

# Guidelines to Promote Efficient Waste Disposal Management



*An Initiative By*

**Institute of Advanced Study in Science and Technology  
Guwahati, Assam**

# Guidelines to Promote Efficient Waste Disposal Management

INSTITUTE OF ADVANCED STUDY IN SCIENCE AND TECHNOLOGY  
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## Director's Message

Cleanliness of a place depends upon planned efforts to abstain from activities or using materials which create dirt and clean collective action to dispose waste, the generation of which is unavoidable. Although, there is always a strong emotional support to cleanliness drive and willingness of IASST members to ensure a campus free of waste in both inside the buildings and in the landscape, it isn't possible to accomplish a real clean campus without a very robust and well organized system of waste disposal. These guidelines are first attempt to accomplish absolute cleanliness in IASST campus and I appeal one and all to contribute by following the guideline in letter and spirit. IASST family members are also requested to suggest new ideas for strengthening the guidelines continuously for increasing efficiency of the system.

  
(N.C. Talukdar)  
Director, IASST



## CLEANLINESS PLEDGE TAKEN BY STAFF OF IASST

Mahatma Gandhi dreamt of an India which was not only free but also clean and developed. Mahatma Gandhi secured freedom for Mother India. Now it is our duty to serve Mother India by keeping the country neat and clean.

- ❖ I take this pledge that I will remain committed towards cleanliness and devote time for this.
- ❖ I will devote 100 hours per year that is two hour per week, to voluntarily work for cleanliness.
- ❖ I will neither litter not let others litter.
- ❖ I will initiate the quest for cleanliness with myself, my family, my locality, my village and my work place.
- ❖ I believe that the countries of the world that appear clean are so because their citizens don't indulge in littering nor do they allow it to happen.
- ❖ I with this firm belief, I will propagate the message of Swachh Bharat Mission in villages and towns.
- ❖ I will encourage 100 other persons to take this pledge which I am taking today.
- ❖ I will endeavour to make them devote their 100 hours for cleanliness.
- ❖ I am confident that every step I take towards cleanliness will help in making my country clean.

## **Guidelines to Promote Efficient Waste Disposal Management**

Wastes are unwanted or unusable materials. Waste is any substance which is discarded after primary use, or it is worthless, defective and of no use. Examples include municipal solid waste (household trash/refuse), hazardous waste, and waste water such as sewage, surface runoff; chemical, radioactive waste, and others, although some of these can be recycled or put to use after biodegradation.

Waste management or waste disposals are the activities and actions required to manage waste from its inception to its final disposal. This includes amongst other things collection, transport, treatment and disposal of waste together with monitoring and regulation. It also encompasses the legal and regulatory framework that relates to waste management encompassing guidance on recycling.

Waste management and disposal in an institute is activity of utmost importance for removing and destroying or storing/recycling damaged, used or other unwanted products and substances gathered from laboratories, offices and other places of domestic, agricultural or industrial activities. The most important reason for waste collection is the protection of the environment and the health of the population. Rubbish and waste can cause air and water pollution. Rotting garbage is also known to produce harmful gases that mix with the air causing health hazard. Proper waste disposal is critical due to the fact that certain types of wastes can also contaminate the environment if not handled properly.

### **A. Types of waste at IASST**

With its usual day to day activities, following three types of waste are generated at IASST.

1. **Organic waste:** Organic materials generally make up the largest portion of waste. Organic wastes are created during every meal. Clearing of jungles, weeds and trimming of plants also produces green wastes. When properly disposed off, these materials can be picked up by trash removal services and transported to a facility where it can be turned into compost, which can actually be used as fertilizer. In some occasion, this also includes paper and paperboard products which cannot be used for compost production due to the presence of unwanted chemicals.
2. **Recyclables:** Recyclables are types of waste that are non-biodegradable and can be converted into reusable material. Materials like plastics, metals, and glass are all harmful to the environment when placed into landfills, but proper disposal can eliminate the need to manufacture even more of these materials, which are instead be reused as different products.
3. **E-waste:** This type of waste has become far more of an issue in recent years with the surge in technology, such as computers and other sophisticated instruments with electronic circuits. This is related to regular recyclables in that most of these products are composed of plastics, metals, and glass.

### **B. Procedure of waste disposal management system**

It has been decided to follow a specific and well laid down wastes collection and management system at IASST till the classified materials are disposed by the city municipal authority.

