On October 1, 2016, The Hon. Chief Minister, GoAP announced the need to go beyond ODF and achieve total sanitation
### Urbanisation – A.P

<table>
<thead>
<tr>
<th>RDMA Region</th>
<th>No. of ULBs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visakhapatnam</td>
<td>14</td>
</tr>
<tr>
<td>Rajahmundry</td>
<td>30</td>
</tr>
<tr>
<td>Guntur</td>
<td>28</td>
</tr>
<tr>
<td>Anantapur</td>
<td>38</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>110</strong></td>
</tr>
</tbody>
</table>
Sanitation systems in urban Andhra

Only **six** cities have any municipal sewage systems at all.

In **over 100** cities and towns, all households use on-site containment systems.

95% of cities in **Andhra Pradesh** only use decentralized systems

5% of cities depend on both sewage systems and decentralized systems

Source: CPCB 2015
Recently Built Toilets **Need** Feecal Sludge Management

**Existing Containment Typologies, 2016**¹

- On-Site Systems
- Sewage Systems

**Toilets built through Swachh Bharat Mission**²

- In cities with Sewage Systems
- In cities without Sewage Systems

---

**Only six** ULBs in Andhra Pradesh have sewage systems: Rajahmundry, Tirupathi, Vijayawada, Vishakhapatnam, Vizianagaram, and Nellore.

**85% of Toilet Construction is happening in cities without sewage systems.**

Source: 1 – AP UFIDC (April 2016), 2 – SAC (Nov 23, 2016)
Mechanized Decanting
Manual handling
Private provision
• No dedicated place for treatment or disposal
• Unregulated – environment or price
Contamination of rivers - Godavari
FSSM Programme – A.P
FSSM TRAJECTORY- ANDHRA PRADESH

2016

DECEMBER
State level workshop on ODF+

MARCH
Launch of FSSM policy & guidelines- GO 134

APRIL
Operationalising FSSM regulation at ULB level

MAY
Capacity Building of municipal staff

STRENGTHENING BCC

JUNE
Promoting co-treatment in AMRUT towns

JULY
Mapping existing STPs for promoting co-treatment

AUGUST
Operationalising FSSM regulation at ULB level

Capacity Building of municipal staff

Promoting co-treatment in AMRUT towns

Mapping existing STPs for promoting co-treatment

2017

SEPTEMBER
Introducing State Sanitation Awards

OCT
Introducing FSSM to Higher Education Institutions

NOV
Introducing FSSM to Higher Education Institutions

2018

OCT
Establishing CSR portal for sanitation

SEPTEMBER
Introducing sanitation in school curriculum

JUNE
Decision to scale up FSTP in 76 towns

MAY
Formation of NSS Cell at State and ULB levels

APRIL
Establishing pilot FSTP at NARSAPUR

FEB
Introducing sanitation in school curriculum

JAN
Formation of NSS Cell at State and ULB levels

Formation of NSS Cell at State and ULB levels

Decision to scale up FSTP in 76 towns

Establishing pilot FSTP at NARSAPUR

Introducing sanitation in school curriculum

ACRONYM

ODF - Open Defecation Free
FSSM - Fecal Sludge & Septage Management
GO - Government Order
BCC - Behavior Change & Communication

ACRONYM

AMRUT - Atal Mission for Rejuvenation & Urban Transformation
CSP - City Sanitation Plan
CSR - Corporate Social Responsibility
CSTF - City Sanitary Task Force
FSTP - Fecal Sludge Treatment Plant
LOA - Letter of Award
NSS - Non-Sewer Sanitation
Septage Management – Key components of regulatory framework

- Design and Construction of Septic Tanks
- Conversion of Insanitary Latrines into Sanitary Latrines
- Pumping and Desludging
- Septage Transportation
- Septage Treatment, Disposal and Reuse
- Information, Education and Communication (IEC)
- Training Programs
- Record keeping and MIS
- Help Line for Septage Management
The Components of the G.O are:

- **CONTAINMENT:** Design of Sanitary Lathries/Unsanitary to Sanitary Lathries
- **TRANSPORTATION:** GPS tracking and FSM Tracker mobile app for monitoring
- **COLLECTION & STORAGE:** Periodic desludging / Schedule monitoring
- **TREATMENT, DISPOSAL AND REUSE:** Establishments of fecal sludge treatment plants.
- **EMPTYING:** Licensing of desludging operators, Monitoring usage of Personal Protective Equipment (PPE)
  
**GOVT. OF AP HAS ESTABLISHED FSSM HELPLINE TO SUPPORT ULBS IN OPERATIONALIZING G.O. 134 THROUGH TRAINING AND HAND-HOLDING SUPPORT**

CALL FSSM HELPLINE FOR ANY ASSISTANCE

- **9849900266**
- **7013019889**

Sanitation Value Chain
## Strategy for Septage Management in AP

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of ULBs where Co-treatment is proposed in the existing functional STPs</td>
<td>(7) 5</td>
</tr>
<tr>
<td>(GVMC (Anakapalle), Rajahmundry, VMC, Tirupati, Tadipatri, Pulivendula, Yemmannur (STP under commissioning))</td>
<td></td>
</tr>
<tr>
<td>No. of ULBs where Co-treatment is proposed in STPs under AMRUT scheme</td>
<td>22</td>
</tr>
<tr>
<td>No. of AMRUT ULBs where Co-treatment is proposed in the proposed STPs that are funded by other projects (Narsaraopet, Guntur, Nellore)</td>
<td>3</td>
</tr>
<tr>
<td>Proposals under preparation in AMRUT Towns to establish treatment facility</td>
<td>3</td>
</tr>
<tr>
<td>(Proddatur, Chittoor, Hindpur)</td>
<td></td>
</tr>
<tr>
<td>FSTPs proposed in Non-AMRUT towns (State funding)</td>
<td>76</td>
</tr>
<tr>
<td>Pilot Town where FSTP established and functioning (funded by BMGF at Narsapur)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>110</strong></td>
</tr>
</tbody>
</table>
Approach towards Septage Management

