



DEWATS™ (Phase 1) for OLD CEMONC BLOCK

at Government Medical Hospital, Chengalpattu, Tamilnadu

PROJECT BRIEF

Chengalpattu Government Medical College and Hospital is the oldest college-cum-hospital and the busiest hospital in Chengalpattu District, Tamil Nadu. The total area of its campus is **265 acres**. Due to a lack of proper liquid waste management, septic tanks are overflowing in many blocks across campus and many registers & pipes are broken too. This is creating an unhealthy sanitary situation within the hospital campus.

We designed and implemented a nature-based wastewater treatment system (**DEWATS™**) on request by **World Vision, Chennai** who is supporting the hospital in **providing a sustainable treatment system**.

PROJECT OUTCOMES

- Efficient management of wastewater collected from the toilets, wash basins and bathing units, leading to an improved sanitation situation

SYSTEM IN BRIEF

The wastewater streams, conveyed from the toilet, bathroom, kitchen and wash basins, are collected in a common register near the treatment system, which consists of 3 modules:

- 1. Screening Chamber:** Coarse and fine screen that segregates the solid waste and ensures a smooth flow of wastewater without clogging.
- 2. Settler:** a sedimentation tank for retaining sediment particles by settling over a specific time frame.
- 3. Anaerobic Baffle Reactor:** ensures anaerobic degradation of suspended and dissolved solids by mixing fresh wastewater with an active sludge blanket.
- 4. Anaerobic Filter:** Fixed bed filter consisting of a series of chambers with filter media in which wastewater comes in contact with the active bacterial mass and degrades the organics.
- 5. Planted Gravel Filter:** used as a tertiary treatment unit to oxygenate the partially treated wastewater.

SALIENT FEATURES

Source: Toilets, bath, and wash basins
Design Capacity: 40 m³/d
No of Users/beds: 200
Peak flow: 10 hours
Influent quality: BOD: 300mg/l
COD: 600mg/l

PROJECT SPECIFICATIONS

Kind of Project: Hospital
Funding Agency: World Vision, Chennai
Implementing Agency: CDD Society
Construction Period: 12 months (extended due to Covid)
Construction Cost: Rs. 30 lakhs
Status: Construction ongoing

MODULES ADOPTED

Settler

Volume: 20 m³

Area of Construction: 10 m²

Anaerobic Baffle reactor

Volume: 24.3 m³

Area of Construction: 13.5 m²

No. of Chambers: 3

Anaerobic Filter

Volume: 40.5 m³

Area of Construction: 22.5 m²

No. of chambers: 3

Planted Gravel Filter

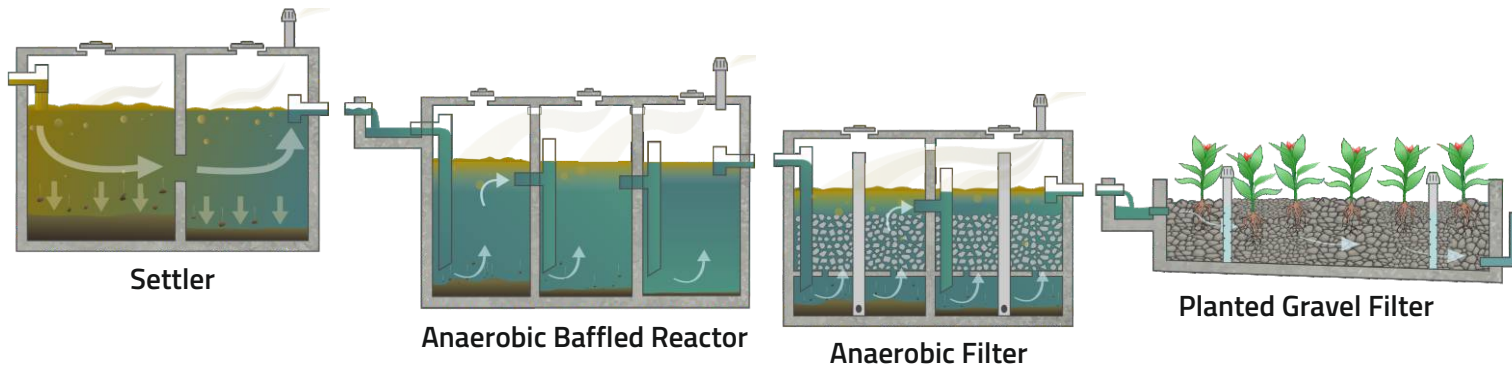
Volume: 30 m³

Area of construction: 50 m²

No. of units in Planted Gravel Filter: 2 Nos.

Built up area: 96 m²

PROCESS FLOW DIAGRAM



OPERATION AND MAINTENANCE

The wastewater treatment plant will be operated and maintained by a trained member of the Hospital for whom training will be provided.

Regular maintenance:

- Checking wastewater flow in all units
- Clearing blockages in all chambers (registers)

Periodical maintenance:

- Removal of sludge in Settler and Baffle Reactor chambers once in 2-3 years
- Replace filter media in the Filter Chambers once in three years
- Clean/replace the filter media in the Planted Gravel Filter once in 5 years

REUSE OPTIONS

The treated wastewater is released into a nearby drain.



IMPLEMENTATION OF DEWATS™




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