In IASST, it is decided that there will be three types of waste bins of appropriate sizes placed at different places. These are:

These are:

1. For Bio-degradable waste.
2. For Plastics (all types from recyclable type 1 to 7)
3. Sharp materials like metal and glass.

### C. Management of bio-degradable waste

Organic and bio-degradable wastes are fallen off dry fresh leaf of trees, vegetable waste, food material remainings etc. Effort is to be made to educate people so that they grow the habit of depositing this type of waste in the specific bin excluding food materials. Dry leaves and vegetable waste collected from these bins are to be weighed using balance and to be processed to produce vermicompost. The i / c Vermi compost unit will guide the workers for the purpose.

These bins are labelled or coloured green and to be placed in the specified areas including the IASST lobby, canteen, laboratories and also near the staircases as shown in Figures (Page 8 to 11).

Foods remaining are to be stored in a special type of covered trench with cement lining and metal container behind the existing canteen of IASST. Food waste from Students and Scientists Home are also to be placed in these containers and for this special hand trolley will be provided to the caterer. After few days, when this food waste are partially decomposed and become ideal for making compost, it will be shifted to vermicompost pit for further processing.

The amount of vegetarian biomass in campus and kitchen leftover and food wastage of hostels on weekly basis and amount turn over to compost is shown in the flowing figure.

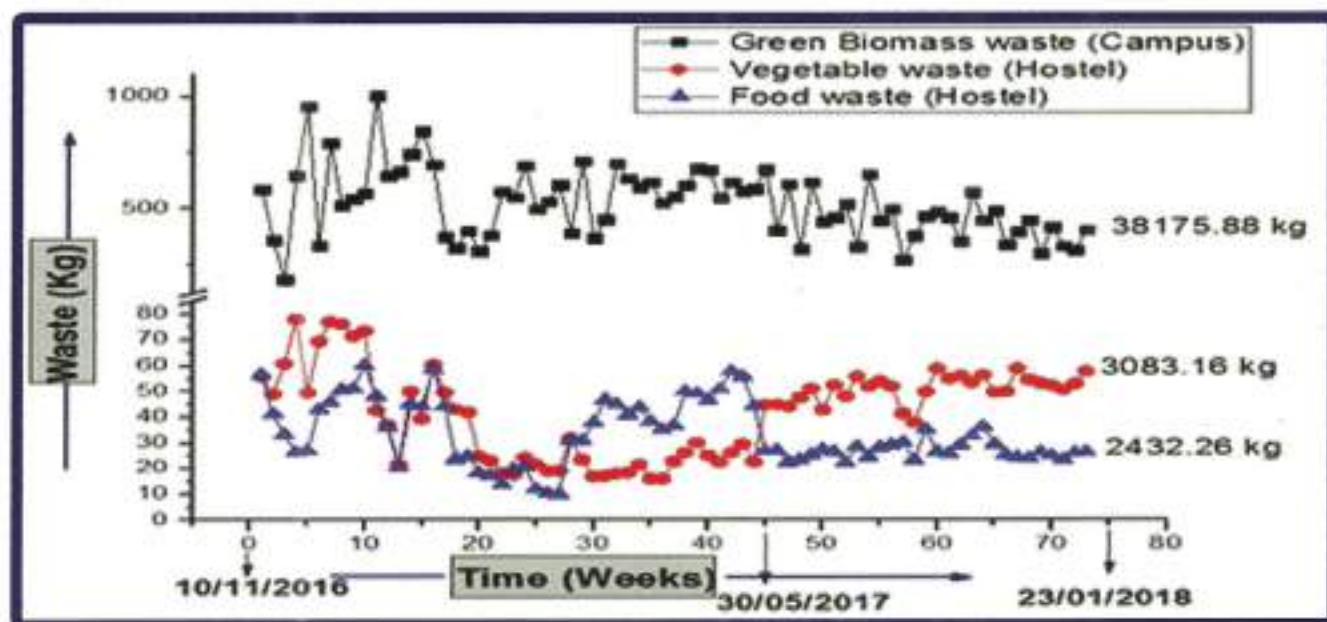


Fig: - Turnover of vegetation biomass of IASST campus along with regular leftover and food wastage of hostels to convert to compost / vermicompost

#### **D. Management of plastic wastes**

All types of recyclable plastics are to be kept in this specified bin. Waste materials collected from these bins are to be stored in the Central big size dust bin (Figure: Central waste material storage enclosure) and will be transferred to the Guwahati Municipality Corporation or their assigned agency's Garbage carrying vehicle on regular basis. Security Guards who are present at the time of entrance of the Garbage carrying vehicle will be responsible to oversee proper cleaning of the bin and should take utmost care so that no waste material litter the surrounding of the bins during waste unloading in the bins. The security guards will also record the time of entry and returns of agency vehicle in separate register with comments. The detail procedure for this part of waste disposal system will be specified later.

