Financing Citywide FSM Services

Prof. Meera Mehta
Prof. Dinesh Mehta, Mr. Dhruv Bhavsar, Ms. Vishwa Trivedi

Center for Water and Sanitation (C-WAS)
CEPT University, Ahmedabad
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

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
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**.
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”

“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”

Demand Side Study - Interviews with Households

<table>
<thead>
<tr>
<th></th>
<th>Wai</th>
<th>Sinnar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range of income</td>
<td>1200 - 20000</td>
<td>500 - 18000</td>
</tr>
<tr>
<td>Average saving capacity per month</td>
<td>550</td>
<td>950</td>
</tr>
<tr>
<td>Willingness towards group toilets</td>
<td>23 of 30</td>
<td>23 of 35</td>
</tr>
<tr>
<td>Willingness towards taking loans</td>
<td>15 of 30</td>
<td>23 of 35</td>
</tr>
</tbody>
</table>

30 households without toilet were interviewed
35 households without toilet were interviewed
## 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 27,000 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.
- HFI
  - housing improvement loans
    - e.g. GRUH, others
## Widespread presence of MFIs-HFIs

<table>
<thead>
<tr>
<th>FI</th>
<th>Type of Institution</th>
<th>Active Customers</th>
<th>Presence in Maharashtra</th>
<th>Total Loan Disbursed (INR)</th>
<th>Provides Sanitation Loans</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ujjivan</strong></td>
<td>MFI w/ SFB License</td>
<td>27.70 L</td>
<td>61 branches</td>
<td>4328 Cr. FY 14-15</td>
<td>No</td>
</tr>
<tr>
<td><strong>Jal Shakti</strong></td>
<td>MFI w/ SFB License</td>
<td>23.45 L</td>
<td>35 branches</td>
<td>4121 Cr. FY 14-15</td>
<td>No, but plan to initiate Pilot in South India</td>
</tr>
<tr>
<td><strong>ESAI</strong></td>
<td>MFI w/ SFB License</td>
<td>5.66 L</td>
<td>21 branches</td>
<td>1170 Cr. FY 14-15</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Equitas</strong></td>
<td>MFI w/ SFB License</td>
<td>22.92 L</td>
<td>73 branches</td>
<td>2,129 Cr. FY 14-15</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Suryoday</strong></td>
<td>MFI w/ SFB License</td>
<td>6.80 L</td>
<td>46 branches</td>
<td>1,663 crore FY 14-15</td>
<td>No, but willing to explore</td>
</tr>
<tr>
<td><strong>GrameenKoota</strong></td>
<td>MFI</td>
<td>14 L</td>
<td>102 branches</td>
<td>2500 Cr. FY 15-16</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Aavas FinCorp</strong></td>
<td>MFI</td>
<td>11.5 K</td>
<td>7 branches</td>
<td>16 Cr. FY 14-15</td>
<td>No, but willing to pilot</td>
</tr>
<tr>
<td><strong>GRUH</strong></td>
<td>HFI</td>
<td>n/a</td>
<td>49 branches</td>
<td>3,120 crores FY 14-15</td>
<td>No, but willing to pilot – have designed a product</td>
</tr>
<tr>
<td><strong>Micro Housing</strong></td>
<td>HFI</td>
<td>10,000 loans (cumulative)</td>
<td>7 branches</td>
<td>400 Cr. (cumulative)</td>
<td>No, but willing to pilot</td>
</tr>
</tbody>
</table>
Branch Spread across the State for a few FIs (401 branches)

ULB Location
FI Branch Location

ES - ESAF
EQ – Equitas
GK – Grameen Koota
GR – GRUH
JC – Janalakshmi
SY – Suryoday
UJ - Ujjivan
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

