Ministry of Housing and Urban Affairs
Government of India

एक कदम स्वच्छता की ओर

Atal Mission for Rejuvenation and Urban Transformation

Sanitation Scenario and On-site Wastewater Treatments Systems in India

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Government of India

Contents

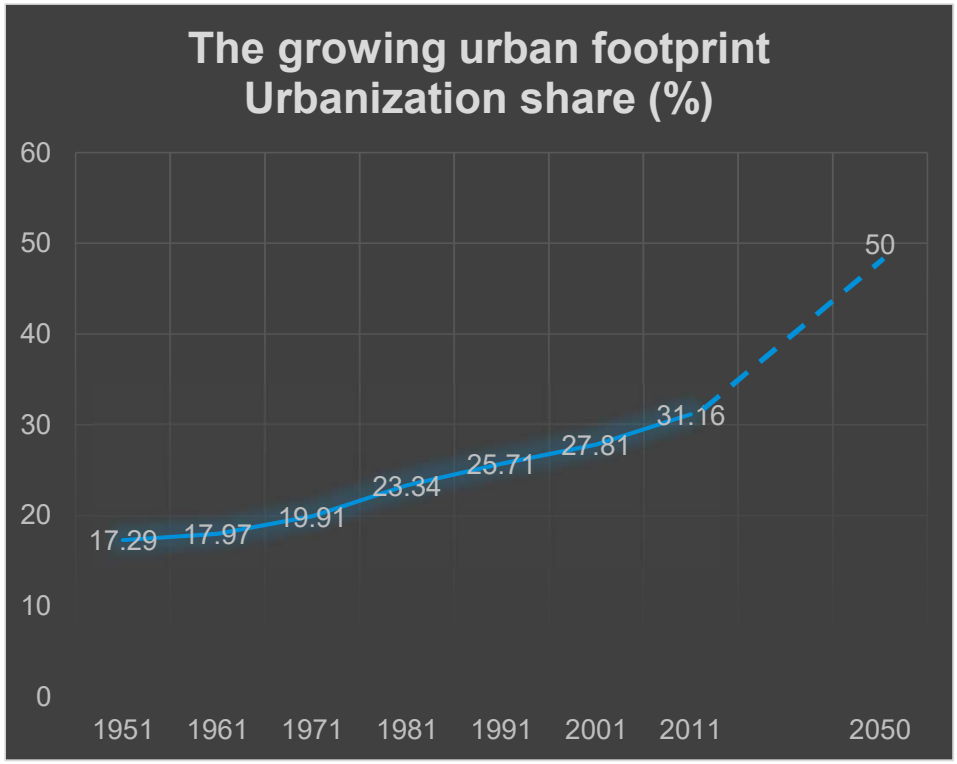
Sector Responsibility

1. As per Indian Constitution: 3 tier Government
2. WATSAN is a State subject
3. States have the responsibility to plan, design and implement WATSAN projects including the O&M and cost recovery
4. At the Central level, MoHUA is the Nodal Ministry for urban WATSAN Sector to formulate policy guidelines & programs and provide technical assistance to the State Governments.

Urban Population

As per Population Census of India 2011:

- 377 million i.e. 31.2% of the total population live in towns
- No. of cities/towns: 5161 in 2001; 7935 in 2011 (4041 statutory towns
- 42.62% lives in 53 metros having million plus population
- Net decadal growth of urban population > rural growth

