

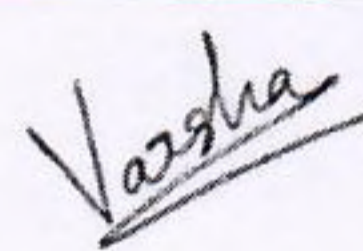

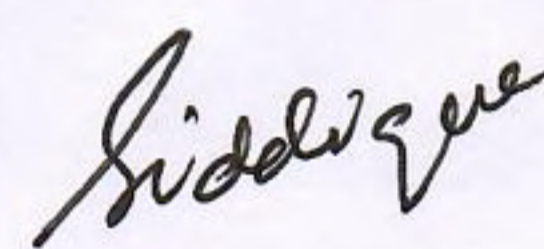
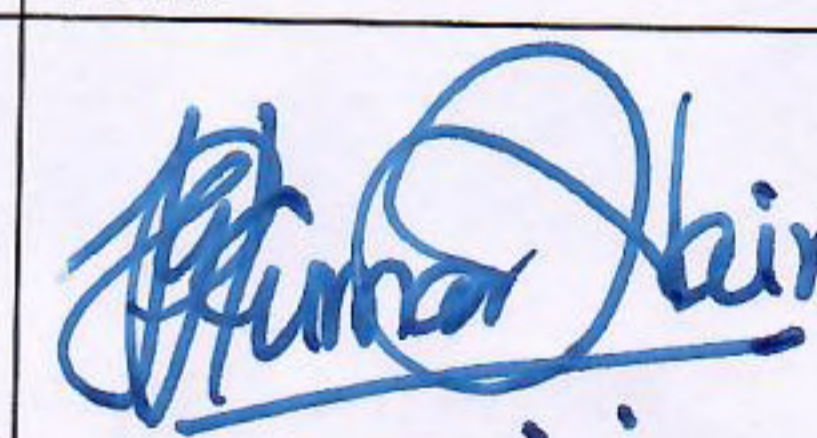
**THAPAR INSTITUTE OF ENGINEERING & TECHNOLOGY
PATIALA (PUNJAB) 147004**

Zero Waste Policy

Document Information

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Document Maintenance

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V 1.0	Varsha Pahwa	Prof. Anoop Verma	Dr Rafat Siddique	Prof. Padmakumar Nair	10/01/2025
					

Data & Information Classification

Classification	Description
Internal & Restricted Use Only	Information may be shared with all the employees & personnel associated with Thapar Institute of Engineering & Technology

1. Definitions

- 1.1 **Diversion Rate** – shall mean to comprehensively include all of the materials diverted from the landfills, incineration and the environment. It should represent all activities within the project boundaries and include all materials generated within the boundary. It is calculated as “Total Waste Diverted from landfill, incineration” divided by “Total Waste Generated”
- 1.2 **Zero Waste** – shall mean the conservation of all resources by means of responsible production, consumption, reuse and recovery of products, packaging and materials without burning and with no discharges to land, water or air that threaten the environment or human health.
- 1.3 **The Group** – shall mean TIET, including but not limited to its affiliates, sister concerns, related entities, partnerships, and any other associated organizations or entities. For this policy, 'The Group' shall encompass all such entities irrespective of their legal structure. All terms, conditions, and obligations outlined in this policy shall be binding upon and enforceable against each entity within The Group.

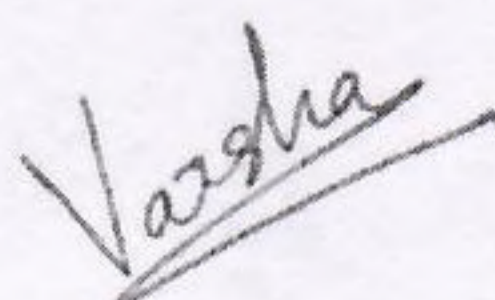

2. Purpose & Scope

- 2.1 Thapar Institute of Engineering & Technology (TIET) is committed to support the transition to low carbon economy through sustainable investment, development and operations. The group has committed to achieve net zero by 2025 through carbon emissions reduction measures to minimize any impact on the environment, and to mitigate the potential impact of climate changes.

In support of the Paris Agreement, Thapar Institute of Engineering & Technology focuses to minimize its environmental impact through eco-initiatives across Waste Management. The group also targets that all operational assets have green certification and/or energy ratings from local or internationally accredited bodies, where applicable.

