashtra  | 3.1     | 24           | 49%                          |
| Chhattisgarh | 3       | 30           | 98%                          |
| Telangana    | 1.6     | 17           | 25%                          |
| Assam        | 1.8     | 29           | 45%                          |
| Jharkhand    | 3.5     | 19           | 65%                          |

Per capita availability (LPCD)



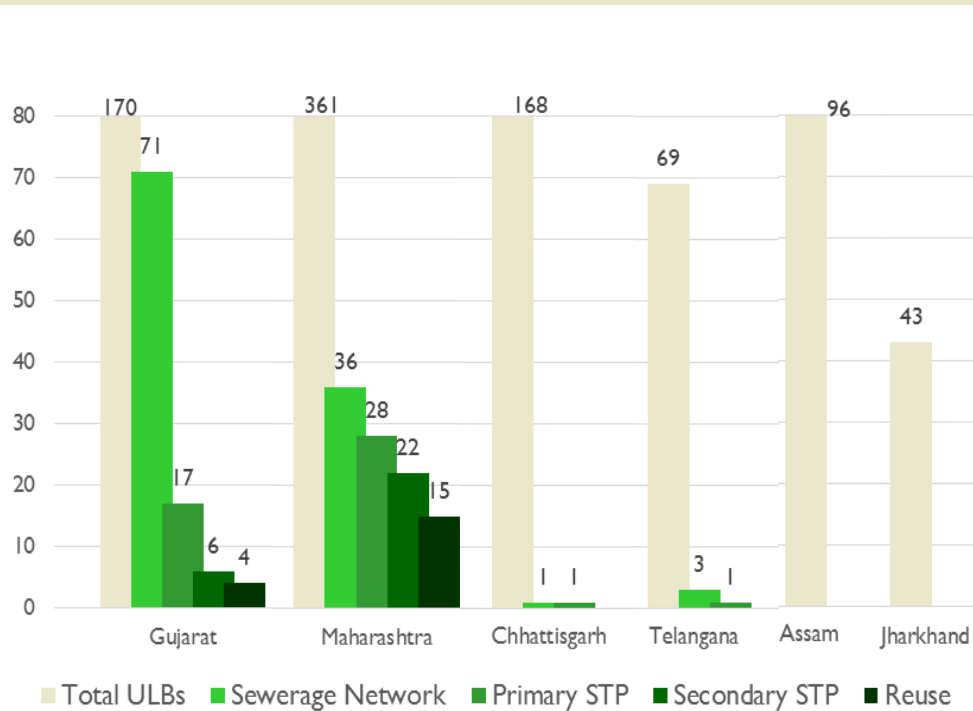
- **Maharashtra** – charges taken from HHs served with public taps water supply
- High NRW in **Chhattisgarh, Assam and Jharkhand** – due free supply through public taps
- **Assam** – low LPCD due to low number of connections

Source: SLB-PAS (2015-16), compiled from web portal [www.pas.org.in](http://www.pas.org.in)

