

WASTE MANAGEMENT

CU/PB/A&M/ SoP 1 of 2021

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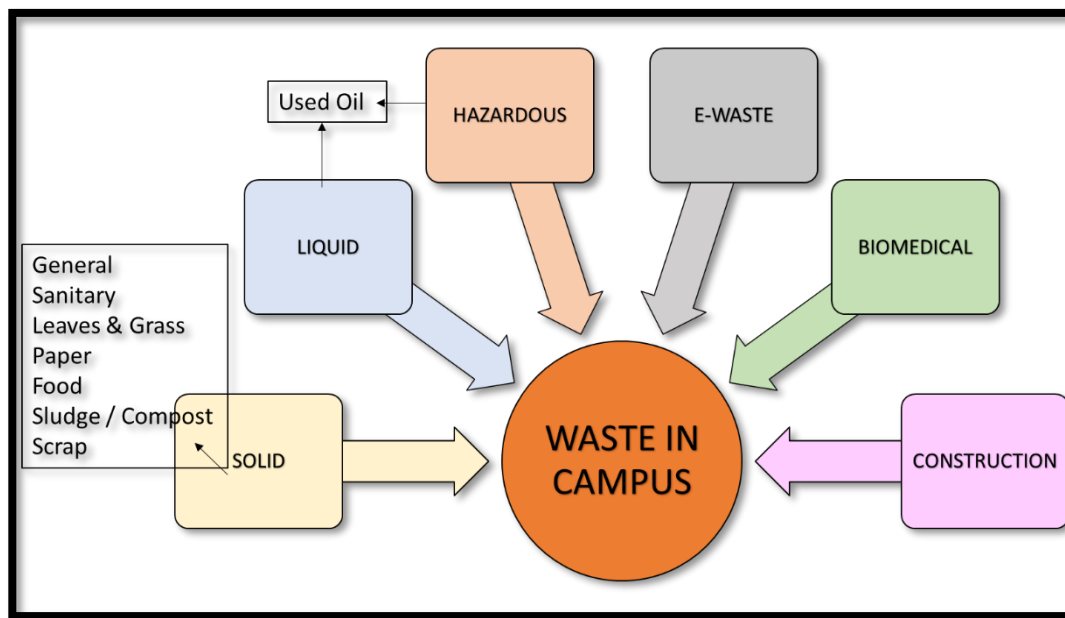


WASTE MANAGEMENT AT CHITKARA UNIVERSITY CAMPUS

Where there is life, there would be waste. While efforts should always made to reduce the wastage being generated, another way to contribute to a sustainable environment would be to reuse the waste or recycle the waste. The seven Rs of sustainability which are rethink, refuse, reduce, reuse, repurpose, recycle and rot can be ideally applied to, by every staff and student of the campus in all their activities.

Further to Chapter 3 of CU/PB/A&M 1 of 2017, there have been a few changes in the waste management process followed. This document would enable an easy reference of the process that is being followed as well as the process that shall be incorporated hereafter. All concerned are expected to comply with the same.

1. **TYPES OF WASTE** - There are different types of waste that is generated in campus. Some of these are reused, and some need to be disposed off. First a look at the types of waste generated in the campus.