The TIET leadership aims to build and establish standards to encourage the development of zero waste processes and practices from procuring items that result in reduced packaging waste and those products that are environmentally preferred. Primarily, conserve all resources by means of responsible production, consumption, reuse and recovery of products without burning or burying them.

- 2.2 This document provides a summary of the Group's sustainability vision in relation to effective waste management processes that conserve natural resources and decrease the amount of waste sent to landfills.
- 2.3 Unless - otherwise stated this policy shall apply to “Thapar Institute of Engineering & Technology” located in Patiala in the state of Punjab country India. The policy covers all kinds of municipal solid waste , non-hazardous waste, as described in the “Solid Waste Management Rules 2016” or any amendments thereto. It covers the waste generated during regular operations and those generated during episodic activities.

3. Goal

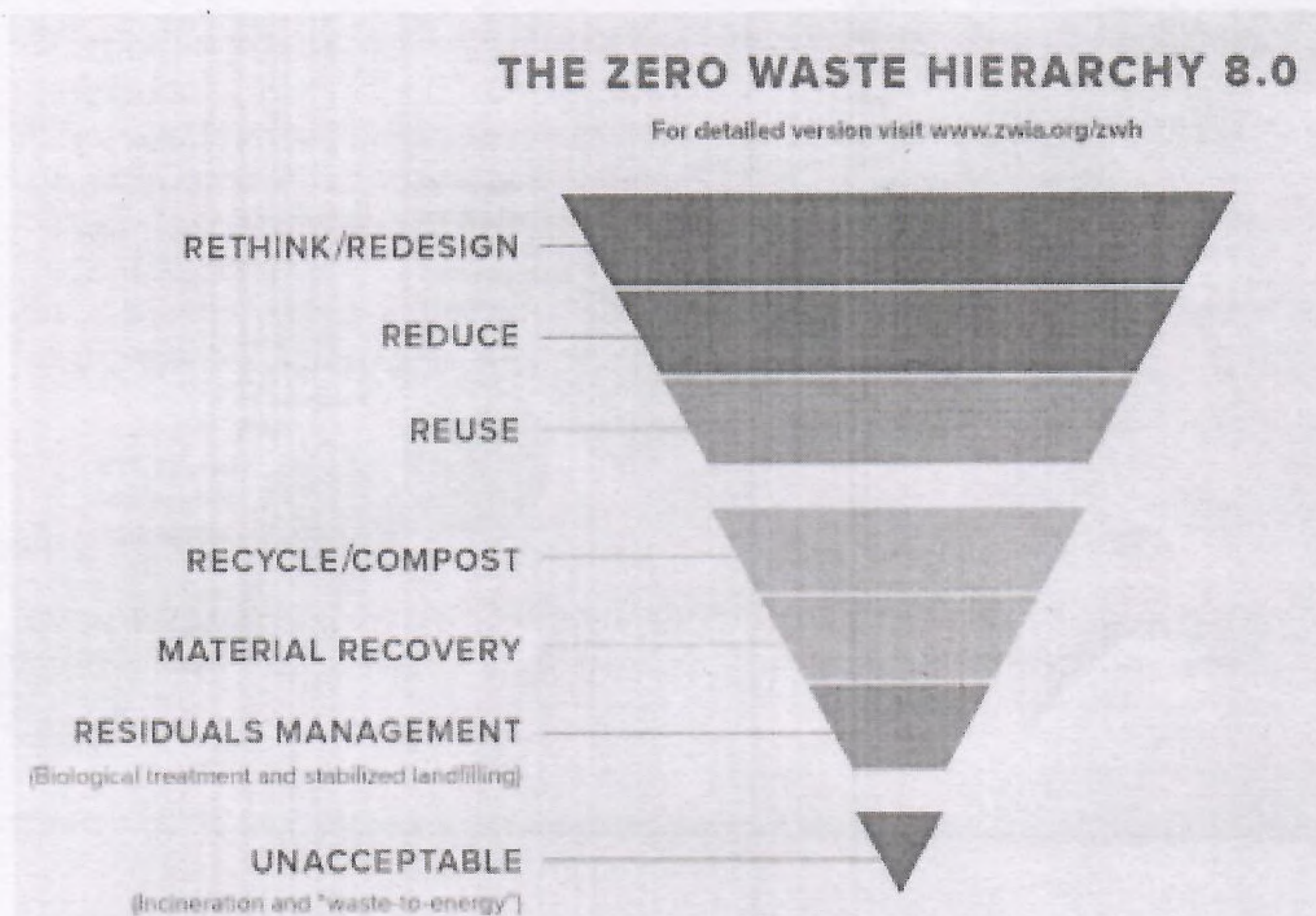
TIET has committed to make the campus Zero Waste to landfill by Dec 2025 across its operations in the Patiala Campus by better managing solid & non-hazardous waste to protect the environment and divert the waste effectively.