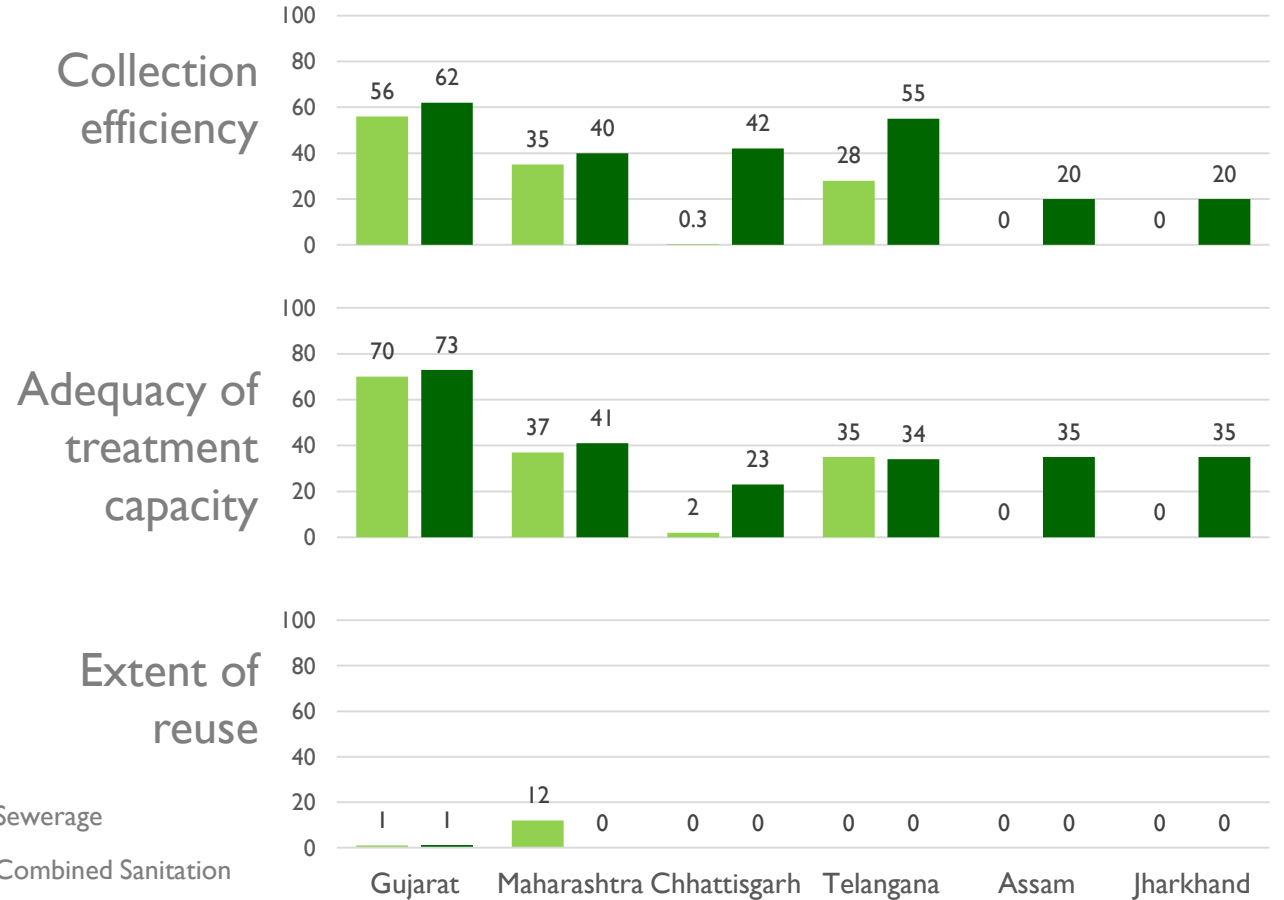


# Safe Sanitation and Disposal

ULBs with facilities for networked sanitation



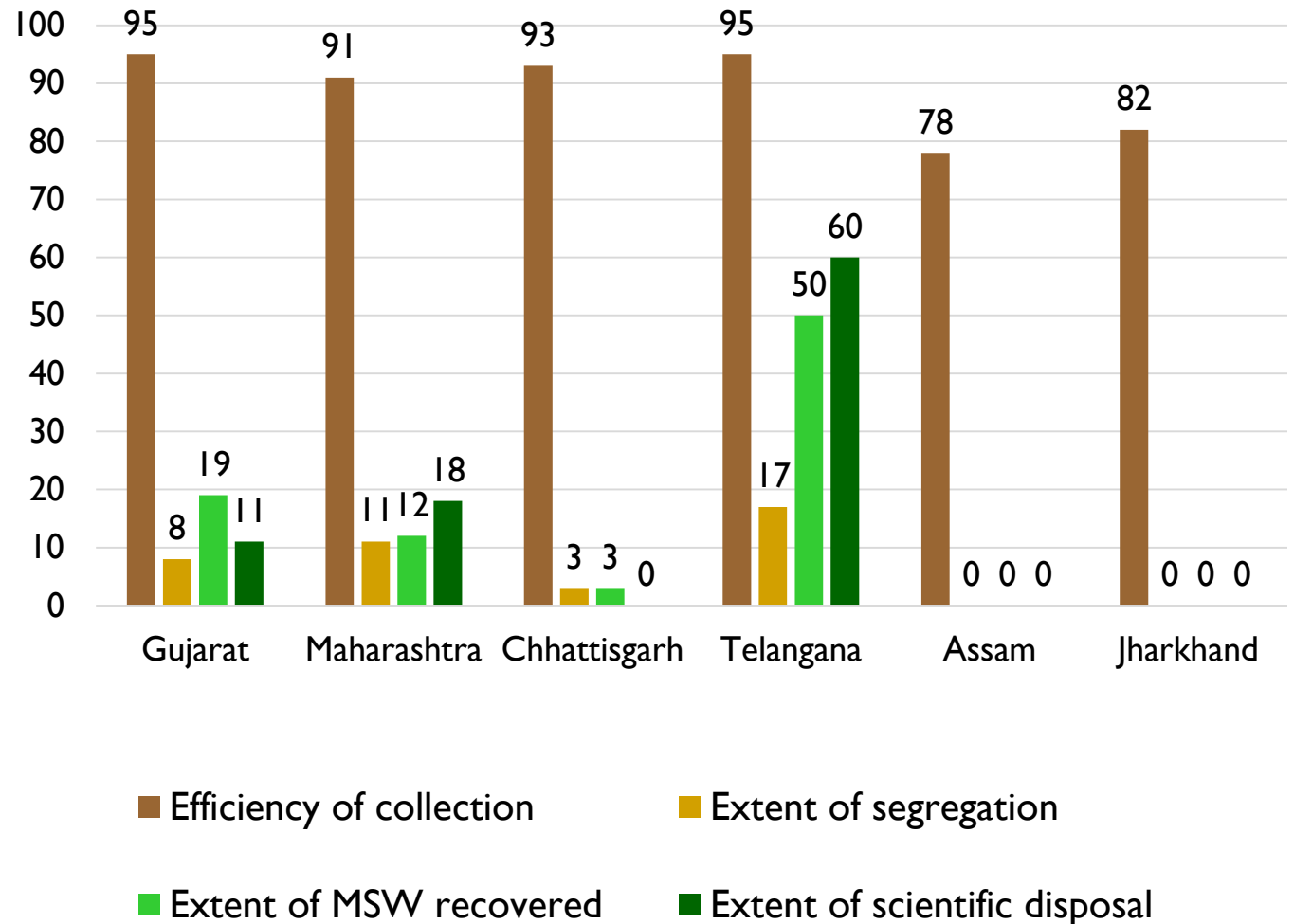
Sewerage vs Combined indicators including onsite system (%)



Source: SLB-PAS (2015-16), Urban Local body

# Municipal Solid Waste Management

- In **Gujarat**, **54 cities** MSW treatment plants, **5 ULBs** with scientific landfill site
- In **Maharashtra** **88 cities** MSW treatment plants, **6 ULBs** with scientific landfill site
- In **Chhattisgarh**, **5 cities** MSW treatment plants, **None of the ULBs** have scientific landfill site
- In **Telangana**, **14 cities** - MSW treatment plants, **1 ULB** with scientific landfill site
- In **Assam**, **None of the ULBs** have treatment and scientific landfill site
- In **Jharkhand**, **None of the ULBs** have treatment and scientific landfill site



