KARUNYA INSTITUTE OF TECHNOLOGY AND SCIENCES

Waste and Resources Management Policy

KITS/WRMP/2025/01

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PREAMBLE

Karunya Institute of Technology and Sciences (KITS) upholds environmental sustainability as a fundamental institutional value. Managing all categories of waste - solid, liquid, biomedical, e-waste, hazardous, construction & demolition (C&D), plastic, and food/organic waste is essential for maintaining a clean, healthy and green campus.

Aligned with the Constitution of India, Swachh Bharat Mission, Solid Waste Management Rules (2016), Plastic Waste Management Rules (2016), Bio-Medical Waste Management Rules (2016), E-Waste Management Rules (2022), and the United Nations Sustainable Development Goals (SDGs 3, 6, 11, 12, 13, 14), KITS commits to adopt scientific, circular-economy-based waste management approaches. KITS shall adopt a Zero Waste and Circular Economy approach in all academic, administrative, and residential operations to minimize environmental footprint and maximize resource recovery.

The Institute seeks to integrate sustainable waste management practices into academics, research, campus operations, hostels and community outreach activities.

RATIONALE

Increasing waste generation due to academic, hostel, administrative, laboratory, research, and residential activities necessitates structured management.

KITS recognizes the need to:

- Comply with national waste management rules issued by Ministry of Environment, Forest and Climate Change (MoEFCC), Central Pollution Control Board (CPCB), Tamil Nadu Pollution Control Board (TNPCB).
- Prevent pollution of air, water, soil and campus surroundings.
- Reduce landfill burden through segregation, recycling, reuse, recovery and composting.
- Adopt Circular Economy principles supporting NITI Aayog's national mission.
- Prioritize Food Waste Management, considering its environmental and climate impacts. Food waste contributes significantly to greenhouse gas emissions (methane) if not managed scientifically; hence, KITS prioritizes its reduction and treatment.
- Enhance hygiene, health, safety and overall quality of life on campus.
- Improve resource efficiency by converting waste into wealth and energy.

EXECUTIVE SUMMARY

This policy establishes KITS's commitment to safe, scientific and sustainable waste handling systems. Salient features:

- Alignment with Solid Waste Management (SWM) Rules 2016, Plastic Waste Management Rules (PWMR) 2016, E-Waste Rules 2022, Bio-Medical Waste Management (BMW) Rules 2016.
- Complete segregation at source into Wet / Dry / Hazardous / Recyclable streams.
- Strong emphasis on food waste processing, including biogas plants, composting, dehydration, vermicomposting, and donation of edible surplus food.
- Mandated zero-food-waste hostels and canteens by 2030.
- Campus-wide ban on littering and single-use plastic items.
- Annual audits of waste generation, treatment and disposal.
- Promotion of waste-to-wealth technologies.
- Training programs for all campus stakeholders.
- Transparent reporting to IQAC, statutory bodies, and accreditation agencies.
- Digitized and IoT-based waste monitoring systems.

PURPOSE AND SCOPE

The purpose of this policy is to:

- Ensure scientific waste management across KITS.
- Reduce, reuse, recycle, recover and responsibly dispose of waste.
- Promote circular economy principles.
- Maintain a hygienic, safe and eco-friendly campus.
- Enhance institutional reputation through sustainable practices.

This policy applies to:

- All students, faculty, staff and residents.
- Hostels, canteens, laboratories, classrooms, offices and outdoor spaces.
- Contractors, vendors, external agencies and visitors.
- All academic, administrative, and residential facilities.

DOCUMENT CONTROL & REVISION HISTORY

Policy Title	Waste and Resources Management Policy
Reference Number	KITS/WRMP/2025/01
Version	1.0
Issue	02
Policy Created on	July 2022
Revision History	Revised on 29th August 2025 (28th IQAC Meeting).
Responsible Executives	Vice-Chancellor, Registrar and Chief Engineer
Responsible Office	Registrar's office & Internal Quality Assurance Cell (IQAC)
Policy Review Frequency	Policy shall be reviewed every three years, or earlier if required by UGC, AICTE or other regulatory authorities.