These bins are labelled or coloured blue and to be placed in the specified areas including the IASST lobby, canteen, laboratories and also near the staircases as Shown in Figures (Page 8 to 11).

#### **E. Regular picking up of inadvertently littered plastics**

Although, plastic littering is prohibited strictly inside the campus, few plastics found to spread due to inadvertent littering and wind action. A casual worker is engaged for two halves 9:30 AM to 11:00 AM and 2:30 PM to 4:00 PM daily to pick up such litter plastic by taking a round in the campus. This is being executed by a worker who is nominated by the Registrar/Chief Consultant/Junior Engineer.

#### **F. Management of Sharp Materials Like Metal and Glass**

Any sharp material, other than organic/biodegradable and plastic material are to be stored here mainly of metal and glasses. These are to be collected and transferred to the Central big sized dustbin. It will be cleaned by the Municipality Garbage carrying vehicle on regular basis. Security Guard who are present at the time of entrance of the Garbage carrying vehicle will oversee for maintaining cleanliness of the bins and should take utmost care so that no waste material litter the surrounding of the bins.

These bins are labelled or coloured red and to be placed in the specified areas including the IASST lobby, canteen, laboratories and also near the staircases as Shown in Figures in (Page 8 to 11). All these bins are to be marked with their uses and numbered accordingly.

Waste bins of above types will also be placed in selected places in all around the campus in specific locations according to the need. A location map for all the outside waste bins and those of within buildings is attached in the last Page of this write up.

#### **G. Wastes in the Laboratory Works**

There are two types of wastes generated in the laboratories and disposal of these wastes will be done as follows:

1. Wastes of plastics, glass, sharp materials etc. will be kept in a box/bin inside the lab and at the end of the day these will be placed in designated bins placed in the corridor by the lab worker.
2. Waste materials of chemicals, reagents, toxic substance, gel, radioactive substances etc. will be disposed by the scientists concerned following prescribed technical procedure.

## **H. Manpower involved in waste disposal**

1. The concerned staff members/workers have been assigned with duties for collection of wastes from the dustbins placed at different locations of the institute and to place these wastes in the specified garbage boxes in the Central wastes enclosure.
2. The Register/Consultant and his supervisory staff will monitor the waste disposal work done by the workers on daily basis and maintain a register duly signed with his/her comment.
3. In academic building, the students' representatives volunteered/engaged and other staff members as given below will follow up and take action for proper maintenance of the Waste Management System in different laboratories and different wings of the administrative & Academic building and lobby:
  - i. Laboratory, Ground Floor, Left wing: Student representative from PSD
  - ii. Laboratory, Ground Floor, Right wing: Student representative from LSD
  - iii. Laboratory, First Floor, Left wing: Student representative from CCNS
  - iv. Laboratory, First Floor, Right wing: Student representative from LSD
  - v. Laboratory, Second Floor, Left wing: Student representative from PSD
  - vi. Laboratory, Second Floor, Right Wing: Student representative from LSD
  - vii. Administration, Left Wing: Technical Assistant or from similar post
  - viii. Administration, Right wing: Superintendent or from similar post
  - ix. Library: Staff of library nominated by the Astt. Librarian
  - x. Lobby; Receptionist

The volunteers will have to enter records of waste disposal work in the register and report regularly to the Registrar, IASST or the person nominated by the Director of IASST on the status of implementation.

- i. Each laboratory will keep record of the approximate amount (by weight) of waste materials of different categories (i.e., paper, sharp materials, and plastic wastes) in a register on day to day basis and total in a month.
- ii. The In-charge/caretaker engaged in vermicompost unit will arrange to collect the waste materials from the specified bins/pits earmarked for the purpose through their workers and utilize the materials as per the procedure.

