

7.1.3.: Types of Degradable and Non-Degradable Waste Management Systems

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INTRODUCTION

Solid Waste Management:

Solid waste management at VISTAS involves the placement of over 250 recycling bins across the campus to collect both degradable and non-degradable waste, such as food waste, paper waste, general solid and liquid waste, dry waste from fallen flowers and leaves, and food wrappers. The campus strictly prohibits the use of plastic, resulting in a significant reduction in plastic waste production. Additionally, paperless administration is implemented through an ERP system to minimize paper waste generation.

After segregating recyclable waste, it is sent to landfills, while garden waste and dry leaves are directed to the compost yard.

Liquid Waste Management:

VISTAS have installed Sewage Treatment Plants (STPs) and Effluent Treatment Plants (ETPs) across all its campuses. The treatment process for liquid waste includes:

Primary Treatment (Screening):

Raw sewage undergoes filtration, with solid particles manually removed at fixed intervals and disposed of. Organic waste collected during this process is converted into compost.

Secondary Treatment:

- i) Equalization: Filtered sewage is collected in a collection sump for equalization before being transferred to an aeration tank by pump sets.
- ii) Biological Treatment: This step converts organic matter in wastewater into bacterial floc.
- iii) Secondary Settling: Overflow from the settling tank is directed to a Clarified Water Tank.

Tertiary Treatment and UF: Water is pumped through a pressure sand filter, with necessary alum and chlorine mixing to reduce BOD and COD levels.

Sludge Drying: Excess sludge generated is utilized as manure for gardening.

The treated water is utilized for gardening, lawn maintenance, and pond upkeep on campus.

Biomedical Waste Management

VISTAS had established agreements with authorized agencies like GJ Multiclave (India) Pvt Ltd & Re Sustainability IWM Solutions Limited for the disposal of biomedical waste. This waste, generated in hospitals, laboratories, and animal facilities, is collected in colour-coded bins and disposed of through these agencies.



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E-waste management:

VISTAS has partnered with the authorized agency Redit Eco Recycling for e-waste disposal. E-waste is regularly collected at its source, transported to a designated storage facility, and then disposed of by the vendor. Some gadgets are replaced through exchange options or buyback systems. VISTAS also operate an e-waste pilot plant to recycle valuable materials like gold, silver, and copper.

Waste Recycling system:

VISTAS employ a vermi-composting system to convert organic waste from hostel kitchens, mess areas, and canteens into nutrient-rich manure suitable for agriculture and gardening.

Hazardous chemicals and radioactive waste management:

Hazardous chemical waste undergoes treatment involving neutralization, incineration, or chemical conversion before safe disposal in accordance with regulatory guidelines, including burial in designated landfills or storage in specialized facilities. VISTAS do not generate radioactive waste



