

# Financing Citywide FSM Services

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CEPT  
UNIVERSITY

**p a s** performance  
assessment  
system

# Results from the 2011 Census of India

**18.6%** URBAN HHs WITH **NO** LATRINE FACILITY

This translates to 68 million people or  
14.7 million households

**6%** OF HHs DEPEND ON **PUBLIC TOILETS**

**12.6%** OF HHs RESORT TO **Open Defecation**

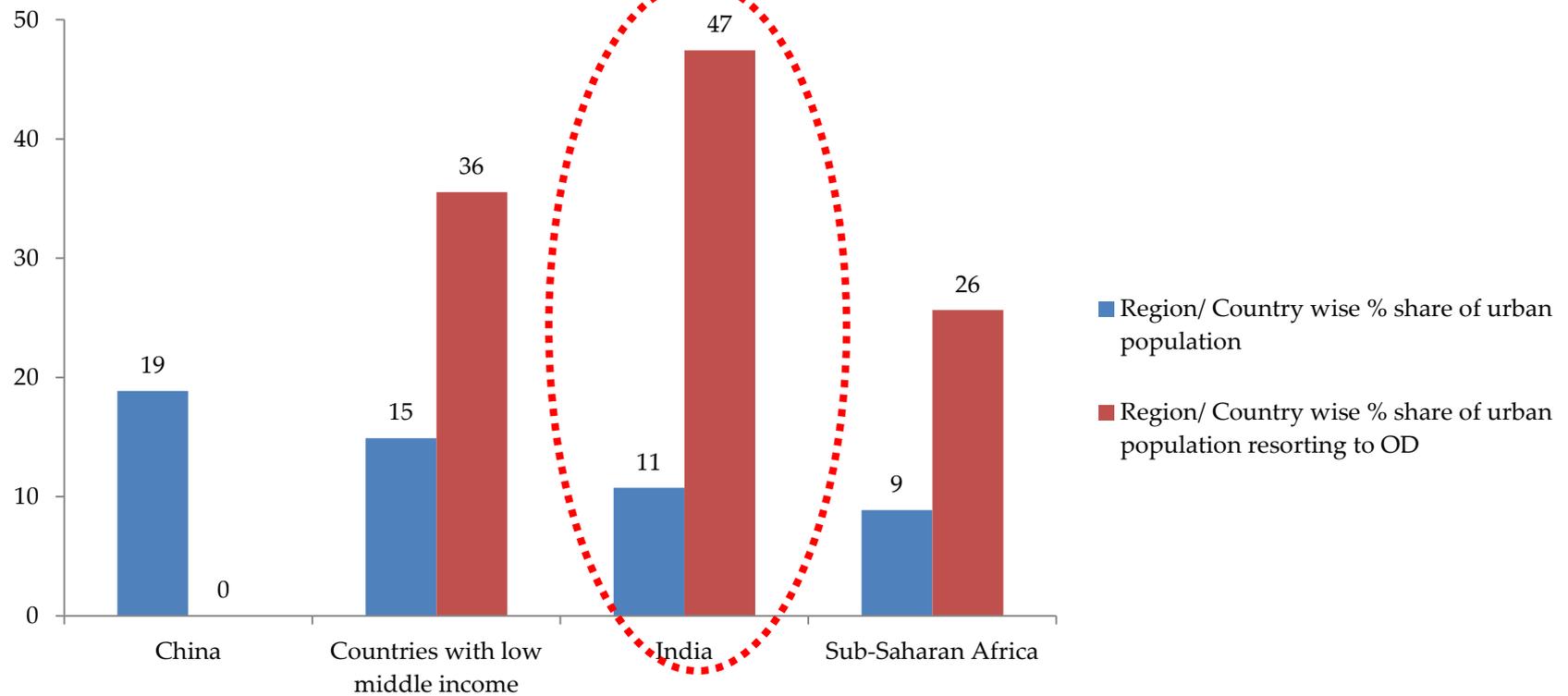
Situation is worse in smaller towns with  
OD rates of 22%



# India Story **WAS** faltering in sanitation!!

Share of urban population for India is **11%** as compared to  
India's share **47%** of urban population resorting to open defecation

**% share of urban population - versus - % of urban population resorting to OD**





# Swachh Bharat Mission (SBM) – Urban Areas



Government of India  
Ministry of Urban Development

Search - Keyword/s



AND SHALL BE SCRIPTED THROUGH INSTRUMENT OF PLANNED MOBILITY

Home» Swachh Bharat Mission

## Swachh Bharat Mission

Key objectives of SBM Urban Areas

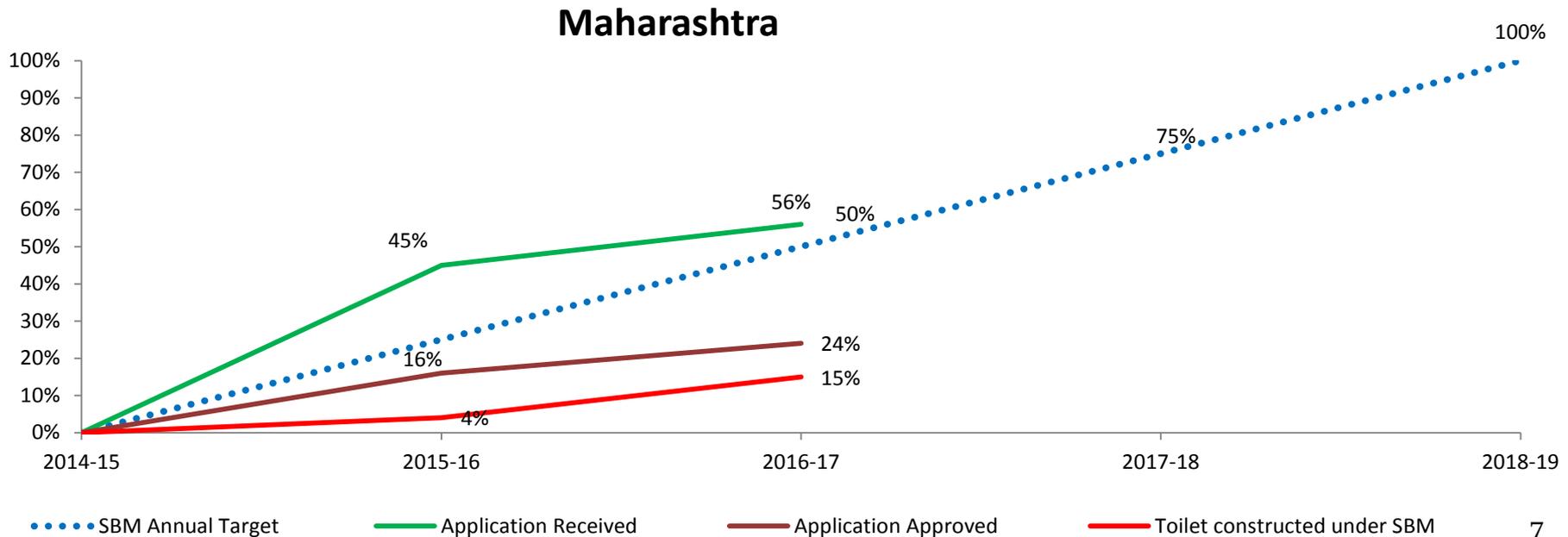
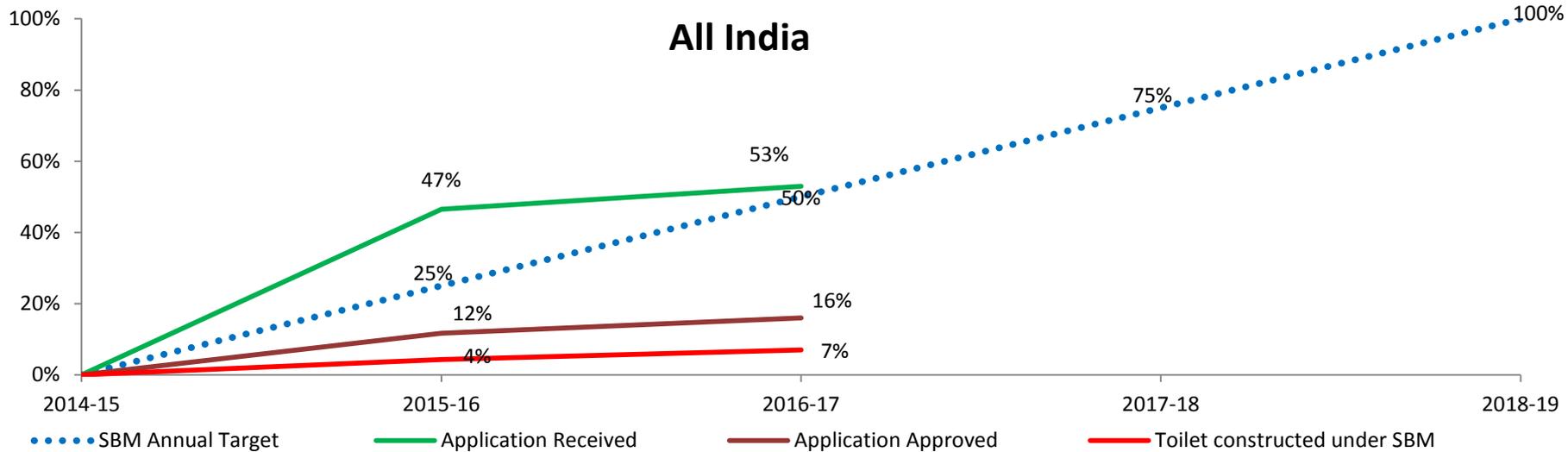
- **Eliminating open defecation** with universal access and an emphasis on own toilets
- Universal services for end-to-end solid waste management
- **Awareness generation** and behaviour change
- **Capacity building** of local governments
- **Enabling environment** for private sector participation



