Blue Water Company

FSM and Wastewater Solutions for Urban India

Manas Rath
“Solve a Real Problem”

• 420 Million urban Indians--600Mn by 2030

• <20% wastewater is treated (40 Bn litres untreated)

• Dirtiest urban water bodies

  Sewage is top contaminant

• Water Crisis—worsening
“Solve a Worsening Problem”

Sanitation

Compost / Nutrients

Quality of Life & Dignity

Health

Water Security

Environment & Beautification

Gases / Energy / Air Quality
Business Services

Town-Scale Solutions

Faecal Sludge Management

Small-Scale WW Treatment

Rainwater Harvesting

Building-Scale Solutions
The Opportunity

Faecal Sludge Management

• 7,000 small towns—UGD not viable
• Larger towns: UGD<100%
• Good solution for part of the problem

Wastewater Treatment

• 60% large STPs underperform
• Small STPs (30-800kld) easily allow 100% re-use
• Water is expensive—reduce need by 30-50%
Small-scale Sewage Treatment Plants
Design, Build AND Operate

30,000 – 1 million liters / day

Apartments, Commercial, Malls, Industry, Hospitals, Hotels, Education campuses

Prefer natural, low energy, green technologies

Integrate organic waste treatment?
100% water re-use—on-site or off-site

Invest in CapEx—own the water (enforcement??)

Service Fees + Water Revenue + Gas Revenue

Right Technology → Great Returns (11-26%)
Investment Needed for FSM

- **Year 2020**
  - 70% Toilets with On-site Storage
  - 30% Toilets with Sewerage Network

**Investment per Capita (CapEx)**
- $3 for Transportation System
- $7-15 for Treatment Plant

**Next 10 years:**
- $4.5 Bn investment
- O&M spend = 10%
- Serve 300 Million

**[better than] World-class FSM**
- Service 100 Million toilets
### Business Model

<table>
<thead>
<tr>
<th>Desludge + Transport</th>
<th>FSTP</th>
<th>Control Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Scheduled / On-Call</td>
<td>• O&amp;M - 24x7</td>
<td>• Customer Service</td>
</tr>
<tr>
<td>• Quality Control</td>
<td>• Achieve Standards</td>
<td>• Reporting to Govt.</td>
</tr>
<tr>
<td>– Training</td>
<td>• Sell sludge</td>
<td></td>
</tr>
<tr>
<td>– Technology</td>
<td></td>
<td></td>
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</tbody>
</table>
P1 : Private De-sludging Services

- **Chandru**: Hi-Tech Sanitation Services
- 2 Trucks: 4-7 calls / day
- Profitable
- 50-50 JV: improve + expand
- Template for national expansion
- **Governance**
- **Systems**
- **Private FSTPs**
P2 : Scheduled De-sludging

• **Sinnar**: Tender floated [CEPT]

• 4,000 HH/year

• Buy and Operate Trucks

• Fixed Payment

• *Treatment*??

• *Collecting Payments*
P3: Integrated FSM

• Devanahalli: Tender expected [CDD]
• FSTP + Trucked owned by ULB
• Services Contract (3-5 years)
• Fixed Payment

• Set up Control Centre
• Ringfence Budget
• Hybrid Annuity Model (HAM)

• Orissa ; Warangal [ASCI]

• CapEx: (Truck+FSTP)

• Annuity = OpEx + Debt Servicing

• Payment for success ; 12+ yrs

• Equity

• No precedence ; Bankability of ULB
**Simple Technology**

**Desludge + Transport**

1. GPS—monitor movement
2. Sensors—identify dumping
3. On-Board Video

**FSTP**

1. Robust, low O&M cost systems
2. Flexible Capacity
3. Co-treatment

**Control Centre**

1. GIS Maps—track de-sludging freq.
2. CRM records
3. MIS

Ambulance services, Cash Management...
## Unit Economics

### De-sludging and Transport ➔ Treatment Plant

<table>
<thead>
<tr>
<th><strong>CapEx</strong></th>
<th><strong>OpEx</strong></th>
<th><strong>Revenue</strong></th>
<th><strong>Profit</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>$25,000 - 40,000 / Truck</td>
<td>INR 16 – 25 Lacs</td>
<td>• On-call: Customer Pays $13 - 35 (INR 900 - 2,000) • $12,000 - 30,000 p.a. (INR 70,000 – 180,000 p.m.) • Scheduled: Govt. pays Water / Property Tax • Sale of by-products • Tipping Fees</td>
<td>$4,000 - 15,000 p.a.</td>
</tr>
<tr>
<td>$5+ per Capita</td>
<td>INR 350+ p.a.</td>
<td>$0.50+ per Capita p.a.</td>
<td>INR 25,000 – Rs 90,000 p.m.</td>
</tr>
</tbody>
</table>

*Integrated system can break-even (w/o tax)*
### Structuring Service Delivery

<table>
<thead>
<tr>
<th></th>
<th>PPP</th>
<th>Services Contract</th>
<th>Private Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Truck + FSTP (+ Control Centre)</td>
<td>★★★★</td>
<td>★★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>2. Truck Only</td>
<td>★★★★</td>
<td>★★</td>
<td>★★★</td>
</tr>
<tr>
<td>3. FSTP Only</td>
<td>★★★</td>
<td>★★★★</td>
<td>★★</td>
</tr>
</tbody>
</table>
Timeline

- Oct 2015: Started business plan
- Mar 2016: MoU with Janalakshmi
- Apr 2016: Met Investors
- Jun 2016: Acquired Company
- Jul 2016: FSM Scope of Work
- Aug 2016: New office/staff + Hi-Tech JV
- Sep 2016: PPP proposal
- Oct 2016: Sinnar Tender
- Nov 2016: MoU with Kam Avida
- Dec 2016: Investor
Other Thoughts

• Cluster Development with State Govt \((r = 50-100\text{km})\)

• Trucks: License to operate \(\text{(uniform Tech.)}\)

• Single Contract: Truck + FSTP
Challenges

- New Sector and Business Model—Fundraising
- Pace of Projects
- ULB contracts are not bankable
- The first, good contract—precedence?

- Regulations
- L1 Bidding / Local players
Potential Opportunity

- 3,500 FSTPs
- FSM O&M = INR 3,000 Cr ($450Mn) / year
- Small-scale STPs: 12Bn liters / day
- JV with existing players
Status in India
Objectives

1. 100% of sludge must reach a treatment facility

2. Treat for safe water and sludge (FS 𝑪 𝑳 Sewage)

3. Re-use

• Gap: Containment???
# Wastewater Treatment: Options

<table>
<thead>
<tr>
<th>USD</th>
<th>180-350</th>
<th>CapEx / Person</th>
<th>OpEx/Person/Yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-70</td>
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</table>

Centralized Sys.

Every city needs a combination of solutions
1. Hybrid Annuity Model; Build-Operate-Transfer

2. CapEx:
   - Debt: 50-60%
   - Equity: 15-25%
   - Govt.: 20-40%

3. Annuity = OpEx + Debt Servicing

4. Payment only on Service Delivery

5. O&M Term: 12+ years
Current Status

• 2 trucks operational (Bangalore, JV)

• 4 potential Services Contracts

• 2 PPP discussions / MoU with Janalakshmi Bank

• $100,000 equity investment secured