***7.1.3.Describe the facilities in the Institution for the management of the following types of degradable and non-degradable waste (within 500 words)***

* Solid waste management
* Liquid waste management
* Biomedical waste management
* E-waste management
* Waste recycling system
* Hazardous chemicals and radioactive waste management

**Provide web link to**

* Relevant documents like agreements/MoUs with Government and other approved agencies
* Geotagged photographs of the facilities
* Any other relevant information

CIs and OCC of HBNI being institutions under the DAE umbrella, there is comprehensive attention to environment and sustainability issues.

The key words for an effective waste management strategy are: reduce, reuse and recycle. All these are practiced rigorously in the CIs/OCC of HBNI. High emphasis is placed on reducing the quantity of waste by suitable practices at the source of its generation. Recycling is an important philosophy, especially for liquid waste, eg., treated effluent water is used for maintaining the landscaped areas and gardens.

Municipal solid waste generated from all the buildings, road and open areas in the campuses are collected and disposed off suitably to the concerned local body. Residents have been asked to segregate the wastes at the source of generation itself. Biodegradable organic waste is disposed using soil bacteria composting technique. Biogas plants have been set up in some of the CIs to manage bioorganic waste. In BARC and RRCAT, for example, the bio-gas so produced is used in the hostel kitchen as fuel. IGCAR has set up a biological waste water treatment technology plant and a Nisargruna Biogas plant at its township.

Sewage water treatment plants have been set up in the campuses of CIs/OCC, and the waste water, after treatment, is used for watering gardens. Chemical waste, in liquid form, is collected and disposed after suitable treatment and dilution as necessary.

At TMC, the Bio-medical Waste Management (BMWM) rules notified by the Government have been implemented since 1999 by treating the biomedical waste in-house, using a Hydroclave, a first in the country. TMH has continued to make further improvements in BMWM practices. BMW is now segregated into various categories and sent to a centralized facility everyday for treatment and disposal. All laboratory waste is autoclaved in-house before sending it for disposal.

E-waste management: Wherever permissible by procedures, computers are purchased on exchange basis, so that the number of computers to be disposed is reduced. Computers found to be unsuitable for advanced computations but still in working condition are made available to other departments that can use them. Computers to be disposed are sold/auctioned to a Certified E-Waste Recycler.

Hazardous waste: At BARC, solid as well as liquid chemical wastes with hazard potential are incinerated in a chemical incinerator. Radioactive liquid waste generated during experiments is collected and disposed by following stringent regulations of safety committees / Atomic Energy Regulatory Board. Research programs of some of the CIs such as BARC involve handling of chemically toxic and radioactive materials. Safe management of chemical and radioactive waste has been practiced rigorously since the inception of these institutions. The other CIs/OCC have also implemented similar approach with regard to waste management issues more specific to their activities. BARC and IGCAR are also pursuing R & D programs to develop processes for reducing the generation of radioactive waste and recovering useful elements from radioactive waste generated from processing of irradiated fuels.