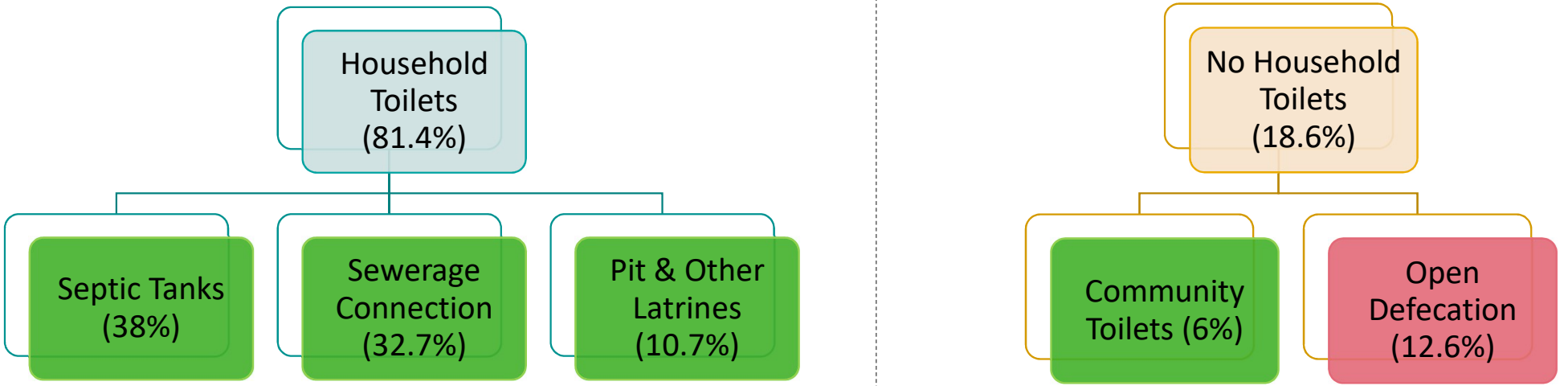


Source: Census of India 2011

India's Urban Sanitation Scenario

Current situation of urban population wastewater treatment system

On site sanitation and sewerage



Safe Disposal 30% (out of 87.4%)

- 70 % wastewater discharged without treatment
- 80 % of surface water pollution due to municipal sewage

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Source: Census of India 2011