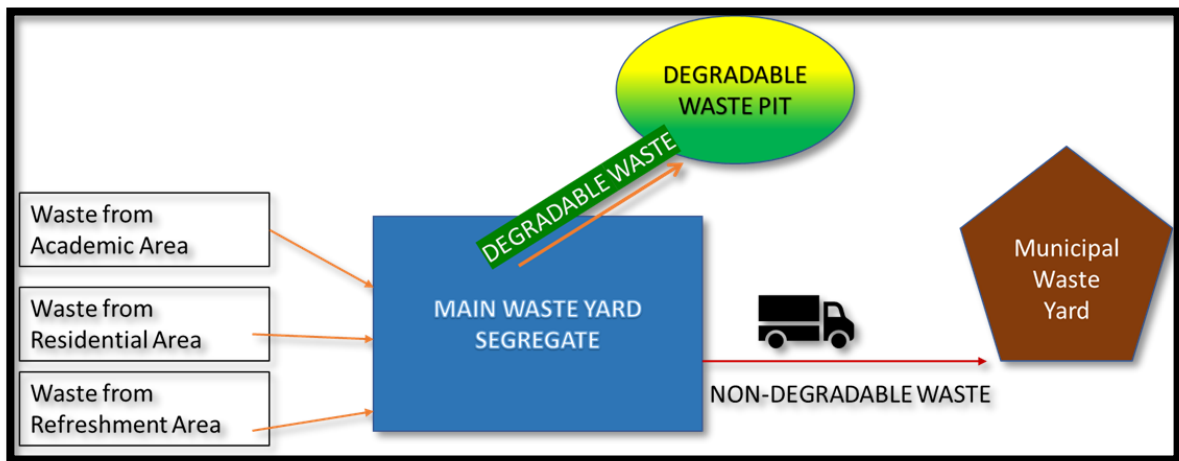
- A. Solid Waste - Solid waste is any waste that is solid in nature.
- a. General Waste – Any solid waste that is generated by every day human activities. It may be in the form of household garbage, leftovers of food and other wastage that include old household items such as papers, plastic waste in the form of kitchen equipment or any other products that are consumed during everyday activities. Food leftover on a paper plate would form part of general waste and not paper waste or food waste.
 - b. Sanitary Waste - Sanitary waste is not categorised as hazardous, special or clinical waste. Known as a type of “offensive/hygiene waste” (owing to the idea that it can be offensive in appearance and smell), sanitary waste is the product of a population that is not known to be infectious.
 - c. Leaves / Grass – Leaves that fall off trees and the grass that is cut from the grounds and the roadsides also need to be handled as a waste in the campus.
 - d. Paper Waste – When we say paper waste, it includes clean paper that can be recycled or reused. For e.g., old newspapers and old answer sheets.
 - e. Food Waste – Food is prepared in the campus in the Messes and kitchens. There is some waste that cannot be avoided as the fruit peels or the vegetable peels and the seeds etc. Some waste is the cooked food that is served and then not consumed and some of it could be food that is cooked extra and not served and the life period has expired.
 - f. Sludge / Compost – Sludge that is generated from the sewage treatment plants and the compost is generated from the food waste pit or the vermicompost pit or the biogas plant.
 - g. Scrap Material – There are some solid materials that can be reused or recycled, though they may not be of use in the campus. For e.g. an old table or chair or a project or a curd container etc. which is of no use for the concerned department, but can be of use to another department or may be for another agency/vendor or person can be considered as Scrap Material.

- B. Liquid Waste - Any waste material that passes the definition of a “liquid.” Most of the liquid waste of the campus flows into the sewerage line and is treated in the STP plant.
- C. Used oil, is also a liquid waste, but a hazardous waste. This is generated from the DG (Diesel Generator) sets in campus. This is treated separately as per the pollution norms as it forms part of hazardous waste.
- D. Medical Waste -Medical waste is a subset of wastes generated at health care facilities, such as hospitals, physicians' offices, dental practices, blood banks, and veterinary hospitals/clinics, as well as medical research facilities and laboratories.
- E. E- Waste – Electronic waste includes computers, laptops, monitors, keyboards, copiers, fax machines, cell phones, printers, scanners, hard drives, stereo equipment, cables and cords, shredders, microwaves, and more. Basically, anything that qualifies as an electronic and that no longer works or has become obsolete is electronic waste.
- F. Construction Waste – Waste that arises out of sites owing to renovations and/or constructions in the campus amounts to construction waste. Construction waste consists of unwanted material produced directly or incidentally by the construction activities in the campus. This could include rubble/ wood waste/ glass waste/ fixtures and fittings that can be reused/recycled or must be disposed off.
- G. Any other waste (including dead dogs) and COVID waste.

2. **PROCESS OF DISPOSAL** - The different types of waste are disposed off differently.