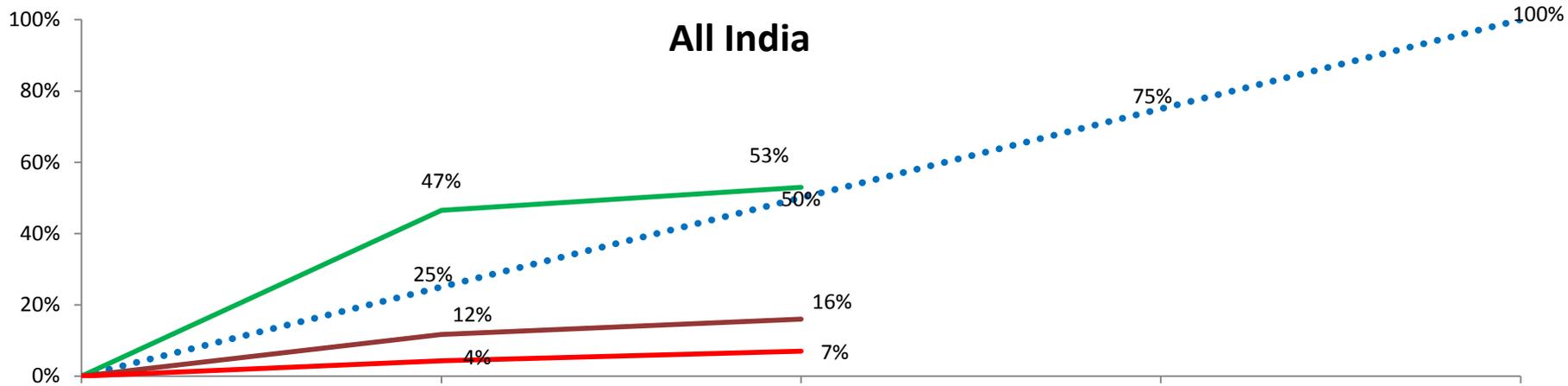
# SANITATION FINANCING FOR TOILETS



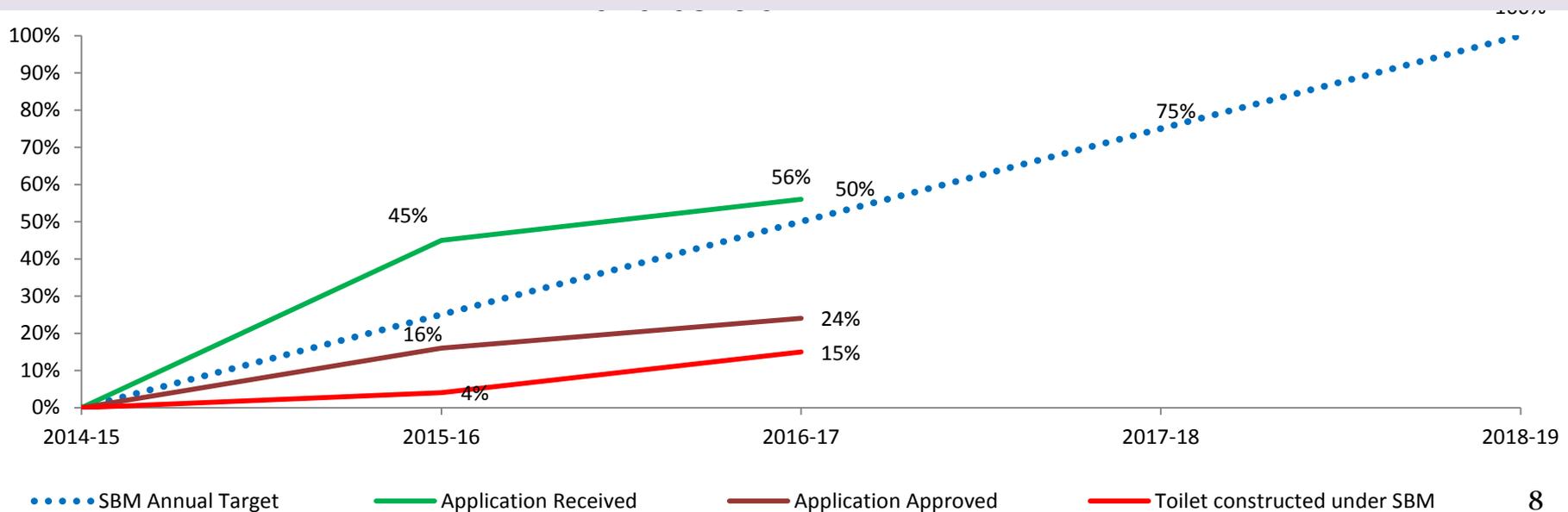
# Status of Toilet Construction under SBM



# Status of Toilet Construction under SBM



Household surveys in Maharashtra done under the PAS Project at CEPT University in 2010 and quick assessments in two project cities of Wai and Sinnar suggest **lack of access to finance as one of the key reasons that inhibits individual toilet construction in urban areas**



# Demand Side Study - Interviews with Households

30 households without toilet  
were interviewed

35 households without toilet  
were interviewed

	Wai	Sinnar
Range of income	1200 - 20000	500 - 18000
Average saving capacity per month	550	950
Willingness towards group toilets	23 of 30	23 of 35
Willingness towards taking loans	15 of 30	23 of 35
Range of own contribution for toilet	5000 - 15000	1000 - 20000
Preferable amount of toilet loan to be taken (Avg.)	16000	19000
Awareness towards loans/ institutions	20 of 30	18 of 35



*"My daughters have grown up and we needed a toilet at home. Therefore **I took a loan from credit co-operative society for constructing an individual toilet**"*

*"Everyone in our house resort to open defecation. Our relatives do not visit us as we do not have a CT nearby or an individual toilet. We feel it is very important to have a toilet. **We are very much willing to take a loan for toilet**"*

*"I never thought of taking a loan for constructing a toilet. But yes, that is a good option"*

