

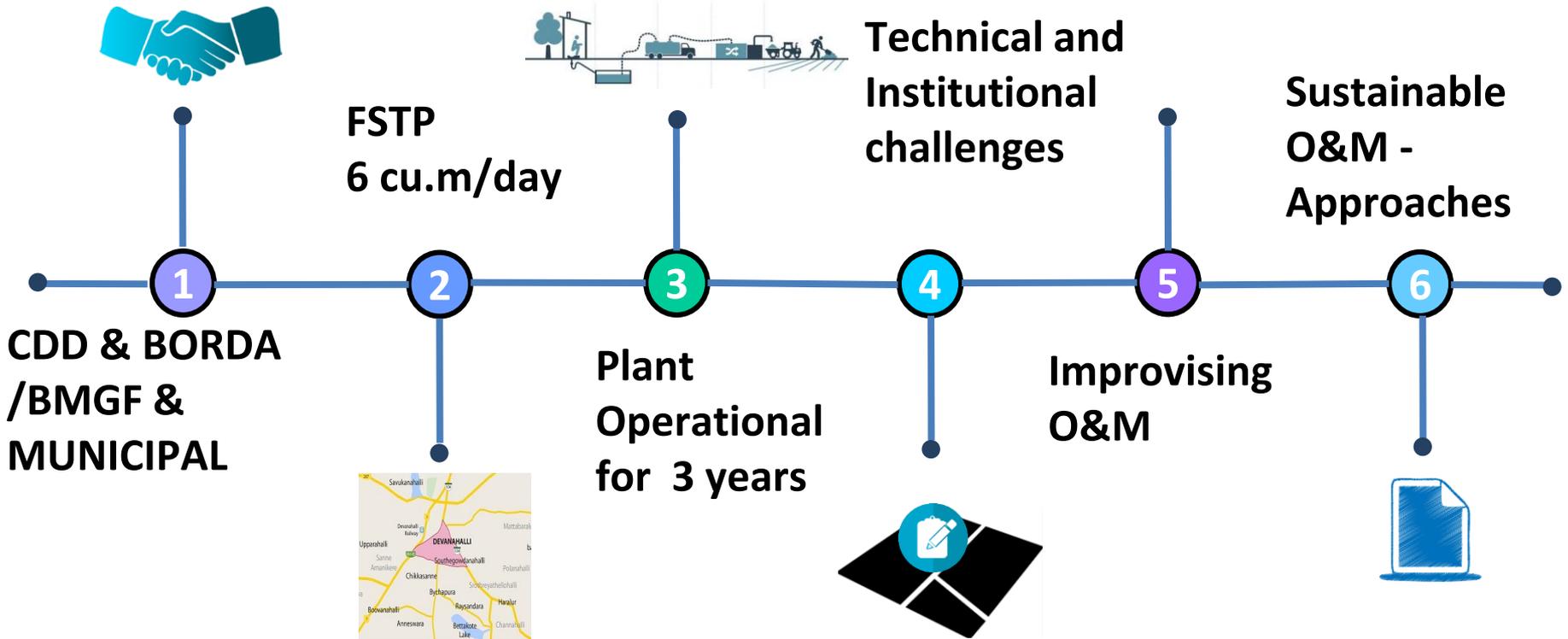
Operation Maintenance (O&M) of Faecal Sludge Treatment Plant (FSTP) Devanahalli, India: Learnings

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BACKGROUND OF THE STUDY



DEVANAHALLI & FSTP OVERVIEW

Town – Profile

Population (as per Census 2011)	30,000
FS Containment structures	85% Pits & 15% others
Desludging Interval	3 – 5 years

