

# Green Initiatives at IIT Delhi: Report in Brief

## A. Establishing a Green Office at IIT Delhi

IIT Delhi has constituted a dedicated and independent “Green Office” consisting of members knowledgeable in environmental issues, green technologies, and practices besides Sustainable IIT Delhi Students organization. The purpose of Green Office and Sustainable IITD is to *track*, *monitor*, and *steer* the institute towards green practices.

## B. The Green Master Plan

All the new facilities and buildings have been proposed to comply to GRIHA/ LEED ratings.

## C. Green Audit

Various committees/ Task Forces have been created to address the issues being faced in the campus. A few of the recent efforts are mentioned below:

1. **Task Force for Cleaning of Storm Water Drains** is working towards resolving the issues of sewage leaking into these streams.
2. **Renovation and Campus Development Committee** has been working as a perennial team towards beautification and development of the campus with environmental and human factors in consideration.

## D. Energy Conservation/ Generation

1. **Upgradation of everyday devices like indoor and outdoor lightings to energy efficient LEDs:**  
The street lights are now under renovation and in process of replacing the old halogen based lights with LEDs with an aim to reduce energy consumption. So far, there have been replacements of in total 30 different halogen lamps with specifications of 250 W, 150 W, and 40 W around the campus with 90W LED lights. Energy saved for an operation of 12 hours is 43.2 KWh with total savings per annum in INR 1,50,000. Replacement of around 300 OLD ACs with new 1.5 Ton ACs. Energy Saved per AC per day for an operation of 10 hrs = 10.3 KWh. Total Savings per annum for 300 new ACs = Rs. 50 Lakhs. Replacement of two 60 tons and one 80 tons chiller with three 100 tones screw chillers. There is usage of only two screw chillers at any time. Energy saved per screw chiller for an operation of 12 hrs. = 1.65 KWh. Total savings per annum for new installed screw chillers = Rs. 22 lakhs.



2. **Solar Energy:** A 20 KW solar power system has been ordered and tender for another 1 MW has been issued. Regarding Solar Power Plant, it will generate 80 Units for 300 days in a year. No. of units generated per annum =  $80 \times 300 = 24000$  units. Saving per annum =  $24000 \times 9 = \text{Rs. } 216000/-$ .





3. **Solar Water Heater:** In hostel mess, already we have solar water heater functioning properly and providing ample hot water for daily mess operations.
4. **Double Glazing Windows:** to reduce the greenhouse effect and reduce the energy consumption. It also improves the classroom acoustics. This approach has been adopted in Lecture Hall Complex and School of Information Technology.

## **E. Water Management, Conservation and Reuse**

1. **Waterless Urinals:** do not require water for flushing and can be promoted at homes, institutions and public places to save water, energy and to harvest urine as a resource. Reduction in infrastructure required for water supply and waste water treatment is also a spinoff arising from installing waterless urinals. The concept, founded on the principles of ecological sanitation helps in preventing environmental damage caused by conventional flush sanitation systems.



Waterless urinals look very much like conventional urinals in design and these can be used in the same manner. However, waterless urinals do not require water for flushing and thus result in saving anything between 56,800 litres to 1, 70,000 litres of water per urinal per year.

On an average, a person urinates about four to five times a day. Urine, which is usually sterile and contains mostly water, does not require additional water for flushing to make it flow into drainage lines. Therefore, installing waterless urinals can make large reduction in quantity of fresh water used for flushing as also in the corresponding volume of sewage.

Waterless urinals do not need water and expensive plumbing accessories usually required for flushing. Also, the dry operation of waterless urinals and touch free operations reduce spreading of communicable diseases. Odour trap mechanisms using sealant liquid, microbial control, membrane and curtain valve fitted to waterless urinals assist in preventing odour developed inside the drainage lines connected to urinals.

**Recently we have introduced waterless type Urinals in different toilets in academic area and till date around 32 Toilets have been modified.**

**In this modification we are able to save around 200 liters of Water per Day per Toilet.**

## **2. Sewage Treatment Plant (STP)**

IIT Delhi has STPs with operational capacity of 1.MLD. Infrastructure team of the institute has been working towards establishing a network of pipes to make the treated water available across the campus for activities like, watering of plants/ gardens, cleaning of roads, etc.

A centralized STP will be set up opposite the open-air theatre. EoI has been invited. IIT Delhi intends to setup Sewage Treatment Plant of approximate capacity of 2.5MLD including a complete network of sewerage connecting to STP at IIT Delhi as a work of state of the art.

## **F. Solid Waste Management**

### **1. Zero Waste Initiative at IIT Delhi**

#### **Recycling and waste management**

The objective of the project is to create a zero waste management plan for our campus. As we all are living very consumerist life style. We waste a lot. Our natural resources are very limited and we are exploiting them blindly and damaging our environment beyond repair and the funny fact is that we all know this and yet we ignore it.

Green Office, IITD Partner organization Greenbandhu along with Sustainable IITD student team members working extensively on management of dry and wet waste, horticulture waste, e-waste etc. at IIT Delhi. We have designed and developed solutions to help manage solid-waste in an easy, environment-friendly, cost-effective, practical and sustainable way.

A Ground Zero - existing setup / area near macro model complex soon has been re-vamped - first step towards de-centralizing solid-waste management at IIT-D to achieve zero-dumping.





### **G. Biodiversity, Ecological Management & Water Bodies**

1. Fly ash bricks are being used in 99 B and 99 C buildings.
2. Ban is imposed on plastic cup and thermocol plates and bowls.

### **H. Plantation and Landscaping**

1. Open area has been developed in front of Mechanical Engineering Block for beautification and enriching the space dynamics.
2. Plantation drives are being planned to be carried out in a planned manner in the campus.
3. Plantation drives have been carried out along all the roads of the campus.

### **I. Reduction of Carbon Foot Print**

All current and future construction activities in the campus are being executed, following the guidelines created by Agencies like GRIHA and LEED.

### **J. Innovation and Outreach**

A number of projects have been undertaken by various departments and centers, across the institute, where the focus area is overcoming the environmental challenges and developing sustainable and green solutions to the problems being tackled.

## **K. Green Rating and Green Awards**

1. Extension Campus at Sonapat has been awarded a Green Rating.

## **L. Implementation of Kakodkar Committee Report**

1. NSS Program at IIT Delhi has taken many environmental awareness initiatives.
2. An NGO, *Chintan*, has been involved in the Solid Waste Management in the Campus. It also works towards sensitizing the residents and students towards waster segregation and minimization.