

# 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.



## SALIENT FEATURES

Source of wastewater: Kitchen, Toilets, Urinals  
 Design capacity: 25 m<sup>3</sup>/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

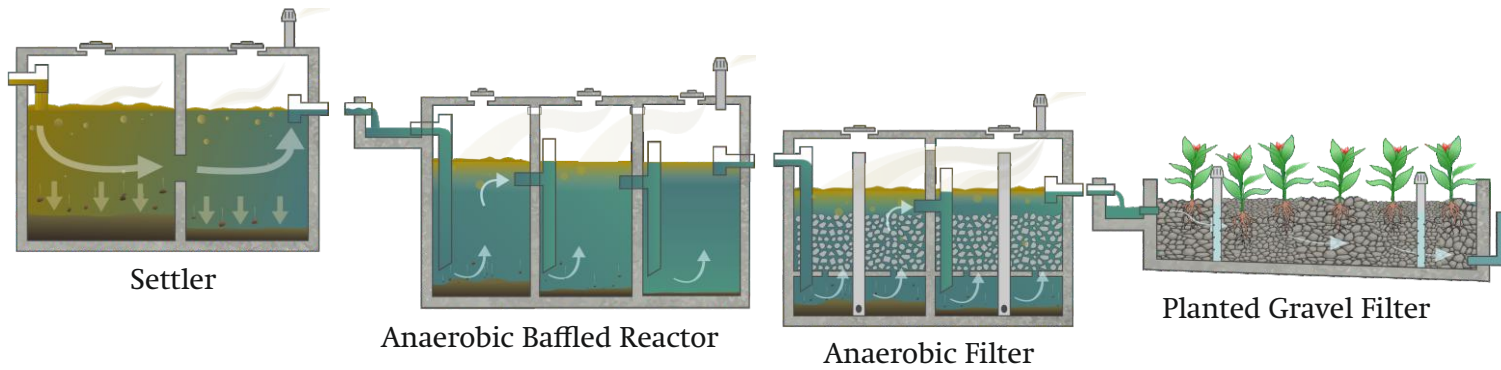
## PROJECT SPECIFICATIONS

Kind of Project: SME-DEWATS  
 Implementing Agency: CDD India  
 Supporting Organization: CDD India  
 Construction Period: 6 months  
 Construction Cost: Rs. 18 lakhs  
 Start of Operation: 2011

## MODULES ADOPTED

**Settler for 25 m<sup>3</sup> capacity**  
 Volume : 29.54 m<sup>3</sup>  
 Area of construction : 18.70 m<sup>2</sup>  
**Anaerobic Baffle reactor: 15 m<sup>3</sup>**  
 Volume: 37.04 m<sup>3</sup>  
 Area of construction: 26 m<sup>2</sup>  
 No. of chambers: 6  
**Anaerobic Filter: 15 m<sup>3</sup>**  
 Volume: 14 m<sup>3</sup>  
 Area of construction: 9.41m<sup>2</sup>  
 No. of chambers: 2  
**Planted Gravel Filter: 15 m<sup>3</sup>**  
 Volume : 24 m<sup>3</sup>  
 Area of construction: 59.09 m<sup>2</sup>  
 Filter material used: Aggregates  
 Plants used : Canas Indicas, Colacasia  
**Collection Tank: 25 m<sup>3</sup>**  
 Volume: 24.19 m<sup>3</sup>  
 Area of construction: 19.44 m<sup>2</sup>  
**Built up area: 135.4 m<sup>2</sup>**

## PROCESS FLOW DIAGRAM



## 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.

## REUSE OPTIONS

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

## TREATED WASTEWATER QUALITY

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