*"I feel the need of constructing a toilet but **I don't think any institution will lend me a loan.** I do not have a capacity to repay the loan on time."*

*"I have **taken an internal loan of Rs. 5000/- through SHG for construction of toilet** in the year 2009 as we had to walk 20-25 mins. to reach to the community toilet"*



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Willingness towards taking loans	15 of 30	23 of 35

## Aspiration for an Individual Household Toilet and Need for HH credit voiced by respondents



*"My daughters have grown up and we needed a toilet at home. Therefore I took a loan from credit co-operative society for constructing an individual toilet"*

*"Everyone in our house resort to open defecation. Our relatives do not visit us as we do not have a CT nearby or an individual toilet. We feel it is very important to have a toilet. We are very much willing to take a loan for toilet"*

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*"I feel the need of constructing a toilet but I don't think any institution will lend me a loan. I do not have a capacity to repay the loan on time."*

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# Financial Institutional Ecosystem in Urban India

## **BANKS**

HDFC Bank  
ICICI Bank  
Bandhan Bank

## **COOPERATIVE INSTITUTIONS**

Commissioner for Cooperation and Registrar, Urban credit Cooperative Societies, Urban Cooperative Banks

## **HOUSING FINANCE INSTITUTIONS**

GRUH Finance Ltd.  
Micro Housing Finance Corporation Ltd.  
India Shelter Finance Corporation Ltd.  
SEWA Grih Rin Ltd.

## **MICROFINANCE INSTITUTIONS /SFB**

Grameen Koota, Ujjivan  
Janalakshmi Financial Services  
ESAF Microfinance  
Equitas  
Suryoday Microfinance

## **NGOs / Dev Programs/ State Dev agencies**

FINISH Society  
Bandhan Bank NGO  
MHT  
Navyadisha  
MAVIM

## **OTHER REGULATORY/ APEX ORGANIZATIONS**

National Housing Bank  
NABARD  
SIDBI  
FWWB



# Evidence on household finance for sanitation

## Most MFI and HFI records show 99%+ repayment record

A number of MFIs have provided toilet loans

- Guardian has supported over 27000 households with toilet loans
- Water.org support to 20 MFI partners
- ESAF, SKSRDP, Grameen Koota have also provided sanitation loans

Besides MFIs, there are other institutions

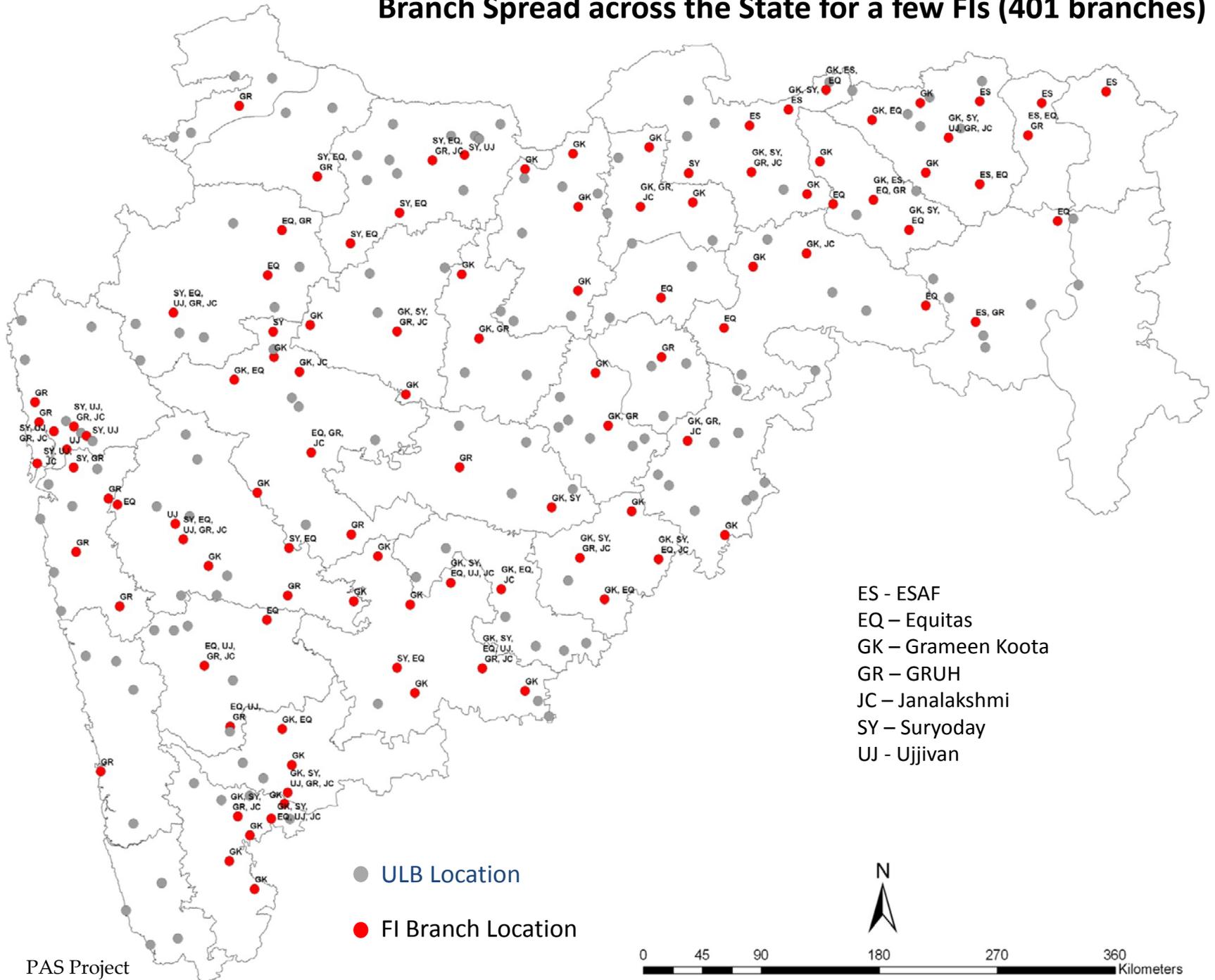
- Cooperative sector
  - Coop banks, and Coop credit societies
- Scheduled commercial Banks
  - housing improvement loans  
SBI, HDFC Bank, etc.
- HFIs –
  - housing improvement loans  
e.g. GRUH, others



# Widespread presence of MFIs-HFIs

FI	Type of Institution	Active Customers	Presence in Maharashtra	Total Loan Disbursed (INR)	Provides Sanitation Loans
 Ujjivan Build a Better Life	MFI w/ SFB License	27.70 L	<b>61 branches</b>	4328 Cr. FY 14-15	No
 Janalakshmi Ikko apni kahaani	MFI w/ SFB License	23.45 L	<b>35 branches</b>	4121 Cr. FY 14-15	No, but plan to initiate Pilot in South India
 ESAF MICROFINANCE Financing Livelihoods	MFI w/ SFB License	5.66 L	<b>21 branches</b>	1170 Cr. FY 14-15	Yes
 equitas	MFI w/ SFB License	22.92 L	<b>73 branches</b>	2,129 Cr FY 14-15	Yes
 Suryodaya Enabling Dreams. Empowering Lives.	MFI w/ SFB License	6.80 L	<b>46 branches</b>	1,663 crore FY 14-15	No but willing to explore
 GrameenKoota financial services	MFI	14 L	<b>102 branches</b>	2500 Cr. FY 15-16	Yes
 am Agora Microfinance India Ltd.	MFI	11.5 K	<b>7 branches</b>	16 Cr. FY 14-15	No, but willing to pilot
 GRUH FINANCE LIMITED We help you build homes	HFI	n/a	<b>49 branches</b>	3,120 crores FY 14-15	No, but willing to pilot – have designed a product
 MICRO HOUSING FINANCE CORPORATION LIMITED	HFI	10,000 loans (cumulative)	<b>7 branches</b>	400 Cr. (cumulative)	No, but willing to

# Branch Spread across the State for a few FIs (401 branches)



# Toilet and Lender Fairs in Cities

Fair was an attempt to create a platform for interaction of all the sanitation technology providers, sanitary ware suppliers, financial lending institutions and the applicants of Swacch Bharat Mission toilet scheme.