The policy is described in the following articles

ARTICLE 1

STATEMENT OF POLICY

KITS is committed to:

- Achieving Zero Waste Campus status by 2040.
- Minimizing waste generation at source through mindful consumption.
- Ensuring 100% segregation at source across hostels, canteens, labs, and classrooms.
- Prioritizing food waste management through composting, biogas and food recovery.
- Ensuring safe handling of biomedical, hazardous, and electronic waste.
- Complying with all national and international waste regulations.
- Promoting transparent and accountable waste management systems.
- Engaging students, faculty, and community in waste literacy.

ARTICLE 2

POLICY OBJECTIVES

KITS aims to:

- Reduce total waste generation by 30% by 2030.
- Process 100% of food waste within campus.
- Recycle 90% of dry waste by 2035.
- Ban single-use plastic and encourage sustainable alternatives.
- Ensure strict compliance with SWM Rules 2016 and MoEFCC guidelines.
- Create a digital waste tracking dashboard.
- Promote research and innovation in waste-to-wealth conversion.

ARTICLE 3

POLICY PRINCIPLES

3.1 Waste Segregation at Source

Mandatory segregation into:

- Biodegradable (Food / Organic) waste
- Dry Recyclable waste (paper, cardboard, metals, plastics)
- Sanitary waste
- E-waste
- Hazardous waste
- Biomedical waste (where applicable)
- C&D debris

Color-coded bins and signage shall be installed and maintained across the campus.

3.2 Food Waste Management

KITS shall:

a) Prevent food waste
   - ✓ Monthly menu optimization in hostels.
   - ✓ Sensitization programs for students.
   - ✓ Half-portion/zero-plate-waste campaigns.
   - ✓ Encouraging refill-based service to reduce leftover food.
   - ✓ Digitized meal forecasting systems.

b) Utilize edible surplus food
   - ✓ Tie-up with NGOs for 'No Food Waste'.
   - ✓ Surplus food shall be transferred to partner NGOs within 2 hours of preparation or as per FSSAI guidelines.
   - ✓ Use insulated and food-grade carriers to maintain temperature and hygiene.
   - ✓ Trackable process with daily logs.

c) Inedible food waste processing
   - Install biogas plants to convert waste into
     - ✓ Cooking gas for hostels
     - ✓ Manure/ slurry for gardening.
   - Establish vermicomposting units for garden and horticulture needs.
   - Use food waste dehydrators to reduce volume by 80%.
   - Implement composting pits and aerated bins across residential blocks.

d) Monitoring
   - Hostels shall maintain food production and wastage records.
   - Daily food waste quantity (kg) shall be digitally recorded by hostels.
   - Monthly food waste trends shall be analyzed for menu planning and procurement optimization.
   - Food waste reports submitted to IQAC.

3.3 Plastic Waste Management

- Full compliance with PWM Rules 2016.
- Ban on single-use plastics in campus.
- Collaboration with authorized recyclers.
- Promotion of cloth bags, steel cutlery, refillable water bottles.

3.4 Solid Waste Management

- Door-to-door segregated waste collection.
- Recycling of paper, cardboard, tin, and scrap materials.

3.5 E-Waste Management

- Annual e-waste collection drives.
- Collaboration with CPCB-authorized e-waste recyclers.
- Barcoding and inventory of all institutional electronics.

3.6 Biomedical Waste Management

Applicable to health centres and labs:

- Segregation of waste shall be carried out using the prescribed color-coded bin system.
- Mandatory Personal Protective Equipment (PPE) for handlers.
- Tie-up with authorized Common Biomedical Waste Treatment Facility (CBWTF).

3.7 Hazardous Waste Management

- Proper storage and labelling of chemicals, solvents, oils, used cartridges.
- Disposal through TNPCB-authorized agencies.
- Management of used oil, spent solvents, and chemical residues through TNPCB-authorized recyclers.
- Training on the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules and the Chemical Accidents (Emergency Planning, Preparedness and Response) (CAEPPR) Rules.

3.8 Construction & Demolition (C&D) Waste

- On-site segregation of concrete, metal, wood, and soil.
- Reuse of debris for internal construction or landscaping.
- Collaboration with C&D recycling units.

3.9 Awareness & Capacity Building

- Waste literacy programs for all students and staff.
- Annual celebrations of Zero Waste Week.
- Training for housekeeping, canteen and contractor staff.
- Student-led eco-club initiatives.

3.10 Inclusivity & Community Engagement

- Village awareness camps.
- Collaboration with panchayats for waste management.
- Donation drives for reusable goods.

