

WASTE MANAGEMENT POLICY

Harcourt Butler Technical University
Nawabganj, Kanpur, Uttar Pradesh-208002



Waste Collection & Segregation by colored bins

1. Summary

This document outlines the University's Waste Management Policy. It details the university's arrangements to minimise solid and liquid waste production, improve their segregation, collection, transport, safe disposal, recycling, wastewater treatment, reuse and safe disposal of effluent generated in the university. In the context of this policy, wastes include: domestic, institutional waste (paper, plastic, recyclable materials (paper, card board, food waste, glass, metals), leaves, construction, e-waste, plastics, hazardous waste and wastewater. The policy shall inter alia include technology options for waste to compost and waste to energy with due consideration for environment.

2. Waste Management Policy Statement

The University is committed to manage waste produced in both, east and west campuses of the university in an environmentally safe, cost-effective and timely manner in line with current environmental legislation. The university shall comply with the Waste Management Rules as prescribed by the state of Uttar Pradesh (UP) and the guidelines of the Kanpur Nagar Nigam (KNN) issued from time to time.

3. Scope

The scope of this policy shall cover the solid (including papers, plastics, e-waste, hazardous waste) and wastewater generated in the east and west campuses of the university. It shall be applicable to all employees (faculty and staff) and their family members residing in the campus, students, guests of the university and others visiting the campus.

4. Introduction

This Waste Management Policy forms a part of the HBTU's Strategic Plan. The policy shall aim to ensure that all waste (solid, wastewater, e-waste) generated within the university is managed and disposed of safely and efficiently in accordance with the environmental legislation; and to demonstrate the university's commitment to implement and deliver the best waste management practices- reduce, recover, recycle, disposal; and thereby reducing the negative environmental impacts arising from the waste. The Policy highlights the need to consider the environmental impacts when making any procurement decisions or construct or refurbish buildings. The primary objectives of the policy are to ensure cleanliness in the HBTU East and West Campus for healthy, hygienic and liveable environment. The University is committed to implementing an effective and responsible waste management process that meets all the environmental regulations for sustainable society.

5. The Waste Hierarchy

The University shall have adequate arrangements, facilities, infrastructure, requisite logistics and disposal/recycling infrastructure and all students, staff and families of staff members shall ensure to make use of these facilities in order to help dispose off and recycle as much waste as is possible. The waste hierarchy can be represented in form of a pyramid shown in Fig.1.

Fig. 1 highlights that waste minimization shall be the first step which should be practised for less generation of waste. This may be achieved by dissemination of information about waste reduction and segregation at source, collection followed by ensuring its transport and disposal by technological options within the university or as per the arrangement made by Kanpur Nagar Nigam. Promotion of reusable products shall be carried out in the university to reduce the waste generation- it shall

include; paper, glass, cardboard, leaves/grass of plants, construction/demolition waste and other non-hazardous waste etc. The hazardous wastes generated in the university premises shall be disposed of in an environment friendly manner by taking adequate support of the State Pollution Control Board or registered firms adept at handling of hazardous wastes. In simple terms, the HBTU Kanpur Waste Management Policy shall be based on the following principles:



Fig.1.Waste Hierarchy Pyramid (from the most favourable (top) to the least (bottom) Waste minimization at source (prevention))

- (A) Reduction and reuse at source
- (B) Effective segregation at source
- (C) Waste recycling
- (D) Waste to composting
- (E) Waste-to-Energy
- (F) Waste disposal

6. Plastic Waste Reduction

The University shall recognise the adverse impact of plastic waste production and disposal. Plastic pollution can have a harmful impact on the water environment and thus the University shall seek to reduce plastic use and wastage on campus. The following initiatives shall be adopted:

- Single-use plastics in catering (food packaging, disposable coffee cups, cutlery) shall be replaced with compostable catering supplies in the university canteen and other cafes in order to reduce plastic waste on campus.
- Reusable cups shall be made available to the university staff and students to reduce single-use disposable cup wastage.
- Conferencing and other events shall make use of reusable glasses to serve water, thus eliminating waste from used plastic bottled water.
- Water coolers/RO Plants/Aqua guards shall be installed throughout the campus for use by students and staff to encourage bottle reuse.

