

# Faecal Sludge Treatment Plant 80 вададаветти, идирі, каклатака

#### PROJECT BRIEF

The first phase of *Swachh Bharat* Mission – *Grameen* (SBM-G) (2014-19) focused on making all villages in India open defecation free (ODF) - through the provision of individual household or community toilets.

The second phase, which started in February 2020, focuses on sustaining these ODF efforts by encouraging continued use of toilets and through solid-liquid waste management (SLWM).

As part of efforts under the second phase, The Rural Drinking Water and Sanitation Department, Government of Karnataka issued a State Policy and Strategy for Sanitation and Waste Management in rural areas as well as model bye-laws. This is being followed by the implementation of liquid waste treatment initiatives in 16 *Gram Panchayats,* which will serve as an example for the rest of the state. One of these *Gram Panchayats* is 80 Badagabettu in Udupi District.

#### PROJECT OUTCOMES

Assess gaps across the sanitation value chain in the *Gram Panchayat*; and implement a sustainable, cost-effective and appropriate Faecal Sludge Treatment Plant (FSTP) to manage faecal sludge generated within a cluster of 6 *Gram Panchayats* (up to a radius of 15 km from the FSTP site).

#### **REUSE OPTIONS**

- 1. Treated wastewater for landscaping
- 2. Bio-solids in agriculture

#### O&M Activities

#### **Operation tasks**

- 1. Daily monitoring of the plant and logging of loads received.
- 2. Cleaning of screening chambers.
- 3. Regular emptying of bio-solids in sludge drying beds. Maintenance tasks
- 1. Checking pipes and clearing blockages (regularly)
- 2. Desludging of the integrated settler and filter chambers.
- 3. Cleaning the filter media in the unplanted drying beds and planted gravel filter.
- 4. Trimming or harvesting of plants regularly.

#### SALIENT FEATURES

Source of faecal sludge: Septic tanks and single pits Design capacity: 18 kilo litres per week (klw) Population covered: 46,862 (Cluster of 6 GPs) TS inlet quality: 30,000 mg/L Influent Quality: BOD: 6,000 mg/L COD: 30,000 mg/L

#### PROJECT SPECIFICATIONS

Implementing agency: Rural Drinking Water and Sanitation Department, Government of Karnataka Technical partner: CDD Society Constructed By: M/s. Global Technologies Implementation cost: Rs. 49.3 Lakhs Operation and maintenance cost: Rs. 5 lakhs per annum Construction period: 8 months Commissioning date : February 5<sup>th</sup> 2022

#### MODULES ADOPTED

Components	Area of Construction
Screening chamber + Anaerobic Stabilization Reactor	23 m²
Unplanted Drying Beds	12 beds*19.5 m <sup>2</sup> =234m <sup>2</sup>
Integrated Settler and Filter Chambers	11 m <sup>2</sup>
Planted Gravel Filter	14 m <sup>2</sup>
Collection Tank and Soak Pit	10 m <sup>2</sup>
Other Civil Structure	180 m <sup>2</sup>
Total Area	472 m <sup>2</sup>



## **TREATMENT PROCESS**



### SYSTEM IN BRIEF

The Faecal Sludge Treatment Plant consists of modules for anaerobic digestion, sludge drying and liquid treatment, as follows:

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1	Screening chamber	As the first module of the FSTP, it helps in trapping all the solid waste and inorganic solids like plastics, cloth, sand, silt etc. present in the faecal sludge.
2	Anaerobic Stabilization Reactor	A 4-chambered module designed to digest the faecal sludge anaerobically, resulting in reduced organic load and more stabilized sludge. The module also helps in improving the dewatering ability of the sludge.
3	Unplanted Drying Beds	Stabilized sludge is allowed to undergo dewatering and drying in one of the 12 beds which are provided with graded filter media. The percolate is collected in a drain with a perforated top slab and sent to the liquid treatment module. The dried sludge is to be emptied periodically and can be co-composted with organic solid waste or used as a soil conditioner after sufficient resting period.
4	Integrated Settler and Filter Chambers	Primary and secondary treatment of the percolate is first done through a 2-chambered anaerobic settler to remove the settleable solids. This is followed by a 2-chambered anaerobic filter to trap and remove further organic matter by the filter media.
5	Planted Gravel Filter	A horizontal planted gravel filter provides tertiary treatment of percolate to remove the nutrients and any residual colour and odour present in the outflow from the previous module.
6	Collection tank and soak pit	The final module includes a collection tank, from which treated wastewater is used for landscaping at the FSTP site; followed by a soak pit for safe disposal of the residual treated water.



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Survey No.205 (Opp. Beedi Workers Colony), Kommaghatta Road, Bandemath Kengeri Satellite Town, Bangalore 560 060, Karnataka, India.