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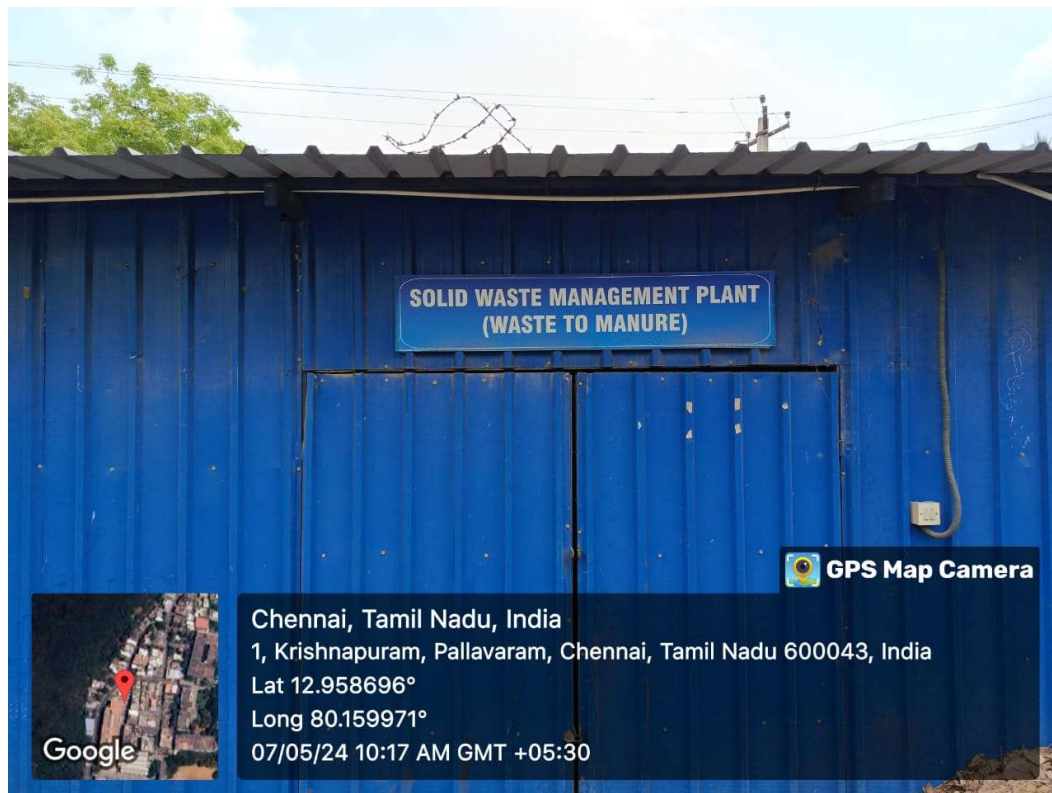
SOLID WASTE MANAGEMENT

The solid waste management is carried out at two different levels namely one at the hostel and other at the classrooms & administrative offices. The hostel generates food, vegetables and paper waste. The classrooms and administrative offices generate mainly paper wastes.

The wastes are segregated at the source itself. The collected solid waste is sent to bio-compositor. Once the compost is matured, it is used as a soil conditioner, bio manure, or amendment in landscaping, agriculture, gardening, and horticulture.

Vermicomposting is an efficient and eco-friendly method of organic waste management that utilizes earthworms to decompose organic material into nutrient-rich compost.

A biocomposter, similar to a vermicomposting unit, is a system used in solid waste management to efficiently break down organic waste and produce compost.

