

CEPT
UNIVERSITY

C-WAS

Center for
Water and
Sanitation

C-WAS @ CEPT . . .

The Center for Water and Sanitation at CEPT University was established to focus on improving water and sanitation services in India.

The Center carries out various activities – action research, training, advocacy to enable state and local governments to improve delivery of services

Unlike traditional engineering approach of “infrastructure” design and implementation, the center focuses on ‘services’; i.e. “not on pipes but water at the end of the pipe in efficient, effective and equitable manner”

PAS

Performance Assessment System

www.pas.org.in



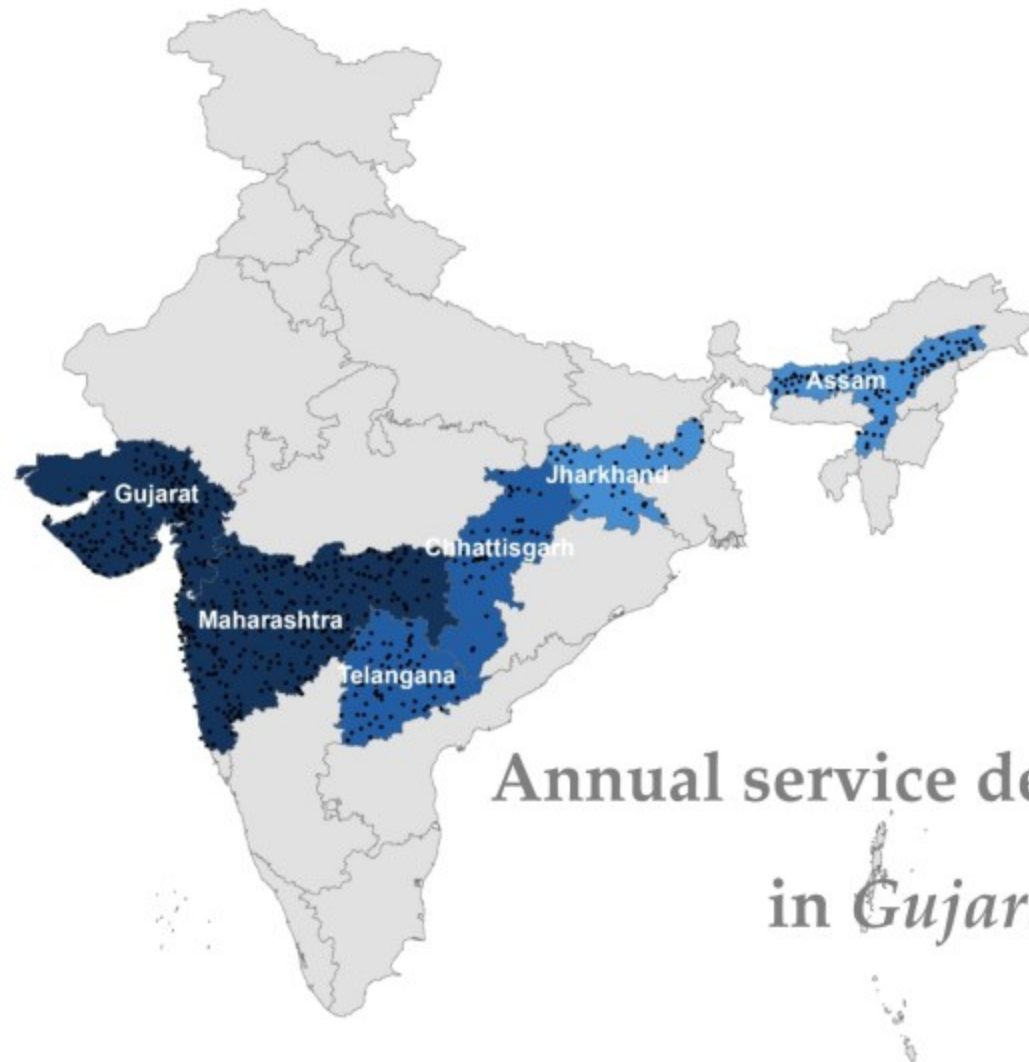
Water Supply
Services



Wastewater
Management



Solid waste
Management



