

COEP's New Green Initiative under NaWaTech DST Supported Project Total Hostel Water Recycling Solution : First campus in India

Natural Water Treatment Technologies to cope with watershortages in Urbanised India

NaWaTech stands for *natural water systems and treatment technologies to cope with water shortages in urbanised areas in India*. It is a project under European Commission's 7th Framework Programme and is funded by Department of Science and Technology, Government of India.

NaWaTech team is formed by Indian and European partners including practising organisations, urban local bodies, research institutions and universities. You can find more details about the projects on the website www.nawatech.net

NaWaTech Indian and European consortium partners aim at maximising the exploitation of natural and compact technical systems and processes for the effective management of municipal water resources, of water supply and sanitation services, and of the municipal water cycle as a whole in urbanised areas of India.

Due to a multi-barrier approach, these systems will also be able to treat heavily polluted water (i.e. wastewater) in order to reuse it and to supplement traditional sources to cope with water shortages today and in the future. Besides the technical aspects, research will also cover technology sustainability of those systems in order to develop and bring to the market a cost efficient multi-barrier water management approach: the NaWaTech system. This holistic approach will minimise the urban water footprint and enhance the water security of the area as the water cycle is closed at a local level. It will also minimise the pollution of ecosystems and water sources for downstream users, as almost minimal amounts of freshwater get polluted and polluted water is treated and reused locally.

NaWaTech project started on April 1, 2013, and it has a scheduled duration of 36 months.

Pune and Nagpur have been selected as the two cities for implementation of the project in India. The hostel campus at College of Engineering Pune is the largest project site in Pune chosen for NaWaTech.

COEP Hostel Campus

College of Engineering, Pune is one of the oldest engineering institutes in the country. The hostel campus of the college currently houses 2000 students. The task was to design a wastewater treatment system for the existing capacity. The challenge was to find space for a treatment system given the current layout of heritage buildings and green cover in the campus which cannot be disturbed. In addition, 3 new multi-story buildings are to be constructed in the hostel campus, which will increase the capacity of the hostel to around 4000 students. Also the need was to design a system which consumes very less energy.

Decentralized anaerobic systems for primary treatment and vertical constructed wetland for post-treatment of water have been designed. The anaerobic system is a gravity flow system which does not require any pumping. It has been designed by Ecosan Service Foundation. The vertical flow wetland uses plant varieties which will add to the aesthetic value along with treatment of wastewater. This system has been designed by Iridra S.R.L which is an Italian firm. Both companies are a part of the NaWaTech consortium. The treated water will be used for gardening and flushing in the hostel blocks.

The proposed treatment system will treat a total of 180m^3 of wastewater per day. At present, there is a reuse potential of 113m^3 treated water, which will be reused for flushing and gardening in the campus. The rest will be discharged into the PMC sewage line. Even if unused, it will reduce the burden of treatment on the PMC centralised systems.

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.