Waste Water Collection

Current situation of urban population wastewater treatment system

Siltation leading to clogging

Broken gully pit

SW finding its way into sewers

Local sewerage network ending here

Clogged nala

Indirect access to sewers

Mini
and
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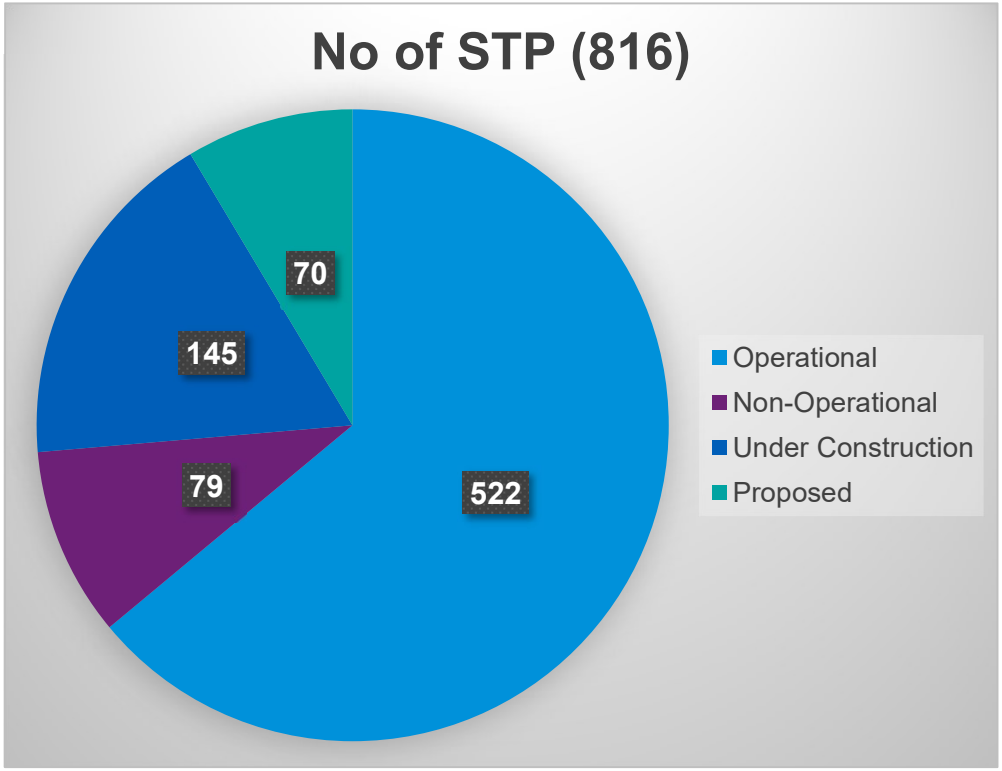
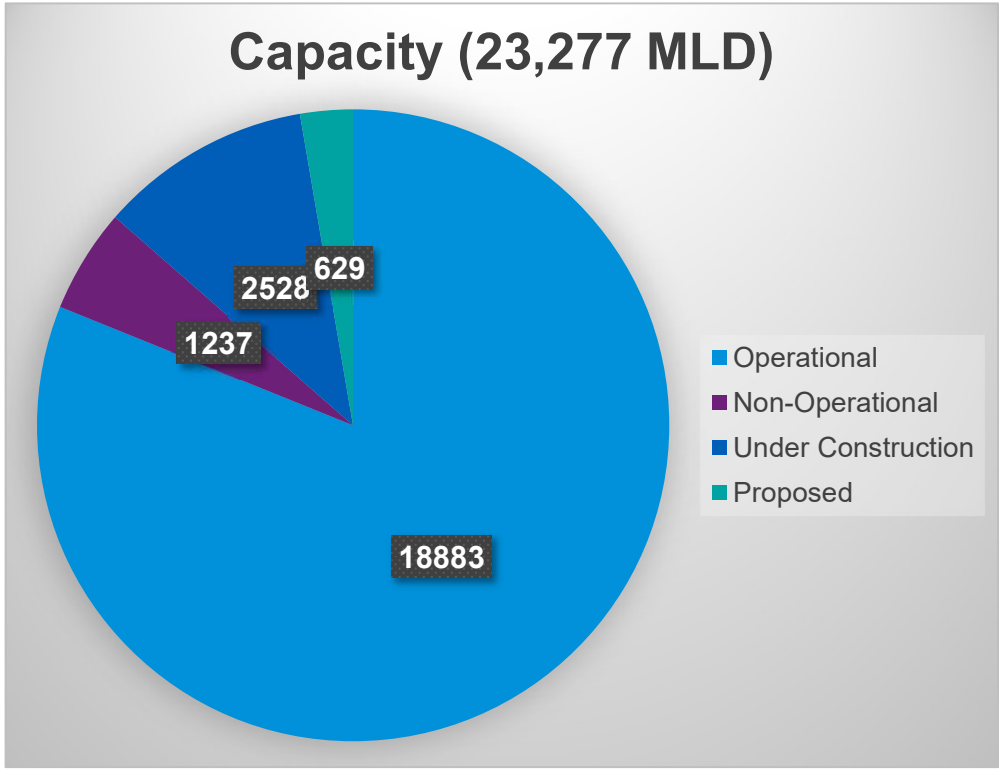
Sewage Generation and Treatment Capacity

