

DEWATS FOR ARAVIND EYE HOSPITAL

No. 68, Abhishekapakkam, Thavalakuppam Junction, Pondicherry - 605007

Project background

Aravind Eye Hospital located on the east coast highway between Pondicherry and Cuddalore, serves the eye care needs of the people of Pondicherry and neighbouring districts of Tamil Nadu. The ratio of free beds to paying beds being 4:1, there are 600 beds for free patients and 150 beds to for paying patients. The hospitals out patient department can handle 1500 patients per day.

Kind of Project : DEWATS for domestic wastewater

Implementing Agency : Aravind Eye Hospital

Supporting Organisation : CSR, PAS & FDCO [presently CDD]

Construction Period : 8 months

Construction Cost : Rs. 91.83 lakhs

Start of Operation : February 2003

Salient Features

Source	: Toilets, bathrooms, urinals, laundry, kitchen
Design capacity	: 307 m ³ /d
No of users	: 750
Peak flow	: 8 h
Influent quality	: BOD 1053 - COD 320
Effluent quality	: BOD 18 - COD 7
Efficiency	: 95 %

Purpose

Compliance to State Pollution Control Board standards

Accommodating and installing a low maintenance wastewater treatment plant in the space available.

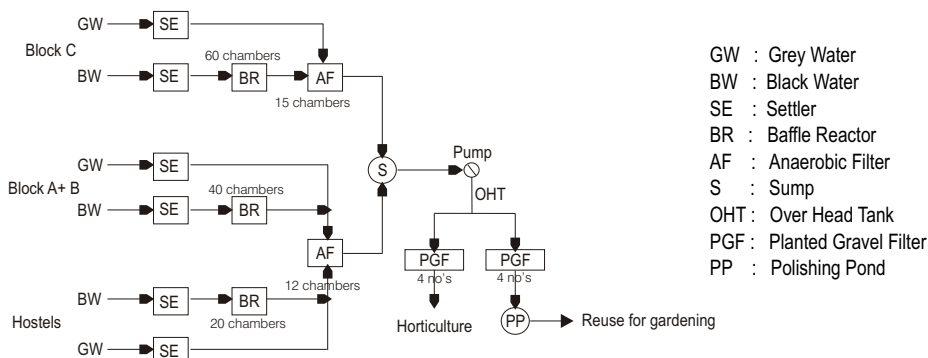
Huge requirement of water for landscaping



System in brief

Black and grey water streams are separated and treated in the following modules : Settler, Baffled reactor, Anaerobic filter, Planted gravel filter and Polishing pond.

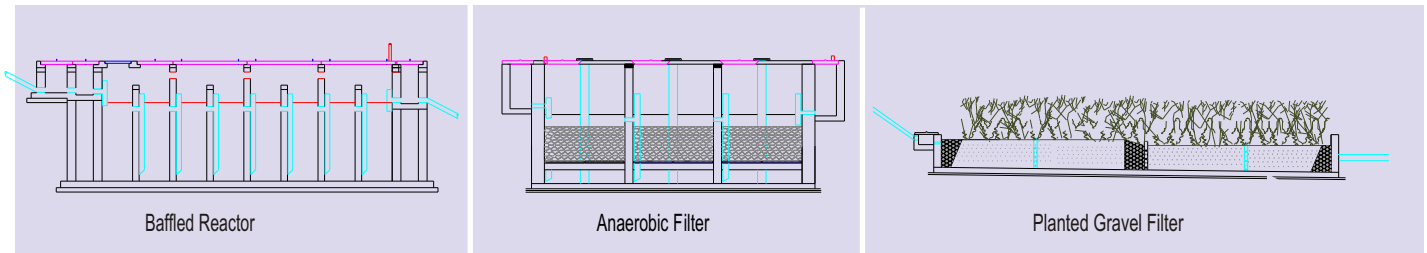
The treatment takes place by sedimentation, anaerobic degradation, sludge stabilisation and facultative degradation of organic matter followed by pathogen removal by ultra-violet radiation in the polishing pond.



Modules adopted

Settler	Volume	: 163 m ³
	Area of construction	: 107 m ²
Baffle reactor	Volume	: 440 m ³
	Area of construction	: 392 m ²
Anaerobic filter	Volume	: 365 m ³
	Area of construction	: 375 m ²
	Filter material used	: Cinder
Planted gravel filter	Volume	: 634 m ³
	Area of construction	: 1210 m ²
	Filter material used	: Pebbles
	Plants used	: Canas indica
Polishing pond	Volume	: 300 m ³
	Area of construction	: 600 m ²
Built up area		: 2690 m ²

Typical drawing



Operation and maintenance

The wastewater treatment plant is operated and maintained by the O & M team and the trained gardener of the hospital. A regular schedule is followed for maintenance, like periodical check of sewer line systems, removal of sludge in settler, baffle reactor and anaerobic filter. In the planted gravel filter regular harvesting of plants is done. The filter media of both planted gravel filter and anaerobic filter is washed once in five years.

Operating charges are exclusively electricity charges that cost Rs. 2,19,000/- annually. [There are 4 motors of 7.5 hp that run 8 hours a day.] The maintenance is carried out once in 3 years costing approximately Rs. 30,000/-. The annual O&M charges are therefore Rs. 2,19,000/-.

Reuse options

Reuse of treated water for gardening.

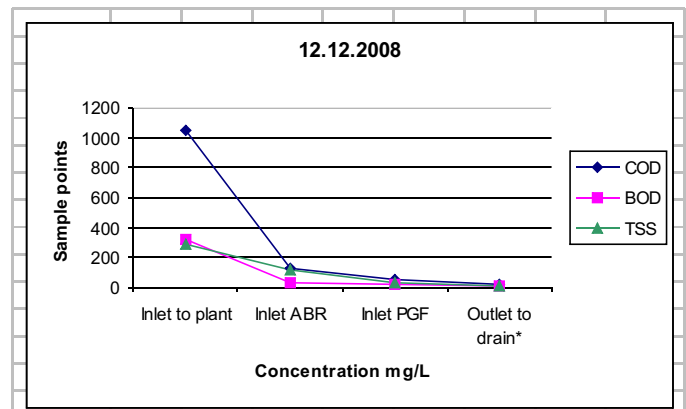
Sludge is transformed into good manure through composting.

Monitoring results

Monitoring of wastewater is carried out regularly.

Date of Sampling: 17.10.2004				
Outlet to drain*	48	13	26	3200
Date of Sampling: 17.10.2006				
Outlet to drain*	99	28	22	130
Date of Sampling: 12.11.2008				
Inlet to plant	1053	320	286	12 x 107
Inlet AF	130	34	121	N/A
Inlet PGF	52	24	34	57 x 104
Outlet to drain*	18	7	14	70 x 103

* Final effluent quality



Project photos

