Operationalising Septage Management guidelines in Tamilnadu

Municipal Administration and Water Supply Department
Government of Tamilnadu
Urbanization in Tamil Nadu

Tamil Nadu – The most urbanized state in India

- Urban Population: 35 million (48%)
- Total no. of ULB: 664
- City Municipal Corporations: 12
- Municipalities: 124
- Town Panchayats: 528
Tamil Nadu Scenario

Urban Population
- 3.49 Crores

Waste Generation
- 2049 MLD

UGD Coverage
- Completed - 35
- On going - 24
- Proposed - 16

Total Installed Capacity of STP
- 1280.25 MLD

Utilization
- STP - 60% (Average)
- Capacity - 769.11 MLD
Existing scenario in Tamil Nadu

**Existing scenario**

- **Net work (UGSS)**
  - Completed - 35
  - Ongoing - 24
  - Proposed - 16

- **Non Network (629 ULBs)**
  - Faecal Sludge collection from Septic tank through tanker Lorries and Disposal
  - Regulated System - 2.356 MLD
  - Non-Regulated System
The strategy of the State is to provide conventional Under Ground Sewerage System in the areas with high population density and Septage Management in areas with low population density.

Even in ULBs where UGSS is available, as they cover only part of the ULBs, the remaining areas are covered by Septage Management.
Need for Faecal Sludge / Septage Management (FSM)

- Pollution of groundwater due to unplanned disposal of faecal sludge.

- Disposal of untreated waste water into water bodies resulting into faecal contamination.

- No standardization of practices.

- Virtually all poor people use on-site sanitation or have no access to improved sanitation.

- Septic tanks are not cleaned regularly and are draining out into the open storm water drains. In cases where septic tanks do not exist, the faecal matter is let out into the drains, Nallahs etc., leading to direct contamination.
Need for Faecal Sludge / Septage Management (FSM)

- Inadequate formalized de-sludging services

- Legal Framework

- Smaller ULBs like Grade II Municipalities and Town Panchayats do not have the capacity to create and manage assets for treatment of liquid waste as it involves large investment on capital and the Operations & Maintenance and long gestation periods & under utilization of STP.
Tamil Nadu is the first State in the Country to issue the Operative Guidelines for Septage Management in a comprehensive manner.
Salient Features of Septage Management

- Design & Construction of Septic Tanks
- Septage Transportation
- Fees/Charges for Collection, Transportation & Treatment
- Septic Tank Pumping & De-Sludging
- Treatment & Septage Disposal
- Information Education & Communication
- Record Keeping & Reporting (MIS)
Design and Construction of Septic Tanks

• Evaluate existing septic tank designs
• Survey of insanitary latrines
  ✓ As per Survey- 83196
  ✓ No. of house holds notice issued- 83196
  ✓ No. of Insanitary Latrines demolished- 10430
• Converting them into sanitary latrines
  ✓ No. of Sanitary Latrines converted by UGSS/Septic tank - 67498
  ✓ Balance to be converted- 12397
• Conversion of septic tanks into standard septic tanks as per CPHEEO norms-
  ✓ This is a time consuming process to convince a public to convert the improperly designed septic tank in to proper one.
  ✓ There is also the constrained of space availability. Considering common septic tanks for three or four houses if space available. Increasing the frequency of de-sludging.
  ✓ The survey conducted at Namakkal Municipality and Erumapatti Town Panchayat will be the basis for the State to evolve the strategy for Conversion.
Pumping and De-Sludging

- Periodic De-Sludging of septic tanks and their regulated transportation is Mandated for which 211 operators are registered in 32 local Bodies.
- the State intends to arrive at the calendar of de-sludging at the household level based on the pilot studies in Trichy and Periyanayakan palayam
Septage Transportation

• Selection Process

• Licensing the operator

• Training in operation and safety procedure

• Operator Permit

• 211 Nos. of operators registered so far
Treatment & Final Disposal

- Decanting facility design based on expected volume of cluster of ULBs
- Quality checks for input sewage
- Planning for next 5 years
Arrangement of Treatment of Faecal sludge Generated from Non network area

Collection system for cluster Local Bodies.

- No. of Clusters: 31

No. of Local Bodies covered

- Corporation: 10
- Municipalities: 35
- Town Panchayats: 30
- Union of Villages: 55
Cluster Example

Coimbatore Corporation

Sarkar Samakulam (TP)

Vedapatty (TP)

Perur (TP)

Irugur (TP)

Vellalur (TP)

Dindigul Corporation

Thadikombu (TP)

Agaram (TP)

Thanjavur Corporation

Thiruvaiyaru(TP)

Vallam(TP)
Tiruchirapalli Corporation – De-Sludging operation
Decanting arrangement at Anna Stadium Pumping Station in Trichy Corporation

Snap Shot
Decanting arrangement provided at STP in Namakkal Municipality
### Information, Education and Communication