Current situation of urban population wastewater treatment system

According to CPCB (2014 -15) study in 28 States/UTs of India, the sewage generation is about 38,254 MLD.





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Septage management: present scenario

Current situation of urban population wastewater treatment system

Disposal of Septage by vacuum truck

Unaesthetic & Hazardous conditions

Open dumping of Septage in low lying area

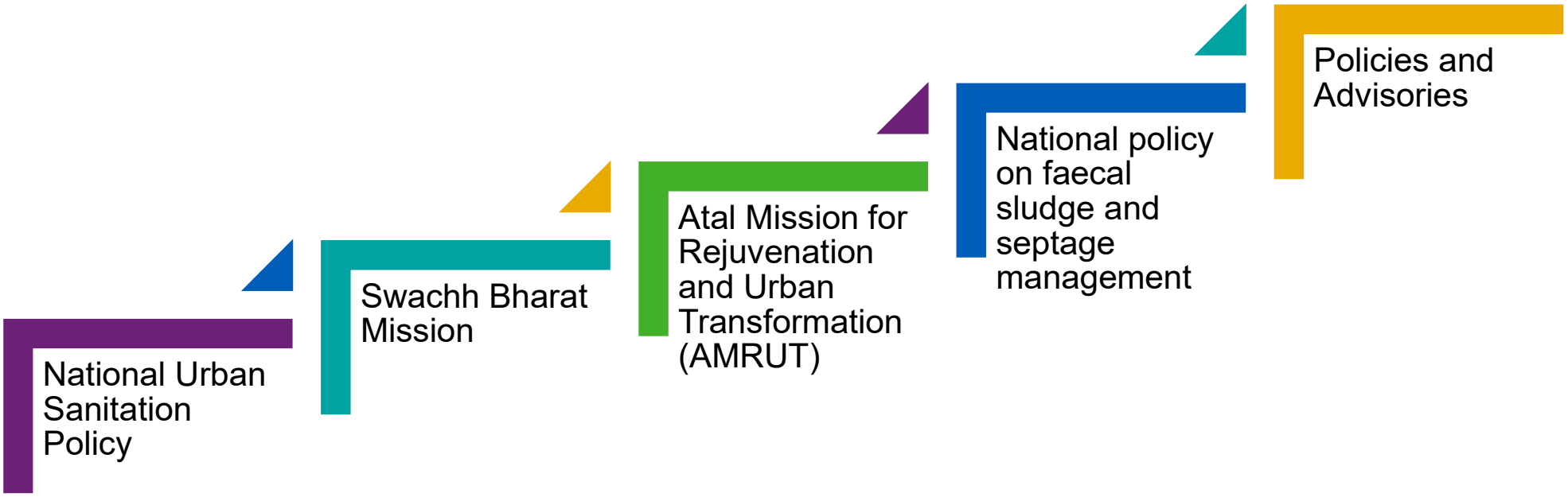
Service Level Gaps

Current situation of urban population wastewater treatment system

Service Indicators	National Benchmark	India Current status
Water Supply		
Per Capita supply of water	135 lpcd	69 lpcd
Extent of metering of water connections	100%	13%
Extent of non revenue water (NRW)	20%	32%
Cost recovery in water supply services	100%	39%
Sewerage		
Coverage of toilets	100%	70%
Collection efficiency of the sewage network	100%	35%
Solid Waste Management		
Household level coverage	100%	51%
Extent of scientific disposal of municipal solid waste	100%	24%

Initiatives by Government of India

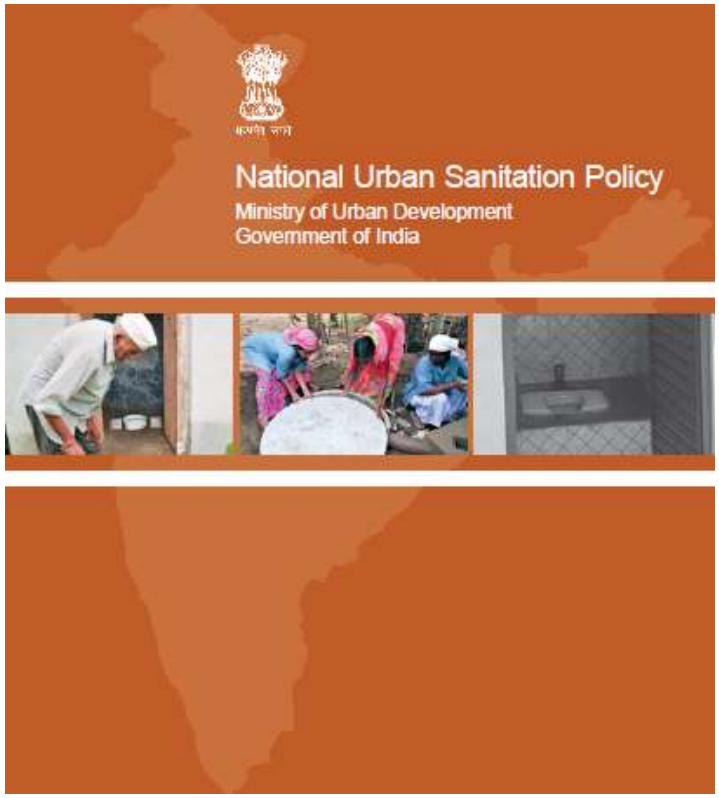
Government of India initiatives on sanitation



National urban sanitation policy

Vision: "All Indian cities and towns become totally sanitized, healthy ….., ensure …… public health and environmental outcomes for all their citizens."