Chandrakala Kumbhar Kalpana Kumbhar

Alka Kumbhar

Individual toilet

Group toilet

Individual toilet

Rs. 20,000

Rs. 20,000

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**

<table>
<thead>
<tr>
<th>Sanitation service value chain</th>
<th>FSM Financing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capital</td>
</tr>
<tr>
<td>Access</td>
<td></td>
</tr>
<tr>
<td>Construction of toilet units</td>
<td></td>
</tr>
<tr>
<td>Refurbishment of septic tanks</td>
<td></td>
</tr>
<tr>
<td>Collection and Conveyance</td>
<td></td>
</tr>
<tr>
<td>Procurement of Trucks</td>
<td>Service contract for septic tank emptying service</td>
</tr>
<tr>
<td>Treatment</td>
<td>Management contract for O&amp;M of FSTP</td>
</tr>
</tbody>
</table>
Emerging Recognition of FSM in India

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

MoUD, 2013

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

AMRUT, 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

- 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

AMRUT Reform

- Regulatory provisions will help create a demand for FSM financing at State/City level
Maharashtra ODF, ODF+, ODF++ Framework

**ODF**
- 100%

**ODF+**
- >80% <20%

**ODF++**
- >95% <5%
From a complaint redressal system to regular scheduled service

<table>
<thead>
<tr>
<th>Current septage management practice</th>
<th>Recommended septage management practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>~2% of tanks emptied per year (once in &gt;8-10 years)</td>
<td>~33% of tanks emptied /year (once in 3 years)</td>
</tr>
</tbody>
</table>

### 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

---

(1) Maharashtra Municipal Councils, Nagar Panchayats and Industrial Townships Act, 1965, Chapter IX : Municipal taxation, Section 108
Need to plan for a regulated schedule of three year septic tank cleaning cycle

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
## Potential sources of finance: Collection & Conveyance

### A. Potential sources of finance for Capital Expenditure

<table>
<thead>
<tr>
<th>Source</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Suction Emptier Trucks</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Central/state Grants/ Local Government Funds</strong></td>
<td>Several states have earmarked funds/ grants for procurement of vacuum trucks for urban local governments.</td>
</tr>
<tr>
<td><strong>Private sector</strong></td>
<td>Private sector is already investing as per demand</td>
</tr>
<tr>
<td><strong>Demand based FSM Services</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Scheduled FSM Services</strong></td>
<td>Private sector is generally willing to bring investment for vacuum trucks</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Source</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communities/ Households</strong></td>
<td></td>
</tr>
<tr>
<td><strong>User charges</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Levy Sanitation tax, Transfer from property tax, User charges</strong></td>
<td></td>
</tr>
</tbody>
</table>
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
A. Potential sources of finance for Capital Expenditure

- **Central/state Grants**
  - Size of treatment units is relatively small. Large cities may mobilize from own funds. Small cities may mobilize from 14th FC funds.

- **Local government fund**

- **Private /VGF**
  - Private sector is willing if provision for VGF.

- **Innovative Finance**
  - CSR, Social Impact Investor, Donor funding etc.

B. Potential sources of finance for O&M Expenditure

- **Local government fund**
  - Levy sanitation tax, Transfer from property tax
FSM Services: Treatment and Reuse

• Large cites 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

- Pour flush toilets
- Septic tanks
- Suction emptier trucks
- FSTP
- Revenue from compost

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

Labor contractors for septic tank emptying
Septic tank emptying companies
Pure-play treatment players
Integrated fecal sludge management providers

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

Source: Field visits, online business listings
Possible Bundling options: PSP in FSM services

Option 1
Contract 1A
Refurbishment and emptying of septic tanks

Contract 1B
Construction of FSTP

Option 2
Contract 2A
Refurbishment and emptying of septic tanks

Contract 2B
Construction and O&M of FSTP

Option 3
Contract 3A
INTEGRATED CONTRACTS: Refurbishment and cleaning of septic tanks, construction and O&M of FSTP

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

1. Operational role of the private contractor
2. Source of revenue
3. Investment/ownership of capital asset
4. Payment structure
5. Contract length and value
6. Risk mitigation and allocation

Bundled or Unbundled contract?
Revenue stream enough to meet private players’ return expectations?
Who should invest in capital assets?
What is the appropriate contract duration for private and ULB?
What is the appropriate payment structure for the private player?
How to address the major risks for the private player and the ULB?
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)