Source: SLB-PAS (2015-16), Urban Local body

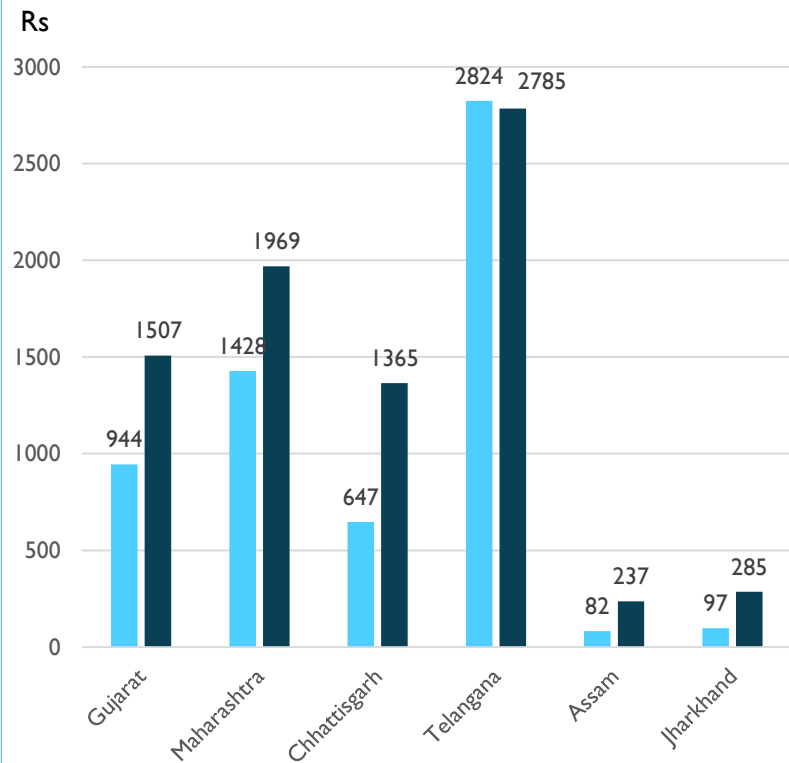
# Financial sustainability

Billed per Household

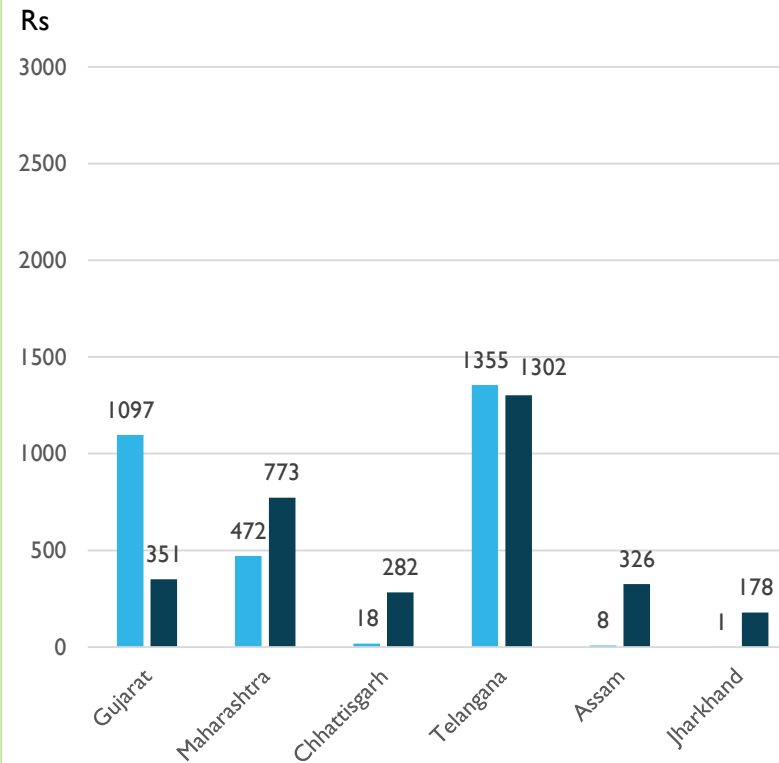
VS

Expenditure per household

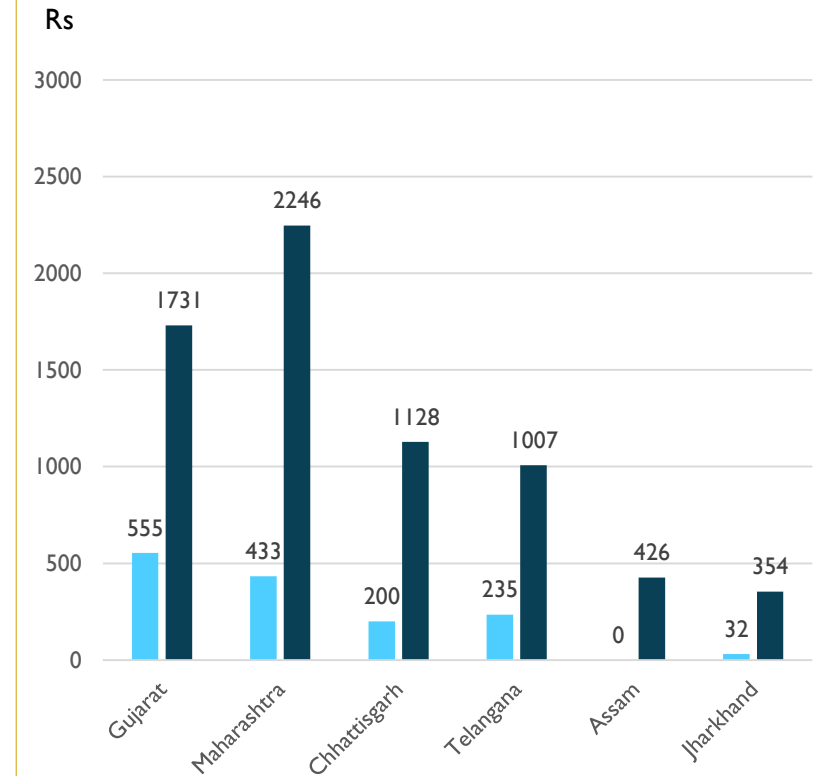
## Water supply



## Sewerage



## Solid Waste Management



Source: SLB-PAS (2015-16), Urban Local body

# Access to water in slum areas -Gujarat

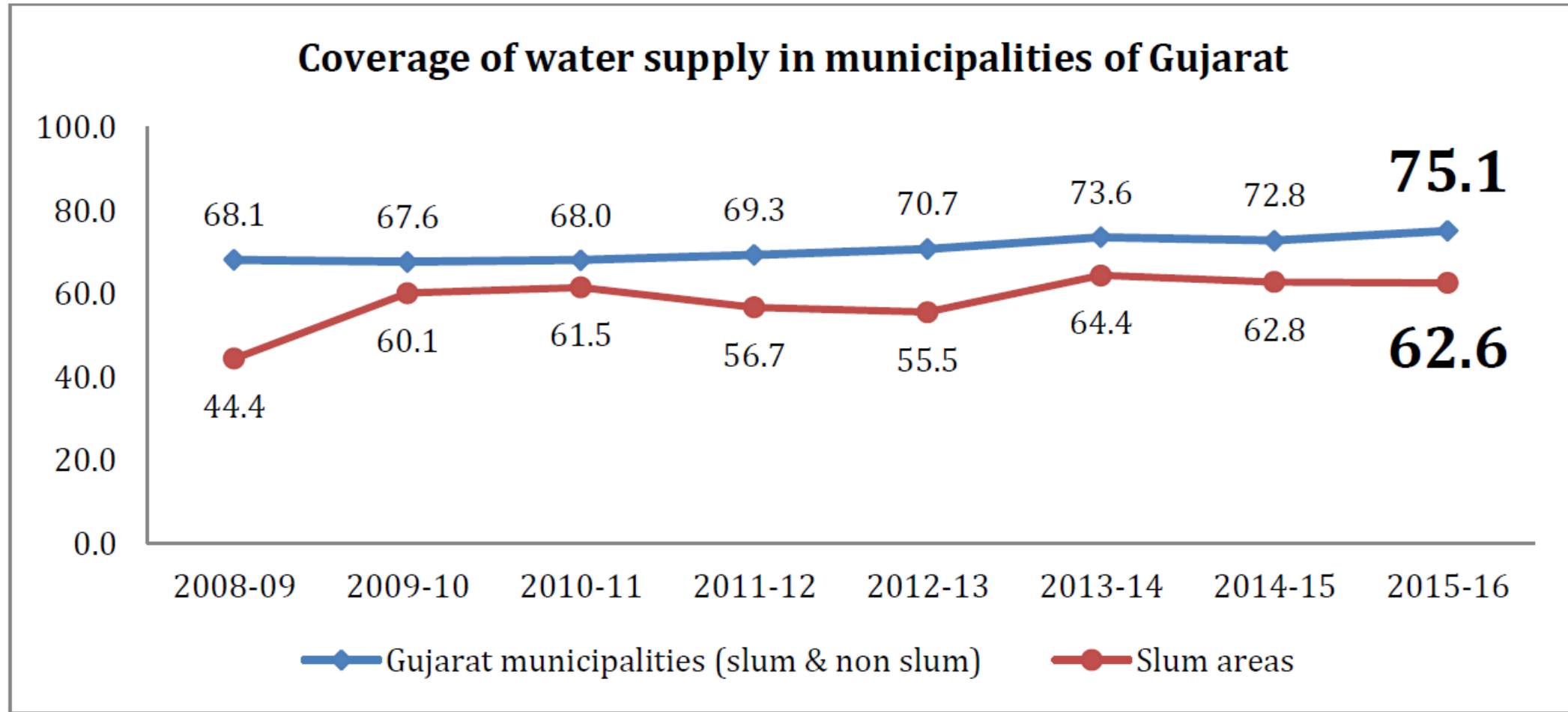


Figure 9: Equity in service provision in municipalities of Gujarat (Water Supply)

PAS (2017), Urban water & sanitation in Gujarat Summary Report 2009-2016, prepared by UMC under PAS project, CEPT University