4. Commitment

- 4.1 Redesign of system to avoid needless wasteful consumption. Implement processes and actions that address the root cause of current linear use of materials and promote circular economy.
- 4.2 Reduce, Reuse, Recycle all materials to the best of the ability.
- 4.3 Create awareness and train all the respective stake holders on zero waste management approach.
- 4.4 Track and capture the waste flow to ensure efficient and effective diversion from the landfill, incineration and waste to energy.
- 4.5 Encourage upstream vendors and waste management partners to embrace the Zero Waste approach.
- 4.6 Leadership to actively engage in the review of waste management programs / activities on a monthly basis.

5. Zero Waste Strategies

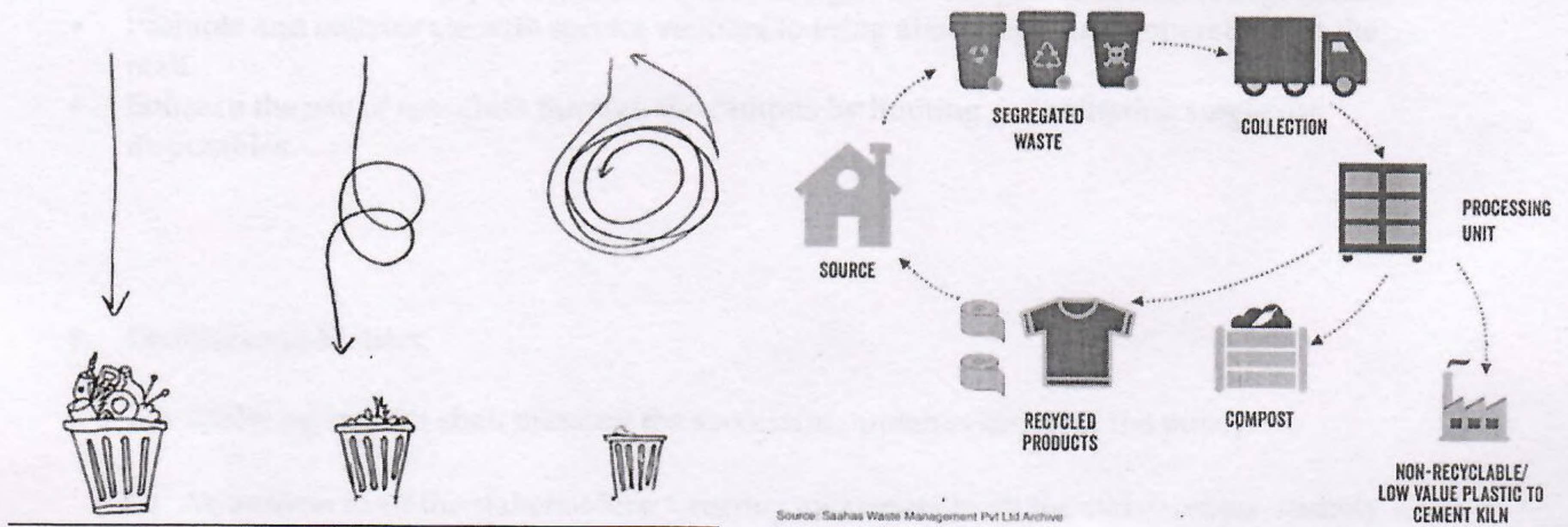
The Zero Waste Hierarchy shall be used (starting at the top of the hierarchy) as a guidance to build strategies and systems that facilitate in achieving of the zero waste goals.



