



Faecal Sludge Treatment Plant

BHAGAMANDALA, KODAGU, KARNATAKA

PROJECT BRIEF

Bhagamandala Gram Panchayat is a famous pilgrimage destination because of the Triveni Sangam. However, given its geographic location, it is prone to flooding every monsoon which causes entry of floodwater into some households and submergence of their containments. This results in faecal contamination of the stormwater which eventually flows into Cauvery river causing severe health and environmental risks.

The Zilla Panchayat, Kodagu has therefore taken up preparation of a Village Sanitation Plan with guidance from the Rural Drinking Water and Sanitation Department, GoK to ensure scientific disposal of solid and liquid waste around Bhagamandala Gram Panchayat. This includes planning Liquid Waste Management (LWM) for treating/managing blackwater (wastewater from toilets) and greywater (wastewater from Kitchens, bathroom, laundry etc.).

PROJECT OUTCOMES

The LWM Plan involved detailed situation assessment followed by identification of gaps and issues, based on which suitable solutions and interventions were proposed. One of the solutions is setting up of a faecal sludge treatment plant (FSTP) of 3KLW (kilo litres per week) capacity to cater to the needs of Bhagamandala and the surrounding villages/Grams.

REUSE OPTIONS

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

O&M Activities

Operation tasks

1. Daily monitoring of the plant
2. Removal of collected solid waste from the screening chamber

Maintenance tasks

1. Removal of bio-solids from the planted drying beds after the drying period.
2. Cleaning of the filter media in the planted drying bed

SALIENT FEATURES

Source of faecal sludge: Single pits and septic tanks
Design capacity: 3 kilo litres per week (klw)
Population covered: 29,075 (Cluster of 12 GPs)
TS inlet quality: 30,000 mg/L
Influent Quality: BOD: 6,000 mg/L
COD: 30,000 mg/L

PROJECT SPECIFICATIONS

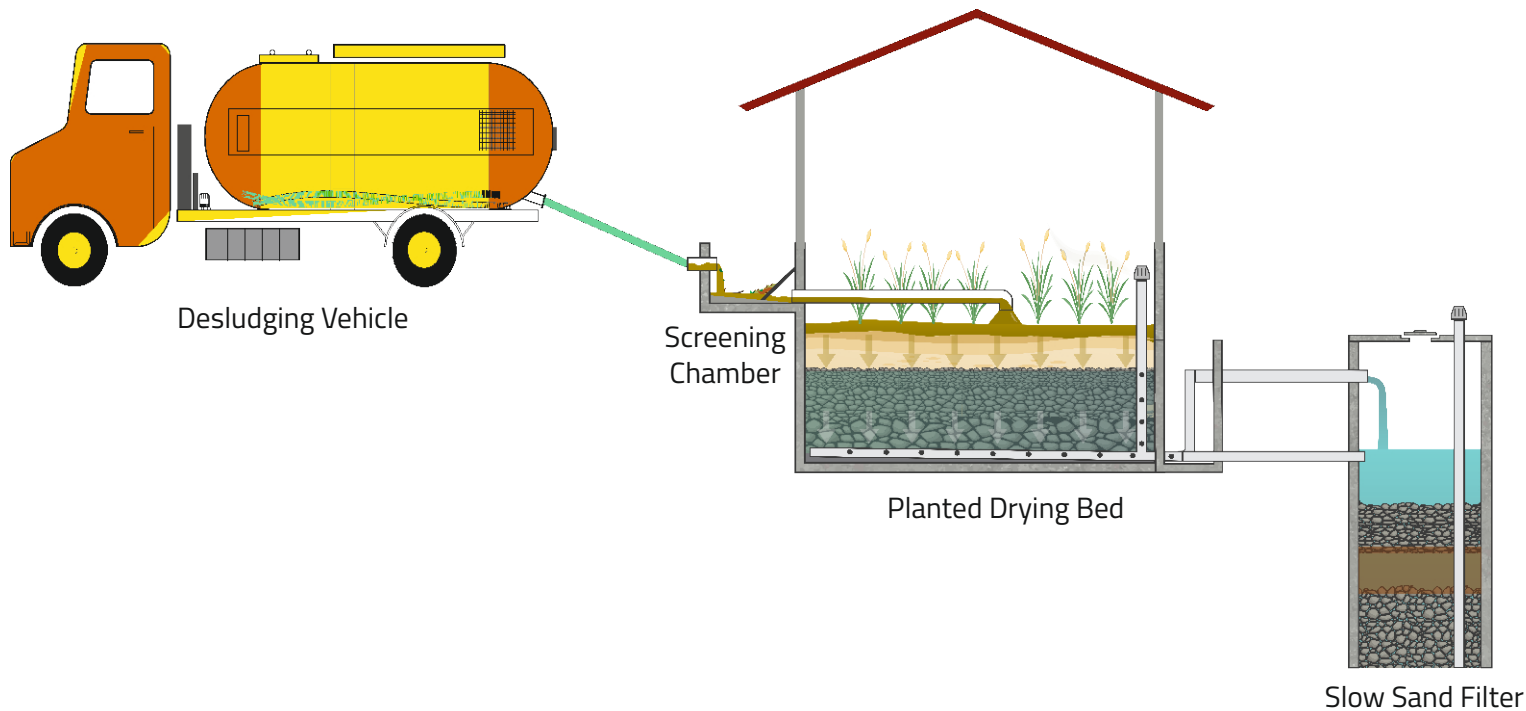
Implementing agency: Rural Drinking Water and Sanitation Department, Government of Karnataka
Technical partner: CDD Society
Constructed By: Vivek
Implementation cost: Rs. 35.6 Lakhs
Operation and maintenance cost: Rs. 5.93 Lakhs per annum
Construction period: 11 months
Commissioning date: 12th May 2022

MODULES ADOPTED

Components	Area of Construction
Screening chamber	2.2 m ²
Planted Drying Beds	2 beds*48.6 m ² = 97.2 m ²
Slow Sand Filter	3.14 m ²
Other Civil Structure	17.46 m ²
Total Area	120 m²



TREATMENT PROCESS



SYSTEM IN BRIEF

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

Sl.No	Module	Treatment Objective
1	Screening chamber	Is the first module of the FSTP and helps in trapping all the solid waste and inorganic solids like plastics, cloth, sand, silt etc. present in the faecal sludge.
2	Planted Drying Beds	This is the main module of treatment which consists of a filter bed with graded filter media and plantation of emergent macrophytes which helps in not only dewatering and drying of sludge but also allow some amount of stabilization through nutrient absorption. The first bed receive faecal sludge which is allowed to dry for a week after every loading. Once this bed gets filled, it is allowed to dry completely until 6 months. After the end of this drying period, Bio solids are obtained from these beds and can be used for agriculture. During this resting period of 6 months, next set of bed is used and loaded with faecal sludge. The percolate is collected in a drain with a perforated top slab and sent to the liquid treatment module.
3	Slow Sand Filter	The final module includes slow sand filter which effectively removes turbidity and pathogenic organisms through various biological, physical and chemical processes in a single module and helps with final disposal of the treated wastewater by soaking into the ground.



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