

DEWATS FOR MALLYA ADITI INTERNATIONAL SCHOOL, BANGALORE

PROJECT BRIEF

Mallya Aditi International School, located in Yelahanka in Bangalore, is one of Bangalore's prestigious schools. The school approached CDD for a wastewater treatment system which could be integrated into the landscape and is easy to maintain.

PROJECT OUTCOMES

- To prevent pollution of environment because of greywater contamination
- Treatment of wastewater to match KSPCB standards
- Provide water for landscaping and gardening

SYSTEM IN BRIEF

The treatment consists of following modules:

1. Balancing tank
2. Primary Treatment (Settler)
3. Secondary Treatment (Anaerobic Baffled Reactor with Anaerobic Filter), Tertiary Treatment (Planted gravel filter and ISACF), sand filter and activated carbon filter (SF & ACF).

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.
5. **Sand Carbon Filters:** Before reusing the water the treated water from PGF is polished in pressure sand carbon filter

SALIENT FEATURES

Source: Toilets and kitchen (dish washing) area

Design Capacity: 17 m³

No of Users: 570

Peak flow: 5 hours

Influent Quality: BOD: 300 mg/l
COD: 605 mg/L

Effluent Quality: BOD: 9 mg/l
COD: 29 mg/l

PROJECT SPECIFICATIONS:

Funding Agency: Mallya Aditi International School

Implementing Agency: Revlon Buildtech Pvt Ltd

Supporting Agency: CDD Society

Construction Cost: 16.5 lakhs

Operation Cost: Rs.5,000/month

Duration of Construction: 4 months

Start of operation: May 2018

MODULES ADOPTED

Settler

Volume: 7.92 m³

Area of construction: 3.6 m²

Anaerobic Baffle Reactor

Volume: 20.22 m³

Area of construction: 10.12 m²

No. of chambers: 4

Anaerobic Filter

Volume: 14.7 m³

Area of construction: 10.3 m²

No. of chambers: 3

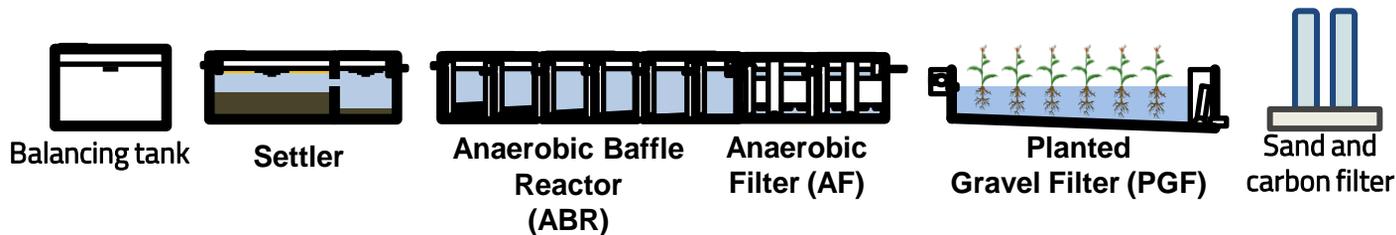
Planted Gravel Filter

Area of implementation: 50 m²

Plants used: Canna Indica, Cyperus papyrus

Built up area: 74.02 m²

PROCESS FLOW DIAGRAM



OPERATION AND MAINTENANCE

Operations:

- Check for free wastewater flow
- Removal of Solid waste at Screen
- Controlling pump outflow
- Check for swivel pipe level in the planted gravel filter
- De-weeding, removal of dead leaf litter and other litter
- Backwashing sand and carbon filter

Maintenance:

- Ensuring functionality of the vent pipes
- Checking Sludge Level

REUSE OPTIONS

The treated wastewater is used for landscaping and gardening in the school complex

LEARNINGS

- First time implementation of balancing tank system with cost effective flow control
- Challenges at site due to surface aquifer at 2m below ground level

PERFORMANCE OF DEWATS

Sample points	COD mg/l	BOD mg/l	TSS mg/l	E. Coli CFU/100ml
Date of sampling - 18 th June, 2019				
Balancing Tank Outlet	31	7	12	
Settler Outlet	117	55	122	
AF Outlet	37	14	33	
PGF Outlet	42	10	15	
PSCF Outlet	24	8	5	620 MPN/100 ml