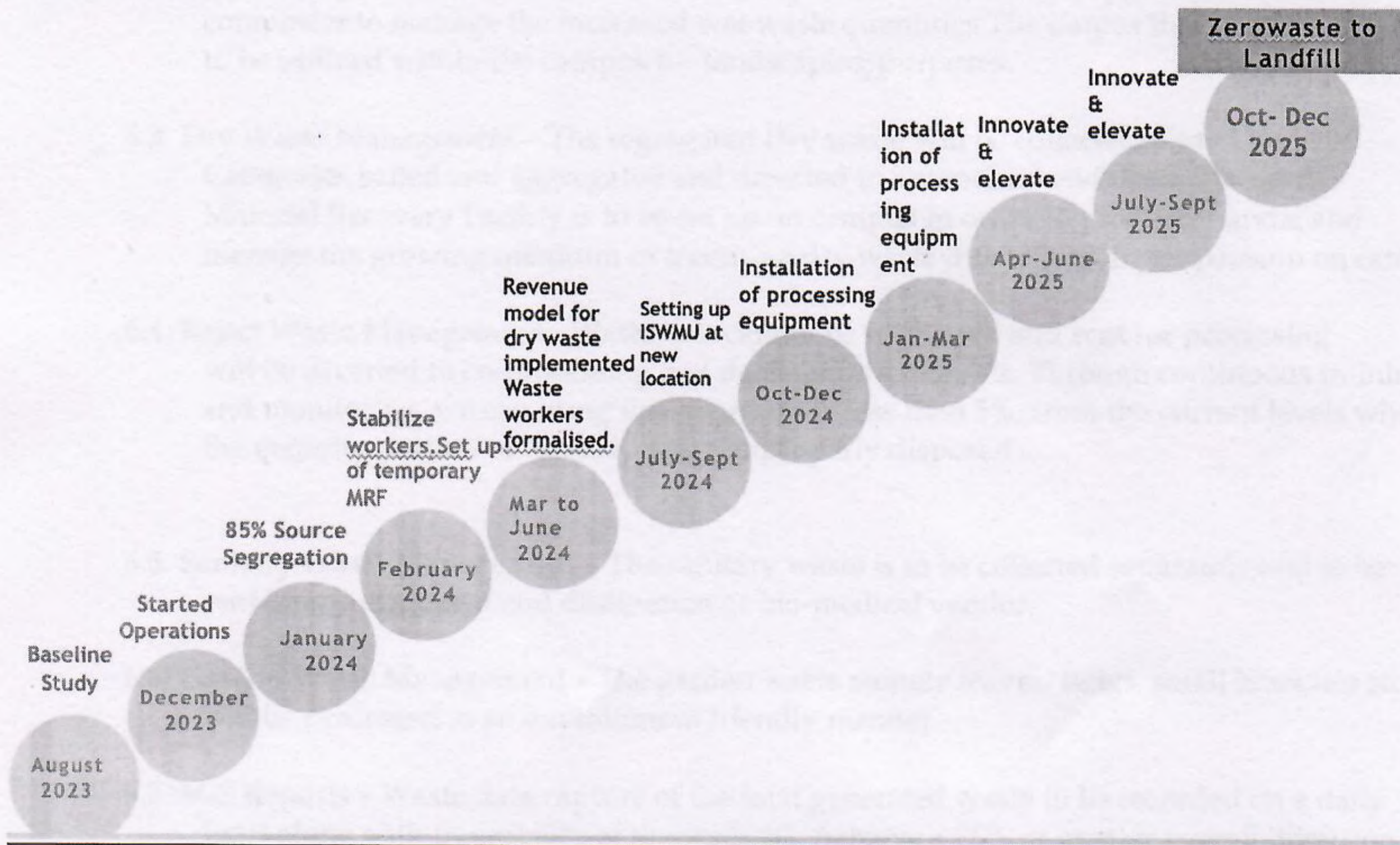
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Zero Waste Hierarchy of the Highest & Best Use 8.0

ZERO WASTE MODEL - Move from a Linear to Circular Economy



Proposed Zero Waste Timeline for TIET



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Guidelines for 2025-2030 (Next 5 years)

Focus on reduction of waste generation by doing the following:

- Implement technology to treat food waste through anaerobic digestion
- Plan and execute a robust infrastructure to compost and manage garden waste in-house
- Effectuate and mandate processes to enhance and govern the quality of source segregation
- Promote and collaborate with service vendors to bring about zero waste operations at the mall.
- Enhance the use of reusables through the campus by limiting / eliminating single use disposables

6. Performance Metrics

The following metrics shall measure the successful implementation of the policy.