3.11 Transparency & Reporting

- Annual Waste Sustainability Report.
- The institution shall benchmark its sustainability and waste management initiatives against global standards using UI GreenMetric, THE Impact Rankings, and QS Sustainability Rankings to monitor progress and drive strategic improvements.

3.12 Green Procurement

- Preference for recyclable, reusable, biodegradable, and refillable materials.
- Avoidance of items generating non-recyclable waste.

ARTICLE 4

ROLES & RESPONSIBILITIES

1. Vice-Chancellor

- Provides overall oversight, strategic direction, and institutional leadership for the implementation of the Waste and Resources Management Policy.
- Ensures alignment of waste management initiatives with national policies, SDGs, and institutional strategic plans.

2. Registrar

- Oversees policy enforcement, documentation, and circulation across all departments and units.
- Ensures timely compliance reporting and coordinates with statutory and accreditation bodies where required.

3. Internal Quality Assurance Cell (IQAC)

- Conducts annual audits and evaluates compliance with waste management standards and regulatory requirements.
- Prepares institutional sustainability reports and presents findings to governing bodies.
- Recommends corrective actions and continuous improvement measures.

4. Chief Engineer and Engineering Team

- Manages all operational aspects of waste collection, transportation, treatment, and safe disposal.
- Oversees infrastructure such as biogas plants, composting units, Material Recovery Facility (MRF), storage facilities and waste monitoring systems.
- Ensures coordination with TNPCB-authorized recyclers and waste handlers.

5. Hostel Wardens

- Monitor food production, consumption, and wastage in hostels.
- Maintain digital food waste records and enforce zero-food-waste campaigns.
- Conduct awareness programs for students on food waste prevention and segregation.

6. Faculty & Students

- Participate actively in waste reduction, segregation and sustainability initiatives.
- Integrate waste literacy into academic, research and extracurricular activities.
- Support club activities, audits, awareness drives and zero-waste events.

7. Contractors & Vendors

- Ensure mandatory compliance with all campus waste management rules, including segregation, safe handling and disposal.
- Use only approved materials (no single-use plastic) and participate in institutional waste audits.
- Maintain logs and records as required and cooperate during inspections.

ARTICLE 5

MONITORING & EVALUATION

- Deficiency Identification: Through audits, ICT tools, CCTV, waste weighing systems, feedback.
- Reporting: Reports → Chief Engineer's Office → IQAC.
- Corrective Measures: Categorized as minor, major, and critical.
- Documentation: Maintaining a Waste Register and Waste Dashboard.
- Financial Planning: Budget for waste systems, composting, biogas units and recyclable collection.
- Review & Continuous Improvement: The Plan–Do–Check–Act (PDCA) cycle shall be implemented to drive continuous improvement every three years.

ARTICLE 6

APPEALS PROCESS

- Appeals submitted within 10 working days.
- Registrar resolves within 15 working days.
- Protection against retaliation.

ARTICLE 7

VIOLATIONS

Penalties for:

- Mixing waste streams.
- Littering.
- Non-compliance by contractors.
- Improper disposal of hazardous/biomedical waste.
- Food wastage in hostels (warnings + accountability measures).

References

1. Solid Waste Management Rules, 2016, Ministry of Environment, Forest & Climate Change (MoEFCC).
2. Plastic Waste Management Rules, 2016 (Amended 2022), MoEFCC.
3. Bio-Medical Waste Management Rules, 2016, MoEFCC.
4. E-Waste (Management) Rules, 2022, MoEFCC.
5. Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, MoEFCC.
6. Construction & Demolition Waste Management Rules, 2016, MoEFCC.
7. Battery Waste Management Rules, 2022, MoEFCC.
8. Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989, MoEFCC.
9. Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996, MoEFCC.
10. Swachh Bharat Mission (Urban & Rural) Operational Guidelines, Ministry of Housing & Urban Affairs.
11. CPCB Guidelines for Solid, Biomedical, Plastic, Hazardous and E-Waste Management.