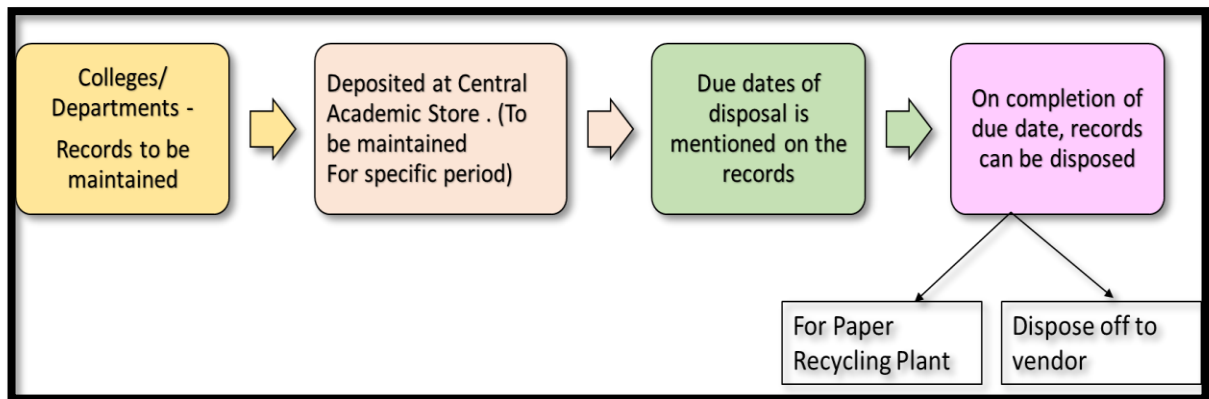
- A. **General Waste**- In the campus, sufficient dumpsters are to be placed, providing easy access for the staff/students and visitors to deposit general waste. Dumpsters should be provided in all buildings and surroundings, roads, and grounds etc. The dumpsters placed should be color coded to enable segregation of waste at source. Display of instructions on the dustbins, regarding the waste that may be deposited would enable users to use the facility in the right manner. The team members of Housekeeping (pertaining to academic, hostel and refreshment areas) shall be responsible for handling and maintaining the dumpsters. The dumpsters are used to collect waste; and it is necessary to ensure that the dumpsters are clean. These should be emptied regularly – as per schedule or if dumpsters are full (whichever is earlier). All the waste collected from the dumpsters should be deposited at the main waste

yard. The waste is segregated at the main waste yard. Most of the waste including the cans, plastic waste etc. shall be collected by a waste collection vendor on contract. Rest of the waste that is not degradable is deposited at the Municipal Waste Yard based on an MoU of the University with the Municipal Council. This waste is carried to the Municipal Waste Yard by a contractor hired by the university. The rest of the waste which is bio-degradable, should be deposited into a pit for degradable waste. This way the waste is segregated and disposed-off further enabling the main waste yard to always be maintained clean. Contract with vendor shall be entered by the Administration, movement of waste shall be monitored on gate pass and records shall be held at the Main gate.



- B. **Sanitary waste** should be incinerated. Sanitary waste is collected in dustbins (with markings) which are placed in all SHE washrooms. Incinerators are placed in all girls' hostels and in Turing block. One incinerator is centrally placed at the wasteyard to cater to the demands of the Academic Blocks or in case any incinerator becomes repairable.
- C. **Dry leaves/ grass** is part of recyclable waste. To enable recycling and to contribute to the cause of sustainability, the leaves/grass should be collected and deposited in Main Food Waste Pit. This way they shall get converted to manure. Leaves collected should not be deposited in the common dumpsters placed in the grounds but in the dumpsters specifically placed for leaves.

D. **Paper waste** arises from various departments /colleges and most of it from the examination department. Libraries of the campus are the other source with huge number of old



newspapers. The stationery waste from the hostels would also contribute to the paper waste. Old records of the various schools are to be maintained with Central Academic Store for a specified period of five years. Records that have completed the said period, can be disposed off, after due confirmation from the concerned school /department. All the paper waste shall be deposited with Central Academic Store. The Central Academic Store shall issue the paper further either for recycling to the Paper Recycling Plant or to the Scrap Disposal Committee for disposal to any vendor (as per the situation). Records shall be maintained by the Central Store as well as the Paper Recycling Team.

E. **Food waste** in the academic area could be mostly from the pantry - food that is wasted or half-eaten fruits, fruit peels etc. This waste should be deposited in the degradable waste pit in the Campus Nursery so that the waste can be converted to manure for the plants.

F. As per the process in vogue major chunk of the food waste from messes and food courts is disposed-off to a **Piggery Vendor**. The records for the same should be maintained by the Office of Student Services. Movement of waste should be on Gate pass and records should be maintained at the Main Gate. The contract with the best vendor should be renewed annually. The vendor is finalized by the Office of Student Services, in liaison with the Office of Registrar. Further, food waste from Mess is also used for **vermin compost, animal house and for the bio-gas plant** of the campus. The office of student services and the horticulture team shall maintain the necessary documents.

G. **Sludge & Compost** – Sludge is generated from the sewage treatment plants and these can be dried and used as manure. Further, the compost that arises from the food waste pit or the vermicomposting can also be used as manure. The team of Horticulture and Maintenance shall ensure this and maintain records accordingly.