# Loans from WUCB by SHGs in a small city



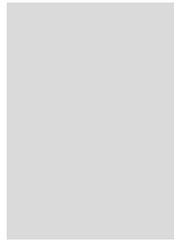
Varsha Kumbhar



Individual toilet



Rs. 20,000



Chandrakala Kumbhar Kalpana Kumbhar



Group toilet



Rs. 20,000



Alka Kumbhar



Individual toilet



Rs. 20,000

# Mobilizing SHGs for toilet loans and construction

## SHGs mobilization support in small cities

- **Assessment of Self Help Groups in Wai**  
[Completed 150 SHGs (1500+ families) assessment]
- **Awareness generation towards need of individual toilets**  
(Mobilize 200+ toilet applications)
- **Assess and establish links with potential lenders**
- **Facilitate access to loans for toilets and linkage with financial institution**



- With capacity building support, **SHGs can play an important role to expedite SBM progress**
- Mobilizing SHGs would bear results quickly

# Scaling up Sanitation Credit

- Operationalizing policies such as incorporation of **Sanitation in Priority Sector Lending**
- Supporting agencies such as MAVIM/ Navya Disha /MHT to strengthen **SHG-Bank Linkages for sanitation credit**
- Work through **thousands of coop institutions** in states in Maharashtra and southern states
- Work with **NABARD to support SHG links**



# FINANCING CONVEYANCE AND TREATMENT



# Financing Citywide FSM Services

Sanitation service value chain	FSM Financing	
	Capital	O&M
Access	-Construction toilet units - Refurbishment of septic tanks	-
Collection and Conveyance	Procurement of Trucks	Service contract for septic tank emptying service
Treatment	Set up Faecal Sludge treatment plant (FSTP)	Management contract for O&M of FSTP



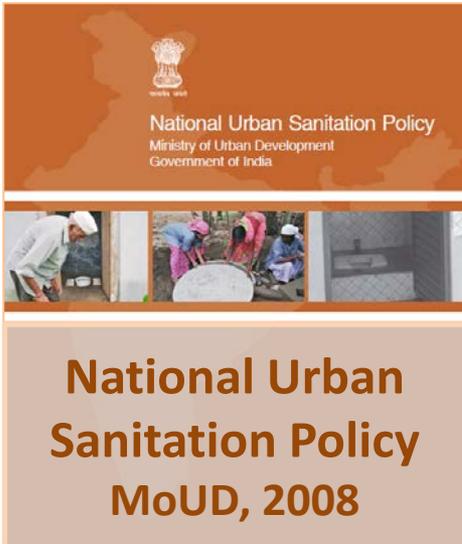
# Financing Citywide FSM Services

Sanitation service value chain	FSM Financing	
	Capital	O&M
Access	<ul style="list-style-type: none"> <li>- Construction of public toilets</li> <li>- Refurbishment of septic tanks</li> </ul>	
Collection and Conveyance	Procurement of Trucks	Service contract for septic tank emptying service
Treatment	Set up Faecal Sludge treatment plant (FSTP)	Management contract for O&M of FSTP

**Focus Area for FSM financing**



# Emerging Recognition of FSM in India



National Urban Sanitation Policy  
Ministry of Urban Development  
Government of India

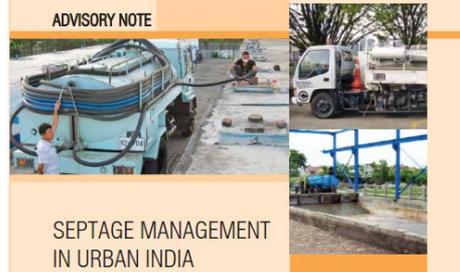


**National Urban Sanitation Policy**  
MoUD, 2008

Importance of safe and hygienic facilities with proper disposal and proper disposal and treatment of sludge from on-site installations; Proper operations & maintenance (O&M) of all sanitary facilities



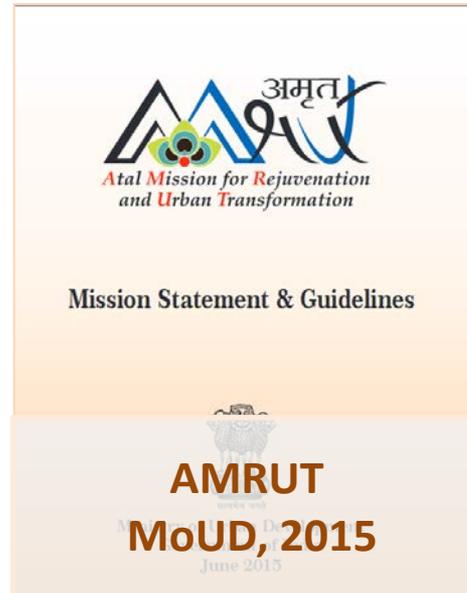
ADVISORY NOTE



SEPTAGE MANAGEMENT  
IN URBAN INDIA

**Advisory on Septage Management**  
MoUD, 2013

Recommends developing a **Septage Management Plan (SMP)** as a **part** of city sanitation plans (**CSP**)



अमृत  
Atal Mission for Rejuvenation  
and Urban Transformation

Mission Statement & Guidelines



**AMRUT**  
MoUD, 2015  
June 2015

**FSM** in a cost-effective manner; Mechanical and biological **cleaning of sewers and septic tanks** and recovery of operational cost in full

**AMRUT Reform mandates state Govt. to issue FSM Policies**

**ODF definition advocates urgent need for FSM**



# Emerging Recognition of FSM in India



**AMRUT  
Reform**

**Regulatory provisions will help create a demand for  
FSM financing at State/City level**

**hygienic facilities with proper disposal** and proper disposal and treatment of sludge from on-site installations; Proper operations & maintenance (O&M) of all sanitary facilities

**MoUD, 2013**

**Recommends** developing a **Septage Management Plan (SMP)** as a **part** of city sanitation plans (**CSP**)

**AMRUT MoUD, 2015**  
June 2015

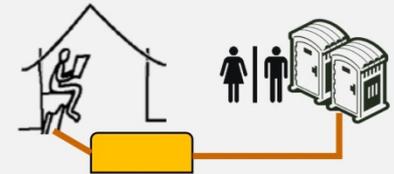
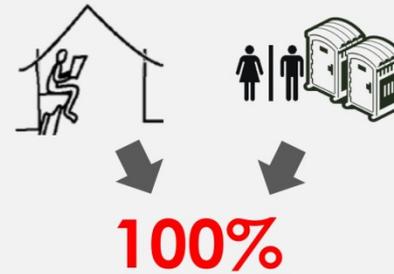
**FSM** in a cost-effective manner; Mechanical and biological **cleaning of sewers and septic tanks** and recovery of operational cost in full

**ODF definition advocates urgent need for FSM**

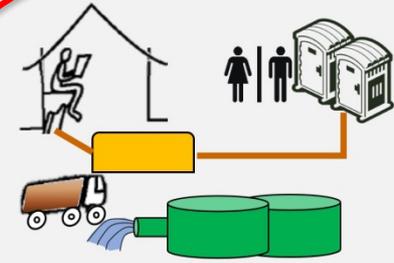


# Maharashtra ODF, ODF+, ODF++ Framework

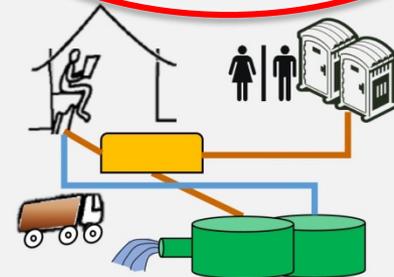
ODF



ODF+



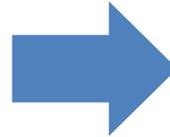
ODF++



# From a **complaint redressal system** to **regular scheduled service**

## Current septage management practice

~2% of tanks emptied per year  
(once in >8-10 years)