12. NITI Aayog Circular Economy Action Plans for 10 Waste Categories (2022).
13. FSSAI Guidelines for Safe Food Donation and Food Waste Reduction.
14. MNRE Waste-to-Energy Framework for Biogas and Biomethanation.
15. United Nations Sustainable Development Goals (SDGs) – Goals 3, 6, 11, 12, 13, 14.
16. ISO 14001:2015 Environmental Management Systems – International Organization for Standardization.
17. UNEP Circular Economy Guidelines and Global Waste Management Outlook.

Definitions

The following terms are defined to ensure clarity, consistency, and standard interpretation throughout the Waste Management Policy:

- Waste: Any material that is discarded, rejected, abandoned, or no longer usable in its current form.
- Solid Waste: Non-liquid waste including paper, plastics, metal, glass, textiles, packaging materials, garden waste, and mixed municipal waste.
- Food Waste (Organic/Biodegradable Waste): All biodegradable waste generated primarily from hostels, canteens, kitchens, food courts, and mess halls, including cooked and uncooked food scraps, vegetable/fruit peels, and plate waste.
- Edible Surplus Food: Safe, untouched, unserved, or excess food that is fit for human consumption and can be donated through authorized organizations.
- Inedible Food Waste: Food scraps, leftovers, or spoiled items not suitable for consumption and shall be treated through composting, biomethanation, or other organic processing.
- Biomedical Waste: Infectious or potentially infectious waste generated from health centers, laboratories, or research activities, requiring specialized handling and disposal.
- E-Waste: Waste generated from electrical and electronic equipment, including computers, printers, batteries, mobile devices, cables, and accessories.
- Plastic Waste: Waste consisting of plastic materials such as bags, packaging, wrappers, cups, covers, or disposable items.
- Hazardous Waste: Waste containing chemicals, toxic substances, solvents, oils, paints, heavy metals, or dangerous compounds that pose a risk to health or environment.
- Construction & Demolition (C&D) Waste: Waste arising from construction, renovation, or demolition activities, including concrete, debris, metal, wood, and bricks.
- Liquid Waste: Wastewater generated from kitchens, laboratories, hostels, restrooms, and utility areas that shall be treated before discharge.
- Composting: A biological process that decomposes organic waste (food, leaves, etc.) into nutrient-rich compost for landscaping and horticulture.
- Vermicomposting: A natural composting method using earthworms to convert organic waste into high-quality fertilizer.
- Biomethanation: Anaerobic digestion process that converts organic waste into biogas (fuel) and slurry (fertilizer).
- Material Recovery Facility (MRF): A designated area where segregated dry waste is sorted, baled, and prepared for recycling.

- Waste Segregation: Classification of waste at source into categories such as wet waste, dry waste, hazardous waste, and sanitary waste to ensure scientific processing.
- Waste-to-Energy: Processes that convert waste materials into usable energy (biogas, electricity, fuel).
- Circular Economy: A model of production and consumption that emphasizes reuse, repair, recycling, and recovery to reduce reliance on raw materials and minimize waste.
- Extended Producer Responsibility (EPR): A policy approach requiring producers/brand owners to take responsibility for the collection, recycling, and safe disposal of their end-of-life products (plastic, batteries, e-waste).
- Bio-Medical Waste Treatment Facility (CBWTF): A licensed facility authorized to treat biomedical waste from health and laboratory units.
- Sanitary Waste: Waste such as napkins, diapers, and hygiene products requiring special disposal as per SWM Rules.
- User Fee: A waste collection fee paid by generators (hostels, departments, vendors) to support waste processing operations.
- Waste Audit: A systematic assessment of the quantity, type, and sources of waste generated in a facility to guide improvements.
- Zero Waste Campus: A campus where at least 90–95% of waste is recycled, reused, recovered, or processed, with minimal waste sent to landfills.
- Non-Retaliation: Protection for individuals who report improper waste handling or policy violations without fear of discrimination or adverse actions.