# I. Timings and procedure of clearance of wastes

From dustbins of laboratories

| Waste clearance from  | Time (Every day) | To be done by  | To be deposited at                                                                                 | To be Supervised/ monitored by           |
|-----------------------|------------------|----------------|----------------------------------------------------------------------------------------------------|------------------------------------------|
| Laboratories          | 11.00 am         | Cleaners       | Respective dustbins placed at Corridors of each wing/block of Administrative and Academic building | In-charge assigned by Director/Registrar |
| Dustbins of corridors | 2.00 pm          | Casual workers | Central waste / garbage enclosure                                                                  | -do-                                     |

# J. From dustbins kept outside building within campus

| Waste clearance from (for items like paper, plastics and sharp materials)                                           | Time     | To be done by  | To be deposited at                | To be Supervised/ monitored by           |
|---------------------------------------------------------------------------------------------------------------------|----------|----------------|-----------------------------------|------------------------------------------|
| SSH, Canteen Old hostel, Old staff quarter, Essential Workers staff quarter, BCH. Old animal house, Engr. Unit etc. | 11.30 am | Casual workers | Central waste / garbage enclosure | In-charge assigned by Director/Registrar |

# K. For biodegradable waste materials/items

| Waste clearance from (for items like leftover food materials, kitchen wastes etc.)                                | Time                                                             | To be done by                                                                       | To be deposited at                     | Supervision by                                                                                       |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------|------------------------------------------------------------------------------------------------------|
| SSH, Canteen, Old hostel, Old staff quarter, Essential Workers' staff quarter, Security barrack etc. Central pits | Two or more times in a day<br>As decided by the vericompost unit | Staff / Casual workers of the concerned establishment<br>Staff of Vermicompost unit | Central pits<br><br>Vermi-compost unit | In-charge assigned by Director/Registrar<br><br>In-charge of Vermicompost unit assigned by Director. |

#### L. From central waste/garbage enclosure dustbins

| Waste clearance from (for items like paper, plastics and sharp materials)                                         | Time     | To be done by  | To be deposited at              | To be Supervised/monitored by            |
|-------------------------------------------------------------------------------------------------------------------|----------|----------------|---------------------------------|------------------------------------------|
| SSH, Canteen Old hostel, Old staff quarter, Essential workers staff quarter, BCH, Old animal house Eng. Unit etc. | 11.30 am | Casual workers | Central waste/garbage enclosure | In-charge assigned by Director/Registrar |

Timings for collection of wastes from different waste bins and transfer of the materials by the concerned workers will be worked out/assigned by the Registrar as per their work schedule. However, the job will be done preferably two times in a day depending upon the quantum of wastes. Registrar would also engage his staff for regular monitoring of the whole system.

#### M. Special Attention for Waste Disposal on the Occasion of Large Gathering in the IASST Campus

1. On occasion of Foundation Day, sports events etc., gathering of large number of people cause littering of waste due to lack of sufficient number of dustbins as well as attendant to take special care for it, and diverse people attending the functions with no habit of proper waste disposal. To negotiate such a situation, strategy will be worked out thoughtfully before the beginning of event/gathering so that sufficient number of dustbins is placed and required personnel deployed with proper instruction, placard or banner.
2. When an event is organized in the campus, the organizer will keep a slot at the end of the programme for cleanliness drive where everybody will participate.
3. There may be a cleanliness drive by all sections of staff and students for an hour or so after the programme is over and it should be kept as an integral part of the programme.

#### N. Extension of IASST's cleanness drive of the campus to outside

Recently, one casual worker has been engaged to collect all the plastics and paper litter from the approach avenue road of about 250 meters towards the main gate of IASST. On both sides of this 250 meters approach, road, IASST has also planted nerium trees on one side and on other side different flowering trees indigenous to NE India.

## DUSTBIN PLACED IN DIFFERENT LOCATIONS IN AND AROUND IASST BUILDINGS

(Administrative and Academic Building)