- 6.1 Awareness to all the stakeholders: Creating awareness to all the stakeholders namely residents, employees, executive teams, college students within the Thapar campus. Training on zero waste orientation programs to be conducted on a regular basis for all employees and stakeholders. (As set out in Clause 4.3)
- 6.2 Wet Waste Management - The entire wet waste to be be composted using the existing processing facilities. The current processing infrastructure to be upgraded to invessel composter to manage the increased wet waste quantities. The output that is compost is to be utilized within the campus for landscaping purposes.
- 6.3 Dry Waste Management - The segregated Dry waste will be collected, sorted into 20+ Categories bailed and aggregated and diverted to authorized end destinations. A Material Recovery Facility is to be set up on campus in order to properly handle and manage the growing quantum of incoming dry waste due to ongoing expansion on campus.
- 6.4 Reject Waste Management - Waste that cannot be recovered and sent for processing will be diverted to co-processing end destination as Rejects. Through continuous training and monitoring, we can bring this quantum to less than 5%, from the current levels where the majority portion of waste is being improperly disposed.
- 6.5 Sanitary Waste Management - The sanitary waste is to be collected separately and to be sent to an authorized end destination or bio-medical vendor.
- 6.6 Garden Waste Management - The garden waste namely leaves, twigs, small branches etc will be processed in an environment friendly manner.
- 6.7 MIS Reports - Waste data capture of the total generated waste to be recorded on a daily basis along with traceability of the material. Achieve a 95% or greater overall diversion rate. (As set out in clause 4.4). Improved traceability through MIS tracking, data capture and documentation.

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6.8 Eco-system mapping- The end destination partners to be mapped for different waste categories. On-boarding of the recycling partners to be done after conducting proper due-diligence. Continuous assessment and management to be done.

6.9 All discussions and meeting to be recorded via email in the form of minutes and reports to all The stakeholders. (As set out in Clause 4.6).

7. Base Line Study and Resources

The waste data measured over the last 6 months can be considered as a baseline study for future assessments. Currently there are 24 personnel working in the waste management team at TIET. The break up of the team is as follows:

- 4 Executives - Saahas Zero Waste
 - ◆ 1 Project Manager - Overall management of Operations
 - ◆ 2 Project Co-ordinators - Training & Awareness, D2D Collection
 - ◆ Supervisor - Supervising the dry waste sorting at the MRF
- Door to Door Collection - 8 Field staff
- Dry waste sorting - 8 field staff
- Wet waste processing - 1 Supervisor 3 field staff

SUMMARY OF WASTE MANAGED by SZW team in TIET, Patiala								
SI No	Particulates	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Total
1	Generated Wet Waste :	16743	16979	20016	27366	10781	9789	101674
2	Generated Dry Waste :	32505	29819	35240	41188	33657	26568	198977
A	Total Incoming Waste :(1+2)	49248	46798	55256	68554	44438	36357	300651
3	Dry Rejects :	5005	3756	2901	2424	3425	2215	19726
4	Wet Rejects :	527	178	163	362	492	525	2247
B	Total Rejects (3+4)	5532	3934	3064	2786	3917	2740	21973
5	Reject Percentage :	11.23%	8.41%	5.55%	4.06%	8.81%	7.54%	6.87%
6	Segregation percentage	80%	87%	83%	87%	90%	91%	87.60%

8. Current Waste Management Practices at TIET

As of Nov 2024, the following waste management practices are being followed on the TIET campus.

The average waste generation per day is 4.5 MT. The wet waste is 2.85 MT and dry waste is 1.65 MT. There is a newly constructed 3200 sq ft Integrated Solid Waste Management Unit (ISWMU) on campus which comprises of Wet Waste unit and Material Recovery Facility (Dry waste unit).

8.1 Wet Waste unit

The wet waste unit is a 1200 sq ft facility. This will comprise of an invessel composter with a capacity of 1200 kg per day which will process the uncooked food. In future a biogas unit will be installed to manage the leftover cooked food which is currently going to piggery. There are 3 field staffs and 1 Supervisor at the wet waste unit

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8.2 Material Recovery Facility (Dry waste Unit)

The MRF is a 2000 sq ft state of the art facility for dry waste collection and sorting. The daily segregated dry waste will be sent to the facility for further sorting in a semi-mechanised manner using a conveyor belt. The dry waste will be further sorted into 15+ categories. The sorted waste will be baled and sent to authorised end destination partners for recycling and resource recovery. There is 1 Supervisor and 8 field staff employed in the MRF.

8.3 Other waste streams

Additionally the other waste streams managed on campus are as follows:

Sanitary waste - collected separately and sent to a authorised bio-medical vendor

Reject waste - Sent to a co-processing unit

Garden Waste - A pit for managing garden waste has been constructed on campus.