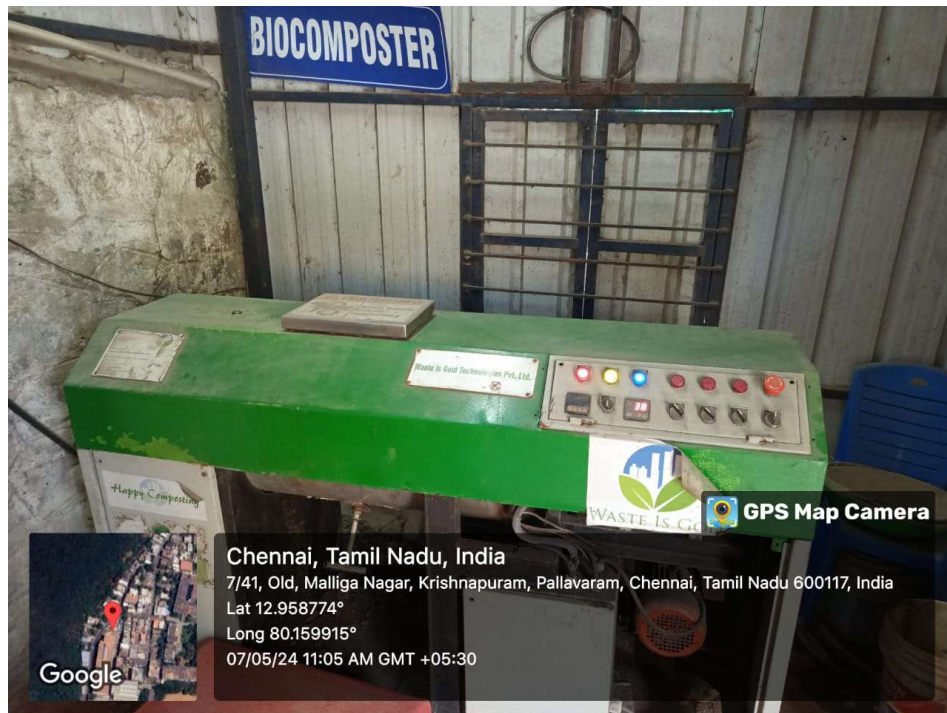


Solid Waste Management Plant Available in VIS'

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Vermicompost Unit in Solid Waste Management System



Biocomposter in Solid Waste Management System

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LIQUID WASTE MANAGEMENT

Liquid waste management in VISTAS encompasses the handling, treatment, and disposal of various types of liquid waste generated on campus. By implementing effective liquid waste management practices, VISTAS has installed Moving bed biofilm reactor (MBBR) treatment plants in various campus of VISTAS.

STP 250 KLD DETAILS – Capacity in Litres per Day				
Plant in Ltrs	Daily Water used	STP capacity	Treated water	Reused for Graden
STP 250000	200000	250000	200000	200000

ETP DETAILS – Capacity in Litres per Day				
Plant in Ltrs	Raw Water input	ETP Capacity	Treated water	Sent to STP
Laundry ETP-50000	30000	50000	30000	200000
Bio ETP-20000	10000	20000	10000	200000

VISTAS create healthier, safer, and more environmentally responsible campus environments for current and future generations. The treated water is used for gardening of plants, maintenance of lawn & ponds in the campus.

The STP, ETP and BIO ETP capacities are 250 KLD, 5 KLD and 2 KLD respectively to handle the waste waters generated from college building and Hospital.



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Liquid Waste Management Plant



Equalization Tank in Liquid Waste Management Plant at Thazhambur Campus

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Filtration Units in Liquid Waste Management System at Thazhambur Campus



Liquid Waste Management Plant at Medical Can

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Equalization Tank in Liquid Waste Management Plant at Medical Campus



Processed Water Collection Tank in Liquid Waste Management System at Medical Campus





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BIOMEDICAL WASTE MANAGEMENT


VISTAS has signed a biomedical waste disposal agreement with authorized agencies like GJ Multiclave (India) Pvt Ltd & Re Sustainability IWM Solutions Limited to dispose the biomedical waste. The Biomedical waste generated in hospitals, various laboratories and animal house are collected in different colour coded bins and disposed through the agencies.

