



## DEWATS FOR AZIM PREMJI FOUNDATION SCHOOL Gulbarga, Karnataka

### PROJECT BRIEF

Azim Premji foundation is a prominent non-profit organization, which has set up demonstration schools in Yadgir, Sirohi, Tonk, Dhamtari, Uttarkashi and Udham Singh Nagar to provide quality free education to the local community, at costs and constraints similar to that of rural government schools.

The foundation has now opened a new school in Gulbarga in North Karnataka. The 6 acre campus consists of a school building, district education institute block, canteen and a guest block to accommodate residential students.

CDD Society was approached by Azim Premji Foundation to provide a wastewater treatment plant for the new school campus.. A total of 35 cum of wastewater is estimated to be generated from the school campus.

### PROJECT OUTCOMES

- Efficient management of wastewater on the school campus leading to an improved sanitation situation.
- Usage of treated wastewater for gardening and flushing.

### SYSTEM IN BRIEF

The wastewater from the kitchen, toilets and wash area is conveyed to a treatment unit through a sewer network. The treatment system consists of the following modules:

1. **Settler:** a sedimentation tank for retaining articles by settling over a specific time frame.
2. **Integrated 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.
5. **Sand Carbon Filters:** Before reusing the water the treated water from PGF is polished in pressure sand carbon filter

### SALIENT FEATURES

**Source:** Kitchen, Toilets and Wash Area

**Design capacity:** 35 m<sup>3</sup>/d

**No of users:** 1,605

**Peak flow:** 5

**Influent quality:** BOD: 300mg/l

COD: 600mg/l

**Effluent Quality:** BOD: <20mg/l

COD: < 100 mg/l

### PROJECT SPECIFICATIONS

**Funding Agency:** Azim Premji Foundation (APF)

**Implementing Agency:** Kundur Constructions pvt. Ltd.

**Construction Period:** 8 months

**Start of operation:** 2019

### MODULES ADOPTED

#### Settler

Volume: 24.97 m<sup>3</sup>

Area of construction : 22.06

#### Anaerobic Baffle reactor

Volume : 14.4 m<sup>3</sup>

Area of construction : 12.63 m<sup>2</sup>

No. of chambers : 3

#### Anaerobic Filter

Volume : 29.7 m<sup>3</sup>

Area of construction : 20m<sup>2</sup>

No. of chambers : 3

#### Planted Gravel Filter

Area of implementation : 81m<sup>2</sup>

Plants used : Canna Indica, Cyperus papyrus

#### Sand and carbon filter

0.6m diameter with 1.2m height

**Built up area :** 213 m<sup>2</sup>

## PROCESS FLOW DIAGRAM



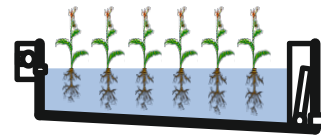
**Settler**

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



**Anaerobic Baffle Reactor (ABR)**

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



**Planted Gravel Filter (PGF)**

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



**Sand and carbon filter**

4. The treated wastewater collects in **the Collection Tank** for further treatment or for safe disposal.

## OPERATION AND MAINTENANCE

The wastewater treatment plant is operated and maintained one operator.

### Operations :

- Checking Wastewater flow in all units and clearing the blockages (in registers).
- Regular pumping of wastewater from balancing tank and also for reuse purpose is needed.

### Maintenance:

- Removal of sludge in settler and integrated ABR & AF once in two to three years.
- Replacement of filter media should be done in once in five years in the filter chambers.
- Trimming of plants in PGF should be done in case of overgrowth

## REUSE OPTIONS

The treated wastewater is reused for gardening and flushing purposes.

## PHOTOS



DEWATS during construction



DEWATS system during commissioning