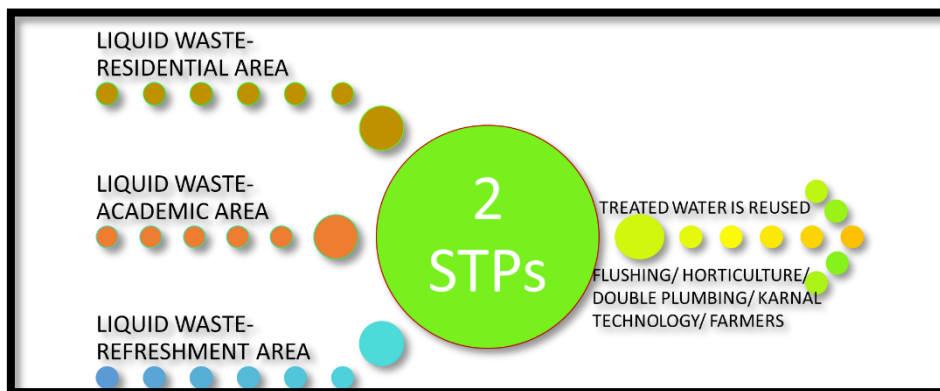
H. **Scrap Waste** – A huge amount of scrap gets accumulated in the campus owing to furniture and fixtures becoming obsolete or beyond economical repair etc. A committee exists in campus to handle the disposal of such scrap material. Departments/Schools that have scrap are required to raise an NOC (this is now planned to be done online). For the scrap there are various bins/enclosures at the Scrap Yard with markings like glass waste/wood waste/metal waste etc. Once the NOC is approved, the scrap should be deposited in the concerned bin/enclosure. The scrap is disposed off at regular intervals. The best bidder/ recycler/vendor, as selected by the Scrap Disposal Committee, shall be provided the scrap.

In certain cases, some obsolete equipment/ machine etc. is deposited as scrap. The Scrap Disposal Committee shall first check within other colleges/departments if anyone would like to use such scrap material. (For example, an obsolete refrigerator for which NOC is raised by the electrical team may be useful for any stream of engineering course to display to students the hardware of a refrigerator). If no department/ college is desirous of using the material, the same can be disposed off to the best bidder /recycler (vendor). This would depend on case-to-case. Old furniture/ fixture that cannot be used further, may be considered for use by any other organisation (preference should be given to our adopted villages). Scrap of the mess which includes oil tins and cartons, are disposed by the Office of Student Services directly. Records shall be maintained by the Scrap Disposal Committee and the Office of Student Services.

I. **Termite Affected Furniture** – Termite affected furniture would form part of scrap material; but this should strictly not be deposited at the scrap yard. The campus being located at an area which is prone to termite infestation, despite the regular anti-termite treatments, there is a huge chance of furniture being affected by termites. Such furniture should immediately be treated and disposed off to avoid any further spread of termite. Such furniture should be deposited in the waste yard. For the required write off of furniture, the NOC shall be raised,

and details mentioned as, “Termite Affected Furniture”. The point to be borne in mind is that if the said furniture is placed in the scrap yard, in case of any live termite in the furniture, it can cause spreading of the termite and adversely affect the rest of the wooden scrap /furniture deposited in the yard.

- J. **Liquid Waste** – The wastewater of the campus is routed to the STPs for further treatment. There are two STPs in the campus and the wastewater should be treated and recycled for use in horticulture. This treated water is also used for double plumbing and supply of water for flushing, usage in the Karnal technology, for vertical gardens and rooftop gardens and may be shared with nearby villagers for agriculture purpose.