Goals	Target behavior change
	Achieve open defecation free cities
	Total Sanitation: Safe disposal of 100% human and liquid waste
	State sanitation strategies and city sanitation plans for every state/city



Swachh bharat mission-urban

Major Objectives

Eradication of open defecation in all 4041 statutory towns

100% Scientific solid waste management in 4041 statutory towns

Implementation Components

Individual household toilets

Community toilets/Public toilets/Urinals

Solid waste management

66 lakh IHHL
5 lakh CT/PT seats

Information, Education and Communication (IEC)

Capacity Building (CB)

Awareness
Outreach
Advocacy

Achievements under the mission

1338 cities have been certified as Open Defecatio Free

Safe Sanitation
Nearly **5 million**
IHHL constructed

Accessible Sanitation
Nearly **0.24 million**
CT/PT seats built/ under construction

Safe collection of MSW
Over **50%** urban wards hav
100% Door to Door Collection

Waste to Energy
Current Production of
62 MW

Waste to Compost Production
1 million MT/Y

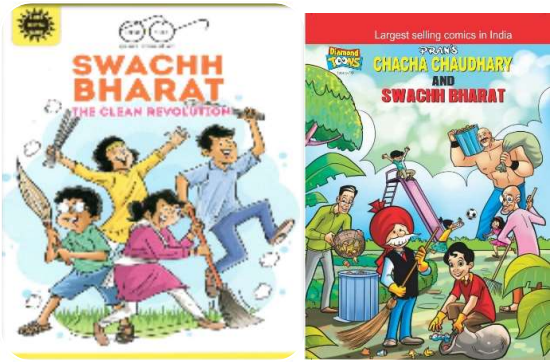
Waste Processing
Over **23%** waste processed

IEC & Behavior Change Initiatives Under The Mission

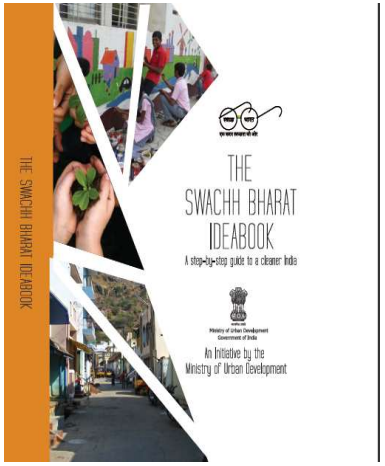
Government of India initiatives on sanitation

Asli Tarakki Campaign

Developing creatives for national dissemination



Partnership with comics book publishers



Swachh Bharat Idea Book

Celebrities for national campaigns

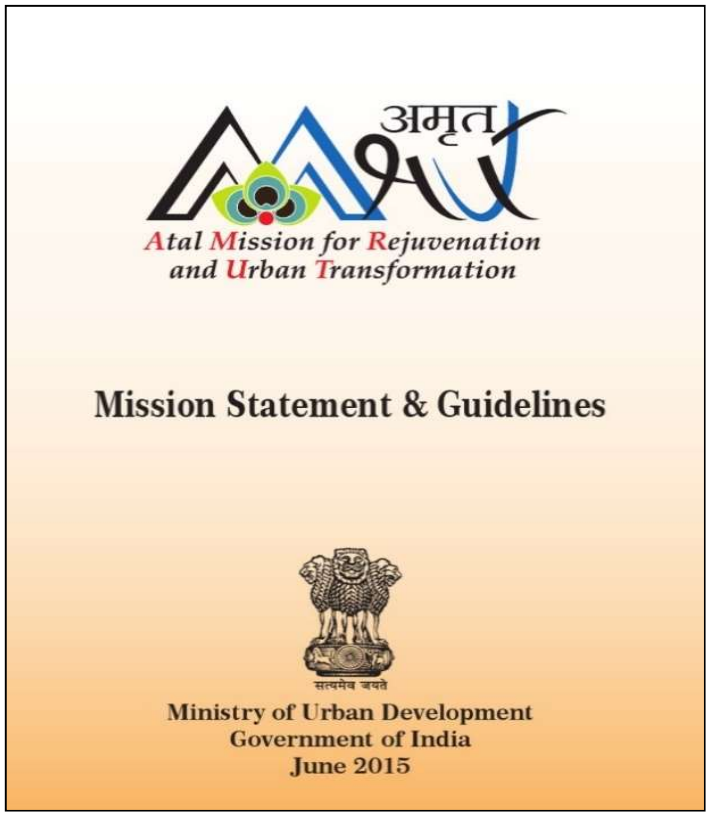
Engaging SHGs

Regular triggering exercises for swachhagrahi selection

National Student Engagement campaign

Atal mission for rejuvenation and urban transformation (AMRUT)

AMRUT : Five years (2015-16 to 2019-20) for Infrastructure development in 500 selected cities.