# Access to sanitation in slums

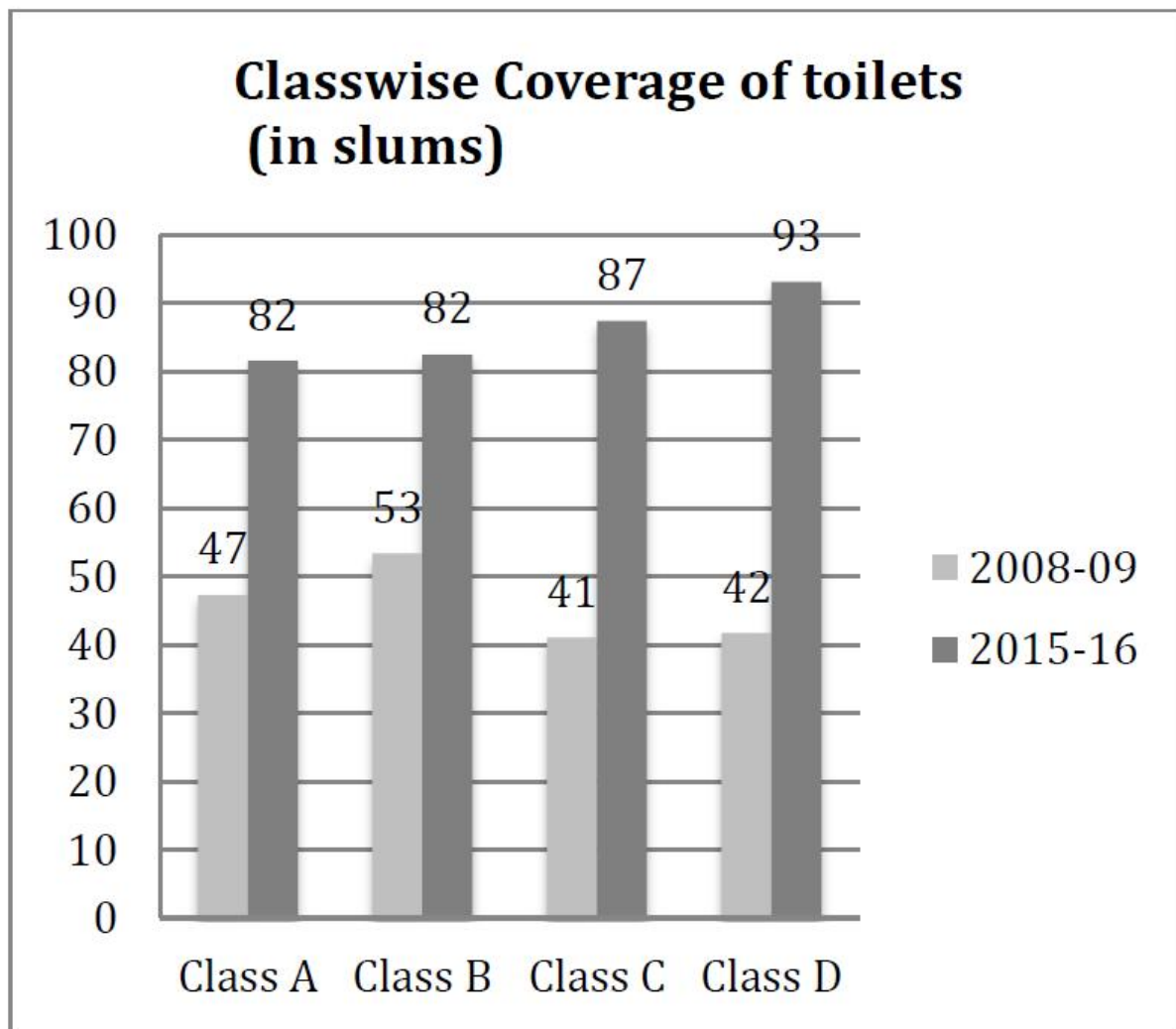


Figure 14: Coverage of toilets in slums by class of municipalities (2008 and 2015)



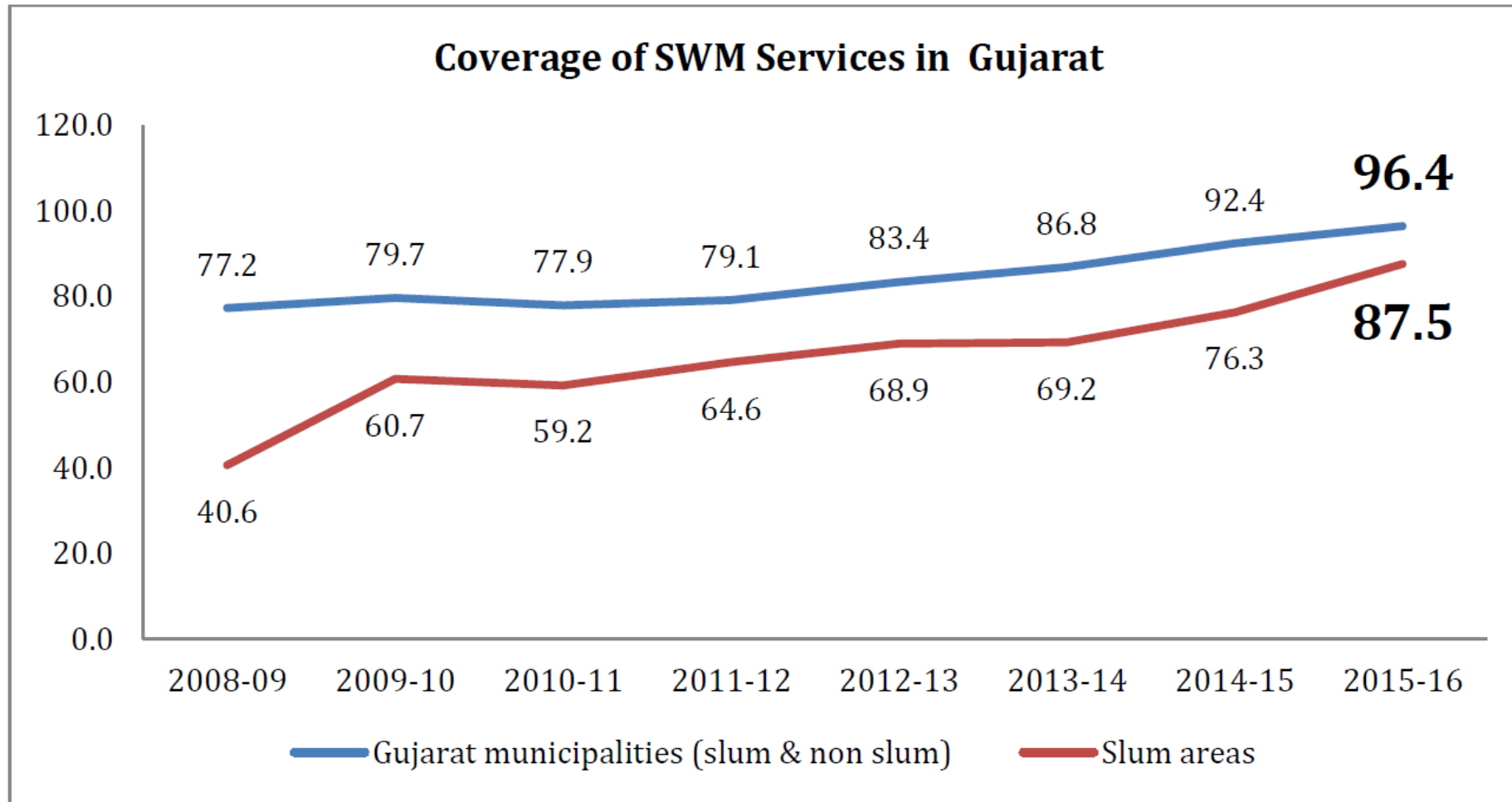


Figure 18: Increase in coverage of waste collection (overall and slums) in municipalities of Gujarat