7. Policy Targets

Specifically, the university targets that by the year 2023,

- shall safely dispose entire solid and liquid waste produced in the campus (along with recovery, gas generation, cost recovery etc),
- shall stop the use of 'single use' plastics on campus using a combination of alternative materials.
- ban on use/sale of plastic bottled water on campus.
- recover and ensure proper disposal of e-waste.
- treat the household/institutional waste water produced in a small capacity wastewater plant before discharging into the public sewers, using the treated effluent for horticulture and effective electronic waste management.

8. Roles and Responsibilities

For effective implementation of the university's waste management policy, the roles and responsibilities of following various stakeholders shall be as under:

a) Nodal officer, Waste Management Policy

The Pro-Vice Chancellor or his/her nominee shall be the Nodal Officer and he/she shall have the overall responsibility to ensure the compliance of the waste management policy. He/she shall have to coordinate all the related activities and ensure the installation and logistics support for collection, segregation, transport, treatment, disposal and reuse of solid and liquid waste generated in the university.

b) Heads of Departments shall be responsible for ensuring,

- Collection and segregation of papers, plastic, card boards, laboratory waste, hazardous waste in their respective departmental.
- Ensure segregation, safe storage and disposal of hazardous waste in accordance with relevant legislation in their respective department.
- Identification of competent/trained personal to implement the arrangements for management of hazardous waste.
- All wastewater infrastructure (toilets, urinals, sinks in laboratories etc) and other related appurtenances in their respective departments are in working condition so as to ensure smooth flow of sewage/wastewater to the sewers.

c) Class Representative and Students of the class

The Class Representative shall be responsible for ensuring the cleanliness of the class rooms, laboratories, corridors, amenities and hostels and advise all students not to through litter, plastic and other waste. In case of any issue related to

housekeeping, they shall report immediately to the concerned Head of the department or directly to the concerned staff in the department.

d) Students

All students of the university shall ensure cleanliness of their respective classrooms, laboratories, streets, corridors, amenities and hostels in the campuses. In case of any issue related to housekeeping, they shall report immediately to the Class Representative or the Warden or directly to the concerned staff in the department/hostel.

e) Dean of Student Welfare (DSW)

The DSW shall ensure and coordinate the cleanliness of all the hostels and compliance of this Waste management policy through the respective wardens.

f) Hostel Wardens

- The wardens shall ensure the cleanliness of all the hostels and compliance of this Waste management policy.
- They shall ensure that all treatment/disposal arrangement installed in their respective hostels are operational all the time.
- They shall ensure that all the wastewater infrastructure (toilets, urinals, sinks in laboratories etc) and appurtenances in their respective hostels are in working condition so as to ensure smooth flow of sewage/wastewater to the sewers.

g) Professor In charge, Civil Maintenance

He/she shall be responsible for arranging and implementing all possible infrastructure and logistics needed for ensuring full compliance of the policy. This infrastructure/includes; bins, brooms, wipers/moppers, phenyl/disinfectant, vehicle/trolley to transport the waste (in both campuses), workers, compost plant, landfill, safety of workers and Liaoning with the vendors/contractors/Kanpur

Nagar Nigam etc. He/she shall also be responsible for arranging O&M/AMC of all waste collection/transport and disposal infrastructure.

j) Head, Civil Engineering

He/she shall ensure the coordination of safe disposal of wastewater, solid waste (including plastics, paper, card board etc) generated in the university including the requisite designs in line with the environmental legislations.

h) Head, Mechanical Engineering

He/she shall ensure arrangement for installing the waste to energy plant- in form of biogas/compost plant, incinerator, boilers etc including the requisite designs of the same in line with the environmental legislations.

I) Head, Computer Science and Engineering

He/she shall ensure identification, collection, segregation, reuse and safe disposal of e-waste generated in the university

j) Head, Civil Engineering

He/she shall ensure the coordination of safe disposal of wastewater, solid waste (including plastics, paper, card board etc) generated in the university including the requisite designs in line with the environmental legislations.

k) Head, Chemical Engineering Department

He/she shall ensure the coordination of safe disposal of hazardous waste generated in the university in line with the environmental legislations.