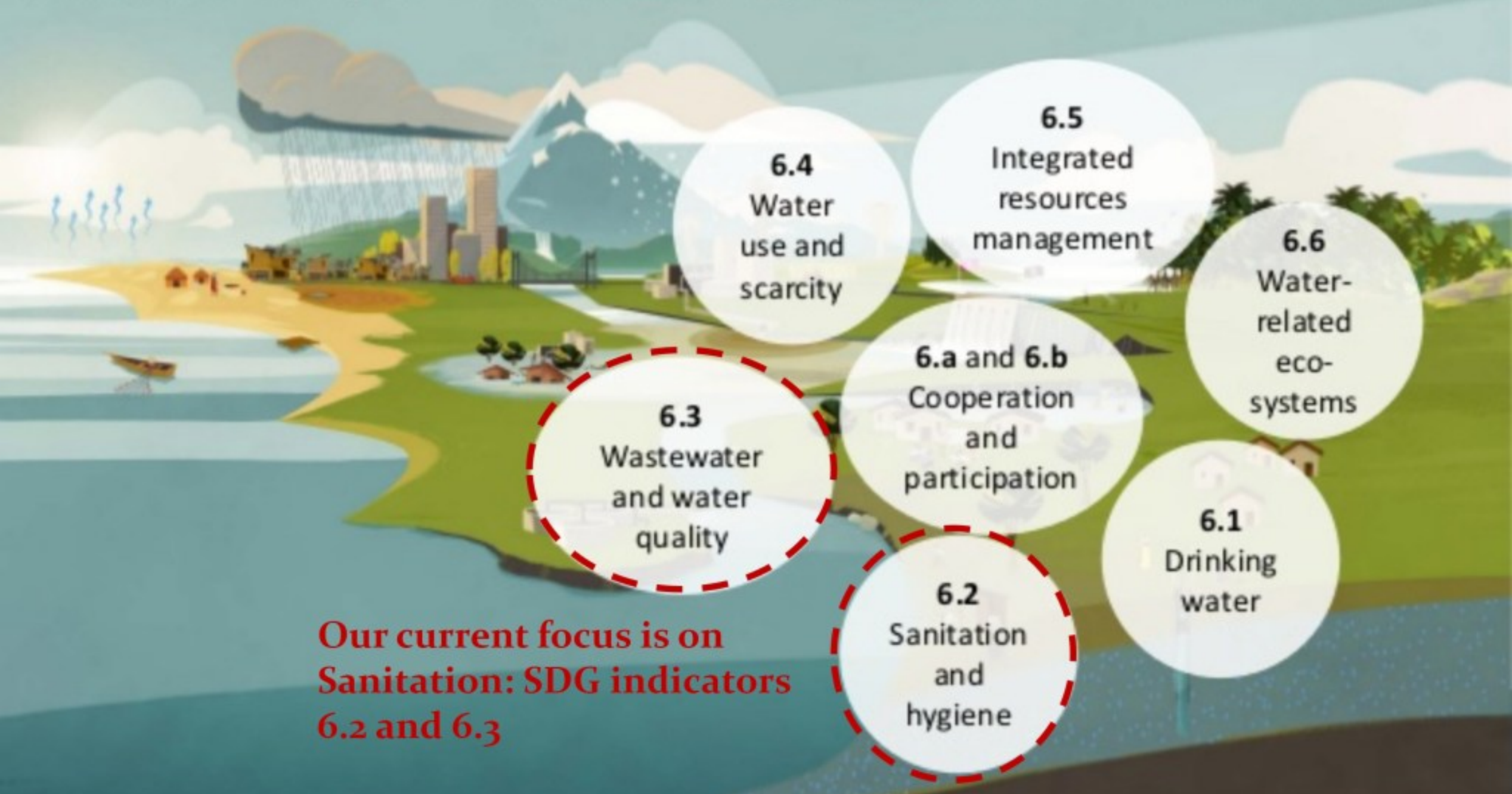
Started in 2009 with
2 states, 416 Cities
68 Million population

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

Annual service delivery profile for **400+** cities
in *Gujarat and Maharashtra* for **9** years

SDG Goal 6.2 and 6.3

“Ensure availability and sustainable management of water and sanitation for all”



Our current focus is on Sanitation: SDG indicators 6.2 and 6.3

Global Links of C-WAS

- **Participation in the UN post 2015 discussion:** Preparation process for sanitation indicators and human rights group
- **GLAAS report:** Member of the Technical advisory group of the WHO
- Steering committee of **Global Water Partnership** (GWP) which led the SDG work of 6.5.1 – Integrated Water Resource Management with UNEP