# Sustainable Development Goal 6



# SUSTAINABLE DEVELOPMENT GOALS



# SDG Goal 6: Ensuring universal access to safe and affordable drinking water for all by 2030

| TARGETS   | INDICATORS   |
|---|--|
| <b>6.1</b> By 2030, achieve universal and equitable access to safe and affordable drinking water for all  | <b>6.1.1</b> Proportion of population using safely managed drinking water services   |
| <b>6.2</b> By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations  | <b>6.2.1</b> Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water                                |
| <b>6.3</b> By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally | <b>6.3.1</b> Proportion of wastewater safely treated<br><b>6.3.2</b> Proportion of bodies of water with good ambient water quality                                   |
| <b>6.4</b> By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity            | <b>6.4.1</b> Change in water-use efficiency over time<br><b>6.4.2</b> Level of water stress: freshwater withdrawal as a proportion of available freshwater resources |

<https://sustainabledevelopment.un.org/sdg6>

# The new JMP ladder for sanitation services

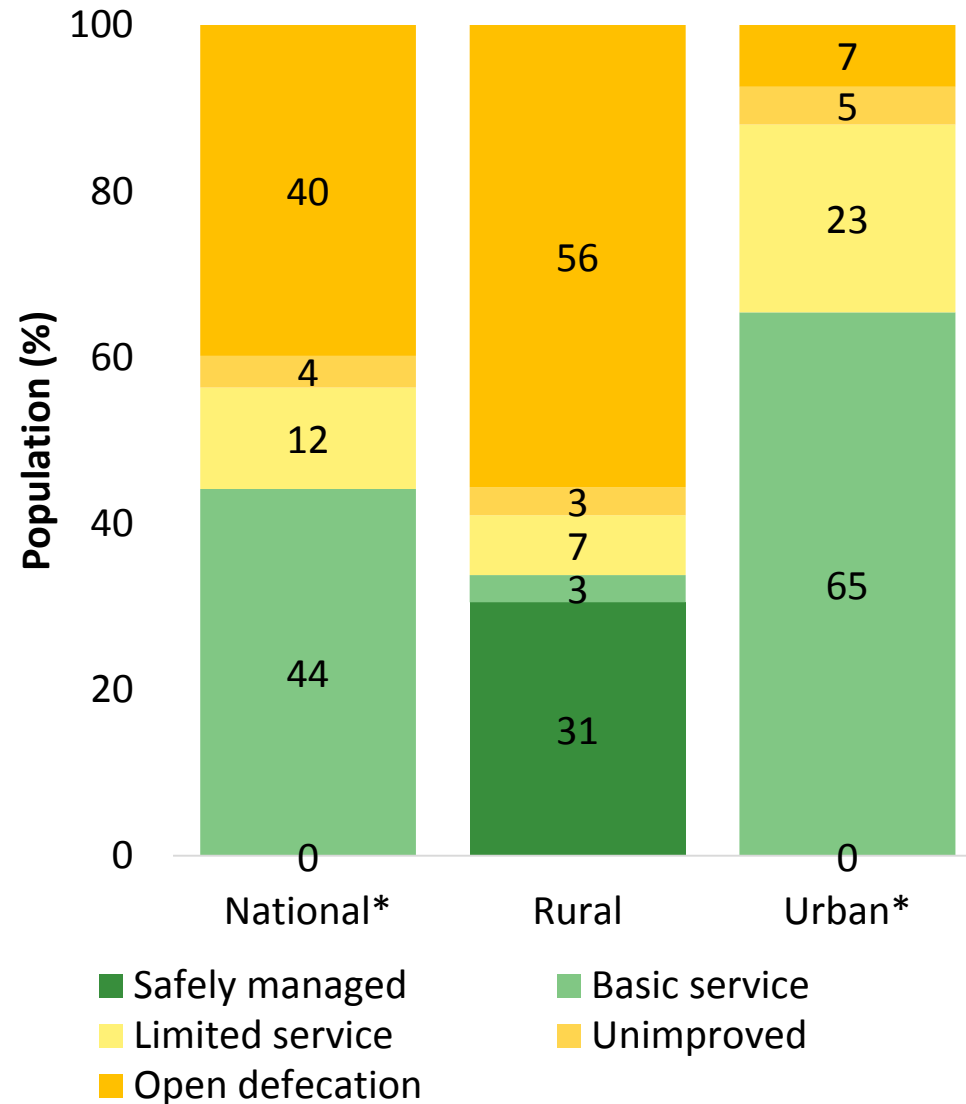
| Service Level           | Definition   |
|-------------------------|--|
| <b>SAFELY MANAGED</b>   | Use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or transported and treated offsite |
| <b>BASIC</b>            | Use of improved facilities that are not shared with other households   |
| <b>LIMITED</b>          | Use of improved facilities shared between two or more households   |
| <b>UNIMPROVED</b>       | Use of pit latrines without a slab or platform, hanging latrines or bucket latrines  |
| <b>OPEN DEFECACTION</b> | Disposal of human faeces in fields, forests, bushes, open bodies of water, beaches or other open spaces, or with solid waste                             |

*Note: improved facilities include flush/pour flush to piped sewer systems, septic tanks or pit latrines; ventilated improved pit latrines, composting toilets or pit latrines with slabs.*

Source: WHO/UNICEF JMP (2017)



# Sanitation ladder of India - 2015



Safely managed sanitation estimate is not available for urban India.

Rural estimate is based on SQUAT survey of RICE institute.

- The SQUAT survey was designed to be representative of the rural open defecation challenge in five plains states of north India: Bihar, Uttar Pradesh, Rajasthan, Madhya Pradesh and Haryana

Hygiene related data is not available

Source: WHO/UNICEF JMP (2017)