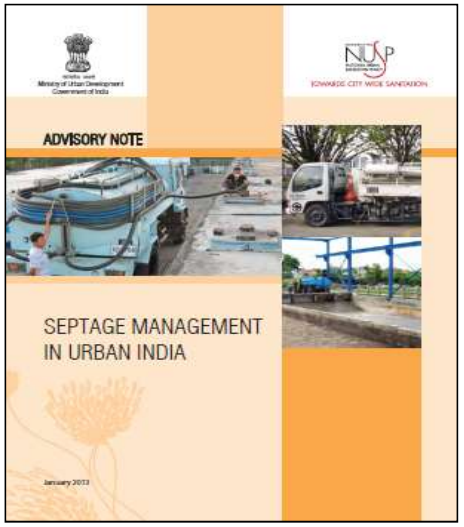


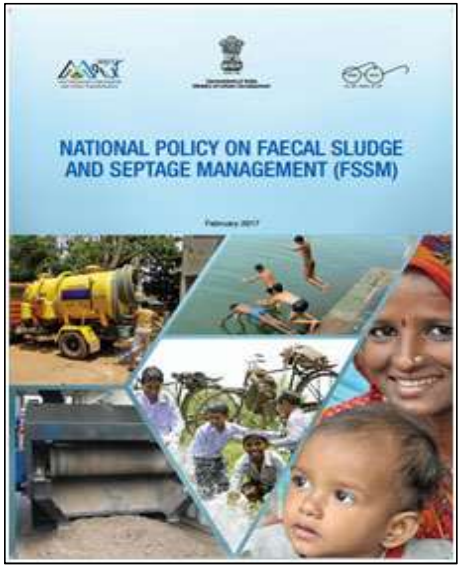
Fund Allocation : USD 77 Billion as Centrally sponsored Scheme.

Policies and advisories

1. ***Advisory note on septage management***
2. ***National policy on faecal sludge and septage management (FSSM) policy***

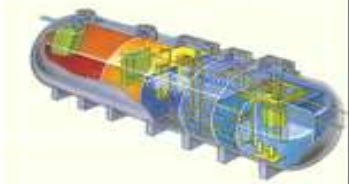
- More than 30 million households depend on septic tanks (Census 2011)
- Five states in the process of developing septage management strategy.
- Septage management plans being developed and to be piloted in 5 cities.





Manual on sewerage & sewage treatment- introduction and design features of advanced on-site systems

Table 9.9 Classification according to treatment capacity (Example of Japan)