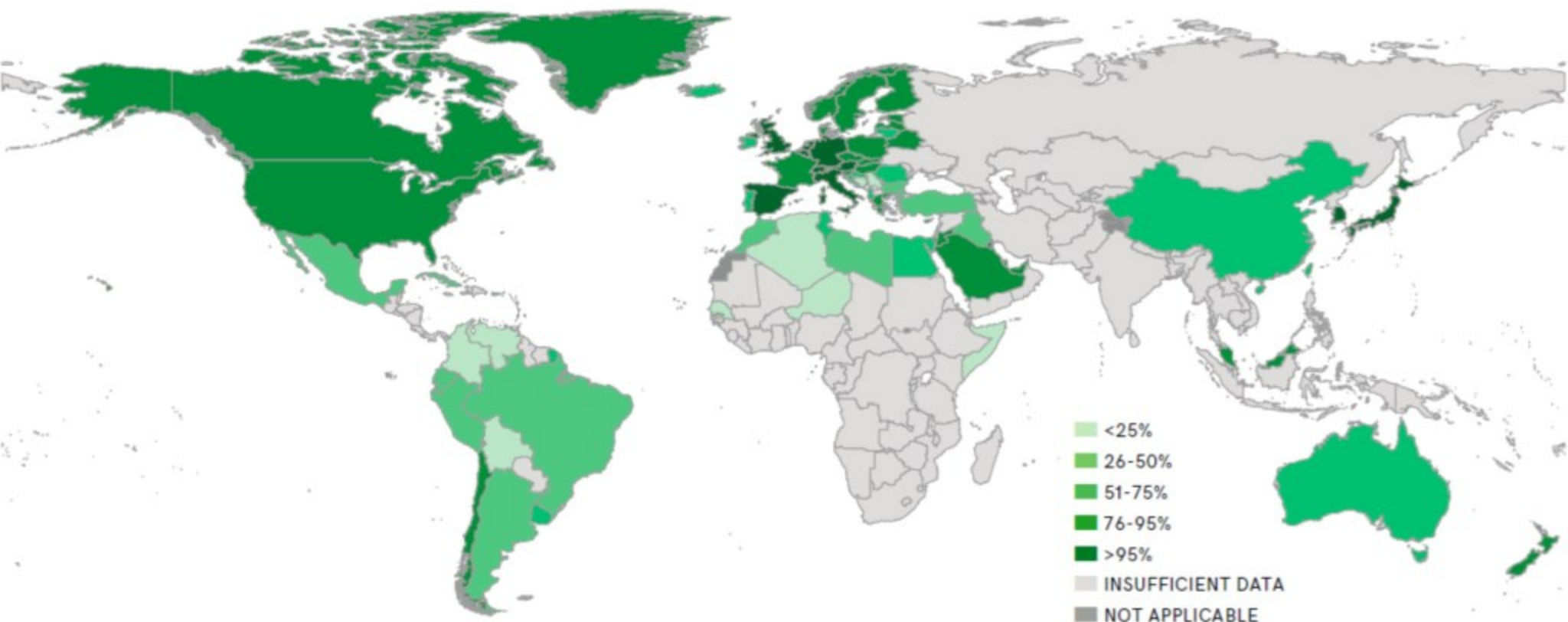
A NEW GLOBAL PARTNERSHIP: ERADICATE POVERTY AND TRANSFORM ECONOMIES THROUGH SUSTAINABLE DEVELOPMENT

The Report of the High-Level Panel of Eminent Persons on
the Post-2015 Development Agenda



Safely managed sanitation services - World

Proportion of population using safely managed sanitation services, 2015



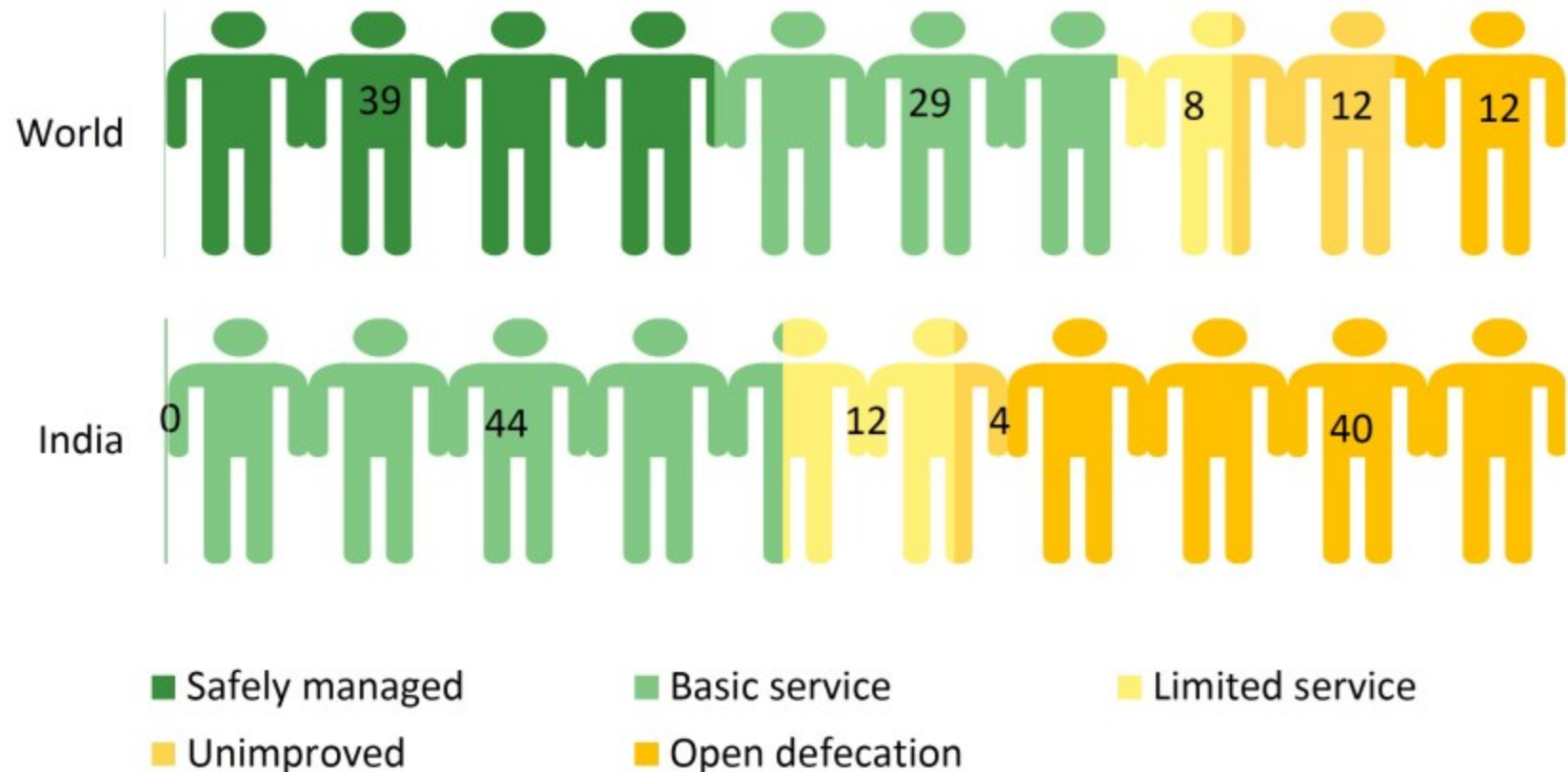
Estimates for safely managed sanitation were available for 84 countries (representing 48 percent of the global population)