Design Capacity

6,000 litres/day

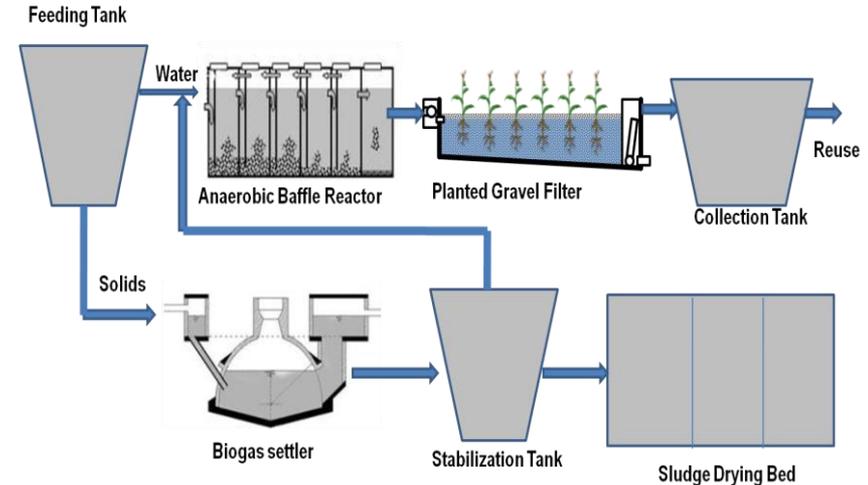
Total FS Treated (2015-2018)	15,92,000 Litres (data collected by CDD)
Years in Operation	3 (since 2015)



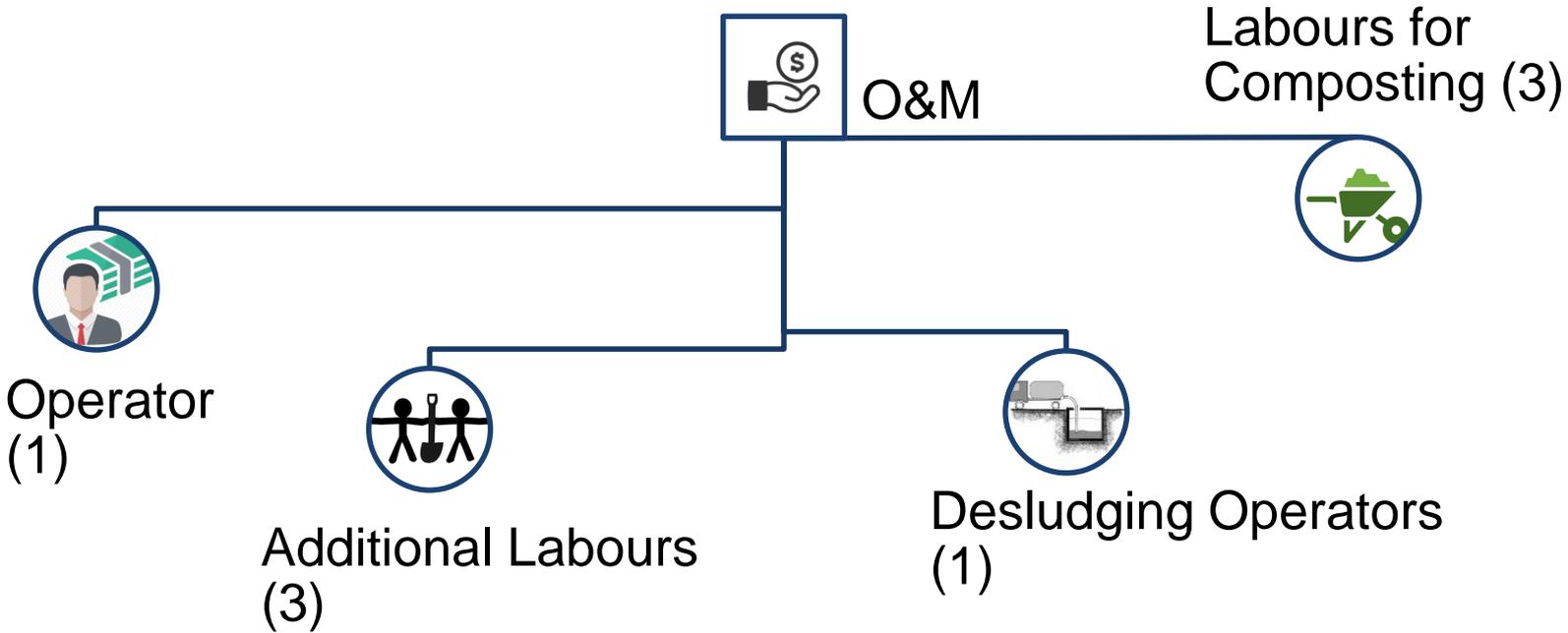
LOW O&M FSTP TECHNOLOGY

DESIGN CONSIDERATIONS

- Sludge and liquid flow by gravity
- Minimal moving parts (only 3 manually operating valves)
- Low energy requirement (Solar Roof)
- Recovery - Compost + Treated water for Gardening
- Minimal human resource – One Operator



