

Name of the Project: Natural water systems and treatment technologies to cope with water shortages in urbanized areas in India.

Name of Funding Organization: Department of Science and Technology, GoI

Project Duration : 2012- 2016

Project Description:

NaWaTech is a three-year collaborative project under 2011 India-European Union Call for Proposals on Water Technology, Research and Innovation approved by the Department of Science and Technology (DST), Government of India and the European Commission.

The purpose of the project is to cope with water shortages in urbanized areas in India in an attempt to demonstrate the effective use of natural water treatment systems by shifting the approach from the conventional end-of-pipe to an integrated water management one. The NaWaTech concept is based on optimized use of surface water supply, rain water, storm water and grey / black water flows by treating each of these flows via a modular natural system taking into account the different nature and degree of pollution of the different water sources. The project consortium comprises of 7 reputed European organizations and universities and a corresponding number of Indian consortium members.

The project plans for implementation of the technologies in two cities namely Nagpur and Pune. The Indian consortium of NaWaTech is headed by the National Environmental Engineering Research Institute (NEERI) and they are responsible for overseeing the implementation at the Nagpur sites.

We, at Ecosan Services Foundation, are project partners of the Indian Consortium of NaWaTech project and are responsible for implementation of decentralized waste water treatment technologies at three project sites in Pune of a target population of 2800 p e.

Sites-

(1) COEP Hostel Wastewater Treatment System :

- One of the oldest engineering institutes in the country
- Hostel currently houses 2000 students
- The task was to design a wastewater treatment system for the existing capacity
- Given that the campus has many heritage structures, green system cover and upcoming buildings, it was a challenge to find an adequate space for the system.

Treatment System:

A decentralized anerobic system for primary treatment and PFG/Wetland for post treatment of water and greywater treatment is constructed. The anaerobic treatment system is designed by Ecosan Services Foundation.

The total treatment capacity is 180 mtr cube of wastewater per day.

Current Reuse Potential= 113 mtr cube per day.

It is proposed that in the near future the excess treated water will be reused for construction activities in the campus and later on for activities like dust suppression in the college cricket ground.

(2) SBR and MBR Wastewater Treatment Units:

Amanora Park Town has implemented Sewage Treatment Plants for the township which can treat wastewater which can be recycled for non-consumptive uses like gardening and flushing. In addition to the existing systems, the Wastewater Treatment System implemented under the NaWaTech Project is a SBR and MBR treatment system.

System Capacity: 40m³ per day

Intended end-use: Landscaping and toilet flushing in towers located in the vicinity

Objective: To compare the performance of a compact, energy consuming system as opposed to natural unconventional treatment systems implemented at other sites under the project. Along with high quality of wastewater treatment the plant hosts a wide range of features like

- Complete automation
- Remote monitoring
- Low land area requirement
- Complete recycling for flushing & gardening

(3) Pilot System for grey-water Treatment by Vertical Gardens:

Vertical Gardens are most commonly used for aesthetic value to any location. There has been very limited research on their suitability for treatment of grey water. Maharashtra Jeevan Pradhikaran, also a partner in the NaWaTech Project, have graciously provided the space for implementation of the system. Being a government body concerned with Water Supply and Sanitation, MJP office is an ideal location to showcase and demonstrate new and upcoming technologies in the field of wastewater treatment. In addition the premises have adequate availability of grey water for treatment and the required manpower for routine supervision.

System: The system being setup only for demonstration and research purposes treats around 250 – 300 liters of water per day. Water drained from hand-washing basins is being used for this purpose. Two identical units treating 150L each have been set-up in the premises.

Envisioned Benefits

- Negligible land area foot print for grey water treatment

- Aesthetic appealing grey water treatment system
- Potential reuse of grey water for gardening thereby reducing stress on freshwater intake
- Reducing the volume of sewage discharged into drains, thereby reduced stress on centralized treatment systems