Safely managed sanitation data were not available in India

Target 6.2 Sanitation and Hygiene

“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”

% of population with sanitation facility in 2015 as per JMP report



The new JMP ladder for sanitation services

| Service Level | Definition |
|------------------------|--|
| SAFELY MANAGED | 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 |
| BASIC | Use of improved facilities that are not shared with other households |
| LIMITED | Use of improved facilities shared between two or more households |
| UNIMPROVED | Use of pit latrines without a slab or platform, hanging latrines or bucket latrines |
| OPEN DEFECATION | Disposal of human faeces in fields, forests, bushes, open bodies of water, beaches or other open spaces, or with solid waste |

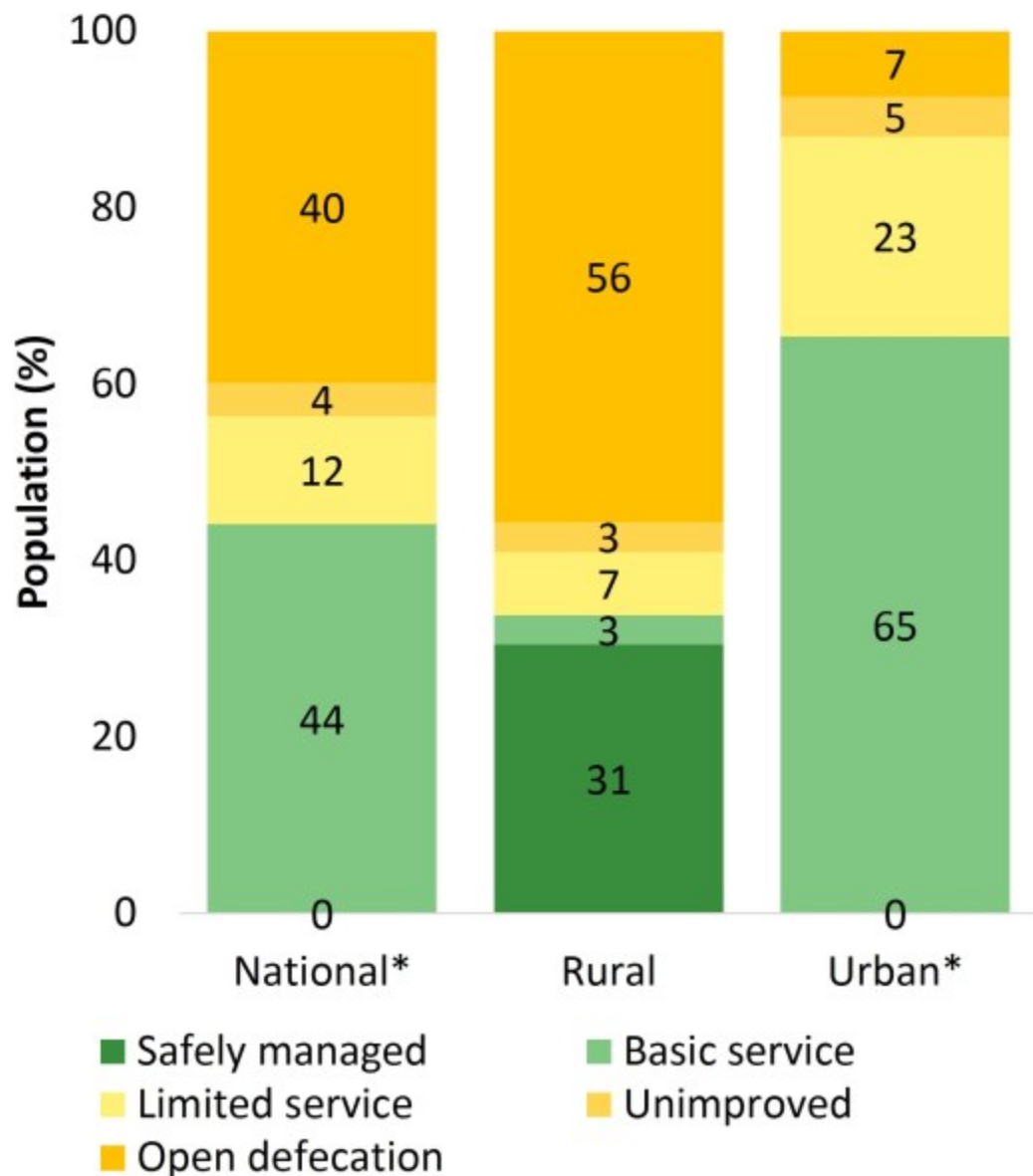
Note: improved facilities include flush/pour flush to piped sewer systems, septic tanks or pit latrines; ventilated improved pit latrines, composting toilets or pit latrines with slabs.

