

## **Organic Waste Management inside IIT Delhi Campus**

The Indian Institute of Technology Delhi has started initiative for making its campus as clean and green, by utilizing the biodegradable waste generated in the campus (hostel and residential areas). The biodegradable waste is being used for energy production and to cut down the greenhouse gases emissions providing sustainable development along with cleanliness of the campus.

Biogas Development and Training Centre (BDTC), Centre for Rural Development and Technology, IIT Delhi is engaged in research and development of biogas related technologies. The centre is taking necessary step to utilize all kinds of organic waste generated in the campus to produce biogas and Bio-CNG as demonstration model of proper waste management to produce fuel and bio-fertilizer for in-campus horticultural application. A pilot scale biogas production plant having capacity of 25 cubic metre per day has been established in the Mahatma Gandhi Gramodya Parishar of IIT Delhi. This plant uses 250 kg of kitchen waste per day, collected from various residential apartments, hostels and fruits and juice shops, and vegetable seller. This activity was taken up under institute's initiative "Working Group on Waste Management". The biogas produced by this plant is being upgraded to a quality of natural gas using biogas purification and bottling plant situated in Biogas Production and Upgradation Laboratory. The biogas is being also upgraded by a water scrubbing based system (20 Nm<sup>3</sup>/h of biogas) to upgrade it to natural gas quality fuel. Further, the upgraded Bio-CNG is being used a vehicular fuel to substitute CNG. The digestate of the biogas plant is very good quality bio-fertilizer which is being used by us near our laboratory for vegetables production and horticultural unit for fertilizing of nursery and plants in the campus itself. The upgraded biogas is being used as CNG for operation of car in the campus and for other laboratory applications.