<table>
<thead>
<tr>
<th>ULB Staff</th>
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</thead>
<tbody>
<tr>
<td>Commissioners, Executive officers, Engineers, Health Officers, Sanitary Inspectors, Sanitary Workers Trained in safe &amp; best practices Regular training on collection &amp; disposal Periodic inspections Quality safety standards</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Residents</th>
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<tbody>
<tr>
<td>Residents Welfare Associations, Community Organizers, Self Help Group, General Public Health hazards associated with Septage Illegal dumping Illegal discharge Procedures &amp; facilities available for safe disposal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operators</th>
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</thead>
<tbody>
<tr>
<td>Septage Transporters / Private Vendors Safety norms for operation Safe collection and transportation Vehicle Design De-Sludging Use of safety gears &amp; safe disposal</td>
</tr>
</tbody>
</table>
### Status of Implementation of Septage Management with Existing STPs

#### Septage Management

<table>
<thead>
<tr>
<th>S.No</th>
<th>Name of the ULB</th>
<th>No of Sewerage Collection Tankers available</th>
<th>Capacity of tank in Lit</th>
<th>No of Trips/Day</th>
<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Kancheepuram</td>
<td>8</td>
<td>9000</td>
<td>2</td>
<td>Discharged in the ULB’s STP</td>
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<tr>
<td>2</td>
<td>Maraimalai Nagar</td>
<td>6</td>
<td>9000</td>
<td>2</td>
<td>Discharged in the ULB’s STP</td>
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<td>3</td>
<td>Chengalpattu</td>
<td>4</td>
<td>3000</td>
<td>3</td>
<td>Maraimalainagar STP</td>
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<td>4</td>
<td>Cuddalore</td>
<td>5</td>
<td>6000</td>
<td>3</td>
<td>Discharged in the ULB’s STP</td>
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<tr>
<td>5</td>
<td>Nellikuppam</td>
<td>1</td>
<td>4000</td>
<td>2</td>
<td>Cudalore STP</td>
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<tr>
<td>6</td>
<td>Pallavaram</td>
<td>1</td>
<td>6000</td>
<td>3</td>
<td>Perungudi STP</td>
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<tr>
<td>7</td>
<td>Tambaram</td>
<td>3</td>
<td>12000</td>
<td>3</td>
<td>Perungudi STP</td>
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<td>8</td>
<td>Anakaputhur</td>
<td>1</td>
<td>6000</td>
<td>1</td>
<td>Perungudi STP</td>
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<td>Pammal</td>
<td>2</td>
<td>6000</td>
<td>4</td>
<td>Perungudi STP</td>
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<td>10</td>
<td>Sembakkam</td>
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<td>7500</td>
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<td>Perungudi STP</td>
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<td>11</td>
<td>Avadi</td>
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<td>8000</td>
<td>2</td>
<td>Koyembedu STP</td>
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<td>12</td>
<td>Poonammallee</td>
<td>8</td>
<td>6000</td>
<td>9</td>
<td>Koyembedu STP</td>
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<td>13</td>
<td>Tiruvannamalai</td>
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<td>3000</td>
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<td>Discharged in the ULBs’ STP</td>
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<tr>
<td>14</td>
<td>Villupuram</td>
<td>3</td>
<td>6000</td>
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</table>
## Status of Implementation of Septage Management with Existing STPs

### Septage Management

<table>
<thead>
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<th>S.No</th>
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<th>No of Trips/Day</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>15</td>
<td>Ramanathapuram</td>
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<td>16</td>
<td>Kumbakonam</td>
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<td>17</td>
<td>Mayiladuthurai</td>
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<td>5000</td>
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<td>Discharged in the respective ULBs’ STP</td>
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<td>18</td>
<td>Tiruvarur</td>
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<td>6000</td>
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<td>19</td>
<td>Pudukkottai</td>
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<td>9000</td>
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<td>20</td>
<td>Perambalur</td>
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<td>5000</td>
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<td>21</td>
<td>Namakkal</td>
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<td>4000</td>
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<td>22</td>
<td>Dharmapuri</td>
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<td>5000</td>
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<td>23</td>
<td>Udumalaipet</td>
<td>2</td>
<td>5000</td>
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<td>24</td>
<td>Udhagamandalam</td>
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<td>3000</td>
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<td>25</td>
<td>Madurai</td>
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<td>26</td>
<td>Coimbatore</td>
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<td>27</td>
<td>Tiruchirappalli</td>
<td>5</td>
<td>9000</td>
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<td>28</td>
<td>Tiruppur</td>
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<td>29</td>
<td>Dindigul</td>
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<td>30</td>
<td>Vellore</td>
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<td>31</td>
<td>Virudhunagar</td>
<td>3</td>
<td>5000</td>
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<tr>
<td>32</td>
<td>Krishnagiri</td>
<td>8/10</td>
<td>5000/3000</td>
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Fees/Charges for De-Sludging, Transportation & Treatment

• Fees for De-Sludging to be collected from residents.
• Transport charges should be determined based on market rates. –
  ✓ Right now being charged by operators.
  ✓ The operators doing regularly de-sludging activities without any problem in that area.
  ✓ If any Gap identified, the study will be done for arriving appropriate solution.