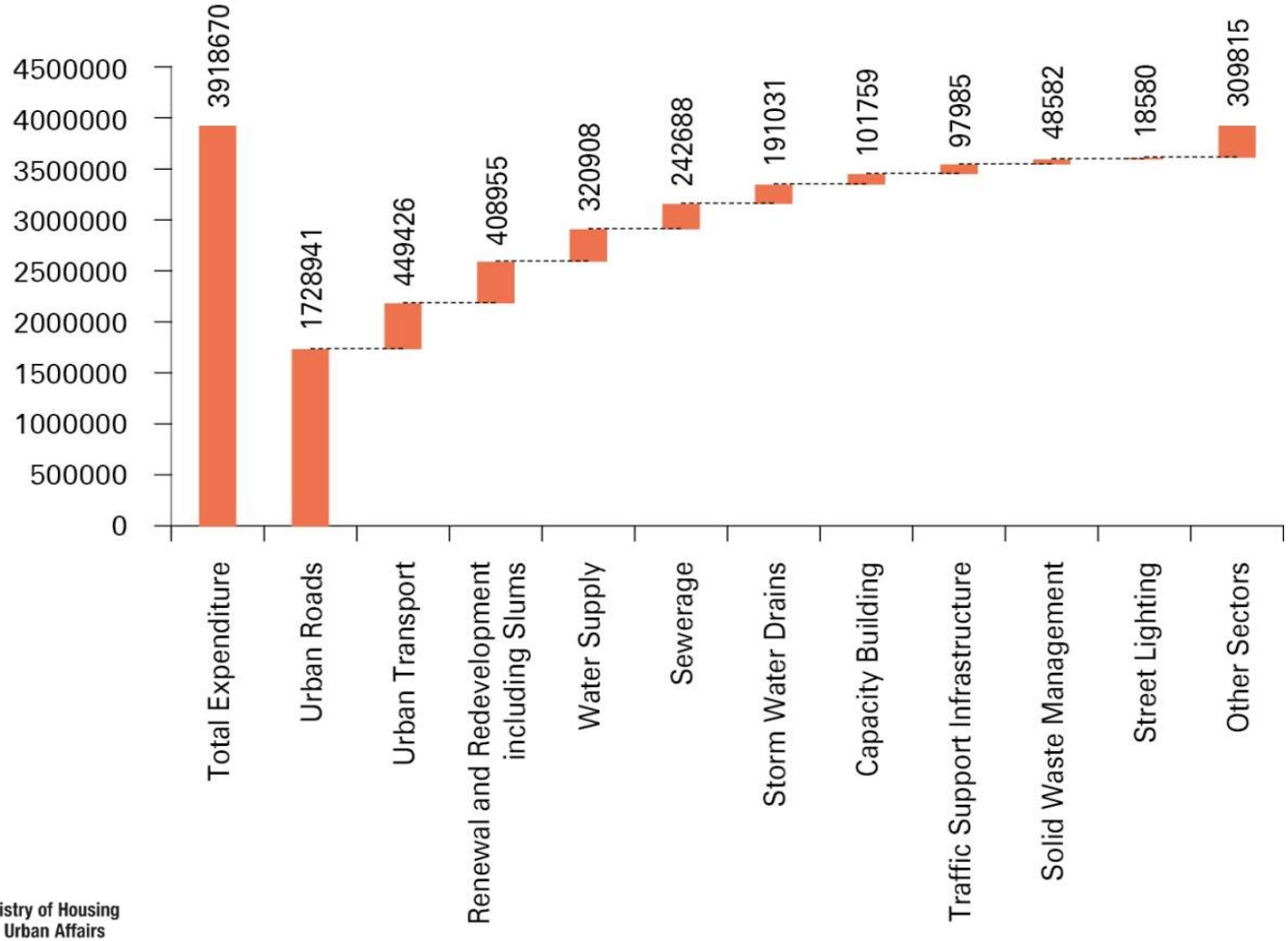
Package-type			On-site construction-type
Small-scale	Medium-scale	Large-scale	Medium/Large-scale
(About 5 to 50 people)	(About 51 to 500 people)	(Approx. 500 to 5,000 people)	(More than 500 people)
			

ii. Performance

Treatment processes are classified into three kinds according to performance: a proce that mainly removes BOD-related contaminants, a process that removes BOD-relat contaminants and nitrogen, and a process that removes BOD-related contaminan nitrogen, and phosphorus.

Urban infrastructure investment requirement (2012-31)

Infrastructure Investment Required



- ₹39,200 billion (USD 608 billion) over 20 years
- ₹480 billion (USD 7.45 billion) for Solid Waste Management
- ₹2,420 billion (USD 37.5 billion) for Sewerage
- ₹3,200 billion (USD 49 billion) for Water Supply

The cost does not include :

- Primary Education, Primary Health, Electricity Distribution; Land cost.
- Additional ₹20,000 billion (USD 310 billion) for operation and maintenance of assets - old and new.