O&M - LABOUR REQUIREMENTS



CHALLENGES



O&M – CHALLENGES (Solid Liquid Separation)



Scum – entering Liquid Stream due to poor settleability



Solid Waste – (2- 20 Kgs / Load)
Creates blocking of screens- Frequent
cleaning of screens

O&M – CHALLENGES (Sludge handling)



Shorter SRT – Due to sludge movement



Sludge accumulation in PGF

O&M – CHALLENGES (Sludge handling)



Valve Blockage and Corrosion
(Replacement of Valves)



Blockage in Stabilization tank outlet
during stoppage periods

O&M – CHALLENGES (Sludge Drying)



Slower drying rate



Algae formation during monsoon

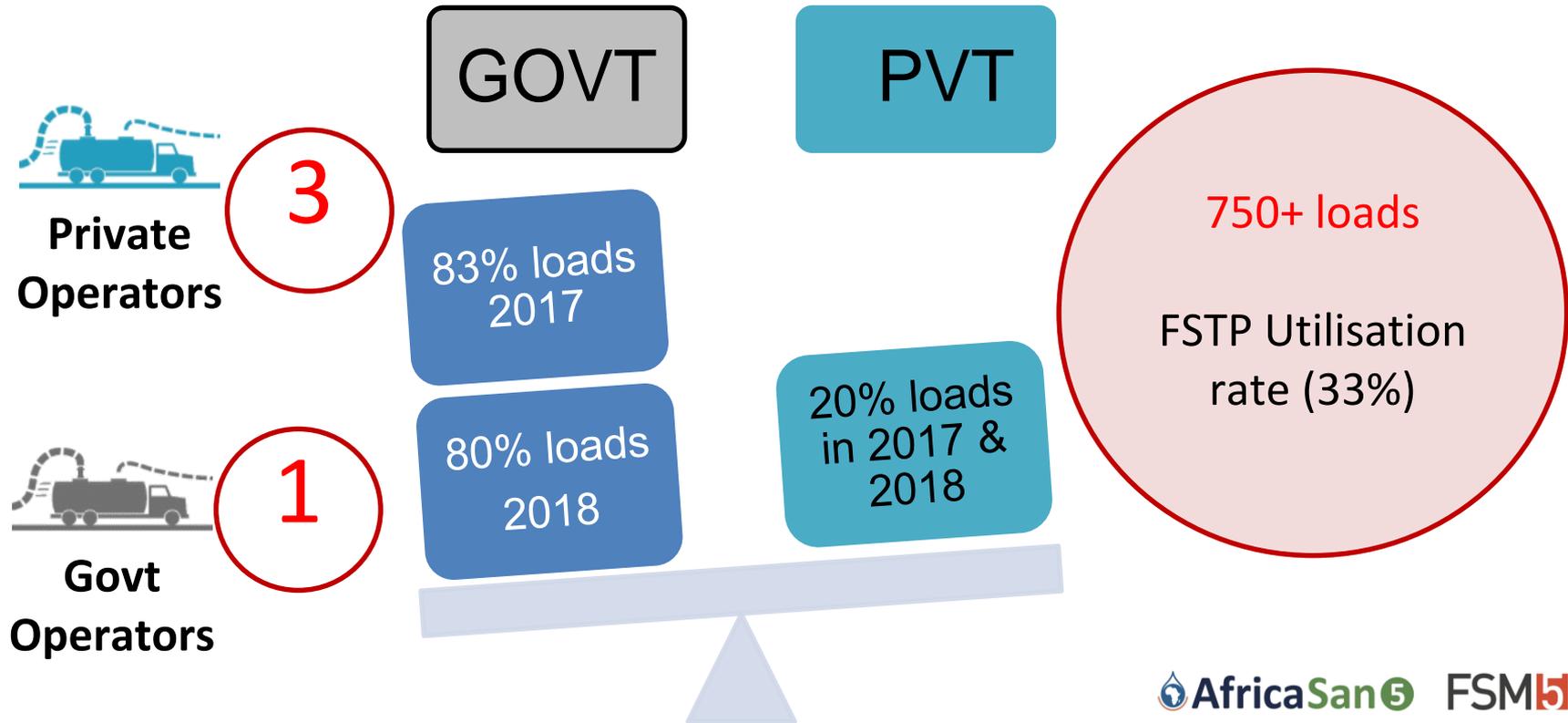


Sand loss after sludge removal

INSTITUTIONAL CHALLENGES

- Reduced plant utilisation rate - lack of support from private operators
- Truck stoppages – breakdown
- Labour strikes & unavailability of additional labour for scheduled maintenance
- Mobilizing funds from ULB for retrofitting infrastructures (Incidental causes)

FSTP UTILISATION RATE (2015 – 2018)



TMC Devanahalli passed 4 resolutions – to improve plant functions:

1

Outsourcing of O&M

2

Regulating disposal at FSTP

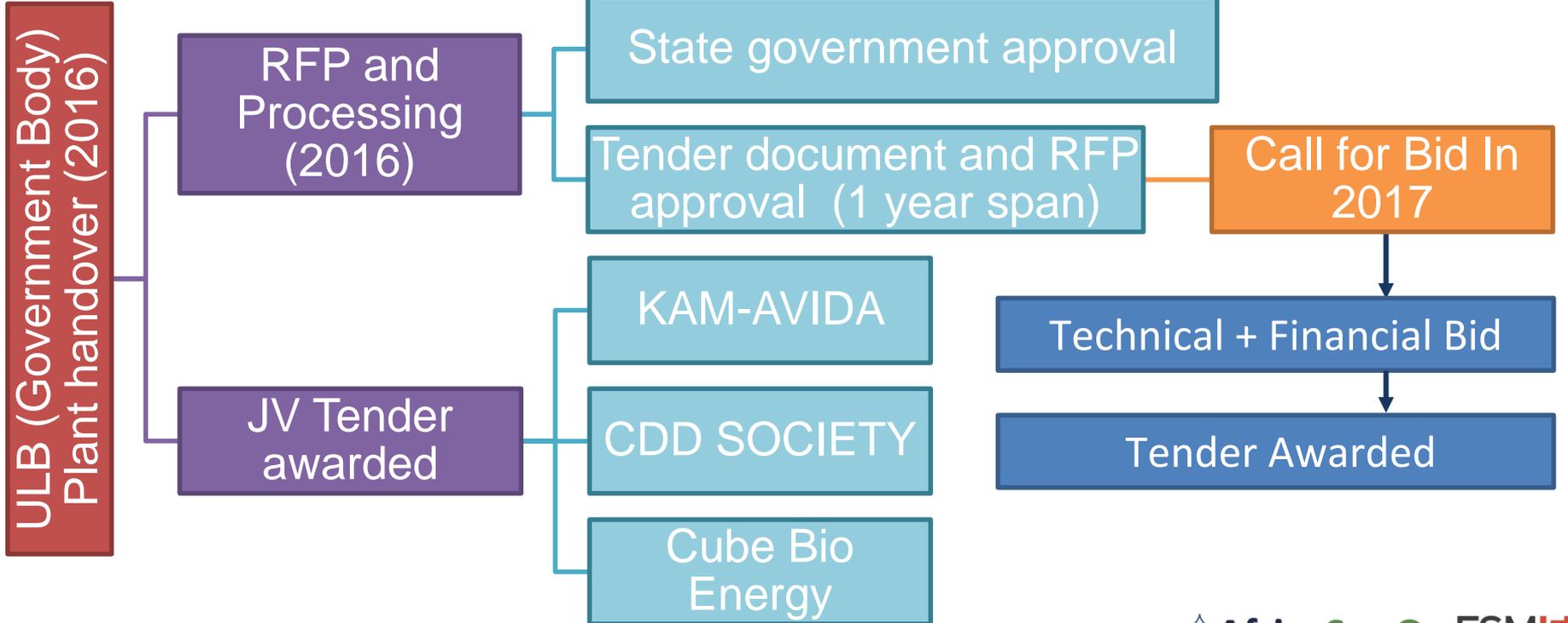
3

Monitoring standards for
Construction of OSS

4

Inclusion of Desludging fees with
Property tax

OUTSOURCING O&M



COST OF O&M



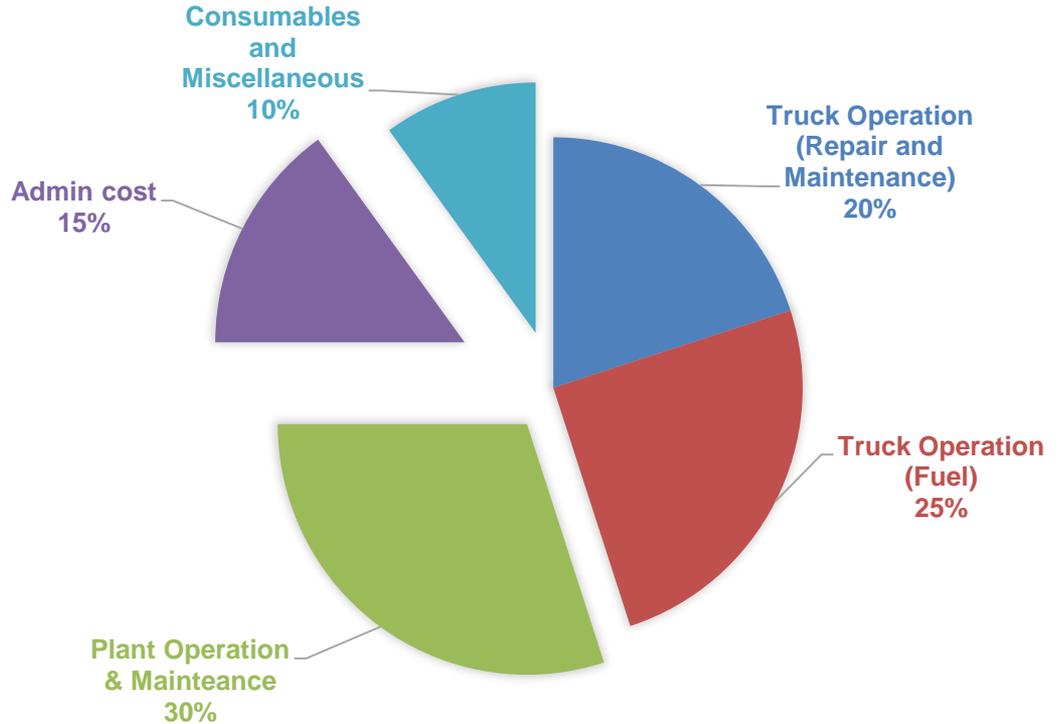
Truck Operations



O&M Support



Market For End Product



SOLUTION TO INSTITUTIONAL CHALLENGES

- Post Tender – Optimized Truck operations
- Agreement between TMC to provide additional labor
- Salary to operators & labor – From TMC but through contractor
- Conduct awareness campaigns for different stakeholders on Reuse
- Connect gaps in the FSM chain – conversion of insanitary toilets

TECHNICAL IMPROVEMENTS

1. Replacement of gate valve with Plug valve
2. Increase buffer capacity for additional loads
3. Mangalore tiles to prevent sand loss and sludge handling.
4. Solar Roof for improve evaporation rate



LESSONS LEARNED ON O&M

- Integrated O&M plan with long term contract
- Choice of technology in Devanahalli is suitable for stoppage and restart periods
- Back up plan of O&M schedule – Preparedness is the key
- Sustainable O&M model – Stakeholder engagement + Strong Institutional framework
- Adaptability – Change the plan with learning

THANK YOU

Questions ???

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