Town-Scale FSM:
Cases from Devanahalli and Leh

22nd October, 2018
Case Study: Devanahalli, KN

- Peri-urban town of 35,000 about 40km north of Bangalore
- Studies + mapping—estimate sludge qty./sanitation hotspots
- FSTP built in 2015: 7-9KLD
- Biological treatment processes
- Odourless and clean—can be inside the city—critical
- Easy to maintain; low-electricity—affordable for Govt.
Case Study: Devanahalli, KN

- **Investment:**
  - **Capital Cost:** Rs 350 /person
  - **Operating Cost:** Rs 80 /person/year

**Case Study: Devanahalli, KN**

- **Capital Cost:** Rs 1.15 Cr.
  - Rs 25 Cr.
- **Operating Cost (per year):**
  - Rs 20 L/yr.
  - Rs 30-32 L/yr incl. mgmt. costs and GST
• Municipal Committee adopted resolutions for licensing FSM operators

• TMC issued fixed-fee contract to private operator to run FSTP AND de-sludging Truck

• On-Demand Services: Users pay (Revenue to ULB)

• Sale of treated sludge to farmers (over 60 Tons sold)

• Volume of cleaning 2x compared to ULB operations
Case Study: Leh, J&K

- Altitude 12,000 feet; Temperature -30°C to 35°C
- Pop. 45,000 + 270,000 tourists + 80,000 seasonal workers
- Cleanest City in North India; Declared ODF
- Tourism has become primary economic driver
  - Increasing pressure on resources and water supply
  - Evidence of ground water pollution from septic tanks
- Sewerage system for 40% of town being built
  - Operational in 2020-21—too little, too late
- April-2017: MCL and Hotel Owner Association invited CDD and BORDA to recommend quick solution
1. What kind of FSM services will suit Leh?
   - Annual scheduled cleaning to protect ground water

2. Who will manage FSM Services (no technical skills at MCL)?
   - PPP : Design-Build-Operate-Transfer (BOT) basis

3. How do we pay—no budgets allocated
   - Investment by Private Operator
   - Customers pay for services and Pay for Results Contract
Happiness doesn't come from what we get, but from what we give.

Give us your shit. Be happy.

LEH: BEAUTIFUL, SUSTAINABLE, RESILIENT.

FSTP in Leh
• Five year contract (cleaning and treatment)
• Design and build FSTP (land by LDA) within 3 months
  – 12KLD: can be expanded as collection increases
  – Planted Drying Bed: Handles variations, easy O&M
• Municipality will collect user fees (BWC helps)
• 90% of fees paid to BWC after service is delivered
  – Detailed monthly MIS to MCL
• Other Private players welcome—must bring FS to FSTP + pay tipping fees
1. Create monthly cleaning schedule
2. Issue schedule notice to customers
3. Pre-visit to ensure septic tank access
4. Reminder to customer (24hrs)
5. Clean Tank, Customer signs
6. Treat at FSTP
7. Schedule Second Cleaning
8. Issue notice and collect fine
• **Innovation** to overcome challenges:
  – **Booster Pump** to increase distance from 20m to 150m
  – **Agitator fan** to loosen sludge

• **Cleanings:**
  – **2.2Mn liters (Yr. 1)**
  – **CapEx**: Rs 1.2 Cr.
  – **OpEx**: Rs 2.2L p.m.

![Bar chart showing performance data with MCL: 20-25](#)
• Quick Local Assessment and **Town Sanitation Strategy**

• **Integrated Model** (transport + FSTP) is most effective

• Contract and financial design based on local conditions

• Long-term **Pay-for-Performance** Contract drives performance

• Clean system will minimize citizen opposition, reduce OpEx

• **Keep Operating Cost low** and affordable for ULB