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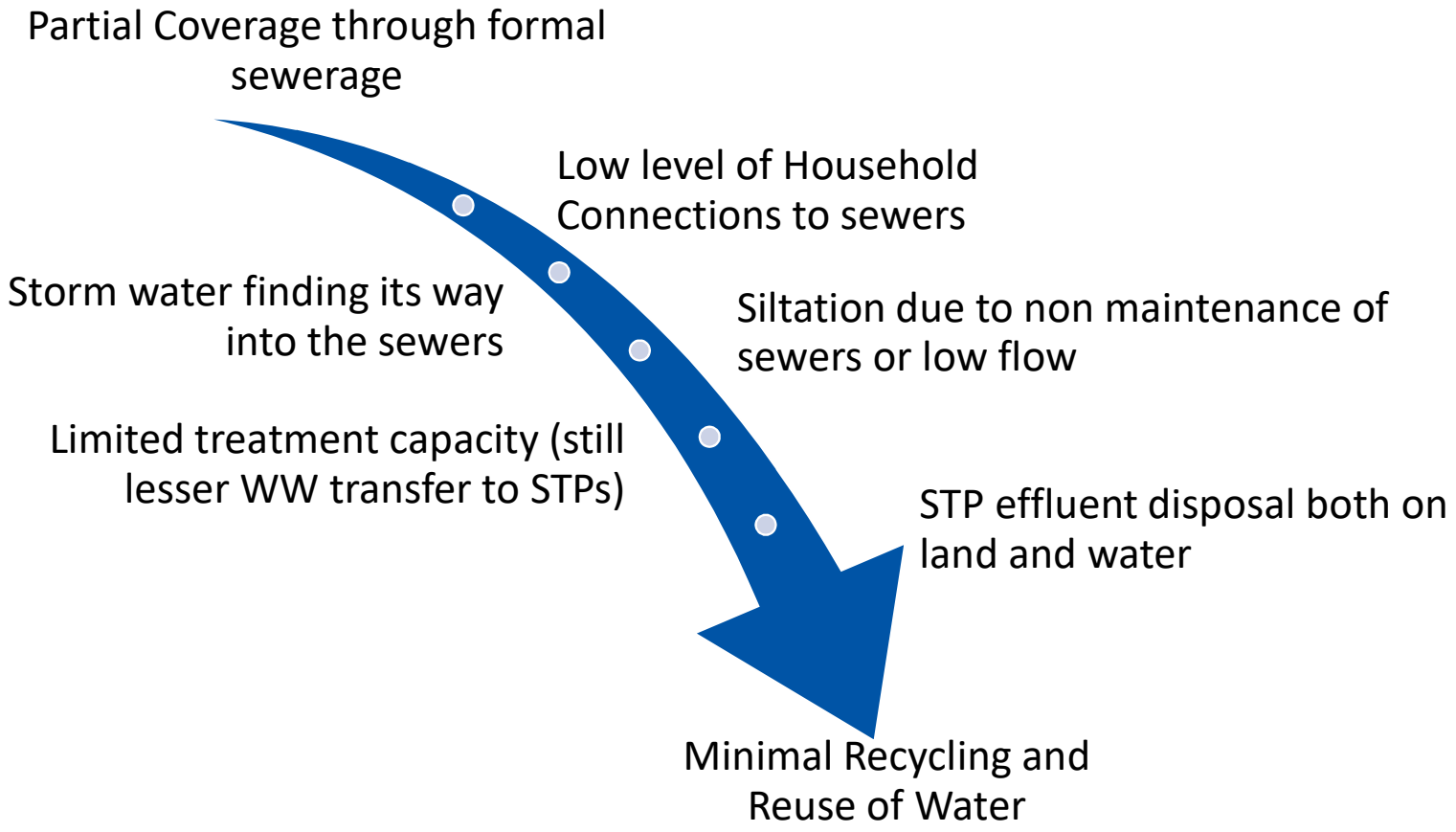
Inefficiency in Infrastructure

Wastewater treatment & challenges

Treatment Technologies	Challenges
• Up-flow Anaerobic Sludge Blanket • Extended Aeration • Activated Sludge Process • Fluidised Activated Bed • Sequencing batch reactors • Membrane bioreactors • Waste Stabilisation Ponds	• Increased attention, investments • Under utilisation (less sewage received at the STP) • Secondary treatment- generally adopted • Privatisation - rare (recent initiative)

Reasons for Inefficiency in Collection & Treatment

Inefficiency in Infrastructure



On-going Co-operation between MoHUA and JICA

Cooperation with Government of Japan

1. JICA has deputed a Technical Expert to CPHEEO, MoHUA
2. Extending long term Soft Loans to Govt. of India for Metro Rail, High Speed Rail, Water Supply and Sanitation Services, etc.
3. JICA assistance for 16 Projects in WATSAN costing JPY 509 Billion

Technical Support by JICA

- Manual on Sewerage and Sewage Treatment Systems (Part-A; Engineering, Part-B: Operation & maintenance, and Part-C: Management), 2013
- Manual on Municipal Solid Waste Management under Swachh Bharat Mission, 2016

Conclusion

Decentralized technologies adopt the science from time tested practices and improve the treatment process.

These technologies are devised after understanding the nature of wastewater and are put together in different combinations as per need.

They are designed to enhance the natural aerobic and anaerobic processes

Create conditions in which wastewater can be treated with the least use of energy or mechanical equipment.

Wastewater could be effectively recycled and reused at institutional or community levels.

Thank You

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