

# Bioreactor makes sewage water fit to drink

AMIT S. UPADHYE | DC  
BENGALURU, APRIL 6

For many years now water experts have been suggesting that water from the lakes should be made fit for use as drinking water. The invention of IISc research student from the Energy and Wetland Research Group (EWRG), Durga Madhab Mahapatra may just make that happen.

Mahapatra has invented a bio-reactor capable of turning sewage water into fresh water. The bioreactor – Novel Algal Bioreactor for Waste Water Treatment and Biofuel (lipid) Production – has won national acclaim and will soon be applying for a patent.

The algal bioreactor, as technological solution to treating waste water, is currently running successfully at a laboratory in IISc. It treats wastewater with nutrient recovery and bio-fuel production.

“The reactor’s uniqueness lies in configuration, design and selection of algal spe-



Senior scientist from IISc Dr T V Ramachandra (left) along with research student Durga Madhab Mahapatra who has developed the bio-reactor

- DC

cies adapted various redox environments. Once the algal matter is converted into bio-fuel the remnants could be used as manure,” explains Mahapatra

Dr T.V. Ramachandra,

head of EWRG, IISc, said that the bioreactor model is being used as a pilot project at the Varthur and Bellandur lakes in Bengaluru to reduce the contamination levels in the

water. Estimates indicate that 23 billion litres per day (BLD) of waste water is generated in the urban pockets of India, out of which only 5 BLD is being treated, indicating a serious shortfall in the present treatment technologies.

“Rapid urbanisation in recent times has led to large scale generation of waste water. Untreated or partially treated waste water gets mixed with ground water. This necessitates economically viable, technically feasible and socially acceptable technological solutions to reuse waste water with resource or nutrient recovery,” Dr Ramachandra said.

“Commercialisation of this technology would reduce dependency on cost intensive technologies from abroad, which are often a failure in our country. The scaling up of the pilot model at community level and appropriate deployment to the market requires support from industries and government,” Dr Ramachandra added.