For AMRUT Cities - new STPs:

• Review of DPR prepared
• Workshop with key stakeholders to include septage treatment
• DPRs have been updated to improve the STP designs to handle septage
• Construction and O&M of STPs capable of treating wastewater as well as septage to be operated by the private player for 10 years
Co-treatment of FS at existing STPs

Approach towards Septage Management In cities with exiting STPs

**Co-treatment in the existing STP, piloting in Tirupati Municipal Corporation**

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>50 MLD</td>
</tr>
<tr>
<td>Technology</td>
<td>Facultative oxidation process (299 acers)</td>
</tr>
<tr>
<td>B.O.D at inlet (present)</td>
<td>280 to 305</td>
</tr>
<tr>
<td>B.O.D at outlet (present)</td>
<td>&lt; 100</td>
</tr>
<tr>
<td>Sample septage B.O.D</td>
<td>3997 to 9780</td>
</tr>
</tbody>
</table>
Technology - Schematic

**Septage Receiving Station:**
Septage is received from trucks and passed through the SRS where floatables and grit are removed via screens.

**Pasteurization:**
Removes pathogens and helminth eggs from the septage, making it biosafe.

**Dewatering:**
Separates the solid and liquids in the septage.

**Waste Water Treatment:**
Processes the waste water at site. Subsurface/mixed flow constructed wetland system.

**Phytodor:**
Treats the waste water at site.

**Treated Water:**
Which can be used for Agriculture, Urban Greening and Industry.

**Biochar:**
Which can be used as a soil amendment and in filtration processes.

**Process Output:**
At the end of the treatment process, two key outputs are obtained.

**Waste Water:**
Drying of sludge

**Pyrolysis:**
Converts the dried sludge into biochar, which generates reusable energy.

**End product usage**

**Mechanical Dryer:**
Further dries the sludge received from dewatering.

**Thermal Energy Generation and Reuse**

**Flowchart:**
- **Receipt, Screening and Grit removal**
  - 1% to 5% solids
- **Pasteurization**
  - 1% to 5% solids
- **Dewatering**
  - 20%-25% solids
- **Waste Water Treatment**
  - Waste Water
- **Sludge**
  - Drying of sludge
  - Pyrolysis
  - Biochar
  - End product usage
  - 60% to 65% solids

**Pyrolyser:**
Converts the dried sludge into biochar, which generates reusable energy.
Narsapur experience

- Involvement of SHG women in IEC and SBCC campaign
- Nominal de.sludging charges from Households
-Established non sewer Sanitation Cell in the ULB
- Daily treatment Capacity 15 KLD
- Use of PPE by de.sludging workers
- Involvement of private operator for successful maintenance
- Planning for de.sludging
- Use of PPE by de.sludging workers
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- Use of PPE by de.sludging workers
- Involvement of private operator for successful maintenance
- Planning for de.sludging
Approach towards Septage Management

For Non-AMRUT towns - new FSTPs:

• Concessionaires for building and operating Faecal Sludge Treatment Plants in 76 urban local bodies in Andhra Pradesh.

• The Project will be funded by SAC, MA & UD, GoAP and accordingly, the capital expenditure and the periodical O & M expenses will be financed by SAC on Hybrid Annuity basis

• Technology agnostic approach for Project development

• The Concession Period is 10 years which includes both Project Construction period and Operations & Maintenance period

• The Concessionaire will be required to Design, Build, Operate and Transfer (DBOT) a Faecal Sludge Treatment Plant for each town

• Cluster Approach/Packages
REQUEST FOR PROPOSAL

Swachha Andhra Corporation is floating RFP for selection of Concessionaire(s) for setting up of Faecal Sludge Treatment Plants (FSTPs) on Design, Build, Operate & Transfer (DBOT-Hybrid Annuity Mode) in urban local bodies in Andhra Pradesh for effective Treatment and Safe Disposal of Faecal Sludge.

The Interested firms with expertise and experience of carrying out such projects are requested to participate in the bids. For details visit www.sac.ap.gov.in > Tenders

Sd/-Chief Engineer
Swachha Andhra Corporation
Approach towards Septage Management

For Non-AMRUT towns - new FSTPs:

• Technology agnostic approach for Project development
• Technical designs will be reviewed and approved by a competent team
• Tripartite agreement between ULB, State and Private operator
• Technical and financial bids of the bidders using Least Cost Selection (LCS) process
• The Bid Price is summation of (a) Bid Project Cost and (b) Net Present Value (NPV) of O & M Cost (the “O & M Cost) during the O & M Period
• Rs.50.0 have been allotted by the state govt. as supporting grand for F-Y 2017-18.
Achieving ODF+ in Urban A.P - Lessons

• FSSM regulation and its implementation is a condition precedent
• Advocacy – Elected representatives /Citizens/Officers /Desludging operators
• BCC – covering important stakeholders
• Capacity building of ULB staff - FSSM helpline for ULBs to support implementation.
• Training program to desluding operators and ULB officials on use of PPE equipment/worker safety and wellbeing
• Strengthening containment systems – new toilets /how about old ones?
Achieving ODF+ in Urban A.P - Lessons

• Opted for PPP models not only to meet financial needs but also to achieve efficiency (O&M)

• Land availability and suitability for FSTP – tedious process and should be started early on in the project cycle

• Piloting scheduled desludging

• Institutional strengthening – FSSM cell at ULB and State level

• Importance of real time monitoring