<table>
<thead>
<tr>
<th>Risk</th>
<th>Mitigation</th>
<th>Allocation of remaining risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private player uses manual scavenging for cleaning septic tanks or sludge drying beds</td>
<td>• Require safety gear for all personnel&lt;br&gt; • Include a clear description of activities that constitute manual scavenging</td>
<td></td>
</tr>
<tr>
<td>Private player does not clean household tanks as per the schedule</td>
<td>• Contract terminated if complaints of manual scavenging received from households or ULB staff</td>
<td></td>
</tr>
<tr>
<td>Private player charges for septic tank service other than the treatment site</td>
<td>• A portion of monthly payment is tied to the number of household signatures collected from the households whose septic tanks have been cleaned satisfactorily</td>
<td></td>
</tr>
<tr>
<td>Work on faulty septic tanks would have to be done</td>
<td>• ULB to undertake random inspections of households whose signatures have been submitted&lt;br&gt; • A complaint redress mechanism to be opened where grievances can be lodged by the HH with the ULB&lt;br&gt; • Large or persistent breaches can lead to termination</td>
<td></td>
</tr>
</tbody>
</table>

Managing performance risk through performance based monitoring and payment

Risk mitigation: Contracts must also clearly manage at will and at cause termination by the private player and the ULB

<table>
<thead>
<tr>
<th>Risk</th>
<th>Mitigation</th>
<th>Allocation of remaining risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULB does not fulfill contract conditions</td>
<td>• Establishing a clear reporting and monitoring mechanism to ensure transparent contract execution&lt;br&gt; • Ensuring that disputes are handled amicably through frequent communication and by appointing an agreed upon third party mediator</td>
<td></td>
</tr>
<tr>
<td>Private player is unable to meet service standards</td>
<td>• Private player compensated for investments, the cost of winding down and foregoing profits&lt;br&gt; • As above</td>
<td></td>
</tr>
<tr>
<td>ULB decides to discontinue the contract</td>
<td>• ULB can compensate the private player for some portion of its capital investments but see the performance bank guarantees&lt;br&gt; • Up-front discussions with key stakeholders to create buy-in for</td>
<td></td>
</tr>
<tr>
<td>Termination at cause</td>
<td>• X month notice period required&lt;br&gt; • Private player compensated for</td>
<td></td>
</tr>
</tbody>
</table>

Managing termination risk

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

<table>
<thead>
<tr>
<th>Risk</th>
<th>Mitigation</th>
<th>Allocation of remaining risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULB is unable to make timely payments towards the project</td>
<td>• Ensuring budgetary allocation for contracts before procurement&lt;br&gt; • Establishment of an escrow account for payment</td>
<td></td>
</tr>
<tr>
<td>Payment delays</td>
<td>• Cost of inputs increase over the course of contract&lt;br&gt; • Adjustment of contract value annually for inflation&lt;br&gt; • ULB to pay interest for the payment, delayed by X months or more, at a negotiated rate of interest</td>
<td></td>
</tr>
</tbody>
</table>

Managing payment and cost escalation risk

- Private player would be responsible for bearing the cost escalations within
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,
Sinnar Municipal Council, Sinnar

Sunil S. Patil  Yyanktesh R. Durvasa  Sarjay Navse  Ashrini Deshmukh
Municipal Engineer  Chief Officer  Vice President  President

Septic tank Emptying
Tender document
### Assessing contract values and taxes to be levied

#### Contract valuations for Wai and Sinnar

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Types of contract</th>
<th>Contract length</th>
<th>Wai</th>
<th>Sinnar</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Annual contract value (INR, Lakhs)</td>
<td>Sanitation tax per residential property (INR)</td>
</tr>
<tr>
<td>1A</td>
<td>Refurbishment and regular cleaning of septic tanks with O&amp;M of SDBs</td>
<td>2 - 3 years</td>
<td>15-17</td>
<td>~190</td>
</tr>
<tr>
<td>1B</td>
<td>Construction of SDBs</td>
<td>Duration of construction</td>
<td>24-28</td>
<td>N.A.</td>
</tr>
<tr>
<td>2A</td>
<td>Refurbishment and regular cleaning of septic tanks</td>
<td>2 - 3 years</td>
<td>11-13</td>
<td>~140</td>
</tr>
</tbody>
</table>

**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