Integration opportunities for Urban and Rural FSSM

June 2020
A look at the current situation...

**Faecal sludge/septage disposed into farm lands, open drains, rivers and solid waste landfill sites**

**Environmental Hazard**

**Spread of Water Borne Diseases**

**Ground & Surface Water Pollution**

**Manual Scavenging**

- **>60%** Households still dependent on On Site Sanitation (OSS)
- **30%** Total sewage generated is treated (Inadequate Treatment capacity)
- **32.7%** Sewerage Coverage Source: Census 2011
- Desludging operators are private players, many of them unauthorised.
- Open dumping of faecal waste by unauthorised desludging operators prevalent due to the lack of Faecal Sludge Treatment Plants (FSTPs).
- Untreated faecal sludge/septage dumped in the open - **3,000 people defecating in the open**

Expanding sewerage network cost intensive and time consuming

Current service provisioning limited to treatment of waste entering sewage treatment plants
Fecal Sludge and Septage Management (FSSM) as a solution

- End products may be reused in form of compost
- Effective in planned and unplanned areas
- Good solution in absence of a universal sewerage system
- Simple technology, plant can be operated by an unskilled operator
- Can work with existing sewerage systems
Co-treatment with STPs allows Co-processing of septage

There are 1200 Sewage Treatment Plants (STPs) at various stages across all states/UTs in India.

At the National Level

<table>
<thead>
<tr>
<th>Status of STP*</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational</td>
<td>612</td>
<td>51%</td>
</tr>
<tr>
<td>Under Construction</td>
<td>333</td>
<td>28%</td>
</tr>
<tr>
<td>Proposed</td>
<td>217</td>
<td>18%</td>
</tr>
<tr>
<td>Non-operational</td>
<td>38</td>
<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td>1200</td>
<td></td>
</tr>
</tbody>
</table>

*While conducting the analysis, data was mapped against CPCB 2015 report which reported 816 STPs, whereas the current data set contains data for existing 650 STPs, indicating under-reporting of data for around 200 STPs.
Co-treatment with urban FSTPs is a rapid treatment solution

**Approaches for Urban Rural Convergence**

- Operational Tie-Up with existing FSTPs/STPs
- New Capex shared with nearest ULB (in ratio of operating load)
- Capex by ULB, Opex shared by GPs in catchment
- Capex by ULB, land by GPs in catchment area, Opex shared in ratio of operating load
- Capex and Opex shared by ULB/GPs to parastatal, which constructs and operates (either by self or through private partner)
- Community owned projects (Odisha example) – capex shared, opex through revenue + deficit financing

There are 32 operational and 32 under construction FSTPs

- Existing FSTPs in India

Uttar Pradesh will be taking up FSSM projects in 51 cities in India

- ~200 FSTPs bid out by Maharashtra
- 9 FSTPs taken up by Odisha under AMRUT
- Andhra Pradesh has taken up FSTPs in 76 non-AMRUT towns in PPP mode
- Tamil Nadu has allocated about Rs. 240 crore for FSTPs in non-AMRUT towns

© 2020 KPMG Advisory Services Private Limited, an Indian private limited company and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative (“KPMG International”), a Swiss entity. All rights reserved.
MoU may be signed with ULBs for treating the fecal matter in co-treatment with existing operational STPs/ FSTPs

1. Robust Centralized/Decentralized system with high level of process control. Allows Co-processing of septage.

2. Black and Grey water are treated

3. Process results in the complete elimination of pathogens

4. Most suited for densely populated areas

5. If the Sewage Treatment Plants (STP) are not designed to deal with the septage, the plants can increase their aeration capacity and in some cases also expand their facility to cater to the excess waste

STPs

FSTPs

1. Decentralized system to receive high concentration septage

2. Process requires additional DEWATS for complete elimination of pathogens

3. By-products of FSTP may be used for agricultural purposes

4. Suited for less dense population areas
Example - FSSM Wai City, Maharashtra

Private Sector Participation
- For scheduled emptying a private operator was engaged
- A tender was floated on MahaTenders website and transparent bidding process
- An Escrow account was created for payments to remove late payment risk

Financing through sanitation Tax
- A small Sanitation Tax was levied for financing scheduled emptying operations.
- This amount was less than each cleaning amount
- Surplus from property collection tax also used

Citizen awareness
- Awareness activities carried out for ensuring success of operations – Pamphlet distribution, Whatsapp video, door to door visits

Location: 95 Km south of the city of Pune in Maharashtra
Population: ~ 43,000 (36,025 in Census 2011)
Area: 3.6 sq. km
Digital innovation - GPS enabled FSSM and tracking through mobile app.

FSSM Tracker

- Facilitation of GPS enabled truck monitoring and trucks carrying IEC messages
- FSSM tracker app for tracking data of each HH and dashboard for district level
- Treatment at nearest STP or FSTP
Dr Abhinav Akhilesh
Director – Human and Social Services
Infrastructure, Government and Health
KPMG in India
abhinavakhilesh@kpmg.com

The data in this document contains trade secrets and confidential or proprietary information of KPMG, the disclosure of which would provide a competitive advantage to others. Therefore, this document shall not be disclosed, used or duplicated, in whole or in part, for any purpose other than to evaluate KPMG’s services described in this proposal.

© 2020 KPMG Advisory Services Private Limited, an Indian private limited company and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative (“KPMG International”), a Swiss entity. All rights reserved.

The KPMG name and logo are registered trademarks or trademarks of KPMG International.