



DEWATS™ for Public Toilet at Vegetable Market

Kalmeshwar, Maharashtra

PROJECT BRIEF

Kalmeshwar is a town located 25 km away from Nagpur. It has a population of ~30,000. A DEWATS™ has been constructed for a public toilet complex at the new vegetable market. The toilet complex, which has facilities for urinal, bathroom and toilet for both for men and women, is being maintained by a private contractor on pay & use basis.

PROJECT OUTCOMES

- To mitigate health, hygiene and environmental risks caused by the absence of wastewater treatment or its inappropriate disposal
- To meeting effluent treatment standards of the Maharashtra State Pollution Control Board (MSPCB)
- To reuse the treated water for gardening, flushing and washing of the pathways (leading to the toilet)

SYSTEM IN BRIEF

The wastewater streams are channeled from all sources and collected in a common register near the treatment system, which consists of following modules:

- **Settler:** a sedimentation tank for retaining heavier and lighter particles by sedimentation & floatation
- **Anaerobic Baffled Reactor:** ensures anaerobic degradation of suspended and dissolved solids by mixing fresh wastewater with an active sludge blanket
- **Anaerobic Filter:** comprises of a filter bed for treatment of dissolved organic matter. Wastewater comes in contact with the active bacterial mass, which grows on the filter material.
- **Planted Gravel Filter:** a tertiary treatment unit, which helps in the removal of odour and colour of the wastewater by aerobic processes.
- **Collection tank:** is used to store the treated water

SALIENT FEATURES

Source: Public Toilets, Urinals & Bathrooms

Design Capacity: 12 m³/day

No. of Users: 480

Peak Flow: 8 hours

Influent quality: BOD: 350 mg/l

COD: 800 mg/l

Effluent Quality: BOD: <20 mg/l

COD: <60 mg/l

PROJECT SPECIFICATIONS

Funding Agency: Kalmeshwar Municipal Council

Implementing Agency: CDD Society

Construction Cost: Rs 9.38 Lakhs

Start of Construction: October 2020

End of construction: December 2020

Current status: Commissioned & operational

Area per beneficiary: 0.27 sq.mt

Cost per beneficiary: Rs. 2,345/-

OpEx per beneficiary: Rs. 75

MODULES ADOPTED

Settler

Volume: 24.16 m³

Area: 12.08 m²

Anaerobic Baffled Reactor + Anaerobic Filter

Volume: 61.2 m³

Area: 34 m²

Planted Gravel Filter

Volume: 43.44 m³

Area: 72.4 m²

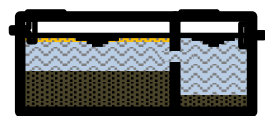
Collection Tank

Volume: 16.72 m³

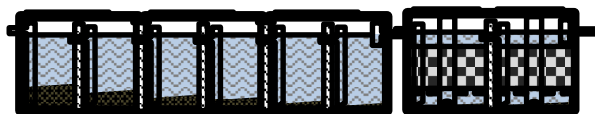
Area: 13.38 m²

Built up area: 131.86 m²

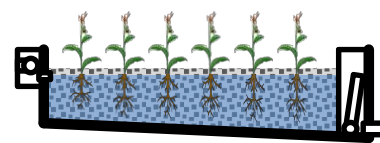
PROCESS FLOW DIAGRAM



Settler



Anaerobic Baffle Reactor (ABR) with Anaerobic Filter (AF)



Planted Gravel Filter (PGF)

OPERATION AND MAINTENANCE

The wastewater treatment plant is operated and maintained by a private contractor on pay & use basis. O&M costs are in the range of Rs.25,000 - Rs.30,000 per year.

Operations

- Checking wastewater flow in all units and clearing the blockages (in registers).
- Pumping wastewater from the balancing tank regularly (pumping needs to be done in order to reuse the wastewater as well)

Maintenance

- Removal of sludge in the settler and integrated ABR & AF once in two to three years
- Replacement of filter media (in the filter chambers) once in five years
- Trimming of plants once in six months

REUSE OPTIONS


- The treated wastewater is used for gardening, pathway washing and flushing in the toilets




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