# SAN Benchmarks

*Framework for assessment of onsite sanitation*

# SLB indicators focus only on Sewerage system

## Conventional Underground Sewerage system

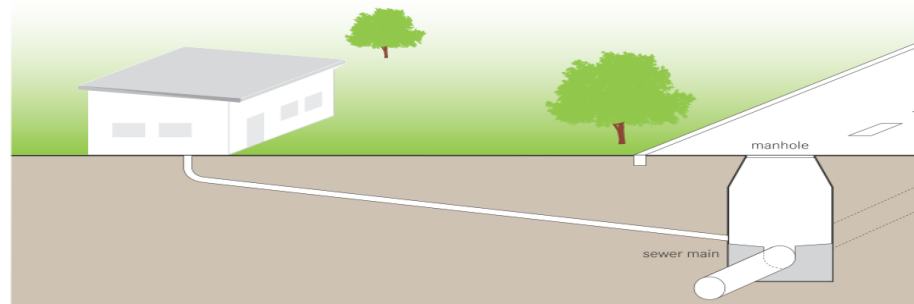
User interface



1. Coverage of toilets

2. Coverage of sewerage network

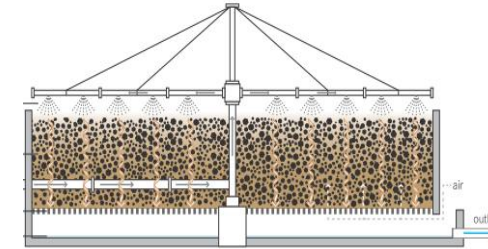
Collection



3. Collection efficiency of sewerage network

Conveyance

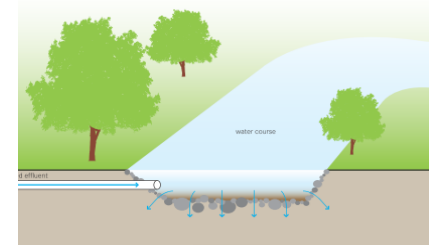
Treatment



4. Adequacy of sewage treatment capacity

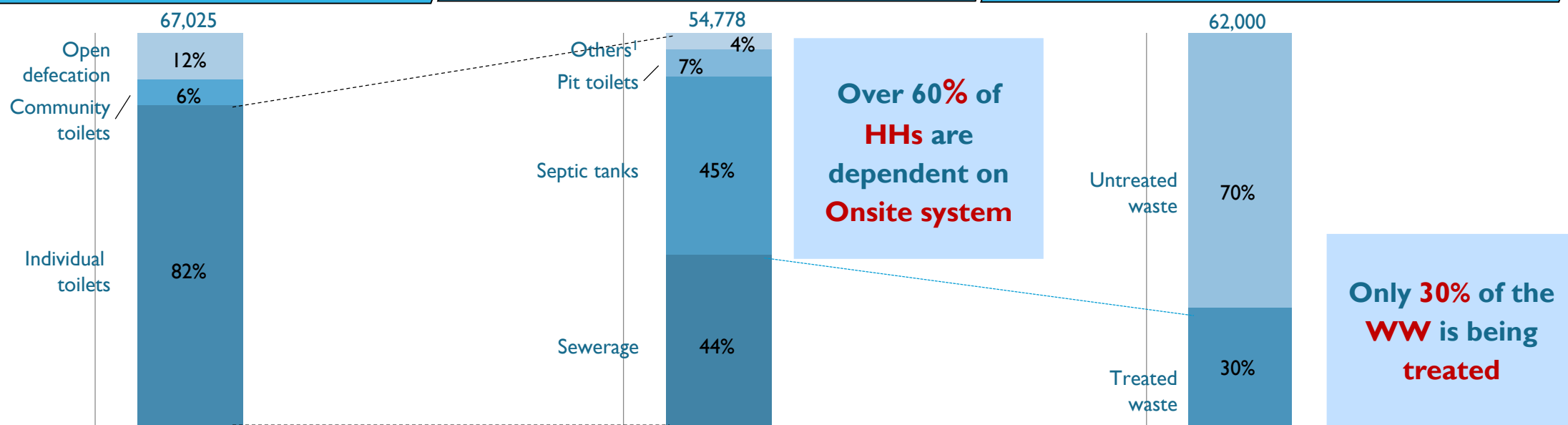
5. Quality of sewage treatment

Recycle & Reuse



6. Extent of reuse and recycling of sewage

# Sanitation situation in INDIA



**Over 60% of HHs are dependent on Onsite system**

**Only 30% of the WW is being treated**

**Access to type of sanitation for HH in urban India**  
(in '000 HH)

**37 million people practice open defecation in urban India**

**Methods of disposal of waste by HH with personal toilets in urban India** (in '000 HH)

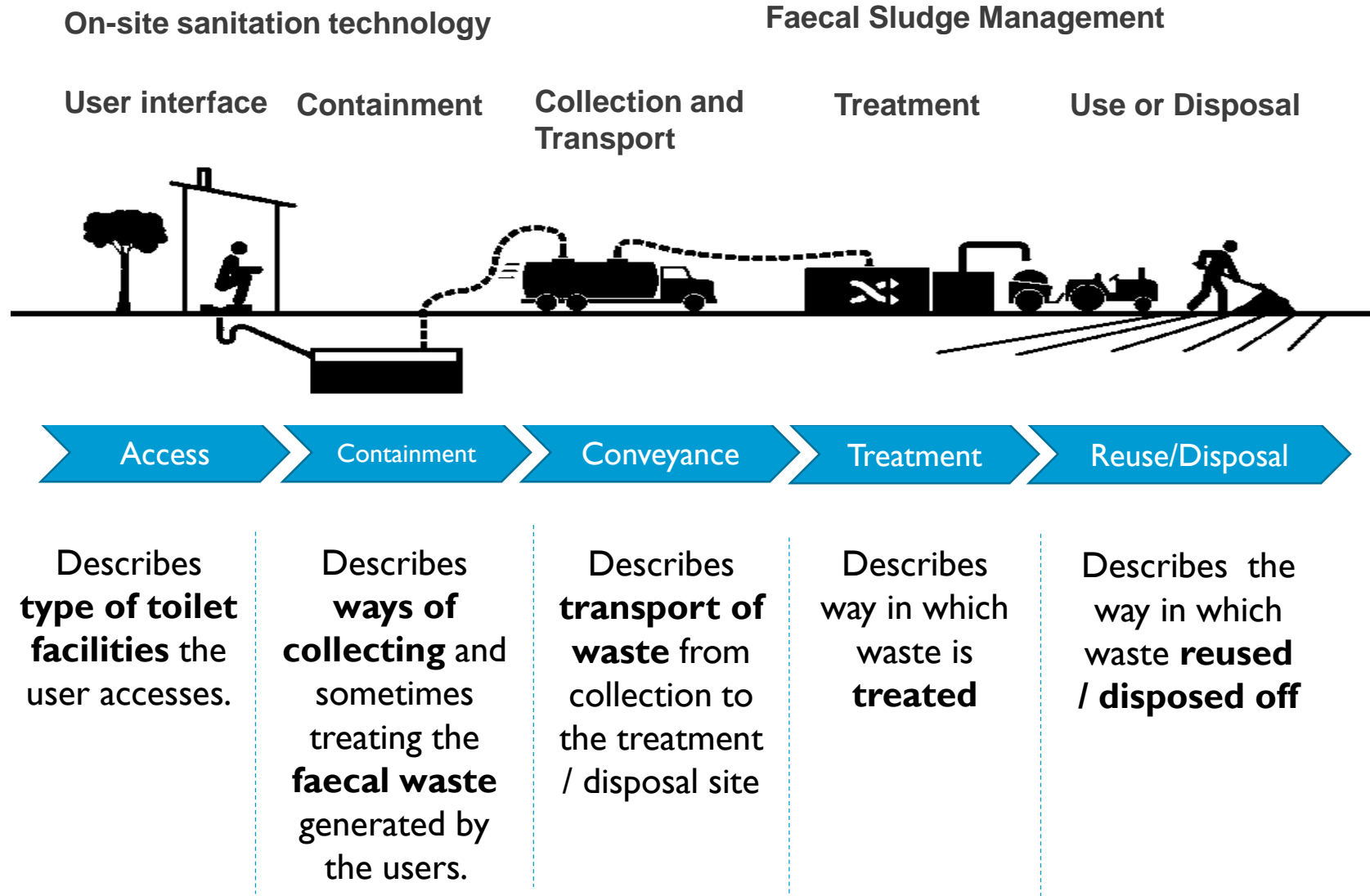
**28 million people with individual toilets use unsanitary methods of disposal of waste**

**Status of wastewater treatment in urban India<sup>2</sup> (MLD)**

**43,117 MLD untreated wastewater is discharged in water bodies or on land**

Note: (1) Others includes primitive methods of C&C such as pour flush toilets-other systems, night soil disposed into open drain and latrines serviced by humans and animals, (2) "Inventorization of sewage treatment plants" report by Central Pollution Control Board of India (CPCB), 2015; Source: Based on Census of India 2011

