



Faecal Sludge Management Devanahalli, Bengaluru

First-of-its-kind town-scale Faecal Sludge Treatment Plant in India



Background

Devanahalli is a small town with a population of around 40,000 residents. It lies to the north of Bengaluru, close to the Kempegowda International Airport. Given its location, in the last decade it has seen tremendous growth in residential settlements and commercial activity. Devanahalli resembles a city today, but is still administratively managed as a Town Municipal Council (TMC), which implies a dearth of funds for public infrastructure similar to many others TMC's in the country.

The Need

With the advent of the *Swachh Bharat Mission*, thousands of toilets were built which helped the city reach **Open Defecation Free (ODF)** status. However, there was no provision for treatment of the faecal waste generated by these toilets; insufficient funds and water supply made it unlikely that the town would get an underground sewerage system in the near future too. As a result, households had to contain this faecal waste by building on-site containment units such as pits or septic tanks.

About Devanahalli

12 kms
from
Bangalore
Airport

Location

40,000

Population

7,100

Households

98%

Access
to toilets

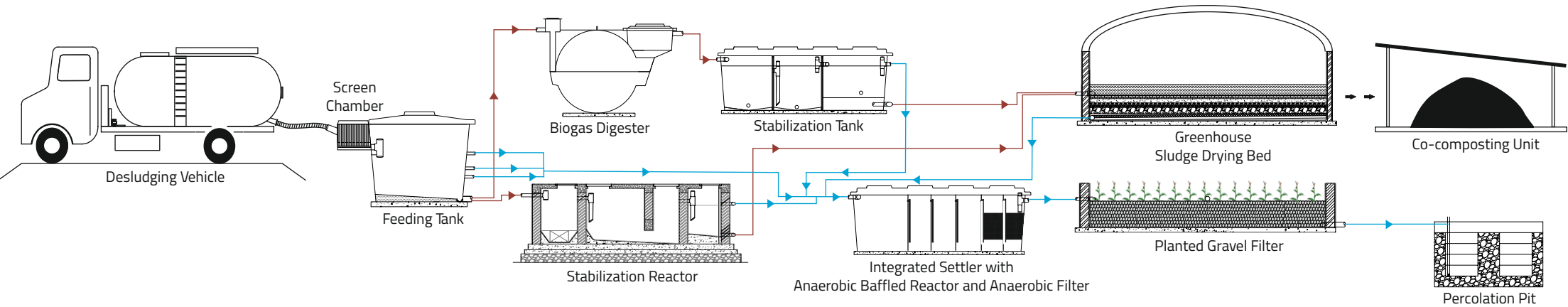
0%

Underground
Drainage system

98%

Septic tanks/
pits coverage

Treatment Process



The Solution

To treat the faecal sludge that was being accumulated in the on-site sanitation systems of these toilets, CDD Society, in coordination with Devanahalli's TMC, and support from the Bill and Melinda Gates Foundation, built a Faecal Sludge Treatment Plant (FSTP). The Council decided on building a dedicated FSTP instead of connecting the whole town to a centralised sewage treatment system due to multiple reasons, the primary one being a non-availability of sufficient water for consumption and funds.

How Devanahalli implemented FSM

Baseline (2014):

To understand the need of the town, household level study of toilets and containment units was conducted in the town.

Treatment Infrastructure (2015):

A 6 KLD FSTP was set up and CDD Society was mandated to operate and monitor the plant for 1 year.

Behavior change (2015 onwards):

Undertook behavior change activities like public awareness events to encourage regular desludging and proper disposal of solid waste; training programs for school children and women regarding menstrual hygiene and sanitation; management practices for sustainable FSM.

Improvements (2017 - Ongoing):

Based on learnings from operating the faecal sludge treatment plant for over a year, incremental changes were made to improve the treatment performance. Enhancements were made in the sludge digestion process and drying bed performance.

Buy in (2015):

The TMC resolved to implement Faecal Sludge Management (FSM) in the town, and allocated a site to construct the FSTP.

Improvement/Enhancement: Co-Composting Unit (2015):

Construction and operation of co-composting unit, which treats biosolids with municipal organic waste. This helps in inactivating disease causing pathogen in sludge and improve nutrient and carbon content for reuse.

Regulations (2016):

The TMC, Devanahalli passed resolutions to regulate faecal sludge disposal; outsource O&M of the truck and FSTP; monitor construction of septic pits and tanks; inclusion of fee for FSM services in Property Tax.

Hand Over (2019)

In July 2019, CDD Society officially handed over the O&M of the FSTP & co-compost unit to the TMC. O&M being simple, the TMC has successfully been managing the same.



Operational Model:

The truck operations are managed by TMC, Devanahalli; a driver and a helper operate the truck on demand. The demand for services is placed with the TMC directly; the fee charged is Rs.1,200 per trip, within the city limits.

The FSTP is managed by an operator and a helper (as and when needed) with supervision from TMC*. The operations of the plant are fairly simple, and can be undertaken by unskilled workers with basic training.

The co-composting unit is adjacent to the FSTP; it receives municipal wet waste from the TMC. The operations are simple and can be carried by an unskilled worker with basic training.

* Since July 2019, CDD Society officially handed over the O&M of the FSTP & Co-compost unit to TMC, Devanahalli

Learnings

- ULBs lack technical capacity to manage daily operations of FSTP and FSM value chain related service. **Outsourcing** these to competent private sector players will improve the service delivery.
- **Simple and affordable O&M** is a critical sustainability factor for a FSTP. Having consistent staff helps in ensuring that the system is in continuous operation and that the treatment efficiency is sustained.
- **IEC** must be undertaken to get **stakeholder buy-in** and to ensure infrastructure lasts.
- For an FSTP to work efficiently and achieve its treatment goals, it is essential that it receives FS according to its design. Hence, **taking on-ground realities into consideration** is important.

It is also recommended that plants be designed with an **incremental plan for potential scale-up** in design and operations - as under-utilisation impacts efficiency.

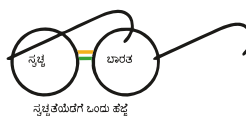
- FSM implementation is a very long process and requires significant and consistent efforts in pursuing behavior change in private desludging truck operators and households. **Establishing an FSM cell** at the ULB will ensure that there is constant effort being made in this direction.
- FSTPs are designed based on many assumptions, which over a period of time, needs to be **verified for that context**. Hence it is necessary that **long term monitoring** of the treatment operations is carried out and the system is corrected accordingly.

Outcomes

- The town has significantly **improved its sanitation situation** by scientifically treating most of its faecal waste.
- Households now have access to **on-time and professionally-managed desludging services**.



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