VELS MEDICAL COLLEGE & HOSPITAL


BIOMEDICAL WASTE MANAGEMENT

<p>INFECTIOUS WASTE, HANDLE WITH CARE</p> <p>செயல்பாட்டுத் திறமையான பி. என். சி. கட்டணம் உயிர் தரும் நோய்கள், கிருமிகள், கிருமிகளால் பாதிக்கப்பட்ட உயிர்கள், கிருமிகளால் பாதிக்கப்பட்ட உயிர்கள், கிருமிகளால் பாதிக்கப்பட்ட உயிர்கள், கிருமிகளால் பாதிக்கப்பட்ட உயிர்கள்</p> 	<p>ONLY SPECIFIED CATEGORY TO BE KEPT</p> <p>Human animal anatomical tissues, organs, body parts blood, fat, cell cultures, attenuated vaccines, blood bags, biological fluids, biopsy specimens, fluid & chemical waste, chemical waste, discarded food & bedding, solid waste, cotton, Bandaged and discarded medicines</p>
<p>INFECTIOUS WASTE, HANDLE WITH CARE</p> <p>செயல்பாட்டுத் திறமையான பி. என். சி. கட்டணம் உயிர் தரும் நோய்கள், கிருமிகள், கிருமிகளால் பாதிக்கப்பட்ட உயிர்கள், கிருமிகளால் பாதிக்கப்பட்ட உயிர்கள், கிருமிகளால் பாதிக்கப்பட்ட உயிர்கள், கிருமிகளால் பாதிக்கப்பட்ட உயிர்கள்</p> 	<p>ONLY SPECIFIED CATEGORY TO BE KEPT</p> <p>Plastic syringes without needles, Earwig, Catheters, endotracheal tube, blood tubing, Plastic in bottles, gloves, linen bags, incutaneous</p>
<p>INFECTIOUS WASTE, HANDLE WITH CARE</p> <p>செயல்பாட்டுத் திறமையான பி. என். சி. கட்டணம் உயிர் தரும் நோய்கள், கிருமிகள், கிருமிகளால் பாதிக்கப்பட்ட உயிர்கள், கிருமிகளால் பாதிக்கப்பட்ட உயிர்கள், கிருமிகளால் பாதிக்கப்பட்ட உயிர்கள், கிருமிகளால் பாதிக்கப்பட்ட உயிர்கள்</p> 	<p>ONLY SPECIFIED CATEGORY TO BE KEPT</p> <p>Broken, discarded & contaminated glass medicine vials & ampoules, metallic body implants.</p>
<p>DO NOT MIX WITH OTHER WASTE</p> <p>உடனடியாக கைவிட வேண்டாம். கைவிட வேண்டாம். கைவிட வேண்டாம். கைவிட வேண்டாம்.</p> 	<p>STORE IN PUNCTURE PROOF CONTAINER</p> <p>Scalpels, Needles, Syringes With needles, Knives, Blades, Fictura Needles, Used & Contaminated Metal Sharps.</p>

Segregate Biomedical Waste
 மருத்துவ கழிவுகளை பிரித்துக் குப்பீர்



GPS Map Camera



Bandikavanoor, Tamil Nadu, India
 Unnamed Road, Bandikavanoor, Tamil Nadu 601101, India
 Lat 13.268467°
 Long 80.12242°
 10/05/24 10:13 AM GMT +05:30