8.4 Social Inclusion Model

TIET has also made some pioneering efforts in implementing a social inclusion model in waste management on campus. The informal waste collectors working on campus prior to the start of waste management services by Saahas Zero Waste have now been formalised and integrated into the payroll. All the waste workers are now earning minimum wages.

8.5 Revenue model

There is a monthly revenue earned from the sale of dry waste (recyclable) which varies from INR 3 lakhs to 3.5 lakhs per month. This is helping TIET move towards an economically sustainable model as far as waste management operations are concerned.

8.6 Service fees

TIET has also started charging service fees for waste management from all the stake holders on campus in line with their commitment to making waste management a working and sustainable model. The service charges will be reviewed and revised every year keeping in mind the increase in the number students, construction of new buildings and increased daily waste generation. This will be reviewed annually by the Associate Dean of Sustainability 2, Head Administration and the Registrar of TIET, Patiala Campus. The current service charges for FY 2024-25 are as follows:

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Si No	Description	Unit	Unit cost (In INR)	Total cost/Month (in INR)
1	Waste management fee from Students- Aug-24 on wards	11,000	20	2,20,000
2	Waste management fees from commercial establishments	42	200 800 1200	31,400
3	Faculty residences namely FR – ABCD&E, Type III & Type IV Quarters, R&D Quarters.	368	100	36,800
4	Lumpsum service charges from Labour colony (having 360 houses) from contractor per month	360		9,000
5	Service charges from Sodexo run cafes namely Street Café, Library café & one other	3	1200	3,600
6	Service charges from Sodexo run kitchens in hostels (B,C,D,K,L,M,N,O,Q) for 9 hostels.	9	2000	18,000
7	Service charges from the 5 hostel kitchens (E,G,I,H,J) run by Thapar Society.	5		6,800
	Total revenue from service charges per month in INR			3,25,600

9. Constitution of core committee

- 9.1 An internal core committee comprising of the upper management, EHS, procurement & the facility personnel shall be appointed to govern, oversee and ensure the agreed commitment is adhered to at all times.
- 9.2 Include student representatives to ensure engagement with the student body
- 9.3 A chair person shall be appointed for seamless functioning of the committee. The chair person shall be a senior member of the upper management
- 9.4 The committee shall meet on a monthly basis to discuss and review the following but not limited to
- Monthly Diversion rate
 - Zero Waste activities & Employee engagement
 - Ways to prioritize cost savings by reducing waste generation
 - Updates on status of Zero waste training
- 9.5 All discussions and meeting to be recorded via e-mail in the form of minutes and reports to all the stake holders.

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10. Communication Strategy

A multi channel communication strategy should be implemented. The communication strategy should also include targeted communication, progress reporting, feedback mechanism, recognition and incentives. This can also extend to integration with academic programs.

10.1 Digital Platform

- Create a dedicated Zero Waste section on the TIET website.
- Use social media accounts to share regular updates and tips.
- Implement an email newsletter for weekly or bi-weekly updates.

10.2 Physical Media

- Install informative posters and signage across campus, especially near waste disposal areas.
- Distribute brochures and flyers during orientation and other events.

10.3 Face to Face Communication

- Conduct monthly training sessions and workshops as mentioned in the policy.
- Organize Zero Waste awareness events and campaigns.

10.4 Targeted Communication

- Students: Use social media, campus events, and student organizations to spread the message.
- Faculty and Staff: Utilize departmental meetings, email updates, and specialized training sessions.
- External Partners and Vendors: Direct communication through meetings and dedicated workshops.

10.5 Progress Reporting

- Share monthly progress reports on waste diversion rates and other metrics.
- Use visual aids like infographics to make data easily understandable.

10.6 Feedback Mechanism

- Implement a suggestion box (physical and digital) for ideas and concerns.
- Conduct regular surveys to gauge awareness and gather input.

10.7 Recognition & Incentives

- Highlight Zero Waste champions within the TIET community.
- Implement a rewards system for departments or individuals showing exceptional commitment.

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10.8 Integration with Academic Programs

- Encourage faculty to incorporate Zero Waste principles into relevant coursework.
- Support student projects related to Zero Waste initiatives.

11. Non-Compliance

In case of non-compliance of clause 8.5 or 8.6 the following escalation matrix shall be followed:

Escalation Level	Name	Timeline
1 st	Dean of Sustainability	After 15 days of the monthly meeting
2 nd	Director	After 30 days of the monthly meeting

12. Way Forward

Thapar Institute of Engineering & Technology (TIET) aims to effectively implement zero waste across all its campuses in the coming years.

End Document

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