Grosan Toilets – Sustainable sanitation solution with full resource recovery

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Onsite FSS Containment, Existing & Best Practices
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Who are we

• Sanitation First is registered in India as Wherever the Need India Services (WTNIS)
• Sister organization of Sanitation First UK
• Providing non-sewer sanitation solutions to over 360,000 beneficiaries
• Pioneer in container based eco sanitation in India
• Alarming depletion of water resources
• Increased water contamination and pollution of environment
• Potential to convert waste into usable resources
• Last mile coverage in infrastructure and logistics constrained areas
Our Innovation – GroSan Toilet

- Container Based EcoSan System
- Semi-permanent UDDT
- Ideal for infrastructure constrained, high water table & disaster prone areas
- Very low water consumption
- Zero Discharge of waste
- Total Resource Recovery
- Cost Effective and easy to operate
- Caters up to 9 – 10 households (45 people)
- Award winner – Swachhovation Contest, GOI
Implementing Areas & GroSan Beneficiaries

• Where: Cuddalore, TN, slums in Puducherry
• For Whom: Poorest of poor, slum dwellers, nomads, migrants, refugees & floating population
• Why:
  ✓ No space for individual toilets
  ✓ Public toilets are far away
  ✓ Disability or old age prohibits access
  ✓ Civil encroachments
  ✓ Last mile coverage in OD prone public spaces
• How many: 150 GroSan toilets in three phases
## Our GroSan Journey

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of toilets</th>
<th>No. of beneficiaries</th>
<th>Location</th>
<th>Collaborators</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>40</td>
<td>1800</td>
<td>Cuddalore</td>
<td>Cuddalore Municipality &amp; Sanitation First UK</td>
</tr>
<tr>
<td>2014</td>
<td>60</td>
<td>2700</td>
<td>Velrampet, Murugambakkam &amp; Pudupet slums of Puducherry</td>
<td>Oulgaret Municipality Puducherry &amp; Sanitation First UK</td>
</tr>
<tr>
<td>2018</td>
<td>50</td>
<td>2250</td>
<td>Same locations in Puducherry</td>
<td>Oulgaret Municipality Puducherry &amp; AM Foundation, Chennai</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>6750</strong></td>
<td><strong>Four Locations</strong></td>
<td></td>
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Features of Grosan Toilets

- ACP sheets for body, ceramic squat plate
- Four 90 kg capacity containers
- Separate collection cans for urine and wash water
- Can generate 108kg compost & 300L urine/month/unit
- Operates per WHO Sanitation Safety Plan
- Compliant of Prevention of Manual Scavenging Act
- Capital Cost - Rs.40,000 for 45 users (@3,550/family)
- Operational Cost - Rs. 100/month/toilet
How does the GroSan toilet work?
The functioning of GroSan toilet

Four containers sit on rollers beneath the toilet. One is in active use and fills up in about 8-10 days. It is then sealed & moved to the next position, until all four containers are full. When the fifth is inserted, the first sealed container which is about 32-40 days old, is moved to the yard.
The Programme Model

- Education, Motivation & ongoing monitoring
- Installation of Toilets
- Collection and Maintenance Services
- Processing of enriched compost & liquid fertilizer
# Cost Effectiveness of GroSan toilets

<table>
<thead>
<tr>
<th>Description</th>
<th>Approximate Cost to Government</th>
<th>GroSan Toilet</th>
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<tr>
<td>Cost of laying 1 km Underground Drainage *</td>
<td>INR 2.5 million</td>
<td>No cost required</td>
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</table>
| Cost of construction of a public toilet | INR 30,000/toilet in November 2017  
Now INR 40,000 | INR 40,000 currently  
but the price can go down with bulk production |
| Cost of running and maintaining a public toilet – including salaries, cleaning materials, water & repairs^ | INR 60,000/year/toilet | INR 36,000/year/toilet  
Expenditure can be met through sale of compost |
| Revenue generation per toilet | Variable, profits go primarily to contractors, plough back into operations | INR 36,000/year/toilet  
Assured revenue through sale of compost & liquid fertilizer |
| Savings on Fertiliser costs 9,000 litre of urine per day – meets NPK needs of 8.76 hectares | Rs.127,065/- at market price annually | Absolutely free |

*Source: Economic Times – October 20, 2017  
^ Source: Greater Chennai Corporation – November 2017
Impact on OD and Health from GroSan toilets 2014 – 17 (Phase I)

- Decrease in Diarrheal diseases by 17%
- Decrease in health care expenses by 42%
- Reduction in Missed school and work days by 62%
Impact of GroComp on Agriculture

• Three year study with Annamalai University on various crops
• Application of pathogen free GroComp and Liquid Gold (processed urine)
• Water retention increased by 50%
• Increase in crop yield varied from 17 to 37% dependent on the variety
Scalability

EDUCATION AND TRAINING
COMMUNITY PARTICIPATION
PUBLIC PRIVATE PARTNERSHIP MODEL
CSR FINANCING
Voices of Some Happy GroSan Users!

Suresh, Murugambakkam – Earlier we had to go far to defecate. There was no water to wash and the children fell sick often. The GroSan toilet is a boon to us. We are now healthy and happy!

Sahaya Mary, Velrampet – I have two disabled children. Earlier it used to be very difficult to carry them far for defecating. Now that we have our own GroSan with ramp and handrails, children are able to use them easily. Thank you Sanitation First!

Bhavana, Pudupet – When I went to the grove to defecate, an uncle put his hand around me, I got frightened and ran home. I never wanted to go back there. I love the “GroSan toilet”