1) Every waste generator in the university,

He/she shall,

- Segregate and store the waste generated by them in three separate bins meant for biodegradable, non-bio-degradable and hazardous wastes and handover the wastes to authorised waste pickers/waste collectors as per the directions or notification by the university/KNN from time to time.
- wrap securely the used sanitary waste like diapers, sanitary pads etc., in the pouches provided by the manufacturers or in suitable wrapping material as instructed by the university and place the same in the bin meant for dry waste or non-bio-degradable waste/dispose of in the incinerators installed in their respective girl hostels.
- Store the horticulture and garden waste generated from university premises in own premises and dispose of as per the directions of the KNN issued from time to time
- not throw, burn or burry the solid waste generated, in classrooms, offices, laboratories, corridors, streets, roads, canteen etc in open drains/sewers.

not organise an event or gathering of more than one hundred persons in the university auditorium, Shatabdi Bhawan, Seminar halls ets without informing the concerned department head and Maintenance section at least three working days in advance. The organiser of such event shall ensure segregation of waste at source and handing over of the same to the waste collector.

work in close partnership with the university/KNN to ensure segregation of waste at source as prescribed, facilitate collection in separate-coloured bins, handover recyclable material to either the authorised waste pickers or the authorised recyclers.

9. Operational Methodology

- The methodology can be categorized into two:

A. Primary Collection

The university shall,

- a) ensure source segregation of waste, to channelize the waste to wealth by recovery, reuse and recycle. This shall be done at the level of each academic department, laboratories, hostels, administrative block, main building, canteen, hostel mess etc.
- b) Shall ensure three coloured bin system (for Green Waste, Dry Waste, Hazardous Waste).
- c) make arrangement for door-to-door collection of segregated solid waste from all households including hostels and academic area.
- d) establish a system to identify organisations of waste pickers or informal waste collectors to facilitate their participation in solid waste management.

B. Secondary Collection

The university shall,

- a) ensure three bins at every Secondary Collection Point.
- b) setup secondary storage facilities in east and west campuses of the university, with sufficient space for sorting of recyclable materials to enable informal or authorised waste pickers and waste collectors to separate recyclables from the waste.
- c) provide easy access to waste pickers and recyclers for collection of segregated recyclable waste such as paper, plastic, metal, glass, and textile from the source of generation or from material recovery facilities.



Fig.2 Waste Collection and Segregation Bins outside the LV old Hostel

C. Transportation of Waste

In this, the university shall,

- a) transport segregated bio-degradable waste to the processing facilities like compost plant, bio-methanation plant or any such facility.
- b) make arrangement for in-house and on-site processing of such waste.
- c) transport non-bio-degradable waste to the respective processing facility or material recovery facilities or secondary storage facility.
- d) ensure transport of waste in segregated form in covered vehicles.



Fig.3 Transportation of Waste by Municipal Corporation Vehicle



Waste Collection Bins Outside Auditorium

D. Collection, transport and treatment of Wastewater and safe disposal of treated effluent

In this, the university shall,

- a) facilitate the construction, operation and maintenance of requisite infrastructure for collection, transport of wastewater,
- b) ensure safe disposal of treated sludge.
- c) ensure safe disposal of treated effluent or re-use the same for gardening and horticulture purpose within the university.

E. Specific tasks to be taken on immediate basis.

The university shall implement the following on immediate basis:

- Proper collection and Segregation of domestic and institutional waste.
- Timely transportation.
- Daily Road sweeping-of roads, class room, departments and hostels.
- 100% collection at fixed time 365 days in a year.
- Penalize the polluters/defaulters through a monetary fine.
- Ban the sale and use of plastic carry bags (of thickness less than 50 microns) within the university .
- Organize effective “Information, Education and Communication (IEC)” and “Capacity Building” programmes.

10. Capacity Building and Training through IEC (Information, Education and Communication)

The success of any Waste Management Plan depends upon the extent of public/community participation. Thus, the university shall undertake capacity building by training students, housewives and other staff of the university. It shall also organize Information, Education and Communication (IEC) activities. The main objectives of IEC shall be to make people understand. Specifically, these includes,

The concept and need for segregation at source

- The need to waste storage at source in separate receptacles - one for bio degradable and another for recyclable.
- The role of citizens in primary collection of waste from the household and handing over to waste collectors,
- The need to use litter bins on road sides and public places.
- The impact of solid waste on public health and the environment



Fig.4 Colored Waste Bins outside the Lecture Theatre

11. Implementation Committee

For effective implementation of the WMP, there shall be a Waste Management Policy Implementation Committee (WMPIC). The constitution of the same shall be as follows:

