CHITKARA UNIVERSITY

CHITKARA UNIVERSITY Centre of Excellence for Sustainability

Waste Management Report

Chitkara University, Punjab

2023-2024

Report 2023-2024

Introduction

Waste management is a critical aspect of environmental sustainability, and Chitkara University has taken proactive steps to ensure that its campus operations contribute positively to this cause. Recognizing the importance of reducing, reusing, and recycling waste, the university has implemented a robust system that adheres to best practices in waste management.

With a focus on minimizing landfill contributions and maximizing resource recovery, the university has categorized its waste streams and developed tailored processes for disposal and recycling. These efforts align with global sustainability standards and support the university's commitment to the Sustainable Development Goals (SDGs). This report outlines the comprehensive waste management strategy at Chitkara University, highlighting key practices, and future aspirations to maintain a cleaner, greener campus.

The University generates waste from various sources, including:

- Academic and administrative buildings
- Residential areas
- Refreshment areas
- Landscaping and gardening activities

Waste Overview

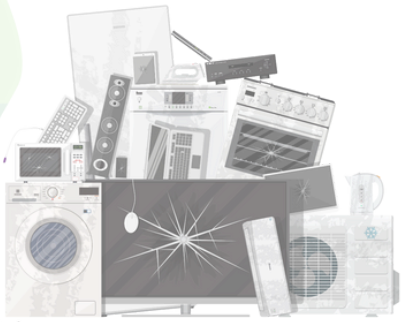
Solid Waste

- General Waste
- Sanitary Waste
- Leaves/Grass
- Paper Waste
- Food Waste
- Sludge Compost
- Scrap Material

Liquid Waste

- Used oil
- Waste water

Waste Types



Construction Waste

- Rubble
- Wood
- Glass

Other Waste

E-Waste

Medical Waste

Disposal Processes

1. Waste Segregation at Source

The university has implemented a color-coded waste segregation system at the source to ensure effective disposal and recycling.

Color-Coded Dumpsters:

- Separate bins for degradable, non-degradable, and recyclable waste.
- Separate bins for sanitary waste.
- Specific dumpsters for hazardous waste such as medical and e-waste.
- Each bin is labeled with clear instructions to enable proper use.

2. Solid Waste Management

General Waste:

- General waste generated from classrooms, offices, and common areas is collected in designated dumpsters and transferred to the main waste yard.
- The waste is further segregated and sent to recyclers or municipal waste yards under contractual agreements.
- We have approximately 2300 numbers of dustbins (indoor) and approximately 300 numbers of dustbins (outdoor) across the campus.

Paper Waste:

- Old answer sheets, newspapers, and departmental waste are collected and sent to the university's Paper Recycling Plant or approved vendors.
- This initiative recycles approximately 90% of the paper waste, contributing significantly to resource conservation.
- More than 25,000 kgs of paper recycled/repurposed annually.

Sanitary Waste: The facility of sanitary napkin vending machines are provided on campus. Further for collection of Sanitary waste, designated bins are placed in ladies' and girls' restrooms. This waste is incinerated in the central incinerator or in the building napkin incinerators.

Scrap Material:

- Obsolete furniture, metal drums, and plastic cans are repaired, reused, or shared with underprivileged communities.
- Unsalvageable items are sold to recyclers, ensuring minimal landfill contribution.

Leaves and Grass:

- Garden waste is deposited in dedicated decomposer placed at Yellow Point Farm, converting it into manure for use in horticulture.
- University uses green waste pits for efficient organic waste management on campus.

3. Food Waste Management

Unconsumed Food: Under the **Green Plate Initiative**, surplus food from messes and kitchens is distributed annually to **1,795** laborers residing on campus.

Composting and Decomposition:

- Food waste such as vegetable peels and leftovers are processed in vermicomposting pits and decomposers at Yellow Point Farms.
- A portion of the waste is routed to the campus **biogas plant**, generating renewable energy for various uses.
- In 2023-2024, **9,960** kg of compost was utilized for horticulture.

Animal Feed: 61,995 kgs of food waste is sustainably repurposed annually, supplying a piggery through a dedicated contract.

4. Liquid Waste Management

Sewage Treatment Plants (STPs):

- The campus has two Sewage Treatment Plants (STPs) that process wastewater.
- The treated water is then reused for:
  - Horticulture and landscaping
  - Dual plumbing systems for toilet flushing
  - Vertical and rooftop gardens

- The campus uses over 100,000 liters of treated water monthly, which significantly lowers their need for fresh water.
- Around 90% of the water used on campus is treated by the STPs.
- All of the treated water (100%) is put to use in the ways mentioned above, and is also shared with nearby villages.

