

DEWATS FOR HARVEST INTERNATIONAL SCHOOL, BANGALORE, KARNATAKA

PROJECT BRIEF

Harvest International School is an independent, co-educational, preparatory day school, which offers the CBSE curriculum with a choice of international curriculum. It is located at Kodathi Village off Sarjapur Road, Bangalore East.

PROJECT OUTCOMES

- To improve deteriorating environmental and hygienic conditions due to absence of wastewater treatment or appropriate disposal within the school campus.
- Reuse of treated wastewater for gardening in order to conserve freshwater.

SYSTEM IN BRIEF

Treatment system consists of 4 modules: Settler, Baffled Reactor, Planted Gravel Filter.

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. **Planted Gravel Filter:** a tertiary treatment unit, which helps in removal of odour and colour of the wastewater by aerobic processes.

PROJECT SPECIFICATIONS

Source of wastewater: Kitchen, Toilets, Urinals

Design capacity: 25 m³/d

No of users: 1,000

Peak flow: 5 hrs

Influent Quality: BOD 73mg/l, COD 166.65 mg/l

Effluent Quality: 21.6 BOD mg/l, COD 56.9mg/l

SALIENT FEATURES

Kind of Project: SME-DEWATS

Implementing Agency: CDD Society

Supporting Organization: CDD Society

Construction Period: 6 months

Construction Cost: Rs. 18 lakhs

Start of Operation: 2011

MODULES ADOPTED

Settler for 25 m³ capacity

Volume : 29.54 m³

Area of construction : 18.70 m²

Anaerobic Baffle Reactor: 15 m³

Volume: 37.04 m³

Area of construction: 26 m²

No. of chambers: 6

Anaerobic Filter: 15 m³

Volume: 14 m³

Area of construction: 9.41m²

No. of chambers: 2

Planted Gravel Filter: 15 m³

Volume : 24 m³

Area of construction: 59.09 m²

Filter material used: Aggregates

Plants used : Canas Indicas, Colacasia

Collection Tank: 25 m³

Volume: 24.19 m³

Area of construction: 19.44 m²

Built up area: 135.4 m²

PROCESS FLOW DIAGRAM



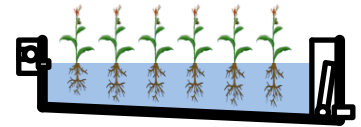
Settler



Anaerobic Baffle Reactor (ABR)



Anaerobic Filter (AF)



Planted Gravel Filter (PGF)

REUSE OPTIONS

All the treated wastewater is reused for landscaping, gardening and irrigation.

OPERATION AND MAINTENANCE

The wastewater treatment plant is operated and maintained by a trained member of the school.

Regular Maintenance:

Wastewater flow checking in all the units, clearing blockages in all chambers (registers), removal of dead plants and litter inside the PGF.

Periodic Maintenance:

- Removal of sludge in the settler and the baffle reactor chambers once in three years.
- Replacement of filter media in the filter chambers and PGF once in five years.
- Plants in PGF have to be trimmed, when needed.

TREATED WASTEWATER QUALITY

Sample points	COD mg/l	BOD mg/l	TSS mg/l	E. Coli CFU/100ml
Date of Sampling: 6\6\2014				
Settler inlet	166.65	73	30	N/A
ABR in	128	54	782	N/A
ABR out	54.5	22	645	N/A
PGF out	56.9	21.5	610	617.5