

I.1 : Inauguration of North Gate of RRCAT

RRCAT is the largest R&D Centre in the country in the area of particle accelerators and lasers. The campus has a large technical area and the present laboratories, facilities and residential complex have been built in its south-east part. The Centre has plans for taking up future mega projects, like the Indian Spallation Neutron Source and a high brilliance synchrotron source, which will occupy a large area extending up to the northern boundary of the campus. A new gate has been constructed at the northern end of the campus to facilitate transportation of heavy materials for large scale construction activities for these programmes. This new gate will provide a connection of the campus to the four-lane National Highway NH59 (locally referred to as Dhar Road), which connects Indore to Ahmedabad. Two stretches of road have also been built; one a 380 m long road connecting the North Gate to this highway and a 170 m long road, which was cut through hilly terrain to connect the gate to the existing road in the technical area. The gate will also allow easier access to Indore airport. The North Gate was inaugurated on July 26, 2014 by Dr. R.K. Sinha, Chairman AEC & Secretary, DAE, Government of India, who commended the Centre for taking this step of long term importance.



Picture I.1.1: A photograph taken during the inauguration of the North Gate of RRCAT on July 26, 2014. Dr. R. K. Sinha, Chairman, AEC & Secretary, DAE, and Dr. P. D. Gupta, Director RRCAT are seen along with RRCAT staff members.

Reported by:

S. M. Jalali and S. S. Kulkarni (ssk@rrcat.gov.in)

I.2 : Construction of NISARGRUNA Biogas Plant in RRCAT

Nowadays, waste disposal is one of the major problems being faced by all residential areas. If waste is not managed properly, it pollutes land, ground water and surface water bodies; poses health hazards; and changes climate. On the other hand if waste is managed properly, it can become a boon from curse.

The biodegradable waste can be processed properly to maintain natural balance of essential elements in the environment. A NISARGRUNA Biogas Plant (Picture I.2.1) was constructed in RRCAT to solve the problem of managing garbage collected from 956 houses and various public buildings. Earlier, the Construction & Services Division (CSD) of RRCAT used to struggle to dispose of more than 1000 MT of garbage generated annually in the colony area.



Picture I.2.1: A view of NISARGRUNA Biogas Plant in RRCAT

The concept and design of NISARGRUNA Biogas Plant is developed by Dr. Sharad P. Kale, Head, Nuclear Agriculture and Biotechnology Division of BARC, who has been honoured by Government of India with a Padma Shri Award in the Discipline of Science and Engineering. Using a combination of aerobic and anaerobic processes, the NISARGRUNA Biogas Plant processes faster and better degradation of the biodegradable waste such as kitchen waste, grass, dry leaves etc. into high quality manure and methane gas. The methane gas can be used as cooking fuel.

Waste management in RRCAT includes separate collection of wet garbage and dry garbage from individual dwellings, public buildings, dumping plastics and glass in separate common bins by concerned individual, transporting the segregated waste for further processing, recycling or disposal as the case may be and monitoring of waste materials.



The wet garbage approximately half a tonne per day, which is essentially kitchen waste, is processed in the NISARGRUNA Biogas Plant. Thereby litter of waste is eliminated by producing bio gas, which is used in Guest House for serving the needs of about 120 persons per day. In addition to that good quality of organic manure is produced, which is used for horticulture activities in RRCAT. The NISARGRUNA Biogas Plant was inaugurated on 26th July 2014 by Dr. R.K. Sinha, Chairman, Atomic Energy Commission & Secretary Department of Atomic Energy, Government of India (Picture I.2.2).



Picture I.2.2: The inauguration of NISARGRUNA Biogas Plant by Dr. R. K. Sinha, Chairman, AEC & Secretary, DAE. Dr. P. D. Gupta, Director, RRCAT and Dr. S. P. Kale are seen in the picture.

The plastic waste and glass collected in centralized trash bin is lifted by vendors for recycling out of campus. The sole aim is to improve the environment and aesthetics of area. If not managed litter pollutes waterways and leaches toxic chemicals into soil and groundwater as it breaks down as well as pollutes the air.

The key for successful effective waste management lies in positive mindset of people living in the area. The well aware residents of RRCAT colony have cultivated the habit of waste minimization, segregating the waste and dumping the waste at designated places. CSD acknowledges the contribution of one and all for preserving the environment. The clean and green campus without any pile of dumps has set an example of excellence.

*Reported by:
S.M. Jalali (sjalali@rrcat.gov.in)*

I.3 : Multipurpose fire tender at RRCAT fire station

A multipurpose fire fighting vehicle has become part of the RRCAT fire station. The design of chassis, configuration and manufacturing specifications for the complete fire tender system were provided by RRCAT fire and safety engineers and it was manufactured under strict quality surveillance of internationally reputed inspectors. The vehicle (Picture I.3.1), shown below, has been built on Tata chassis 1613c and has five modes of fire-fighting; dry chemical powder, carbon dioxide, water, foam and water mist system. The small size of the vehicle ensures its reach to difficult places in quick time. The vehicle is compliant with IS 950 for water tender, IS 10460 for foam tender, EN 1028-1 for water pump and NFPA 750 for water mist system.



Picture I.3.1: The multipurpose fire tender

The vehicle is equipped with water tank of 4500 liters capacity and foam tank of 500 liters capacity, made of 5 mm thick austenitic stainless steel 316L plates. These plates are welded with ER317L filler using ASME B & PV code section IX procedures with 100% radiography of T joints to provide enhanced protection against the use of normal municipal water. The water and foam pump can deliver 3200 LPM at 7 bar pressure and 300 LPM at 40 bar pressure. The performance of the water pump (Picture I.1.3.2) is certified by Underwriters Laboratory. The vehicle also has one cylinder of dry chemical powder of 75 kg and one cylinder of CO₂ of 22.5 kg.

The vehicle can carry one driver cum operator and six firemen in the cabin that also houses two number of breathing apparatuses. The fire-fighting accessories are stowed in