



# Public Toilet with DEWATS™

## Devanahalli Market, Karnataka

### PROJECT BRIEF

Devanahalli is a town located 40 km away from Bengaluru. It has a population of ~23,190. We constructed a public toilet with DEWATS™ at Devanahalli market, where there was no public toilet arrangement yet a need for a toilet for the benefit of shopkeepers and customers to the market. The public toilet is designed for 200 users per day. The gents toilet comprises of 2 toilets and 4 urinals and the ladies toilet comprises of 3 toilets. The toilet is maintained by Devanahalli's Town Municipal Council.

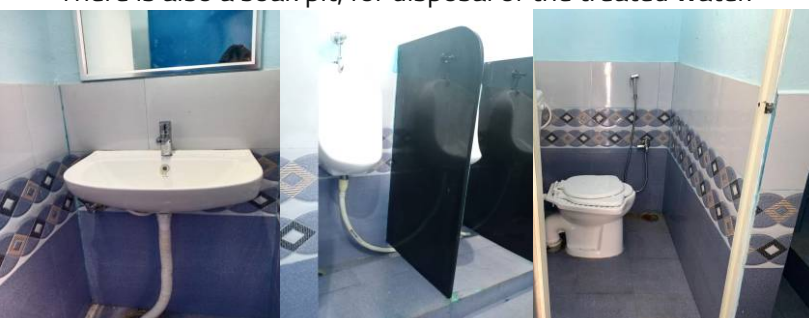
### PROJECT OUTCOMES

- Efficient management of wastewater generated at the public toilet.
- To meet Pollution Control Board's (PCB) regulatory norms for wastewater treatment and reuse.
- To protect the environment from direct pollution.

### SYSTEM IN BRIEF

Wastewater from domestic sources from the public toilet building is conveyed to the treatment unit through a sewer network. The treatment system consists of 3 modules:

- **Settler:** is a sedimentation tank for retaining articles by settling over a specific time frame.
- **The Anaerobic Baffle Reactor:** ensures anaerobic degradation of suspended and dissolved solids by mixing fresh wastewater with an active sludge blanket.
- **The Anaerobic Filter:** comprises of a filter bed for treatment of dissolved organic matter. Wastewater comes in contact with active bacterial mass which grows on the filter material.
- There is also a soak pit, for disposal of the treated water.



### SALIENT FEATURES

**Source:** 5-seater public toilet, 4 urinals, washbasin  
**Design Capacity:** 3 m<sup>3</sup>/d  
**No. of users:** 200  
**Peak Flow:** 5 hours  
**Influent quality:**  
BOD: 650 mg/l  
COD: 1,300mg/l  
**Effluent Quality:** After secondary treatment  
BOD: 35 mg/l  
COD: 120 mg/l  
**Efficiency:** 95%

### PROJECT SPECIFICATIONS

**Funding Agency:** Oracle  
**Implementing Agency:** CDD Society  
**Construction cost:** Rs. 13.69 lakhs  
(Public Toilet + DEWATS™)  
**Construction period:** 9 months  
**Start of operation:** September 2020  
**Current status:** Commissioned & operational  
**Area per beneficiary:** 0.21 m<sup>2</sup>  
**CapEx per beneficiary:** Rs. 6,845

### MODULES ADOPTED

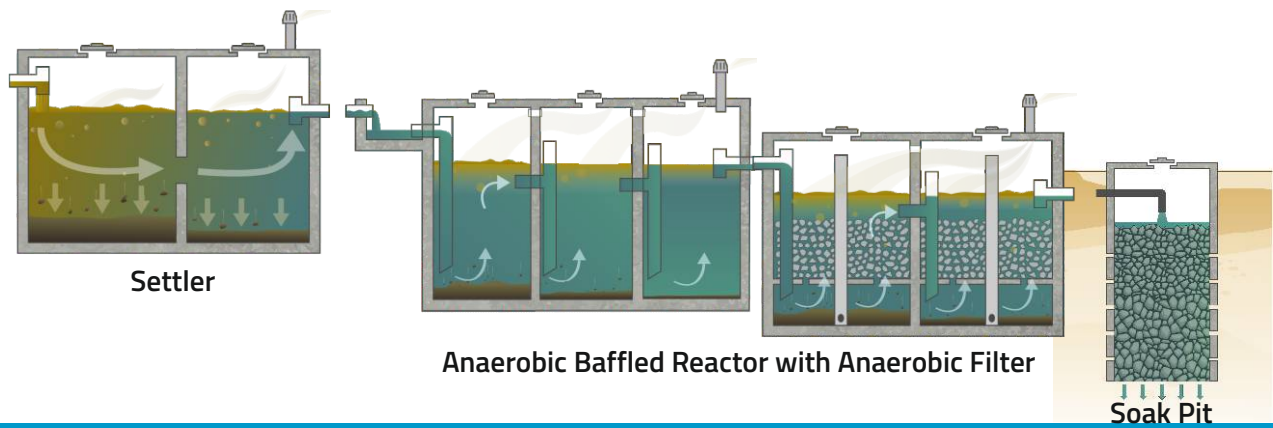
**Settler** - Volume: 2.9 m<sup>3</sup>  
Area of construction: 3.5 m<sup>2</sup>

**Anaerobic Baffled reactor** - Volume: 3 m<sup>3</sup>  
Area of construction: 3.6 m<sup>2</sup>  
No. of chambers: 3

**Anaerobic Filter** - Volume: 2.9 m<sup>3</sup>  
Area of construction: 3.70 m<sup>2</sup>  
No. of chambers: 2

**Soak pit** - Volume: 3m<sup>3</sup>  
Area: 1.2 m<sup>2</sup>  
Built up area of DEWATS: 12 m<sup>2</sup>  
Built up area of Public toilet: 30 m<sup>2</sup>

## PROCESS FLOW DIAGRAM



## OPERATION AND MAINTENANCE

- The wastewater treatment plant is operated and maintained by Devanahalli's Town Municipal Corporation. OpEx costs of toilets and DEWATS are in the range of Rs. 2,50,000 per year (including the Operator's salary).
- A regular schedule will be followed for maintenance and includes periodic check of all modules, removal of sludge in baffled reactor and other required tanks.
- The filter media in the anaerobic filter will be washed once in five / seven years.

## REUSE OPTIONS

- (After Secondary Treatment), the treated wastewater is flows to soak pit gets safely disposed




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