



CBS-DEWAT WITH SIMPLIFIED SEWER SYSTEM FOR MANDAVAIKUPPAM COLONY

PROJECT BRIEF

Mandavaikuppam is located at Villupuram district under Marakannam Town Panchayat, 30 kms from Pondicherry. There are 110 new houses- 50 constructed by the VCDS and 60 by World Vision India - with an approximate population of 600 people.

PURPOSE

- Safe disposal of wastewater
- To improve deteriorating environmental and hygienic conditions due to absence of wastewater treatment or appropriate disposal.

SYSTEM IN BRIEF

Based on the house location, orientation, availability of space and ground slope, it is proposed to cluster the wastewater into two different streams for conveyance, collection and treatment.

In Cluster 1, wastewater from 43 houses is conveyed through the sewer system, provided in the backyard of houses; and is collected in a common chamber at one location.

In Cluster 2, wastewater from 67 houses is conveyed through a sewer system and collected in a common chamber at another location.

The wastewater from this chamber is conveyed to the primary and secondary treatment unit and then collected in a common collection tank for pumping into the feeding tank.

The partially treated wastewater from the feeding tank is distributed into the Planted Gravel Filter for tertiary treatment and finally, the treated wastewater is safely disposed into the nearby valley (by gravity).

SALIENT FEATURES

Source : Toilets, Bathrooms, Laundry

Design capacity : 40 m³/d

No of users : 600

Peak flow: 8 hours

Influent quality : BOD 450mg/l ; COD 950mg/l

Effluent Quality: BOD: 11 mg/L; COD: 30 mg/L

PROJECT SPECIFICATIONS

Kind of Project: CBS-DEWATS with Simplified Sewer System

Funding Agency: World Bank, Government of Tamil Nadu

Implementing Agency: Project Management Unit

Estimated Cost: Rs. 85.31 lakhs

Commissioned: March 2011

MODULES ADOPTED

Cluster 1: 15 m³

Settler:

Volume: 10.1 m³

Area of construction : 12 m²

Baffle reactor with Anaerobic Filter

Volume : 33.6 m³

Area of construction : 40.5 m²

No. of chambers : 6+2

Cluster-2: 25 m³

Settler:

Volume: 19 m³

Area of construction: 18 m²

Baffle reactor with Anaerobic Filter

Volume: 60 m³

Area of construction: 65 m²

No. of chambers: 12+4

Common Collection tank: For Cluster -1 & 2

Volume: 25 m³

Area of construction : 35 m²

Feeding tank with Pump house

Volume: 10 m³

Area of construction: 19 m²

Planted Gravel Filter: For Cluster - 1 & 2

Volume: 115 m³

Area of construction: 243 m²

Filter materials: Aggregates

Plants to be used: Reed Juncas, Colacasia

Built up area : 450 m²



PROCESS FLOW DIAGRAM



Settler

1. Settler: is a sedimentation tank for retaining particles by settling over a specific time frame.



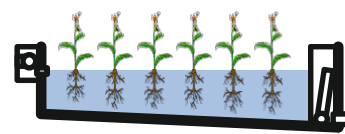
Anaerobic Baffle Reactor (ABR)

2. Anaerobic Baffle Reactor: ensures anaerobic degradation of suspended and dissolved solids by mixing fresh wastewater with an active sludge blanket.



Anaerobic Filter (AF)

3. Anaerobic Filter: ensures fixed digestion of the suspended solids.



Planted Gravel Filter (PGF)

4. The Planted Gravel Filter: is used as a tertiary treatment unit where aerobic and facultative degradation of dissolved organic occurs.

OPERATION AND MAINTENANCE

The wastewater treatment plant is operated and maintained by the trained members of the town panchayath office & local community members.

Regular maintenance includes wastewater flow checking in sewer system and treatment system, de-weeding and harvesting of plants in the Planted Gravel Filter.

Periodical maintenance includes:

- (a) Removal of sludge in settlers and anaerobic baffle reactors
- (b) Replacement of filter media in the in filter chambers and planted gravel filter once in 5-6 years
- (c) Re-plantation in the planted gravel filter

REUSE OPTIONS

Presently there is no reuse option for the treated wastewater.

PERFORMANCE OF DEWATS

Sample points	COD mg/l	pH
Date of sampling: 08-05-2014		
Settler Inlet	403	7.14
PGF Outlet	131	7.34

PROJECT PHOTOS