## Recommended septage management practice

~33% of tanks emptied /year  
(once in 3 years)<sup>5</sup>

### Current barriers

1

Emptying is done **on-call** by the household, who do not see the need for regular cleaning

2

Wai has only **1 truck** of 5kL capacity, owned and operated by the ULB

3

~**INR 1500** payment to get tanks emptied, but only once in more than 8-10 years

### Proposed solutions

1

Septic tanks will be emptied on a **pre-determined schedule**. **Regulations and penalties** will be set in place to ensure periodic emptying  
**Awareness generation** activities will educate households about the need for regular cleaning

2

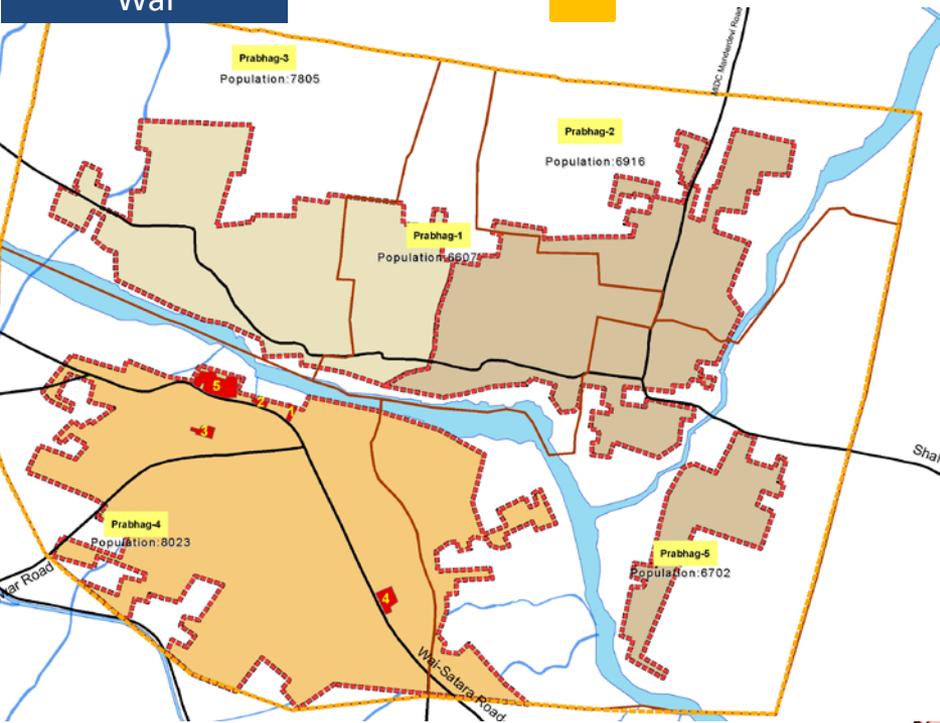
Wai will get **1 additional 5 kL** truck to empty ~**6 septic tanks a day, 300 days a year**, operated by a private contractor. The existing truck will continue to empty public and community toilets

3

All property owners (residential and non-residential) will pay a '**special sanitary tax**' to be levied by the ULB as per the **municipal legislation**<sup>1</sup>

# Need to plan for a regulated schedule of three year septic tank cleaning cycle

Wai



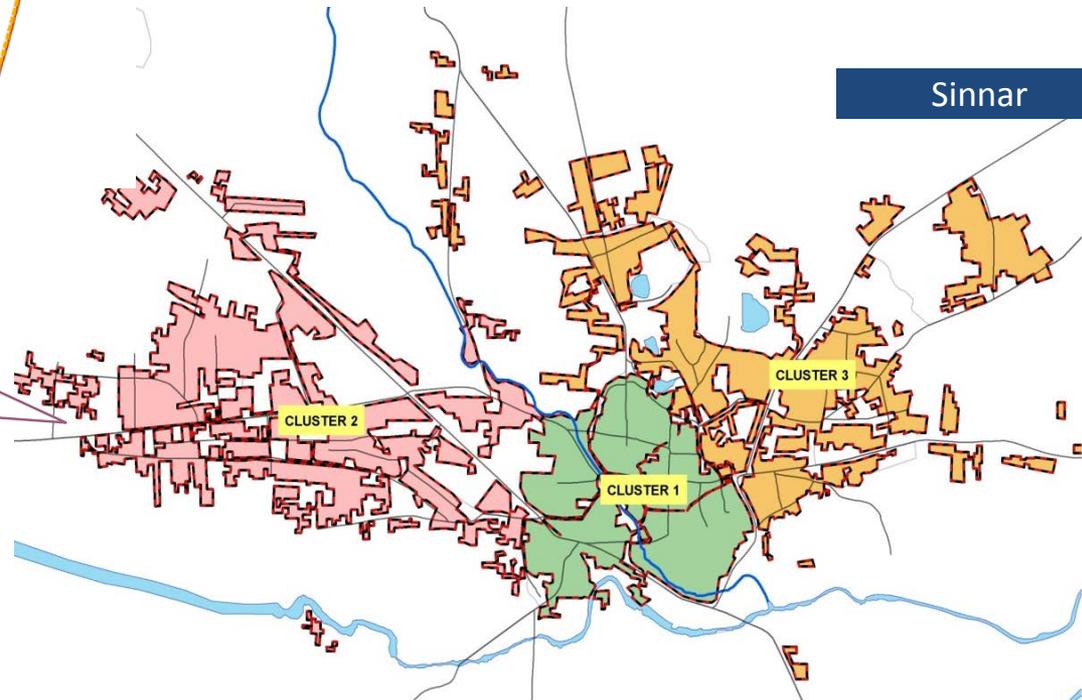
Wai requires 1 more additional suction emptier truck

~1760 septic tanks need to be cleaned annually on scheduled basis

Sinnar requires 3 more additional suction emptier truck

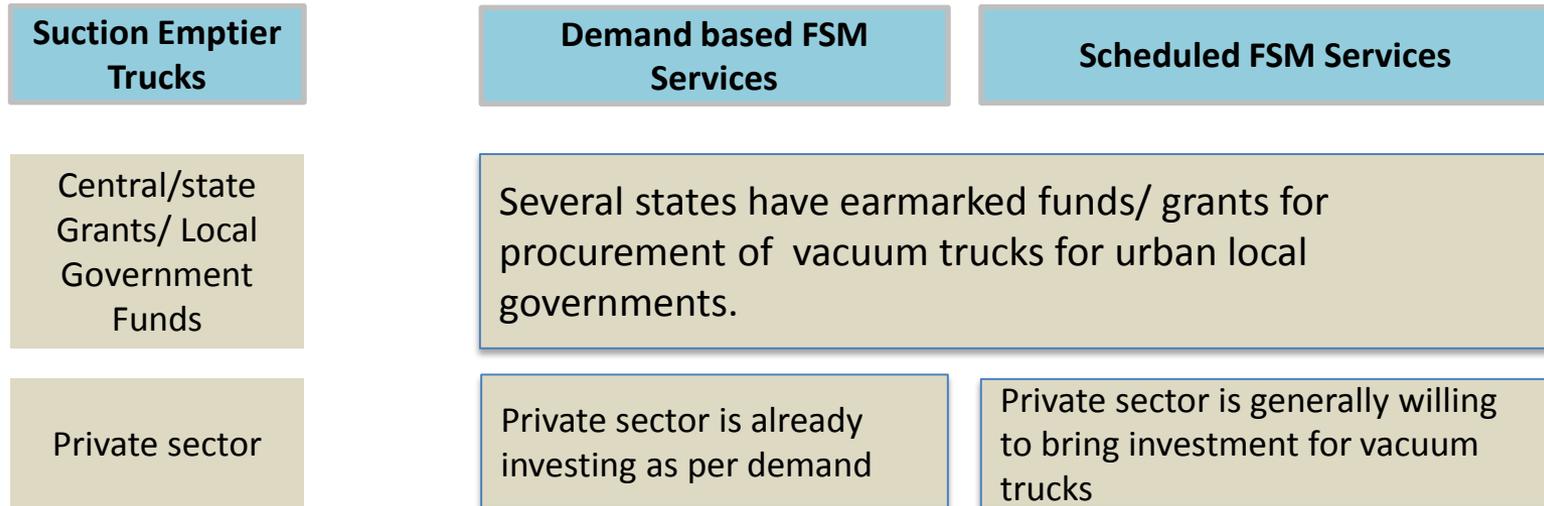
~2800 septic tanks need to be cleaned annually on scheduled basis