- a) Nodal Officer, Waste Management Policy
- b) All Heads of Departments
- c) Dean of Student Welfare
- d) All Hostel wardens
- e) Professor In charge, Civil Maintenance
- f) Head, Mechanical Engineering
- g) Head, Computer Science and Engineering
- h) Head, Civil Engineering
- i) Head, Chemical Engineering
- j) Dean, School of Chemical Technology

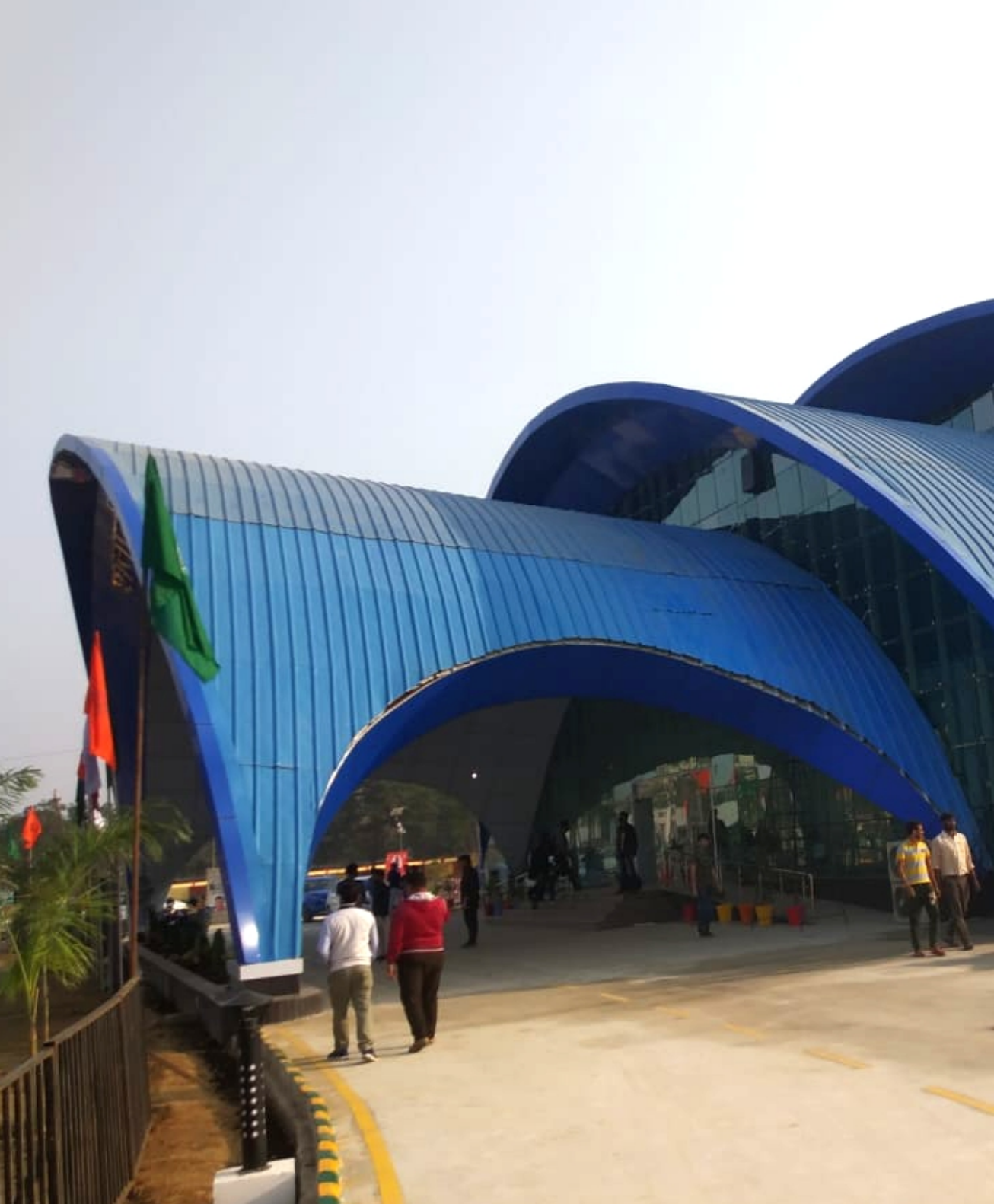


Fig.5 Block Cum Community Storage pit in the East Campus of the University



Fig.6 Solid Waste Disposal Facility operated by KNN in the East Campus (Under Construction)







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