The new JMP ladder for sanitation services



Need assessment of safely managed sanitation services

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
- The survey was specially designed to capture the sanitation beliefs and behaviors of men and women living in north Indian villages.

❑ Hygiene related data is not available

Global monitoring of SDG 6

Monitoring water and sanitation in the 2030 Agenda (global level)



SDG 6.3 Water quality and wastewater



Target 6.3

Water quality and wastewater

“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”

Indicator 6.3.1

Proportion of wastewater safely treated
(wastewater and fecal sludge)

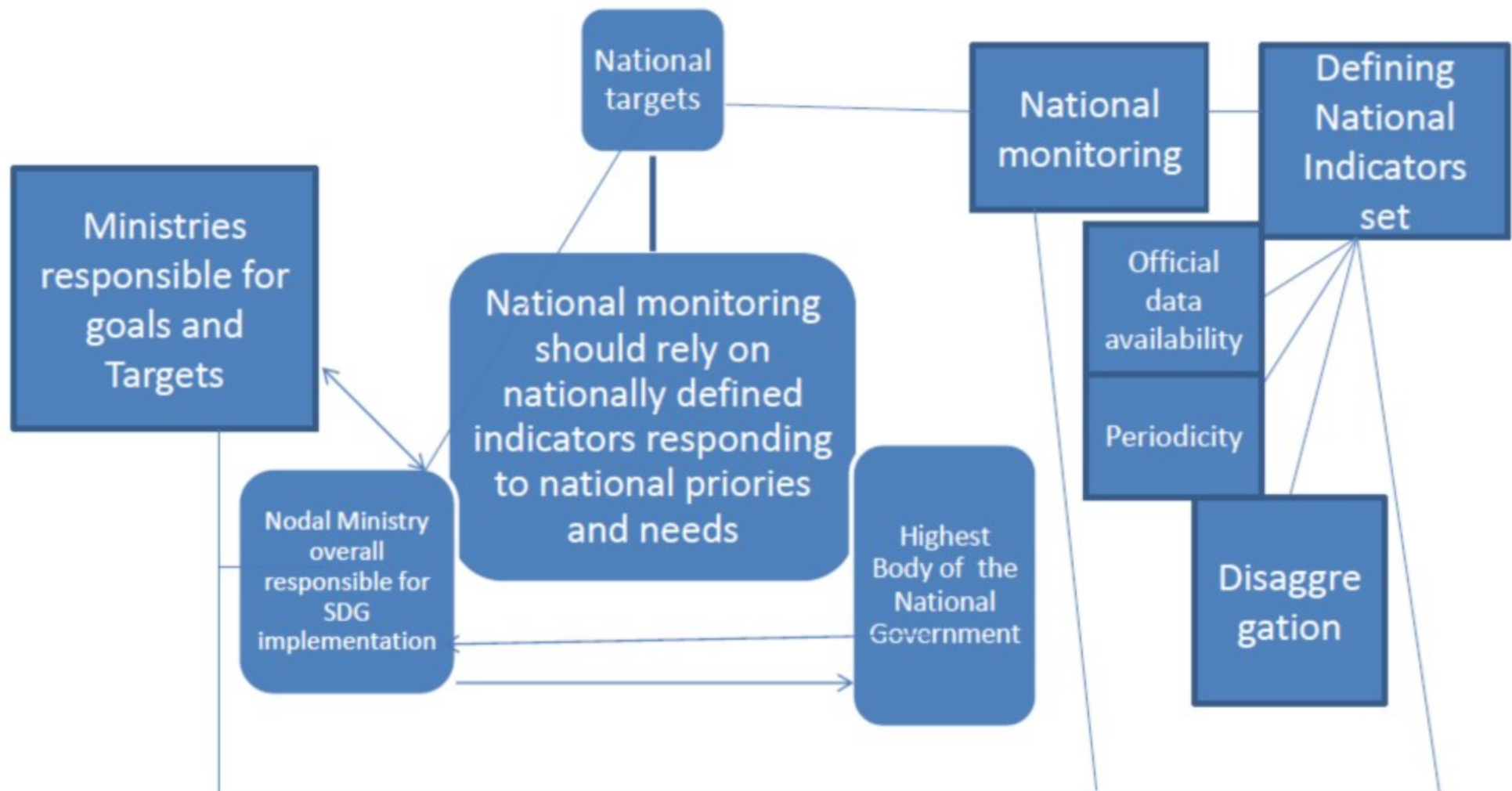
Includes:

- Urban WW
- Rural WW
- Industrial WW

Indicator 6.3.2

Proportion of bodies of water with good
ambient water quality

National process for SDG monitoring



Source: National Implementation of the SDG Monitoring India presented by Rakesh Kumar Maurya at Xi'an, China

Institutional Mapping for SDG 6.2

| Targets | Indicators | Monitoring agency | Implementing agency |
|---|---|--|---|
| 6.2 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 | 6.2.1 Percentage of population using safely managed sanitation services | The Ministry of Statistics and Programme Implementation | <ul style="list-style-type: none"> Ministry of Drinking Water and Sanitation (for Rural) Ministry of Housing and Urban Affairs (for Urban) |
| | 6.2.2 Percentage of population with hand washing facilities with soap and water at home | Missing Ministry in Draft Mapping (August, 2017), Development Monitoring and Evaluation Office, NITI aayog | |

Institutional Mapping for SDG 6.3

| Targets | Indicators | Monitoring agency | Implementing agency |
|---|--|--|---|
| 6.3 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 | 6.3.1 Percentage of wastewater safely treated | Ministry of Water Resources, River Development and Ganga Rejuvenation | <ul style="list-style-type: none"> • Ministry of Drinking Water and Sanitation (for Rural) • Ministry of Housing and Urban Affairs (for Urban) • Ministry of Environment, Forest and Climate Change (for Industrial wastewater) |
| | 6.3.2 Percentage of receiving water bodies with good ambient water quality | Missing Ministry in Draft Mapping (August, 2017), Development Monitoring and Evaluation Office, NITI aayog | |