Sinnar

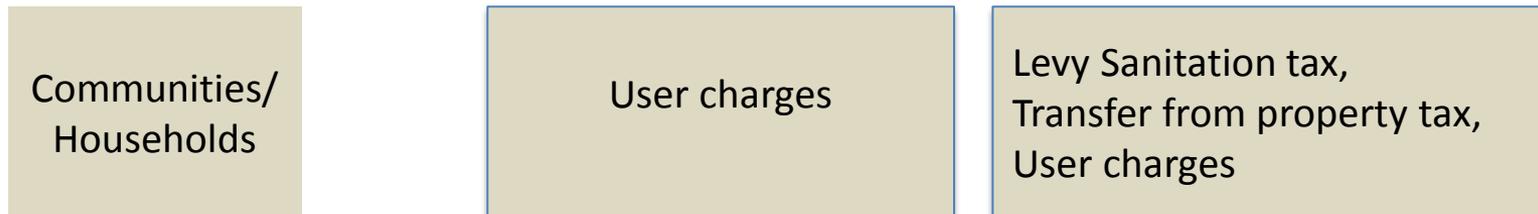


# Potential sources of finance: Collection & Conveyance

## A. Potential sources of finance for Capital Expenditure



## B. Potential sources of finance for O&M Expenditure



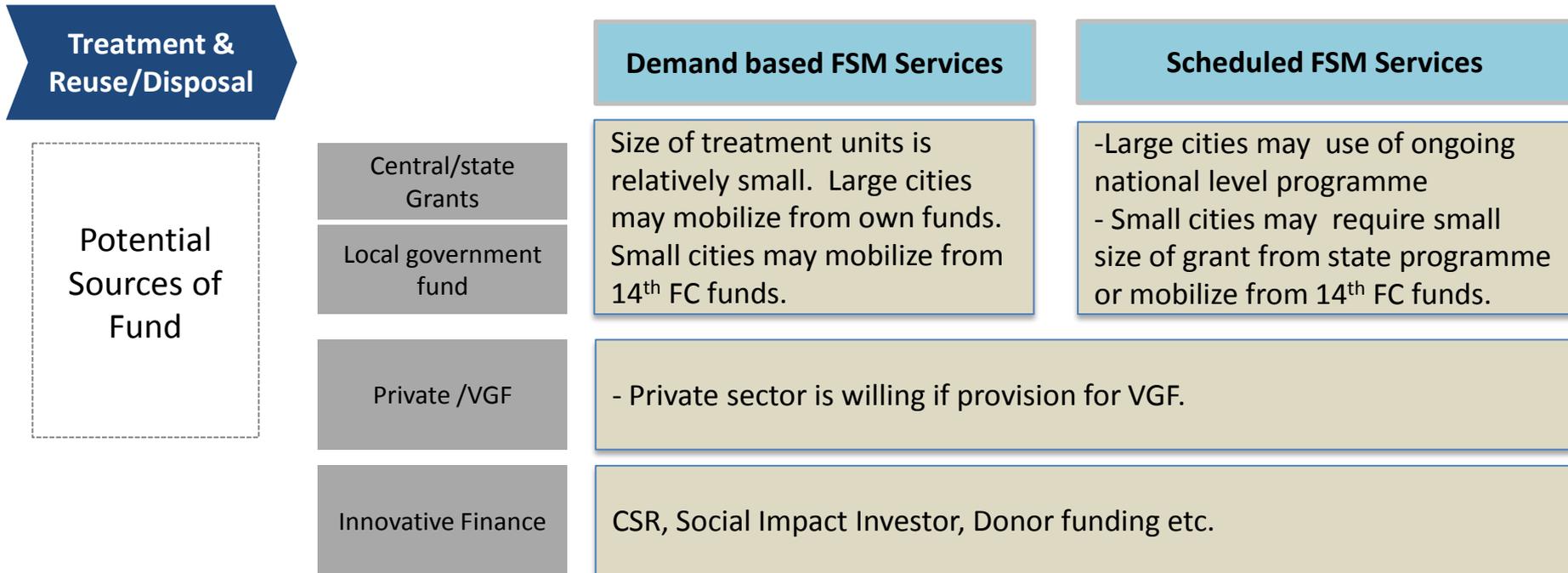
# FSM Services: Collection and Conveyance

- Financing for procurement of truck is not a major constraint
- Private sector is willing to fund trucks and an attractive business model around emptying services is possible
- Scheduled emptying service can help reduce prices
- But there a lack of experience for scheduled emptying in India

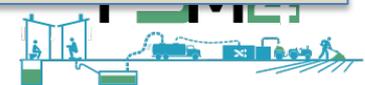
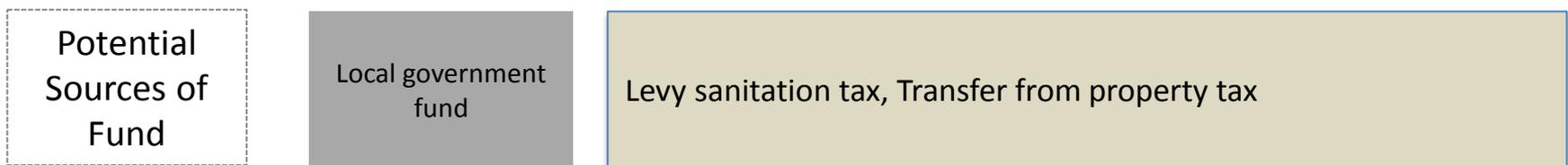


# Potential sources of finance: Treatment and Reuse

## A. Potential sources of finance for Capital Expenditure



## B. Potential sources of finance for O&M Expenditure

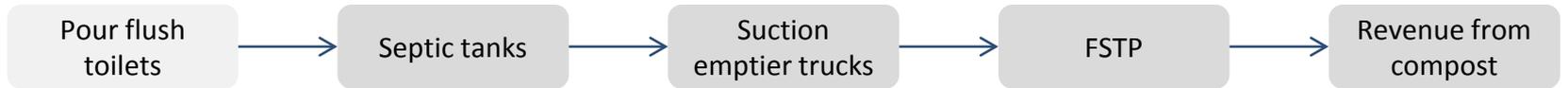


# FSM Services: Treatment and Reuse

- Large cities can afford to mobilize capital funds from **ULB own funds** and from ongoing National level **programme like AMRUT**
- Small cities will need to mobilize **capital funds from state schemes, 14th FC grants**
- Need to explore the possibility of **municipal borrowing for FSTP through pooled finance**, municipal bonds etc.
- **Private sector is not willing to invest in capital funding for treatment**, as this seems a risky investment
- At present there is **no market for reuse products**



