

DEWATS FOR BEEDI WORKERS COLONY (BWC), KENGRI, BANGALORE

PROJECT BRIEF

Beedi Worker's Colony is a peri-urban slum, located in Kengeri, on the outskirts of the city of Bangalore. It has been setup by the Government, under a project for low-cost housing for the economically weaker sections of society. The colony consists of ~4, 500 people (800 houses). The wastewater from 120 houses are connected to a DEWATS plant through the simplified sewer systems. In addition to these 120 houses the DEWATS is also treating the wastewater of an office building.

Currently, wastewater is bypassed from biogas digester and modules are modified to treat the 18m³/day based on the result obtained from flow measurements.

PROJECT OUTCOMES

- Efficient management of urban wastewater generated in the colony, leading to an improved sanitation situation
- Research/Demonstration unit for Central Pollution Control Board (CPCB) and CDD Society

SYSTEM IN BRIEF

The DEWATS consists of below modules:

1. **Settler:** a sedimentation tank for retaining articles by settling over a specific time frame.
2. **Anaerobic Baffle Reactor:** ensures anaerobic degradation of suspended and dissolved solids by mixing fresh wastewater with an active sludge blanket.
3. **Anaerobic Filter:** ensures fixed digestion of the suspended solids.
4. **Vortex:** Helps in the digestion of organic components through aerations
5. **Planted Gravel Filter:** a tertiary treatment unit, which helps in removal of odour and colour of the wastewater by aerobic processes.
5. **Sand Carbon Filters:** helps in polishing the treated water

The treated wastewater is collected in the collection tank and partially used for irrigation. The remaining amount is discharged safely into the Nalah (drain).

SALIENT FEATURES

Source: Toilets, bathrooms, laundry and wash area

Design capacity: 18 m³/d

No of users: 600

Peak flow: 8 hours

Influent quality: COD: 517 mg/l

BOD: 239 mg/l

Effluent quality: COD: 19 mg/l

BOD 7 mg/l

Efficiency: 95%

PROJECT SPECIFICATIONS:

Kind of Project: Community Based Sanitation (CBS)

Funding Agency: Pollution Control Board of India, Rajiv Gandhi Rural Housing Corporation Ltd., BWC Association & BORDA

Implementing Agency: Rajiv Gandhi Rural Housing Corporation Ltd.

Supporting Organization : Nirmithi Kendra

Construction Period: 2 years

Construction Cost: Rs. 20.3 lakhs

MODULES ADOPTED

Settler: 1 nos.

Digester volume: 12 m³

Anaerobic Baffle Reactor:

Volume: 128.5 m³

No of Chamber- 6 chambers in 2 streets

Anaerobic Filter

Volume: 19 m³

No of Chamber- 2 chambers in 2 streets

Vortex: 1nos

Planted Gravel Filter:

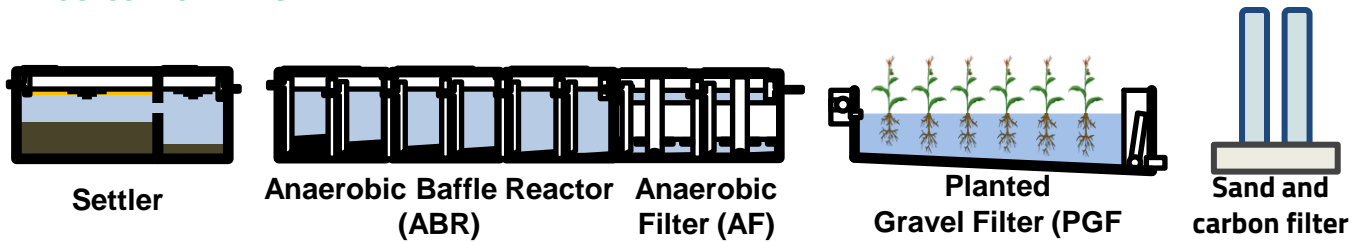
Volume: 120 m³

Area of Construction: 221 m²

Filter material used: Gravel, Plants used: Reed Juncas, Colacasia

Pressure Sand and Carbon Filter – 8 m³

PROCESS FLOW DIAGRAM



OPERATION AND MAINTENANCE

The wastewater treatment plant is operated and maintained by Beedi Workers' Association with support from CDD Society.

Regular Maintenance:

- Checking of wastewater flow in the sewer system and treatment system, checking of water & clay seal and replacement in biogas settler, and de-weeding and harvesting of plants in the Planted Gravel Filter.

Periodical maintenance:

- Removal of sludge from the Biogas Digester and Anaerobic Baffle Reactor once in 3 years.
- Regular harvesting of plants is done in the Planted Gravel Filter, and the filter media is washed once in 5 years.

PERFORMANCE OF DEWATS

Sample points	COD mg/l	BOD mg/l	TSS mg/l	E. Coli CFU/100ml
Date of Sampling: 13/05/2014				
BGD In	516	238	3280	350
Inlet ABR	571.6	290	2073	NA
PGF Out	106.1	35.4	1,568	847.5
Date of Sampling: 19/03/2015				
Inlet ABR	586	170	2243	N/A
PGF Out	56	28	1,092	115