Sanitation framework & ladder for urban Maharashtra – Based on PAS data 2015-16

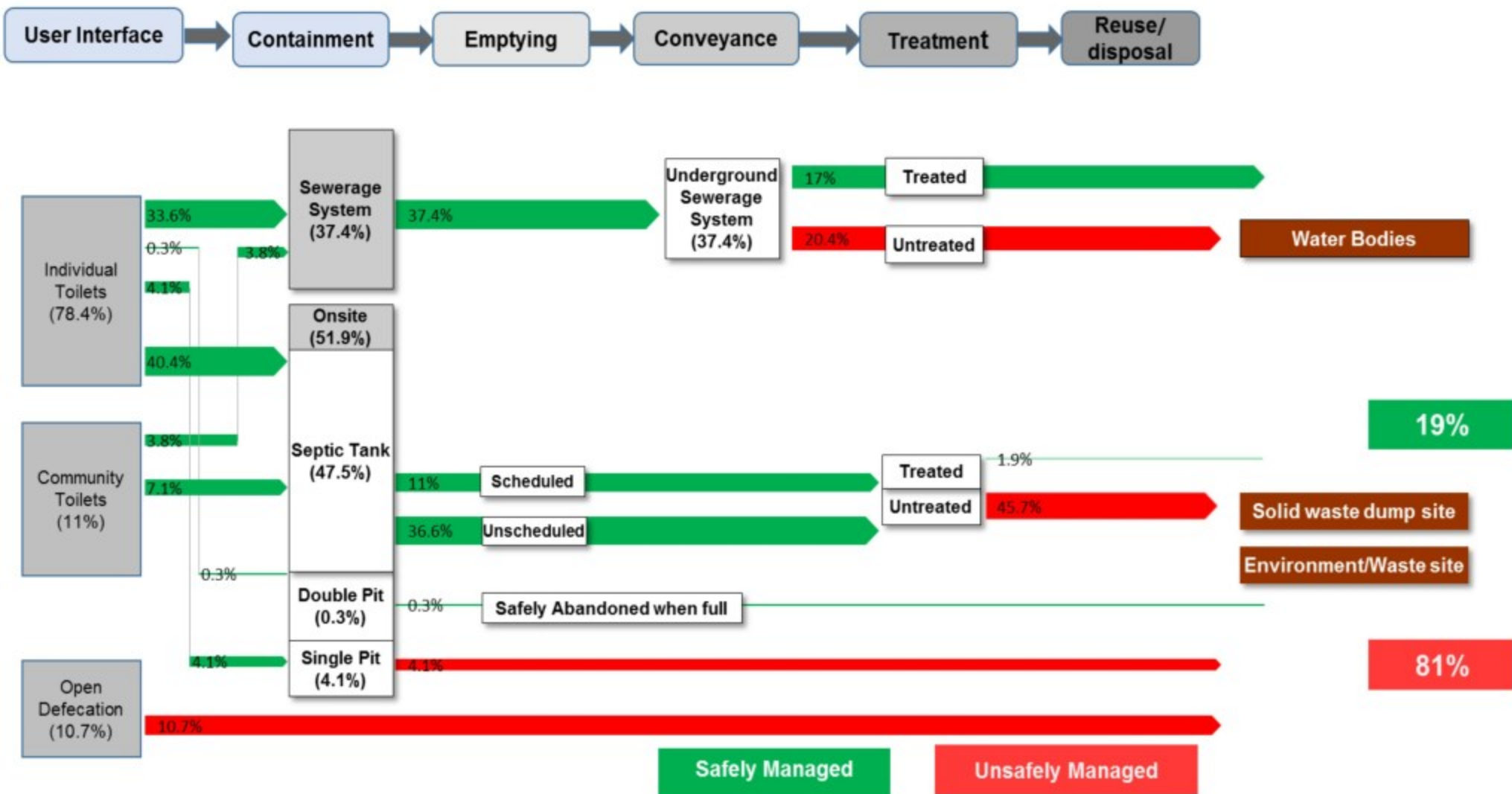
| Type of System | | % of popn. (P) | Of which Contained (C) | | Of which safely disposed insitu (S) | | Of which emptied for transportation (E) | Of which transported and delivered to treatment plants (D) | | Of which treated at treatment plants (T) | | Safely managed (SM) | |
|---|--|----------------|------------------------|------------------|-------------------------------------|-----|---|--|-----|--|------------------|---------------------|------------|
| | | | no | yes | no | no | | no | | | | | |
| Basic sanitation | To piped sewers (PS) | 34% | 90% | 10% ¹ | | | | 39% | 61% | 85% | 15% ² | 10% | |
| | | | 31% | 3% | | | | 12% | 19% | 10% | 2% | | |
| | To Septic Tanks (ST) | 39% | 34% ³ | 66% | | | 5% | 7% ⁵ | 93% | 85% | 15% ² | | |
| | | | 13% | 26% | | | 1% | 0% | 1% | 0% | 0% | | |
| | | | | | 50% ⁴ | 45% | | | | | | 7% | |
| | | | | | 7% | 6% | | | | | | | |
| | To pit latrines with slabs and ventilated improved pit latrines (VIPs) (PL) | 5% | 90% | 10% ¹ | | | 4% | 7% ⁵ | 93% | 85% | 15% ² | | |
| | | | 5% | 1% | | | 0% | 0% | 0% | 0% | 0% | | |
| | | | | | 60% | 36% | | | | | | | 3% |
| | | | | | 3% | 2% | | | | | | | |
| To other systems including composting toilets (OS) | 0% | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total basic sanitation (BAP) | | 78% | | | | | | Total safely managed (SMaSS) | | | | | 20% |
| Shared (SHS) | To shared or public latrines of an otherwise acceptable type (SH) | 11% | | | | | | SDG 6.2 Sanitation Ladder for India | | | | | |
| Unimproved (USS) | To pit latrines without slabs (e.g. open pits and traditional latrines) (OP) | 2% | | | | | | Safely managed services (SMaSS) | | | | | 20% |
| | To elsewhere, hanging latrines and bucket latrines (EW) | | | | | | | Basic services (BSS = BAP-SMaSS) | | | | | 58% |
| OD (NSS) | To open defecation (OD) | 9% | | | | | | Shared services (SHS) | | | | | 11% |
| Total non basic sanitation (NBAP) | | 22% | | | | | | Unimproved services (USS) | | | | | 2% |
| Total basic sanitation + total non-basic sanitation (BAP+NBAP) | | 100% | | | | | | No sanitation services (NSS) | | | | | 9% |

Assumptions

- 10% of toilets are directly connected to a piped sewer / pit system, which is not sealed and leaking to the local environment
- Based on Central Pollution Control Board (CPCB) report on "Performance evaluation of sewage treatment plant under NRCDC", August 2013
- Based on Performance Assessment System (PAS) project data, only 34% of septic tanks are connected to soak pit, other are connected to lined drains which ultimately disposed of in environment without treatment
- As per PAS project data, 5% septic tanks are safely emptied annually for transportation. Mostly, cities have bigger septic tanks as compared to standards which resulted into longer cleaning interval. Hence it is assumed that 50% excreta is partially treated (safely disposed insitu) and 45% excreta is fresh fecal (not safely disposed insitu)
- As per PAS project data, only 7% of septage transported is treated in existing sewerage treatment plant

SDG 6.2 through PAS database

Maharashtra State Urban Waste Water Flow Diagram



Source: As per PAS-SLB database (2016)

Excluding Greater Mumbai

Implication of Existing urban programs on SDG 6.2 and 6.3

Safely managed sanitation system is defined as the population using an improved sanitation facility that is not shared with other households, and where excreta are disposed of in situ or transported and treated off-site