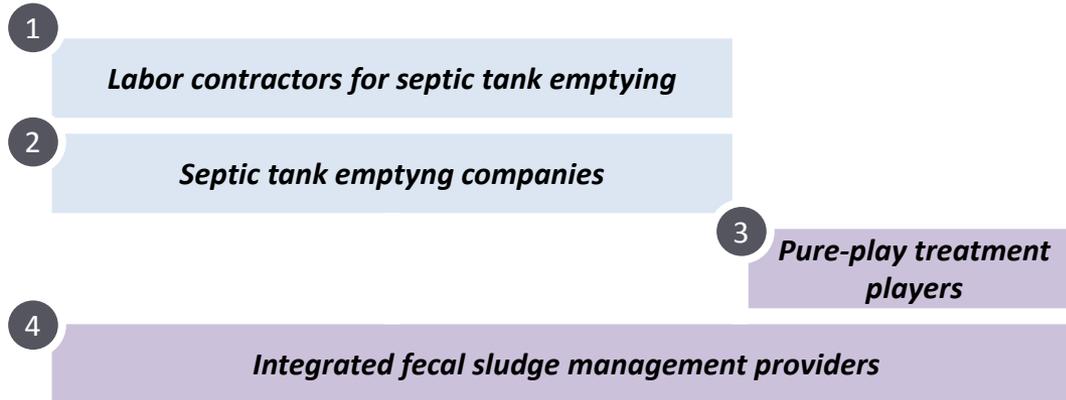
# Opportunities for PSP in FSM services



*Proposed value chain*

*Activities required*

- A** Refurbishment of septic tanks with access manhole covers
- B** Periodic cleaning of septic tanks along a regulated schedule
- C** Construction of fecal sludge treatment plant (FSTP)
- D** Operation and maintenance of FSTP
- E** Revenue from end product



*Assess and establish forward linkages as per end product for reuse*

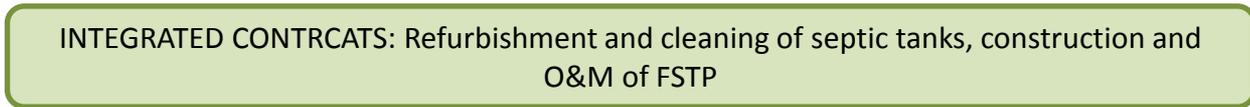
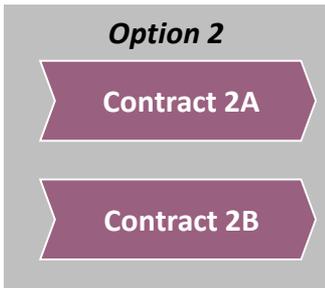
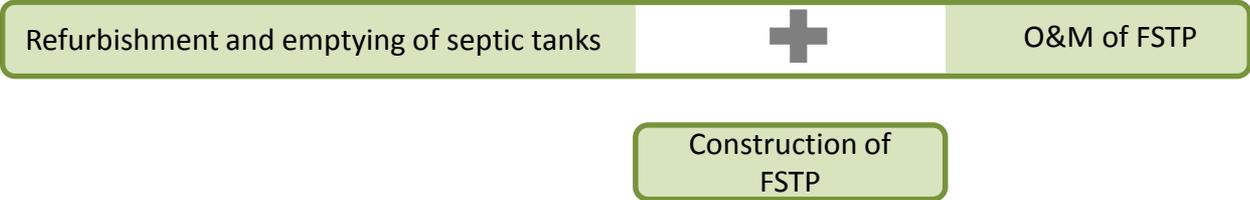
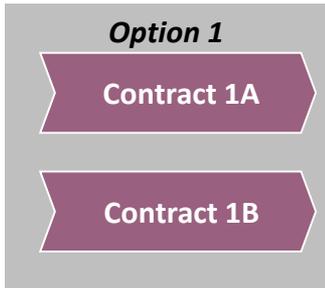
■ *Small scale players (<10 employees)*  
■ *Medium scale enterprises (>10-50 employees)*

# Possible Bundling options: PSP in FSM services



*Activities required*

- A** Refurbishment of septic tanks with access manhole covers
- B** Periodic emptying of septic tanks along a regulated schedule
- C** Construction of fecal sludge treatment plant
- D** Operation and maintenance of FSTP



# Iterative approach to structure a PSP option for FSM



# Addressing Risks in PPP for Citywide IFSM

## Risk mitigation: Building a strong system for performance based monitoring and payment is critical to managing performance risk (1/2)

Risk	Mitigation	Allocation of remaining risk
 Private player uses manual scavenging for cleaning septic tanks or sludge drying beds	<ul style="list-style-type: none"> <li>Require safety gear for all personnel</li> <li>Include a clear description of activities that constitute manual scavenging</li> </ul>	<ul style="list-style-type: none"> <li>Contract terminated if complaints of manual scavenging are received from households or ULB staff</li> </ul>
 Private player does not clean household tanks as per the schedule	<ul style="list-style-type: none"> <li>Portion of the monthly payment should be tied to the number of household signatures collected from households whose septic tanks have been cleaned satisfactorily</li> <li>ULB to undertake random inspections of households whose signatures have been submitted</li> <li>A complaint redress mechanism to be opened where grievances can be lodged by the HH with the ULB</li> </ul>	<ul style="list-style-type: none"> <li>Penalties to be imposed if the reported number of cleanings is lower than specified in the contract, or if discrepancies are found during random sampling, or if complaints are not dealt with in a timely manner</li> <li>Large or persistent breaches can lead to termination</li> </ul>
 Private player	<ul style="list-style-type: none"> <li>As above</li> </ul>	<ul style="list-style-type: none"> <li>Work on faulty septic tanks would have to</li> </ul>

## Risk mitigation: Building a strong system for performance based monitoring and payment is critical to managing performance risk (2/2)

Risk	Mitigation	Allocation of remaining risk
 Refurbishment of septic tanks Septic tanks are damaged during or as a result of refurbishment	<ul style="list-style-type: none"> <li>Specify the type of materials required</li> <li>Payment tied to the number of signatures from households whose septic tanks have been repaired to their satisfaction</li> <li>ULB to undertake random inspections of households whose signatures have been submitted</li> <li>A complaint redress mechanism to be opened where grievances can be lodged by the HH with the ULB</li> </ul>	<ul style="list-style-type: none"> <li>Damaged septic tanks must be repaired within a specified period days of complaint and the cost shall be borne by the private player</li> <li>Penalties will be imposed if discrepancies are found during random sampling, or if complaints are not dealt with in a timely manner</li> <li>Persistent breaches may lead to termination</li> </ul>
 Construction of SDBs Sludge drying beds do not meet specified design	<ul style="list-style-type: none"> <li>The ULB will specify the design and materials to be used in consultation with town consultants</li> <li>Payment made in installments on the completion of specific construction milestones</li> </ul>	<ul style="list-style-type: none"> <li>If the work is found to be faulty at any stage, the payment will be withheld until the corrections are made</li> </ul>

## Managing performance risk through performance based monitoring and payment

transportation Private player dumps septage at places other than the treatment site	citizens with the ULB A portion of monthly payment is tied to signatures collected from the SDB operator	specified period, to avoid a fine In case the number of complaints exceeds a specified number in a given time period, the contract can be terminated
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O&M of SDBs from SDBs is not sufficiently treated	sanitation department to measure sludge properties X% of O&M payment to be conditional on the sludge meeting specified qualities	standards, a warning would be given, followed by fines. Persistent breaches may lead to termination
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## Risk mitigation: Contracts must also clearly manage at will and at cause termination by the private player and the ULB

Risk	Mitigation	Allocation of remaining risk
 Termination at cause ULB does not fulfill contract conditions	<ul style="list-style-type: none"> <li>Establishing a clear reporting and monitoring mechanism to ensure transparent contract execution</li> <li>Ensuring that disputes are handled amicably through frequent communication and by appointing an agreed upon third party mediator</li> <li>As above</li> </ul>	<ul style="list-style-type: none"> <li>Private player compensated for investments, the cost of winding down and foregone profits</li> </ul>
Private player is unable to meet service standards	<ul style="list-style-type: none"> <li>Up-front discussions with key stakeholders to create buy-in for</li> </ul>	<ul style="list-style-type: none"> <li>ULB can compensate the private player for some portion of its capital investments but seize the performance bank guarantee<sup>3</sup></li> </ul>
ULB decides to discontinue the	<ul style="list-style-type: none"> <li>As above</li> </ul>	<ul style="list-style-type: none"> <li>X month notice period required</li> <li>Private player compensated for</li> </ul>