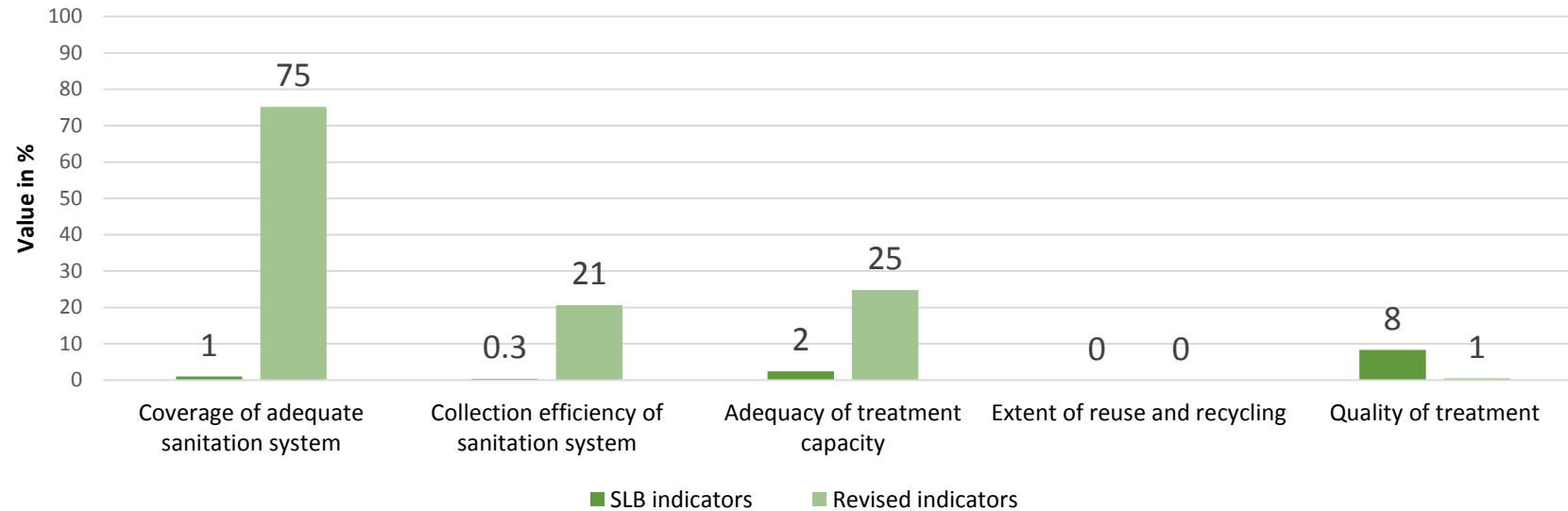
# Understanding the Sanitation Service Chain ...





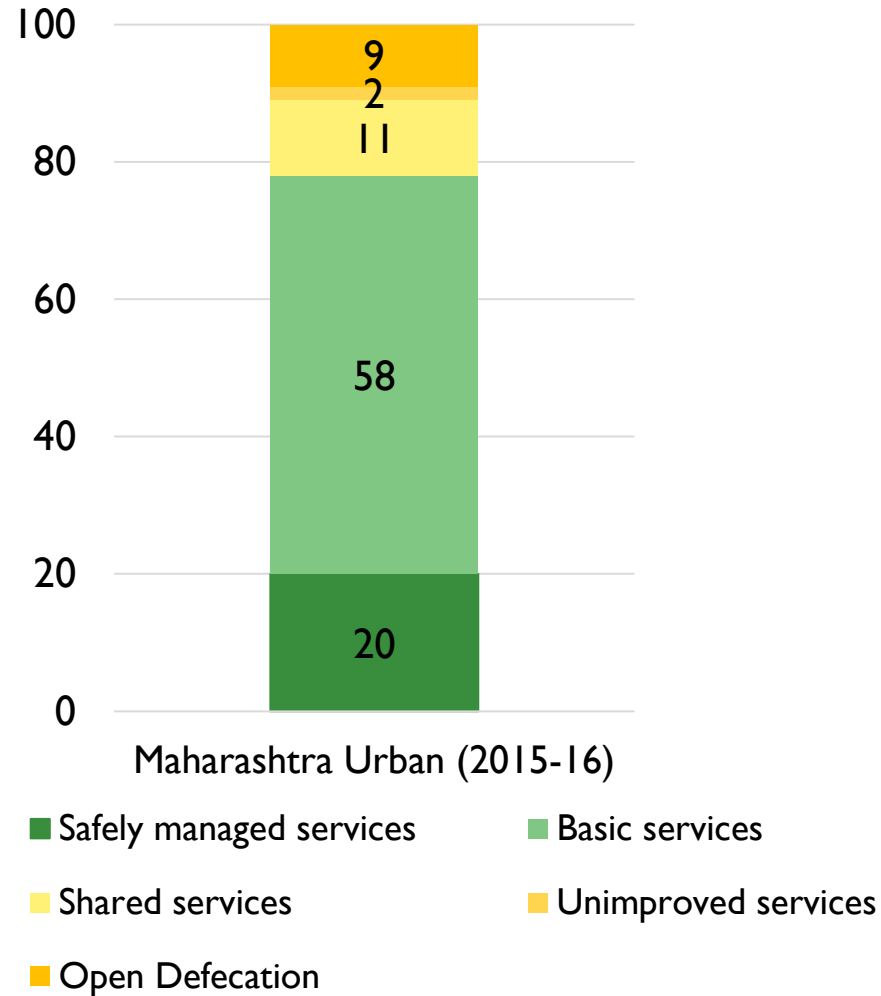
# SAN Benchmarks: State Level Sanitation Assessment -Chhattisgarh

Sanitation assessment using existing and revised indicators - urban Chhattisgarh (2014-15)



- **Chhattisgarh:** 43 urban local bodies (ULBs); 11,000 to 1.2 million population
- Partial underground sewer network: 2 ULBs; STP: 1 ULBs (Bilaspur)
- San Benchmark shows **better performance** for coverage and collection efficiency
- **Adequacy of treatment** increases because it captures treatment of fecal matter through septic tank connected to soak pit

## Sanitation Ladder for Urban Maharashtra from PAS data as per SDG 6.2.1



- Sanitation ladder can be generated from PAS data base.
- Based on these database, strategic plans can be prepared for improvement of sanitation services at state and city level.
- For example, in Urban Maharashtra safely managed services can be improved by implementation of fecal sludge and septage management plans at city level (transportation and treatment of FSM)
- Safely managed onsite sanitation is low cost improvement measures as compared with underground sewerage system

# PAS USES

# Fourteenth FC and recognition of SLB

As per Fourteenth Finance Commission

- “ULBs will have to measure and publish SLBs for basic services”.
- “ULBs must publish the SLBs relating to basic urban services each year for the award and make it publicly available. The SLBs of the MoUD may be used for this purpose”.

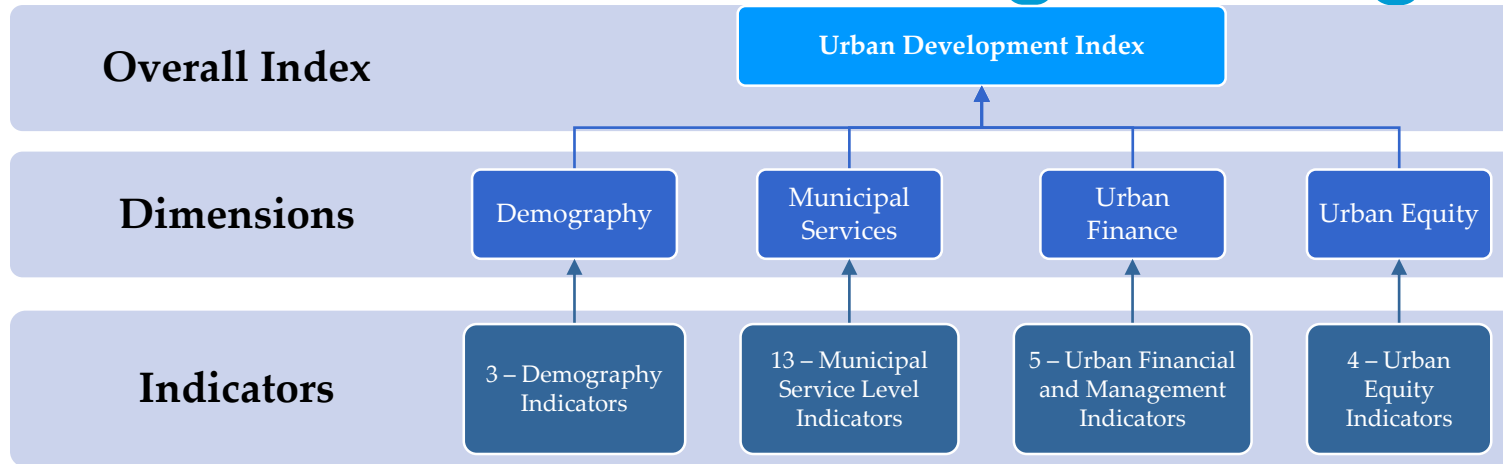
**GoI is focusing on transformational reforms.**