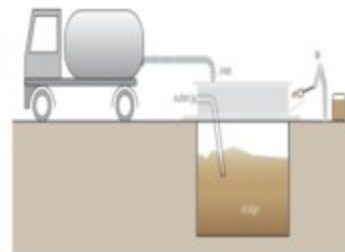
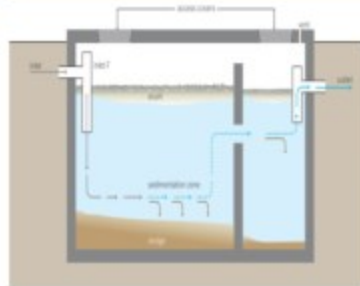
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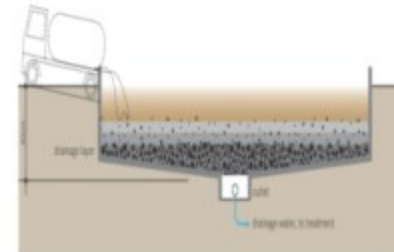
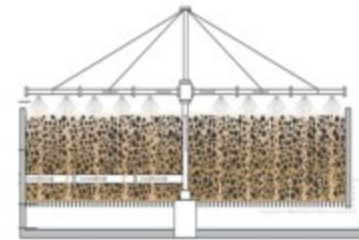
Collection



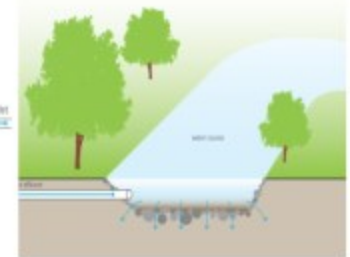
Conveyance



Treatment



Recycle & Reuse



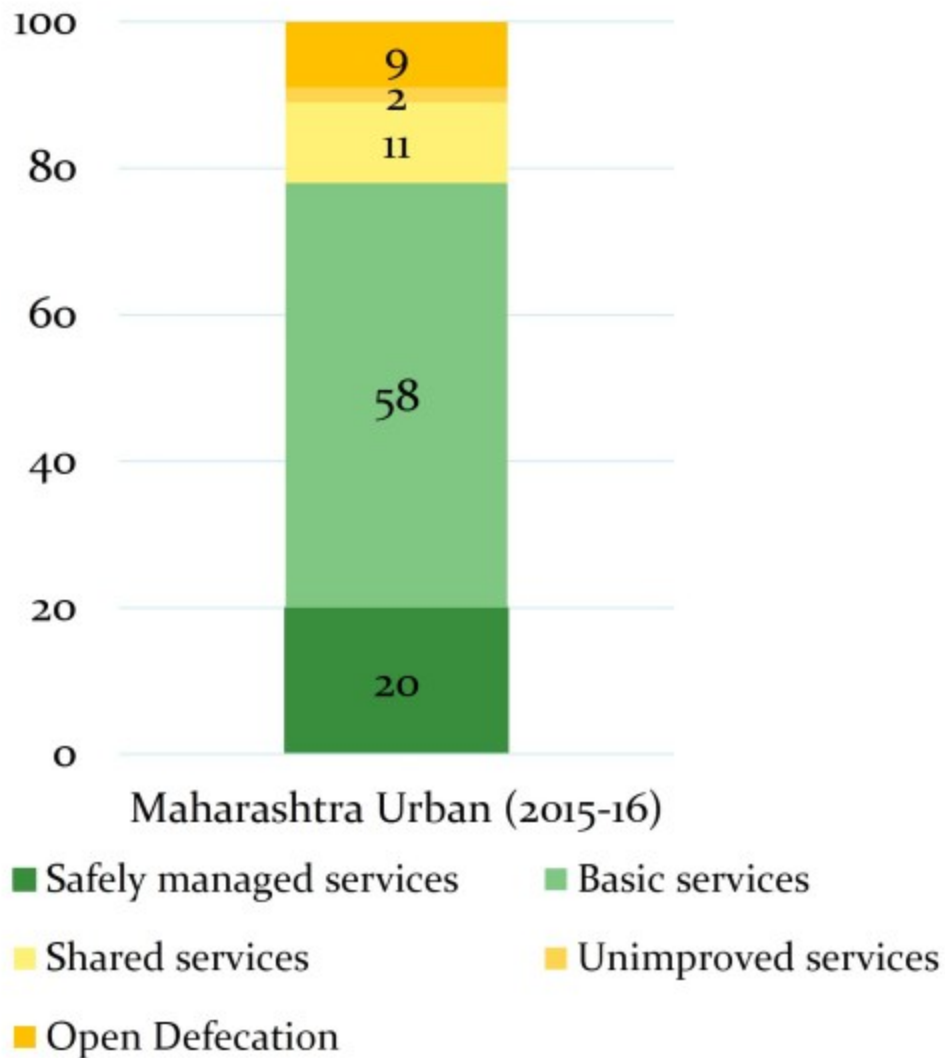
SBM: Individual toilets /
community toilet

AMRUT focus only on 500 towns, what happen to
other 3500+ towns ??

To achieve safely managed sanitation system in Urban India,

- Need to shift from community to individual toilets
- Need to focus on safe transportation and treatment of wastewater and septage for all towns

Sanitation Ladder for Urban Maharashtra based on PAS data



- ❑ Sanitation ladder for six states of India 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

END