• For treatment, the on-going rate of Rs.150-200 can be charged for 9000 liters of waste collected.
• Periodic revisions for the charges to be effected based on revisions in costs involved.
Record Keeping & MIS

- Information Related to Septage Generation
- Insanitary Latrines
- Septic Tanks
- Disposal
- Vehicle Tracking with GIS
- Web and Mobile Applications
<table>
<thead>
<tr>
<th>#</th>
<th>Key Tasks</th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>M4</th>
<th>M5</th>
<th>M6</th>
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<tbody>
<tr>
<td>1</td>
<td><strong>Design and Construction of Septic Tanks</strong></td>
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<td></td>
<td>Evaluate Existing Septic Tank Design</td>
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<td>Modify septic tanks based on design</td>
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<td>Issue notices under Tamil Nadu Public Health Act, 1939</td>
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<td></td>
<td>Identify Insanitary Latrines and Convert to Sanitary Latrines</td>
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<td>2</td>
<td><strong>Pumping and De-Sludging</strong></td>
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<td>Identify Locations where sewerage water is getting mixed with water bodies or storm water drains</td>
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<td>Create facility to collect sullage water</td>
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<td>3</td>
<td><strong>Septage Transportation</strong></td>
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<td></td>
<td>Grant Licenses to Operators</td>
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<td>Ensure appropriate tankers with staff equipped with safety and other protective gear</td>
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<td>Ensure collection efficiency is increased by 10% every 6 months</td>
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<td>Organize efficient routes to designated STP / Septage receiving facility</td>
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<td>4</td>
<td><strong>Treatment and Final Disposal</strong></td>
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<td>Design of decant facility as per CPHEEO norms</td>
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<td>Input quality of sewage to be tested and periodically reported</td>
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<td>Increase utilization of STP by 10% every 6 months</td>
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<td>5</td>
<td><strong>IEC Activity</strong></td>
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<td>One training session every 3 months to Local Body staff</td>
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<td>Monthly engagement with residents</td>
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<td></td>
<td>Orientation session for Septage Operators</td>
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<td>6</td>
<td><strong>Record Keeping</strong></td>
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</tbody>
</table>
Salient Features of Draft Bye-Laws

• Designed as a template for ULBs to adopt and enact
• Covers various aspects of the Septage Management
• Salient Features

**Responsibility of the residents**
• Conversion to Sanitary Latrines
• Maintain Septic Tanks
• Allow inspections at reasonable times

**Responsibility of ULBs**
• Undertake survey and inspections
• Issue notices
• Implement and Supervise implementation of the bye-laws
• Conduct IEC campaigns
• Undertake investigations and levy penalties
Selection & Responsibilities of Operators

- As per Tender Transparency Act
- Operators to comply with all applicable legislations
- Not to transport industrial waste
- Employ only trained personnel
- Responsible for safe disposal of Septage at specified locations

Penalties & Appeals

- Owner / Occupier: Rs. 5,000 in the first instance upto 25,000
- Operator: Rs. 50,000 and upto Rs. 2,00,000 | Cancellation of License
- ULB to constitute an Appelate body
- Right to appeal within 30 days

Standard Formats provided for Licenses to be issued
Way Forward

• Micro Level Planning

✓ CSP – Will be addressing the periodicity matrix and till the final disposal.

✓ Pilot Execution – Currently being done in Trichy Corporation, Karunguzhi and Periyanayakanpallayam Town Panchayats

• Capacity Building

✓ ULB Staff

✓ Operators

• Customizing IEC Program
Technical Partnership to achieve Total Sanitation:

- MOC Signed with Bill and Melinda Gates foundation (BMGF) on 04.08.2015.
- BMGF will support Government of Tamilnadu for total sanitation.
- Appointment of TSU to provide support for improved sanitation through the following program components that will be implemented at the State level and in at least two cities.

1. Improved enabling environment and governance:
2. Engineering and Planning:
3. Implementation Support:
4. Behavior Change and Communication:
5. Enterprise Development:
6. Capacity Building and Training:
7. Knowledge Management:
8. Monitoring, Learning and Evaluation
Septage Management Improvement Plans and Strategy

• Draft Recommendations for changes in building rules.

• Draft framework for pilots in three Urban Locations Trichy Corporation, Karunguzhi and Periyanayakanpallayam Town Panchayats, for improved de-Sludging and safe disposal.

• Identification of Vulnerable areas in respect of ground water

• Treatment of Grey water and safe disposal.

• Behavior change and Communication.
Thank You