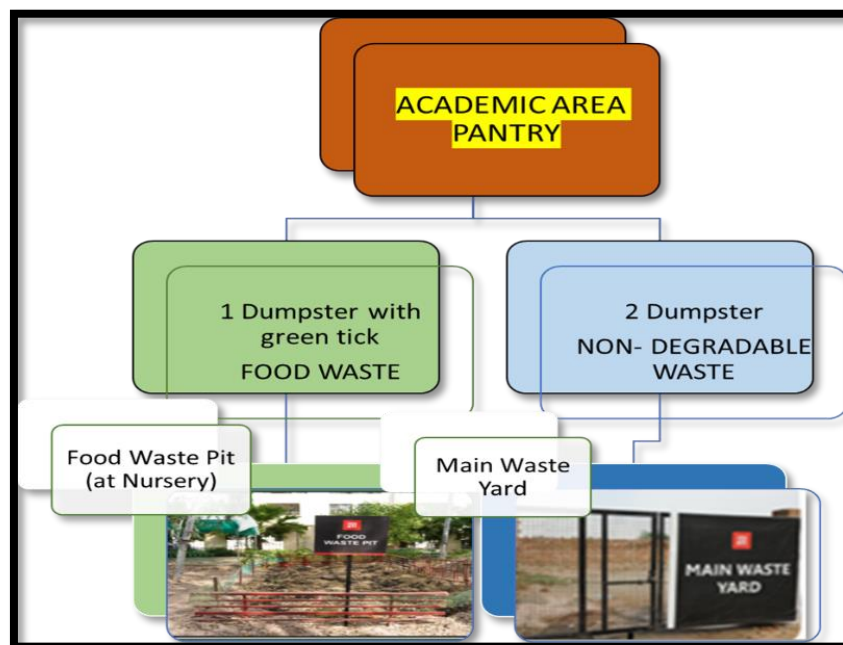
- K. **Used Oil** – Used oil (generated from DG sets) is stored separately at the waste yard which is located far away from access of staff or students. This is to be disposed off to the authorized recyclers only and as per the pollution norms laid. The requisite forms as laid down by the Pollution Board is to be submitted after the disposal, without fail. This is handled by the Electrical department and in liaison with the Scrap Disposal Committee for required support.
- L. **E-waste** – E waste is generated from the IT department / electrical department. For the e-waste generated in the labs of the department of Electronics and Engineering, these are collected in designated bins. The e-waste is stored at a secluded area assigned specifically for the same. The area is a RESTRICTED AREA with access only to authorized personnel. This waste is disposed off at regular intervals as per the process laid by the Pollution Board

to authorized recyclers. The documents and forms as laid down are to be deposited to the Pollution Board.

- M. Medical Waste** – Medical waste could arise in the dispensary as well in the labs of Chitkara College of Health Sciences and Chitkara College of Pharmacy. The dustbins based on the color codes for the medical waste disposal should be held in these labs and in the dispensary and the process of waste segregation and deposit to concerned dustbin should be meticulously followed. Chitkara University shall enter a contract with the nearby hospital, for the necessary support for disposal of medical waste. Records of the waste disposal should be held in the dispensary as well as at the Main Gate. Animal House waste should be disposed as per laid norms – the animals are incinerated. Contracts should be ensured for the disposal of the biomedical waste of the Colleges of Pharmacy and Health Sciences also.
- N. COVID Waste – (PPE Kit / Facemasks/ Gloves)** – In case any student /staff has become COVID positive, the facemask/gloves/kit etc., used by the said student/staff and/or by any medical staff who attended to the said staff /student shall be disposed off as medical waste. Face masks that are worn in medical facilities or those worn by a positive patient should follow medical waste disposal regulations. For facemasks and gloves used in routine by staff /students/visitors, these may be covered in plastic and disposed off as non-degradable material.
- O. Other Waste** – Other waste could include any waste that is not included above. The disposal would be on case-to-case basis. Carcass of a dog would be picked up by the waste vendor for a specific charge.
- P. Construction Waste** –Waste arising out of renovation sites are handled as per the scrap disposal process. The rubble is deposited at the Land Filling area earmarked in the campus. The other wastes like wood waste /glass waste metal waste etc., shall be deposited at the scrap yard as per the laid process of scrap disposal.

3. **DUMPSTERS** - The dumpsters are used to dump waste. Care should be taken to ensure that the dumpsters should always be maintained clean. This should be ensured without fail by the concerned HK teams. In the campus, different types of dumpsters are used at different venues.

- A. **Classrooms/offices** – plastic dustbins of cedar color in classrooms and steel perforated dustbins in offices. Size should be small for offices and medium for classrooms.
- B. **Corridors** – Big plastic dustbins and big steel dumpsters. The plastic dumpsters shall be used for deposit of non-degradable waste. It shall be placed in wooden cover boxes, with space for waste to be deposited and with required signages of “USE ME”. These wooden cover boxes should be in sync with the color and décor of the corridor. Design for these dustbin boxes shall be finalized by Office of Architecture & Design. The steel dustbins shall be used for disposal of degradable waste.
- C. **Pantries** – There shall be 2 plastic dustbins in every pantry. One for food waste which is degradable and the other for non-bio-degradable waste. The food waste from all food waste dustbins shall be deposited at the degradable waste pit in the Campus Nursery. The non-bio-degradable waste should be deposited in the Main Waste Yard.



