Consortium for DEWATS Dissemination Society

DEWATS FOR MARVEL TECHNOLOGY & TOOLS Pvt. Ltd. Bangalore

PROJECT BRIEF

Marvel Technology & Tools Private Limited is a private firm, started in 2007. It is involved in the manufacture of parts and accessories for motor vehicles and their engines. Around 50 people work in the factory in 2 shifts (25 people per shift). Based on the number of users and water consumption, it is estimated that around 2.5 m3 wastewater is generated from the factory in a day.

PROJECT OUTCOMES

- Efficient management of wastewater which is collected from the factory leading to an improved sanitation situation.

SYSTEM IN BRIEF

The wastewater is collected and conveyed through a sewer line to the treatment system. The treatment system consists of Prefabricated Integrated Settler of 2 chambers, Anaerobic Baffled Reactor of 2 chambers and Anaerobic Filter of 3 chambers, Planted Gravel filters. The treated wastewater is collected in the Collection Tank.

1. **Settler**: a sedimentation tank for retaining articles by settling over a specific time frame.
2. **Integrated Anaerobic Baffle Reactor(ABR) with Anaerobic Filters (AF)**: ensures anaerobic degradation of suspended and dissolved solids by mixing fresh wastewater with an active sludge blanket.
3. **Planted Gravel Filter**: a tertiary treatment unit, which helps in removal of odour and colour of the wastewater by aerobic processes.

SALIENT FEATURES

Source: Toilets and washrooms
Design Capacity: 3 m^3/d
No of users: 50
Peak flow: 3 hours
Influent quality: BOD: 250mg/l ;
COD: 500mg/l
Effluent Quality: BOD: <30mg/l ;
COD: 100mg/l
Status: Operational

PROJECT SPECIFICATIONS:

Kind of Project: Small Medium Enterprise (SME)
Funding Agency: Marvel Technology
Construction Period: 6 months
Construction Cost: Rs. 8.5 lakhs
Start of operation: 2016

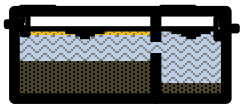
MODULES ADOPTED

Integrated Settler, ABR with AF
Volume: 10.2 m^3
Area of construction: 10.4 m^2
No. of ABR chambers: 2
No. of AF chambers: 3
Planted Gravel Filter
Area of Implementation: 10.36 m^2
Plants Used: Canna Indica, Cyperus papyrus

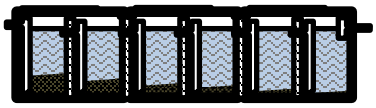
Built up area: 26.30 m^2

Survey No.205 (Opp. Beedi Workers Colony),
Kommaghatta Road, Bandemath, Kengeri Satellite Town,
Bangalore 560 060, Karnataka, India.
+91-80-28486700 bangalore@cddindia.org

PROCESS FLOW DIAGRAM

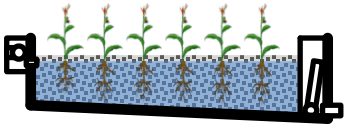


Settler



Anaerobic Baffle Reactor (ABR)

Anaerobic Filter (AF)



Planted Gravel Filter (PGF

OPERATION AND MAINTENANCE

The wastewater treatment plant is operated and maintained by a trained operator.

Regular Maintenance:

- Wastewater flow checking in all units and clearing the blockages in all chambers (registers)
- Regular operation of pumps

Periodical Maintenance:

- Removal of sludge from the settler once in a year and from the Anaerobic Baffle Reactor once in 2-3 years.
- Trimming of plants in the Planted Gravel Filter
- Replacement of filter media in Anaerobic Filter once in five years
- Cleaning of the Planted Gravel Filter media once in 5 years

REUSE OPTIONS

The treated wastewater is disposed into the drain.

PERFORMANCE OF DEWATS

Sample points	COD mg/l	BOD mg/l	TS mg/l
Date of Sampling: 3/11/2016			
Settler 1st chamber	280	80	1,143
PGF Outlet	206	60	1,197

*Note: The samples are analyzed after 2 months of commissioning