ANNEXURE I - Alignment with United Nations Sustainable Development Goals (SDGs)

KITS Waste Management Policy – Contribution to SDGs

KITS Policy Action	Corresponding SDG	Institutional Contribution
Food Waste Prevention & Management (biogas, composting, food donation)	SDG 2	Edible surplus donated; inedible waste composted/converted to biogas; zero-food-waste hostels.
Safe Waste Handling & Sanitation Systems	SDG 3	Safe biomedical, chemical, and toxic waste disposal.
Awareness, Education, Research, and Community Outreach	SDG 4	Waste literacy, village outreach, student training, and curriculum integration.
Clean Water & Sanitation Through Proper Liquid Waste Management	SDG 6	Sewage treatment, greywater reuse, lab waste safety norms.
Waste-to-Energy, Biogas Plants, Organic Composting	SDG 7	Food waste biogas supports cooking fuel; compost supports campus agriculture.
Green Jobs, Livelihoods, Student Engagement	SDG 8	Engagement of students in eco-clubs, recycling initiatives, green entrepreneurship.
Zero-Litter, Plastic-Free Campus Initiative	SDG 11	Clean campus drives; ban on single-use plastics; enhanced waste collection infrastructure.
Circular Economy Measures (Recycling, MRF, EPR compliance)	SDG 12	100% segregation; recycling of all dry waste; authorized recyclers for e-waste and plastic.

Hazardous & Biomedical Waste Compliance	SDG 12	Strict adherence to BMW, HWM rules, safe disposal procedures.
Climate Action Through Methane Reduction & Waste-to-Wealth	SDG 13	Reduced methane emissions from food waste; lower carbon footprint.
Protection of Water Bodies & Prevention of Plastic Leakage	SDG 14	Prevention of plastic carryover into water bodies; microplastic reduction strategies.

ANNEXURE II – Classification of Non-Compliance

Category	Severity Level	Examples of Non-Compliance	Required Corrective Action	Responsible Authority
Minor	Low-risk; minimal impact; easily correctable	• Minor mixing of waste streams in small quantities • Improper or unclear bin labelling • Occasional non-use of PPE during low-risk handling • Delay (<24 hours) in transporting segregated waste • Temporary storage of recyclables outside designated areas • Occasional use of unapproved disposables • Minor odour issues from organic waste	• Verbal or written reminder • Corrective action within 24–48 hours • Monitoring and follow-up by Waste Coordinator	Department Office / Hostel Warden
Major	Medium-risk; significant impact on hygiene, safety, or compliance	• Repeated mixing of waste streams • Non-use of PPE while handling biomedical/chemical waste • Disposal of sanitary waste in general bins • Dumping food waste in open drains/areas • Waste not transported for >48 hours • Drain blockages due to improper disposal • Improper storage of e-waste/batteries • Untrained personnel handling hazardous waste	• Written warning • Mandatory retraining • Corrective action within 7 days • Review by Chief Engineer & Team	Chief Engineer & Team / HoD / Hostel Administration
Critical	High-risk; serious threat to health, environment, or regulatory compliance	• Illegal disposal of biomedical/chemical/hazardous waste • Chemical spills or releases without reporting • Handling hazardous waste without PPE leading to injury risk • Burning/dumping e-waste, batteries, or toxic waste	• Immediate shutdown of activity/area • Reporting to Registrar/ Chief Engineer and Safety Committee • Investigation and action	Registrar / Chief Engineer / Safety Committee

		• Discharge of untreated food waste/sewage/chemicals into water bodies • Storing chemicals without MSIHC/CAEPPR compliance • Any act causing fire, explosion, or contamination • Vendors illegally dumping institutional waste • Non-reporting of accidents • Repeated major violations indicating systemic negligence	within 24–72 hours • Penalties/ suspension/ termination of vendor • Compliance report before resuming activity	

ACRONYMS AND ABBREVIATIONS

Acronym	Full Form
MoEFCC	Ministry of Environment, Forest & Climate Change
CPCB	Central Pollution Control Board
TNPCB	Tamil Nadu Pollution Control Board
SWM	Solid Waste Management
PWM	Plastic Waste Management
BMW	Bio-medical Waste
EPR	Extended Producer Responsibility
C&D	Construction & Demolition
CBWTF	Common Bio-Medical Waste Treatment Facility
MSW	Municipal Solid Waste
PPE	Personal Protective Equipment
ULB	Urban Local Body
FSSAI	Food Safety and Standards Authority of India
IoT	Internet of Things
SDG	Sustainable Development Goal
MRF	Material Recovery Facility
ICT	Information and Communication Technology
HWM	Hazardous Waste Management
IEC	Information, Education, Communication (Awareness)
IQAC	Internal Quality Assurance Cell
SOP	Standard Operating Procedure
NGO	Non-Governmental Organization
RRR	Reduce, Reuse, Recycle
WTE	Waste-to-Energy