5. **Other Waste Management**

E-Waste:

- Electronic waste generated from IT and engineering labs and electrical waste are collected in designated bins, stored in a restricted area and disposed of through authorized recyclers as per laid process of the Pollution Board.
- This process complies with state and national pollution control norms.

Used Oil:

- Oil from diesel generators is stored in a restricted area and handed over to certified recyclers.
- Necessary documentation and pollution board compliance are ensured during disposal.

Medical Waste:

- Medical waste generated in health sciences labs and the campus dispensary is segregated using color-coded bins and disposed of via contracts with nearby hospitals.
- Animal waste from the animal house is incinerated as per government norms.

Key Initiatives

1. **Recycling and Reuse Initiatives**

Furniture and Fixtures:

- Damaged furniture is repaired and reused where possible.
- Usable items are donated to rural communities or other organizations.
- Items beyond repair are recycled or repurposed.

Composting Initiatives: Organic waste is processed into manure, which is used extensively for campus horticulture, reducing dependence on chemical fertilizers.

2. Community Engagement and Awareness

Green Plate Initiative: An innovative approach to utilize surplus food and prevent wastage while supporting the labor community on campus.

Educational Campaigns: Regular workshops and training sessions for students and staff to promote waste segregation and recycling practices.

Collaborations with Vendors: The university collaborates with certified vendors and recyclers for efficient waste disposal, recycling, and compliance with environmental norms.

3. Infrastructure Development for Waste Management

Strategic Dumpster Placement: Dumpsters are placed at convenient locations across the campus, ensuring accessibility and proper waste disposal.

Dedicated Waste Yards: Separate areas for general waste, hazardous waste, and scrap material, with restricted access to ensure safety.

Biogas Plant and Vermicomposting Pits: On-campus facilities for processing organic waste into biogas and compost.

4. Sustainable Construction Waste Management

Waste from construction and renovation activities, such as rubble, wood, and glass, is handled through:

- Repurposing usable materials.
- Depositing rubble in designated landfill areas within the campus.

5. Sustainable Practices

- Single-use plastics have been banned since 2022.
- Encouragement of reusable materials across campus facilities.

SoP in Place	CU/PB/Admin/ SoP 1 of 2023	
Contracts in Place	• Scrap and E-Waste • Bio-Medical Waste • Solid Waste • Food Waste	✔ ✔ ✔ ✔

Quantitative Analysis

The following data highlights waste generation and management:

- **Total Waste Generated:** 328.15 tonnes.
- **Biodegradable Waste:** 223.84 tonnes
- **Non-Biodegradable Waste:** 103.19 tonnes.
- **Miscellaneous:** 1.12 tonnes
- **Recycled Waste:** 203.92 tonnes
- **Reused Waste:** 80.37 tonnes
- **Composted Waste:** 9.9 tonnes
- **Waste to landfill:** 43.86 tonnes

Summary of Data

Here are the entries for context:

Solid Waste Generation- Recycling and Reuse Summary Report 2023-24							
Sl.	**Category**	**Generated**	**Unit**	**Recycled (Sold to vendors)**	**Unit**	**Reused**	**Unit**
1	Foam	919	Nos	769	Nos	150	Nos
2	Glass	5230	Kgs	5230	Kgs		
3	Metal	88297.40	Kgs	83662.40	Kgs	4635	Kgs
4	Misc	204	Nos	0	Nos	204 (Sold or donated)	Nos
5	Paper	24675	Kgs	17085	Kgs	7590 (Recycled at campus)	Kgs
6	Plastic	7841	Kgs	7546	Kgs	295	Kgs
7	Wood	46275	Kgs	42600	Kgs	3675	Kgs
8	Solid Waste	90174	Kgs	46344	Kgs	0	Kgs
9	Bio Waste	30.7	Kgs	0	Kgs	0	Kgs
10	Food Waste	62682.2	Kgs	687	Kgs	61995.2 (Sold to piggery vendor)	Kgs
11	Plastic Bottles Waste	1826.08	Kgs	0	Kgs	1826.08 (Used in horticulture)	Kgs
	Total	**328154.38**		**203923.4**		**8755**	

SUMMARY	
Total Recycled	**62.14%**
Total Reused	**24.49%**
Total Landfill	**13.37%**

Future Goals

- Achieving **zero waste to landfill** by 2029.
- Expanding recycling infrastructure to process additional waste categories.
- Implementing advanced waste tracking systems for better monitoring and reporting.
- Engaging the university community through green initiatives and workshops.

Conclusion

Chitkara University's solid waste management system reflects its dedication to environmental sustainability and aligns with the United Nations Sustainable Development Goals (SDGs). Through continued innovation and active participation from the university community, Chitkara is setting an example for effective waste management in educational institutions.