- D. **Washrooms** – These shall be plastic dustbins in washrooms. The size of the dustbin would depend on the size of the washroom. In the boys’ washrooms, plastic dustbin shall be placed in the common area where washbasin is fixed. In a girls’ washroom, the open area, where the washbasins are fixed would have two plastic dustbins. One with cover (pedal operated) for sanitary waste (grey dustbin) and the other a plastic dustbin of medium size (Cedar color dustbin) for all other waste. Faculty washrooms would also be provided plastic dustbins in the same manner. In VIP washrooms, the dustbins provided would be as per the design approved to match the décor, preferably pedal operated ones.
- E. **Grounds /parks /open areas** – Dumpsters should be placed throughout the campus in all open areas, spaced within 100-150 meters, at places easily accessible to students and staff. All kinds of waste would be collected. To enable segregation of waste at source, three



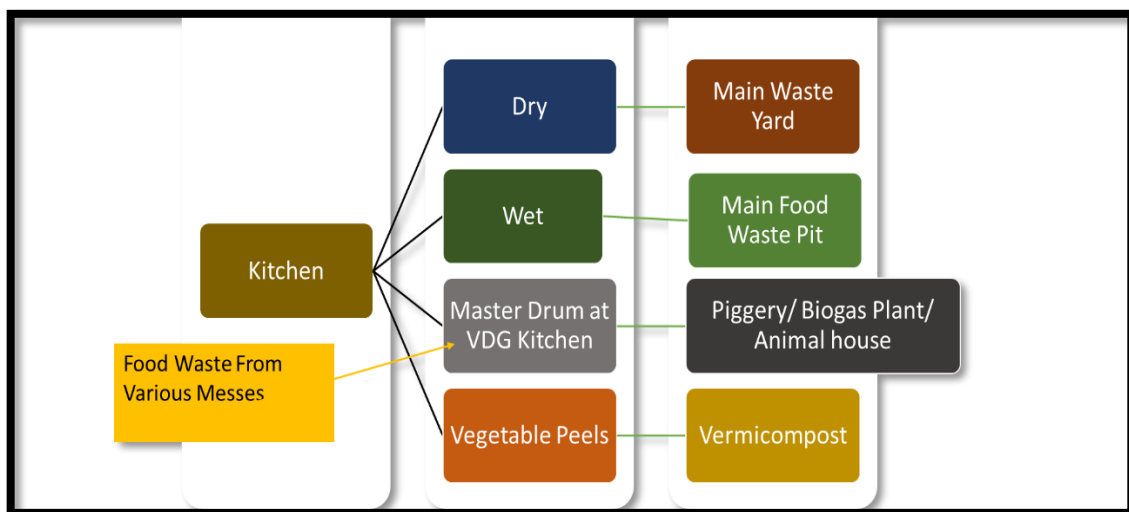
separate dumpsters shall be placed. These shall be of different colors to enable differentiate the waste. Signages on the dumpsters would enable the users to understand the color code. The waste deposited usually include used paper, pens/pencils, used tissue paper, used paper plates or paper cups, used bottles or cans of aerated drinks etc.

- F. **Common Rooms** – Two dumpsters should be placed in the common rooms -one for degradable waste and the other for non-degradable waste. Degradable waste should be deposited in the food waste pit of nursery
- G. **Dispensary** – Color coding isn’t there just for your comfort: it also represents the very basic principle that waste doesn’t all go to the same place. Dumpsters placed in the dispensary are

as per the color code (yellow, red, white, and blue) specified by the Medical Council for different types of medical waste.

H. Student Rooms in Hostels – Dumpsters are placed in the student rooms also. These are plastic dustbins of cedar color. The waste should be segregated and deposited in the Main Waste Yard.

I. Hostel Messes / Kitchens – The waste that arises from the messes is mostly cooked food waste. This waste is collected from all messes and deposited in the Master Drum placed at the Vasco Da Gama Hostel Mess. Food waste from here is distributed to the biogas plant and to the animal house. The major chunk is disposed off to a piggery vendor on a contract. The waste from the kitchen is collected in two separate bins - one for dry waste and one for wet waste. The dry waste is further deposited in the Main Waste Yard which further gets segregated and cleared off to the Municipal waste yard. The wet waste is deposited in the Main Food Waste Pit. Vegetable peels (except onion) are deposited in a dustbin for the vermicompost pits.



4. MAINTAINING RECORDS – It is necessary to maintain records of the waste disposal. This enables analyse how the system can be improved and if any changes are required. The aim would always be to reduce waste/ reuse it or to recycle it so that we can contribute to the environment as best as possible. Contribution to a Sustainable Environment shall always have a priority.