## Risk mitigation: Provisions need to be made for payment delays and cost escalation to protect private player and public interests

Risk	Mitigation	Allocation of remaining risk
 Payment delays ULB is unable to make timely payments towards the project	<ul style="list-style-type: none"> <li>Ensuring budgetary allocation for contracts before procurement</li> <li>Establishment of an escrow account for payment</li> </ul>	<ul style="list-style-type: none"> <li>ULB to pay interest for the payment, delayed by X months or more, at a negotiated rate of interest</li> </ul>
 Cost escalation Cost of inputs increase over the course of contract	<ul style="list-style-type: none"> <li>Adjustment of contract value annually for inflation</li> </ul>	<ul style="list-style-type: none"> <li>Private player would be responsible for bearing the cost escalations within</li> </ul>

## Managing termination risk

 Termination at will Private player wants to terminate the contract due to reasons unrelated to ULB compliance with contract terms	Frequent communication between ULB and private player	to the private player X month notice period required Private player forfeits the performance bank guarantee
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## Managing payment and cost escalation risk

# Model contract document for PSP in FSM

**Sinnar Municipal Council, Sinnar**

**TENDER DOCUMENT**

**Name of Work**  
"Scheduled cleaning of septic tanks, Sinnar"

**Estimated Cost:** To be given by the bidder

**E.M.D.** :40,000/-



Office of the  
**Chief Officer,**  
SinnarMunicipal Council, Sinnar

**Sunil S. Patil**      **Vyanktesh R. Durvas**      **Sanjay Navse**      **Ashvini Deshmukh**  
Municipal Engineer      Chief Officer      Vice President      President

**Septic tank Emptying  
Tender document**

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Validate		Print		Help		<b>Item Rate BoQ</b>	
Tender Inviting Authority: Sinnar Municipal Council, Nashik							
Name of Work: Scheduled cleaning of septic tanks, Sinnar							
Contract No:							
Bidder Name :							
PRICE SCHEDULE							
(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only )							
NUMBER	TEXT #	NUMBER #	TEXT #	NUMBER	NUMBER #	NUMBER #	TEXT #
Sl. No.	Item Description	Quantity	Units	Estimated Rate	BASIC RATE In Figures To be entered by the Bidder Rs. P	TOTAL AMOUNT Inclusive of all Taxes	TOTAL AMOUNT In Words
1	2	4	5	6	13	53	55
2	Schedule B						
3	Cleaning of 4000 septic tanks per year for three years of households/properties as per schedule and emergency cleaning with appropriate safety gears for septic tank emptying cleaners and operators, transportation of septage in GPS mounted suction emptier trucks owned by private sector and safe disposal of collected sludge in septage treatment facility  The bidders shall also undertake IEC activities to spread awareness about regular cleaning of septic tanks in areas where scheduled cleaning needs to be undertaken	1.00	Per year			0.00	INR Zero Only
<b>Total in Figures</b>						<b>0.00</b>	INR Zero Only
<b>Quoted Rate in Words</b>						<b>INR Zero Only</b>	

# Assessing contract values and taxes to be levied

## Contract valuations for Wai and Sinnar

S. No.	Types of contract	Contract length	Wai			Sinnar		
			Annual contract value (INR, Lakhs)	Sanitation tax per residential property (INR)	Sanitation tax per non-residential property (INR)	Annual Contract value (INR, Lakhs)	Sanitation tax per residential property (INR)	Sanitation tax per non-residential property (INR)
1A	Refurbishment and regular cleaning of septic tanks with O&M of SDBs	2 - 3 years	15-17	~190	~230	32-36	~270	~320
1B	Construction of SDBs	Duration of construction	24-28	N.A.	N.A.	40-45	N.A.	N.A.
2A	Refurbishment and regular cleaning of septic tanks	2 - 3 years	11-13	~140	~170	27-32	~230	~270
2B	Construction and O&M of SDBs	1 year	28-33	N.A.	N.A.	45-51	N.A.	N.A.
3A	Refurbishment and regular cleaning of septic tanks with construction and O&M of SDBs	2 - 3 years	39-45	~190	~230	72-81	~270	~320

# Assessing contract values and taxes to be levied

## Contract valuations for Wai and Sinnar

S. No.	Types of contract	Contract length	Wai			Sinnar		
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**Property owners** currently have to **pay local taxes** of about **Rs 2600/annum** in Wai and Sinnar

To cover the costs of a cleaning cycle of ~3 years would require an **increase** in total annual tax spend for a household of about **7% in Wai** and **11% in Sinnar**.

# 5-Year FSM Investment Plan (2017-2022)

GoM's policy decision on moving toward scheduled FSM services

## City Wide 100% FSM (218 Cities; Cover population of 12.5 Mn)

- Capital investments for FSTP – USD 80 Million (Public)
- Capital investments for trucks – USD 20 Million (Private)
- **Total capital investment for FSM – USD 100 Million**

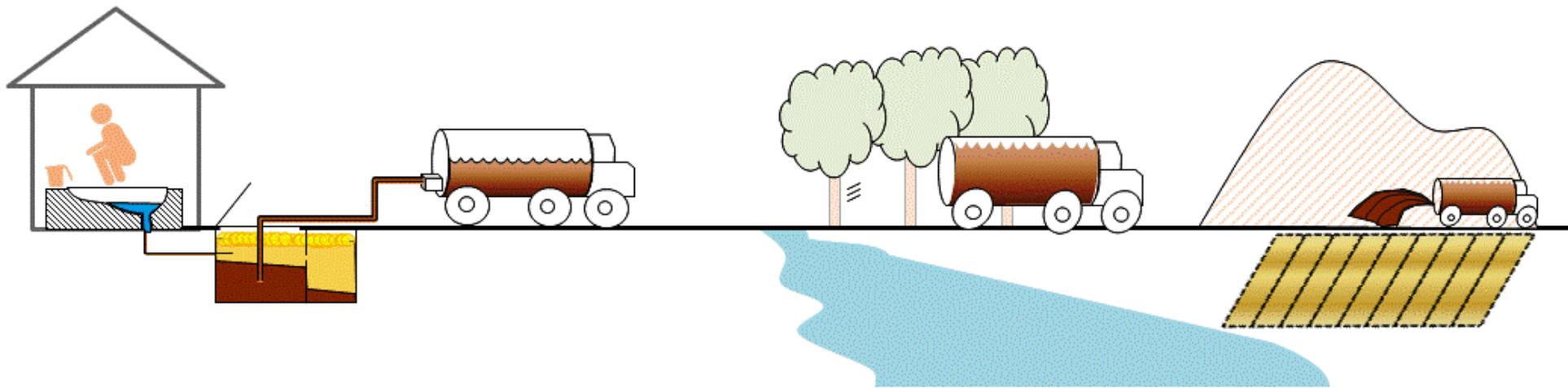
Maharashtra's average annual budget allocation  
for Urban WASH sector = USD 250 Million

- Annual FSM investment requirement of USD 16 Million i.e. 6.5% of  
total annual WASH allocation

# Summary – Financing Citywide FSM Systems

- ✓ SBM has put a focus on sanitation facilities – **but access to sanitation credit is crucial in achieving the ambitious targets** for toilet infrastructure
- ✓ Rich FI landscape in India but **scaling up access to sanitation credit** in urban areas requires **innovative models of aggregator support**
- ✓ For FSM conveyance – **private finance possible** but **scheduled emptying** can make it a **FSM service and help reduce /control price**
- ✓ For FS treatment - **Public Finance remains key, but there is scope for private management and innovative financing**
- ✓ For small cities, State governments will need to **prioritize FSM investments for treatment**, but citywide planning and robust procurement procedure are critical
- ✓ Clear **links to municipal finance for sustaining O&M for FSM services**





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