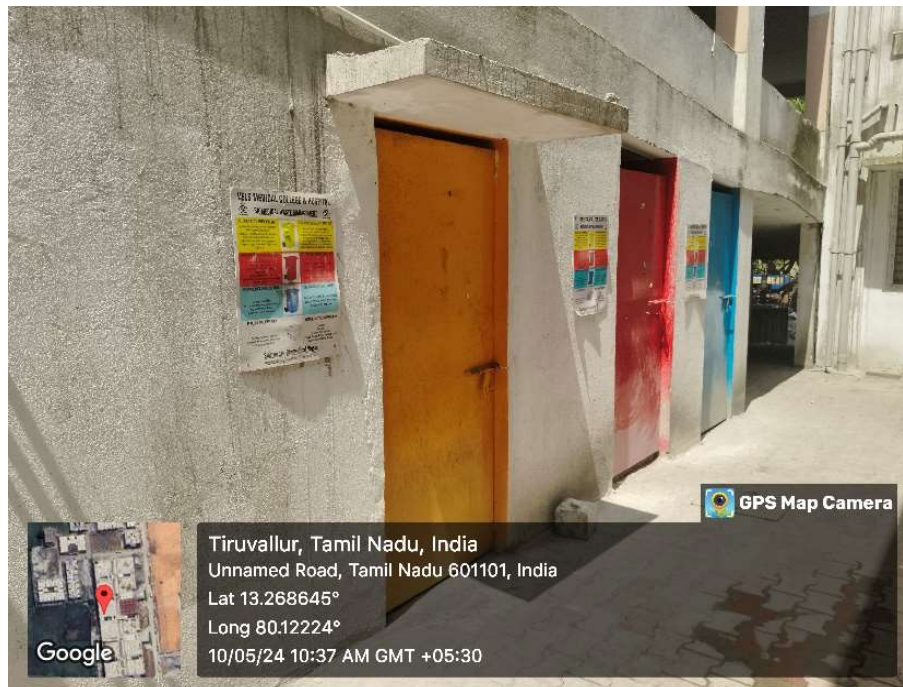
Biomedical Waste Management



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Biomedical Waste Collection

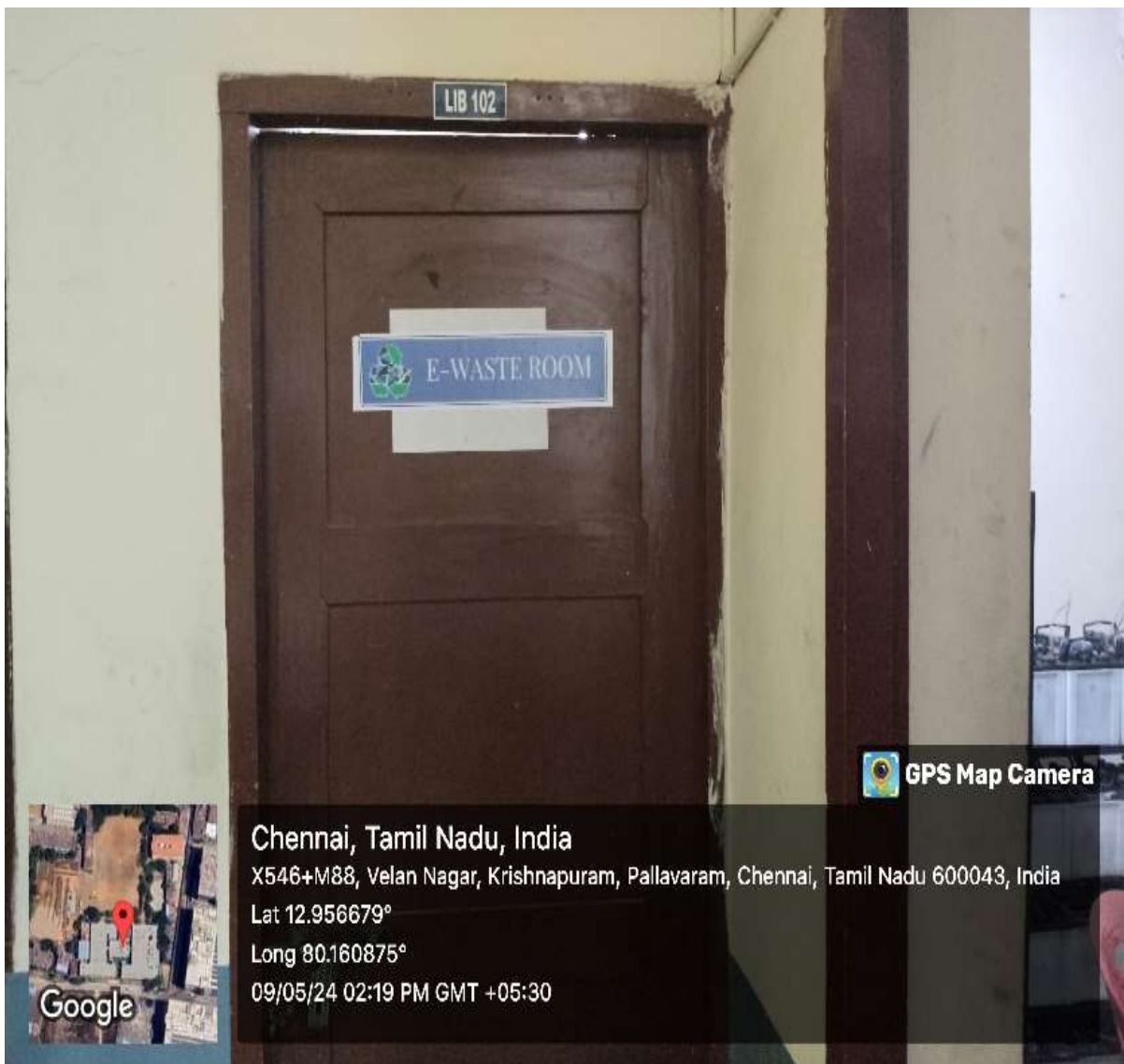


Biomedical Waste Storage Area in Protected Room

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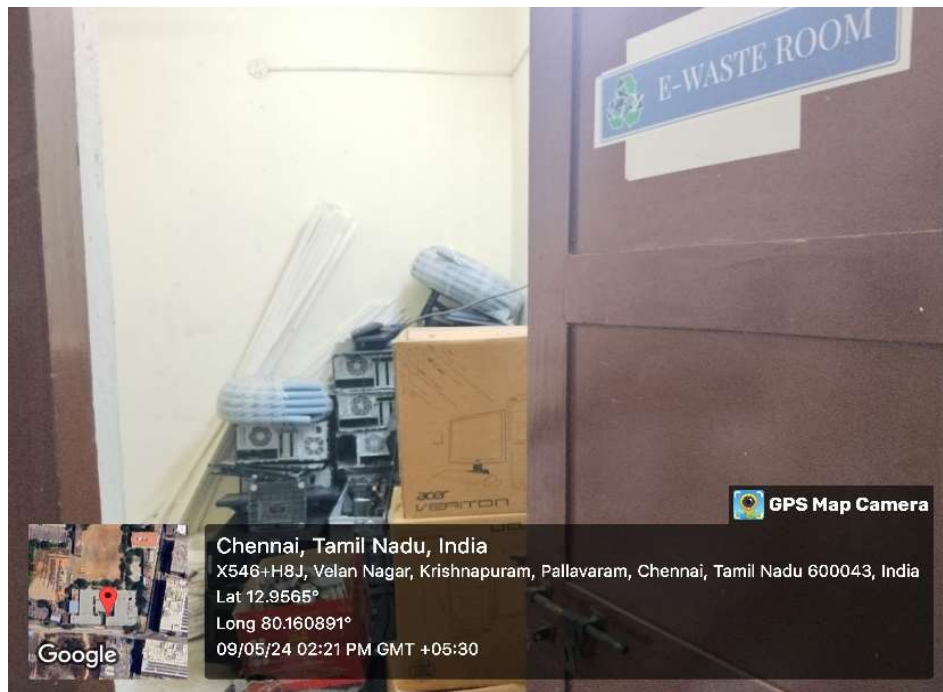
E-WASTE MANAGEMENT

VISTAS has signed an e-waste disposal agreement with authorized agency Redit Eco Recycling. E-waste is collected on a regular basis at the source and transported to an e-waste storage facility and disposed through the vendor. Certain gadgets are replaced using exchange options and buy back systems. E-waste contain valuable materials such as gold, silver, and copper. VISTAS has an e-waste pilot plant to recycle e-waste into valuables.