Basic and Performance  
grant ratio – 80:20

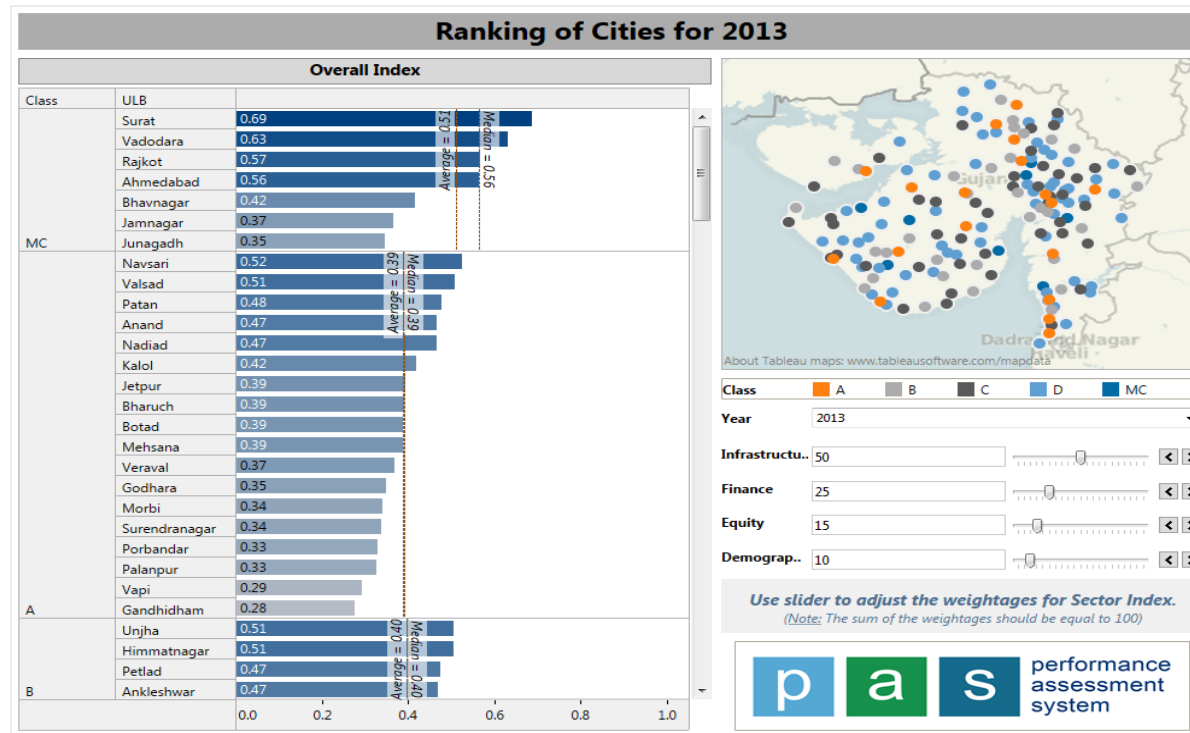
| Year           | Basic Grant<br>Rs in Cr | Performance<br>Grant Rs in Cr |
|----------------|-------------------------|-------------------------------|
| 2015-16        | 614.91                  | -                             |
| 2016-17        | 851.45                  | 251.29                        |
| 2017-18        | 983.77                  | 284.37                        |
| 2018-19        | 1138.05                 | 322.94                        |
| 2019-20        | 1537.74                 | 422.87                        |
| <b>2015-20</b> | <b>5125.91</b>          | <b>1281.48</b>                |

**50% weightage is given to  
SLBs as per scheme for  
performance based grant  
under Fourteenth Finance  
Commission**

# Dashboards showing Ranking of cities for Gujarat



- urban development index (UDI) was calculated using 25 indicators identified under 4 dimensions:
  - Demography
  - Municipal services
  - Urban finance
  - Urban equity



- The dashboard shows class-wise ranking as per the UDI value scored by a city.
- The weightage for each dimension can be changed as and when required.
- It also allows the user to locate the cities on the map to identify regions that are performing good or vice-versa.

# PAS Data Users



## Government agencies

National, state and local governments for various policy interventions and improvement actions

**Gujarat:** Guidelines for ODF; Assess impact of capital investment on service level improvement in sewerage system; State of environment report, 2012.

**Maharashtra:** State level strategy for making cities ODF; Septage management guidelines; Policy guidelines SWM.

**Chhattisgarh:** Impact assessment of SWM.

**City Level:** To prepare service level improvement plans in more than 30 urban local bodies.



## Financial Institutions

For project identification and selection

Various financial institutions such as ADB have used this information for project identification, selection and formulation.

World Bank – WSP have worked with us on SLB Connect



## Regulators

To assess regulatory compliance

CAG -Performance audit of delivery of three basic civic services for selected ULBs in various states.



## Researchers

Data use by academicians and students

Many academicians and students of planning or technology colleges have used this information for research purpose. More than 20 research reports have been prepared using PAS information in CEPT University itself.



## Consultants

Various consulting assignments related to preparation of Vision documents, City Development Plans, City Sanitation Plans. Indian Institute of Technology (IIT) Mumbai has used for city assessments



# PAS Tools

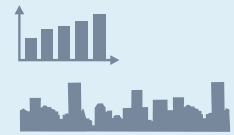


# Activities at C-WAS

## Performance Assessment System



PAS Toolkit



City Profile



State Profile

## City level – From Planning to Implementation Support



Performance improvement plans



CSP-City Sanitation Plans



ODF-Open Defecation Free Plans



Fecal Sludge Management Plans

## Equity in Municipal Services



Slum Free action plan



Pro-poor benchmarking of water and sanitation

## Supporting Statewide Program - Maharashtra



Monitoring SBM



ODF framework



State level guidelines for ODF, IFSM



Capacity building programmes



Documentation support

## Urban Water Security



Urban water security toolkit



Participatory ground water management-Documentation support

## Financing Water Sanitation



State and Municipal Finance Assessments



City Sanitation Fund

## Sanitation Planning tools



Saniplan



PSP in IFSM



Integrated Fecal Sludge Management



SaniTab

## Onsite sanitation



FSM guidelines



SanBenchmarks



Capacity building of cities and local contractors



Sanitation Credit



Demand assessment

# Thank you

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[www.pas.org.in](http://www.pas.org.in)

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## About us

The Center for Water and Sanitation (C-WAS) at CEPT University carries out various activities – action research, training, advocacy to enable state and local governments to improve delivery of services.



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