**Fig1: Dustbins in front of main Entrance Gate**



**Fig2: Dustbins in front of second Entrance Gate**



**Fig3: Dustbins in the Ground Floor (leftwing)**



**Fig4: Dustbins in the Ground Floor (rightwing)**



**Fig5: Dustbins in the First Floor (leftwing)**



**Fig6: Dustbins in the 2nd Floor (Near Seminar Room)**



**Fig7: Dustbins in the Second Floor (leftwing)  
(Administrative and Academic Building)**



**Fig8: Dustbins in front of  
Engineering Section**



**Fig9: Dustbins in the Orchid Avenue**



**Fig10: Dustbins in front of old Hostel**



**Fig11: Dustbins in front of Students  
and Scientists Home**



**Fig12: Dustbins in front of Director's Quarter  
and the way to Four Grade Staff Quarter**



**Fig13: Dustbins in front of Essential Staff Quarter**



**Fig14: Worker engaged to collect plastic and paper litter from approach road towards main gate of IASST**



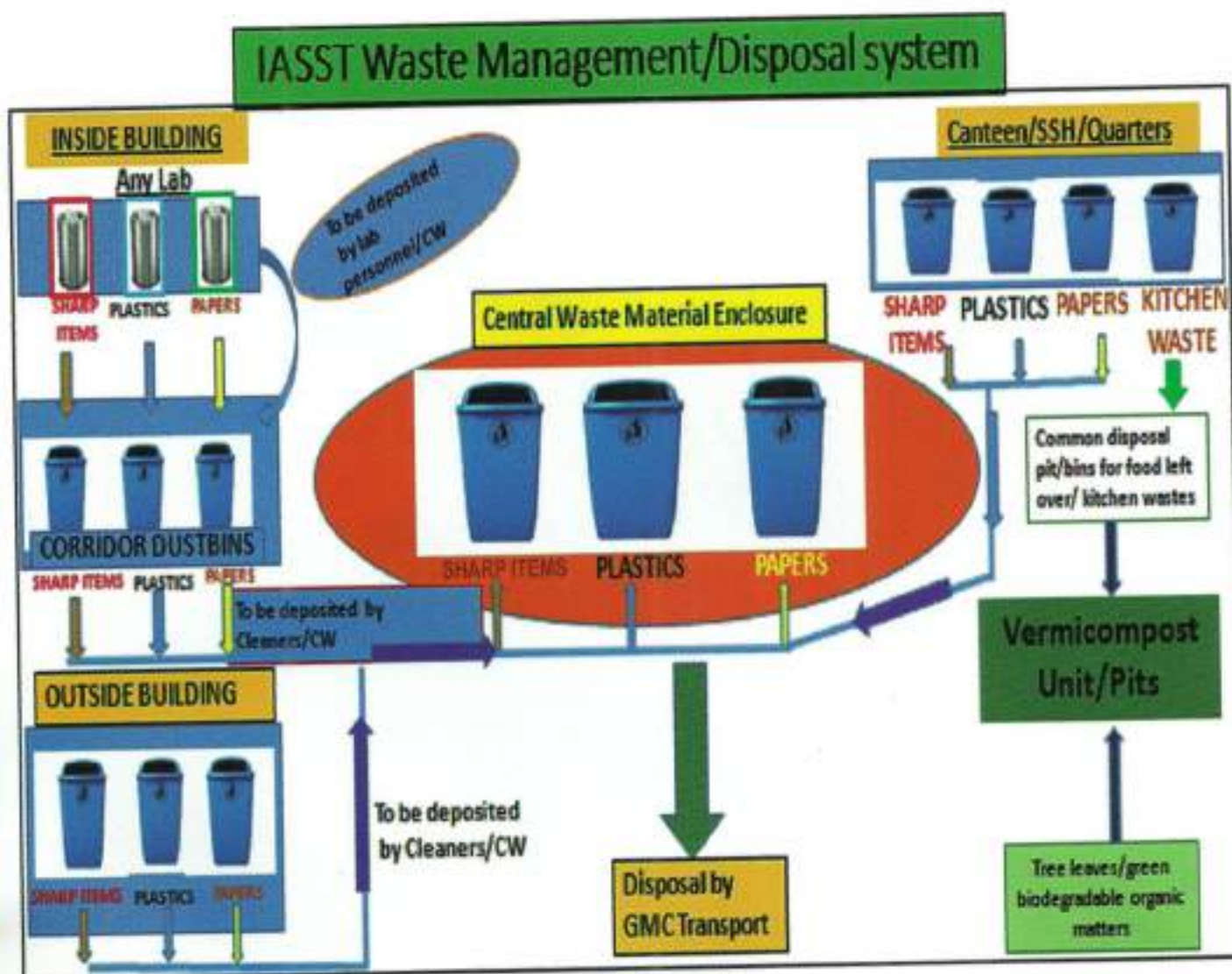
**Fig15: Central waste material storage enclosure**