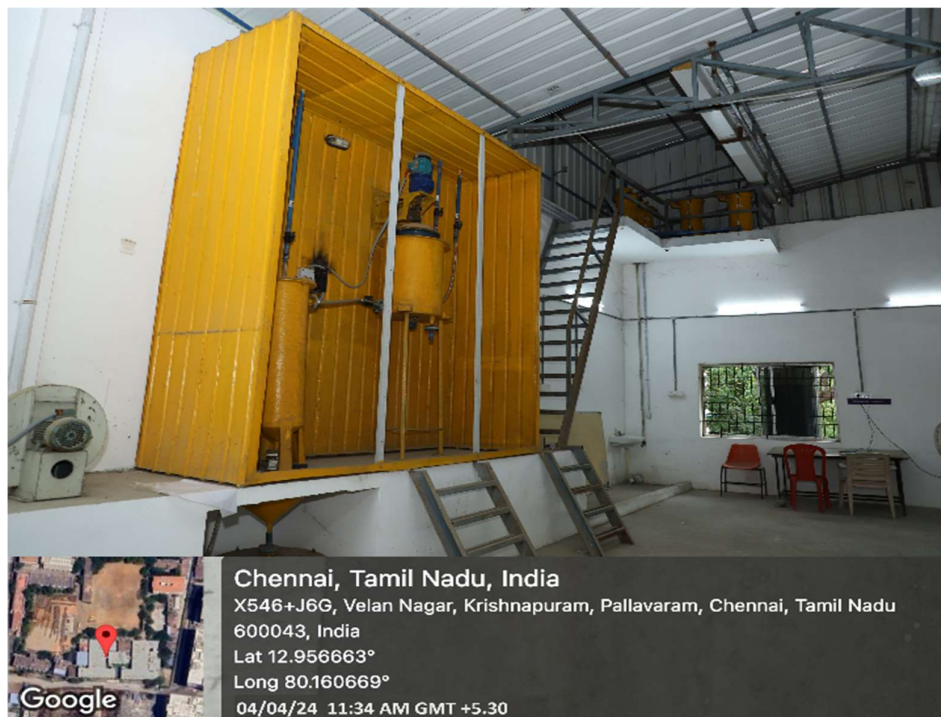


E-Waste Room

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E-Waste Storage Room



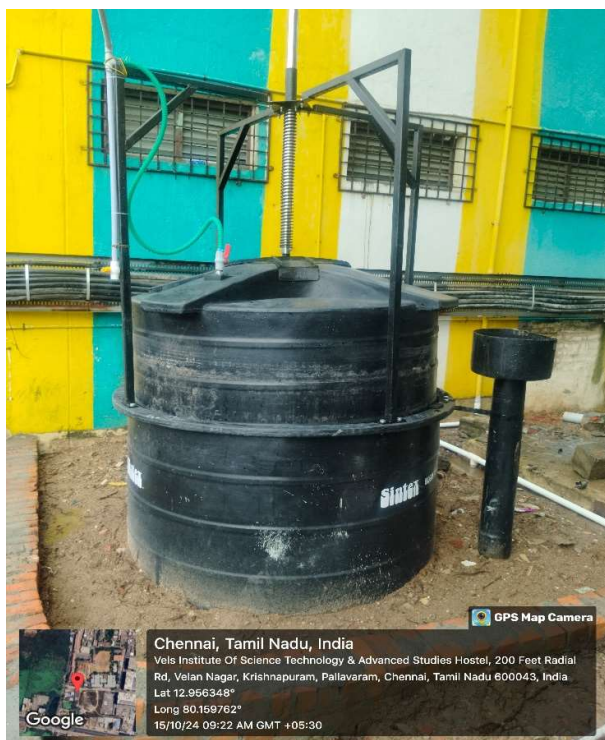
E-Waste Recycling Unit

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WASTE RECYCLING SYSTEM

The biogas plant at VISTAS (Vels Institute of Science, Technology & Advanced Studies) is an eco-friendly initiative that promotes sustainability and renewable energy. The plant utilizes organic waste, such as food scraps and agricultural residues, to produce biogas through anaerobic digestion. This process not only generates clean energy but also reduces the amount of waste that would otherwise end up in landfills, lowering greenhouse gas emissions.

The biogas generated is a valuable resource that can be used for cooking, electricity generation, or heating, thereby reducing dependence on fossil fuels. Additionally, the by-product of this process, called digestate, can be used as a high-quality organic fertilizer, enhancing soil fertility and reducing the need for chemical fertilizers. The plant at VISTAS demonstrates the institute's commitment to green practices and provides a practical learning experience for students in renewable energy technologies.



Bio Gas Plant

Bio Gas Plant

Capacity	:	50 Kg / Day
Feeding	:	50 Kg Food Waste + 50 L Water
Output	:	2 Kg / Day
Output of Bio manure:	:	5 Kg / Day

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RADIOACTIVE WASTE MANAGEMENT

Disposing of radiographic and X-ray waste in a hospital needs to be done carefully because there may be health and environmental hazards. The generic procedural guide to be followed:



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