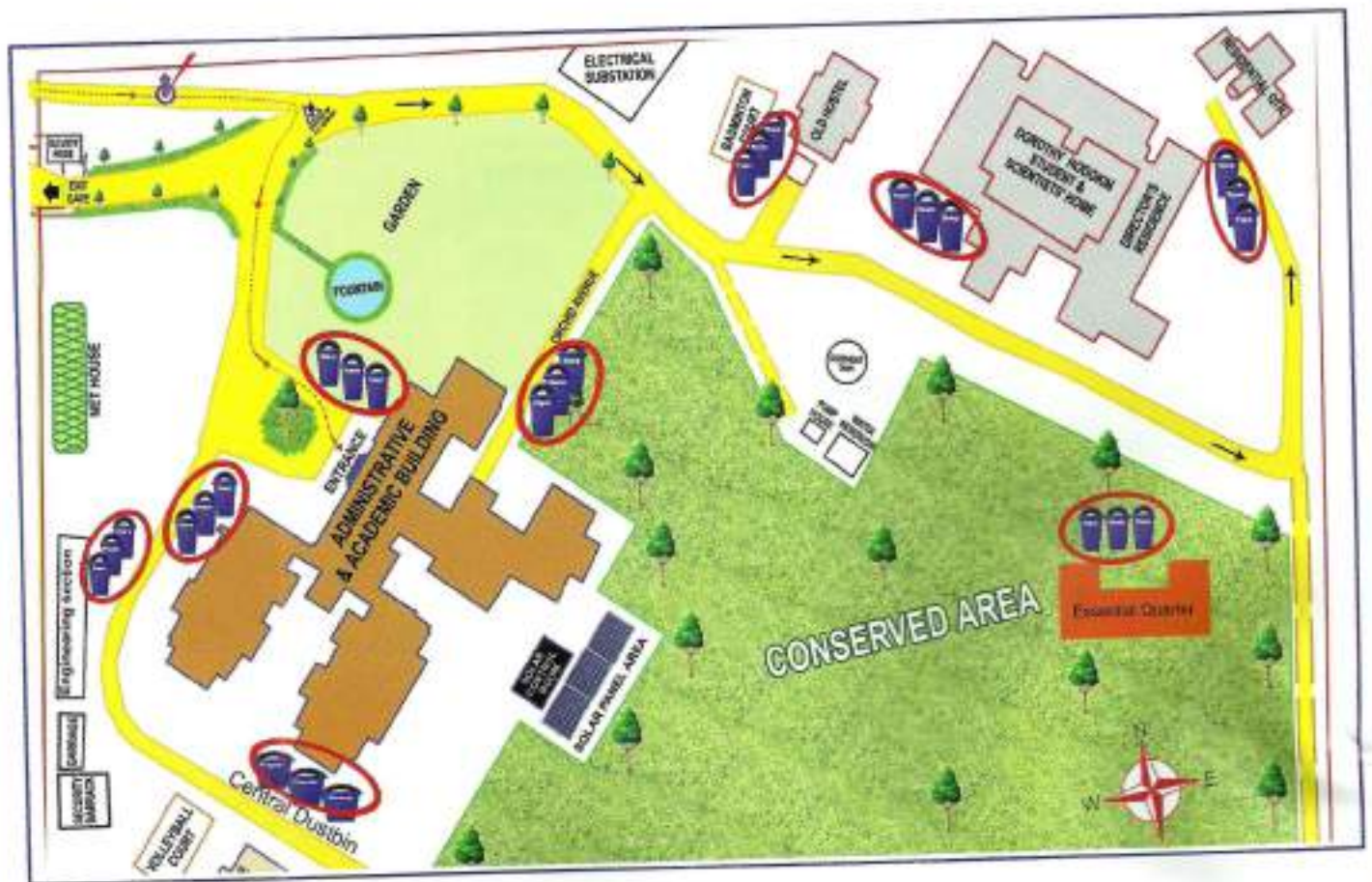
**Fig16: GMC/NGO workers loading waste materials from central waste material enclosure of IASST**

# FLOW CHART TO BE FOLLOWED FOR DISPOSAL OF WASTE MATERIALS

The flow chart to be followed for disposal of waste materials from different locations is given so that entire process is performed meticulously.



# AERIAL VIEW (SKETCH) OF PLACED OF DUSTBINS IN THE IASST CAMPUS





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