Sustainability Report

Session2023–24 (01 July 2023 - 30 June 2024)
Prepared for: Sustainability Committee Date: 02 April 2025

This Sustainability Report consolidates key environmental audits conducted across Integral University during the academic session 2023–24. It encompasses:

- **Food Waste Management Report**
- **Carbon Emission Report**
- **Solid Waste Management Report**
- **Water Conservation & Management Report**

The report presents data-driven insights into the university's sustainability performance, resource efficiency, and progress toward achieving a **green, low-carbon, and resilient campus** aligned with **UN Sustainable Development Goals (SDGs)**.

Campus Profile

Students (UG-PG)	: 11266
Students (Ph.D.)	: 490
Faculty & Staff	: ~2000
Total built-up area	: 279599 sq-m (ground floor- 56523 sq-m)
Campus area	: 732097 sq-m
Solar plant capacity	: 1.1 MW Solar PV Plant
Green space coverage	: 92.2%

Sustainability: Food Waste Report

Session2023–24 (01 July 2023 - 30 June 2024)

Prepared for: Department of Agriculture Date: 02 February 2025

The Food waste audit assesses food waste generated across Integral University's campus & Hostel Mess for the session 2023-24. This report provides a assessment of food waste generated, behaviours and systems and is intended to support the IQAC, Sustainability Office in planning interventions and policy updates.

Objectives and scope

- Quantify total food waste generated across campus in session 2023-24.
- Analyze patterns of waste generation, segregation efficiency, and biogas utilization.
- Identify high-impact interventions for prevention, and reduction

Methodology

Vendor/ Contractors are responsible for measuring Food waste data at their end in preparation, service, leftovers etc.). Food waste from organic waste bins placed across campus is measured at collection end. were collected systematically at various operational levels across the university. Each level maintains records of Food waste generation, enabling analysis.

Levels of data collection

Level	Description	Method of data capture	Frequency	Responsible unit
Dining halls (Mess) & Events	Hostel Mess & Events	Vendor Recording	Daily	Vendor
Canteen, Cafes & kiosks	Vendor Food Stalls	Vendor reporting	Weekly	Vendor
Organic waste bins	Located across the campus	Recording at End collection	Daily	Cleaning Supervisor
Biogas plant & composting	Food waste input & gas output	Continuous data logging	Daily	Plant In charge

Data validation and recording

- Data were collected using calibrated digital scales and recorded in standardized log sheets.
- Supervisors submitted Monthly summaries & Spot checks were conducted to validate.
- Missing or inconsistent records were interpolated using average generation rates.

Annual Food Waste & Utilization in Biogas generation

Source	Annual Food Waste (MT)
Annual Food Waste: University Campus	
University Canteens (Mostly Fast/ packaged Food)	33.56
Other Food Outlets (Packaged Food)	10.587
Organic Waste bins	2.7
Total	46.847
Campus Population: Students-11266 (Day Scholars-8066, Hostelers-3200) Teachers-791, Staff-1209	

Biogas Generation using Food Waste	
Parameter	Value
Food waste fed to biogas plant (kg)	44505.00
Biogas generated (m^3)	5256.09
Energy equivalent (kWh)	29434

Source	Annual waste (MT)
Annual Food Waste: Hostel Mess & Events (Vendor Managed & Utilized)	
Hostel Mess and Events (Vendor Managed & Utilized)	70.2
Hostelers- 3200 Vendor has a utilization chain for food waste	

Sustainability: Food Waste Report

Session2023–24 (01 July 2023 - 30 June 2024)

Prepared for: Department of Agriculture Date: 02 February 2025

Key Points

The university's food service operations demonstrate a structured yet variable pattern of food waste generation influenced by academic schedules, operational timings, and occupancy levels as per details given below

Food Waste Generation Sources/ Food Outlets details					
Description	Timings	Operational days	Data capture	Frequency	Responsible unit
University campus : Canteen, Cafes & kiosks					
University Canteen	9:00 AM - 8:00 PM	243	Measured	Weekly	Vendor
YUBA Café			Vendor reporting	Weekly	Vendor
Canteen-1	9:00 AM - 6:00 PM		Vendor reporting	Weekly	Vendor
Amul Café			Vendor reporting	Weekly	Vendor
Food Kiosks			Vendor reporting	Weekly	Vendor
Phase 2 Canteen			Vendor reporting	Weekly	Vendor
HDFC ATM Canteen-2	9:00 AM - 10:00 PM		Vendor reporting	Weekly	Vendor
Medical Canteen		365	Vendor reporting	Weekly	Vendor
Girls Hostel Canteen		320	Vendor reporting	Weekly	Vendor
Hostel Mess & Events					
Boys & Girls Hostel Mess	9:00 AM - 10:00 PM	320	Vendor reporting	Weekly	Mess supervisors
Events: Conference/Seminar/Convocation, FIESTA etc.		1 to 2 days	Vendor reporting	Per event	Vendor of Event

- Food waste generation at the university is closely tied to student presence, with less waste produced during periods of low presence (vacations etc.)
- The self-service system and availability of food directly on tables encourage students to take only what they need, resulting in reduced food wastage.
- Cultural values & beliefs emphasizing respect for food contribute significantly to low waste.
- Offering packaged and fast food in varying portion sizes allows individuals to select appropriate quantities, further reducing leftover food.
- Most of the food waste in campus is utilized for Biogas Conversion.
- Food waste form Hostel mess and Events are managed by Vendor for utilization with third party

Sustainability: Carbon Emission Report

Session2023–24 (01 July 2023 - 30 June 2024)

Prepared for: Department of Environment Date: 30 December 2024

The Carbon Emission Audit assesses greenhouse gas (GHG) emissions generated across Integral University's campus and operational units for the session 2023-24. and provides a formal assessment of carbon emissions from fuel consumption, energy use, and related activities. The document is intended to support the IQAC, Sustainability Office, and Energy Department in planning emission reduction interventions, policy formulation, and sustainability initiatives.

Objectives and Scope

- Quantify total carbon emissions generated across campus in the session 2023-24.
- Analyze emission patterns from vehicles, generators, and infrastructure energy use.
- Identify key emission sources and high-impact mitigation opportunities.
- Support planning for carbon reduction, monitoring, and reporting systems.

Methodology

Data on fuel consumption (diesel, petrol, CNG) and energy usage was collected systematically from university departments, and logs. Standardized emission factors were applied to calculate CO2-equivalent emissions from recorded activity data. Records were maintained at multiple operational levels to allow detailed analysis and intervention planning.

Energy Consumption

Scope	Source	Units Consumed	CO_2 Factor	tCO_2e Emitted	Total tCO_2e	GJ factor	Energy (GJ)
Scope 1	Vehicles (Diesel)	35482 L	2.6 kg/L	92.253	165.549	0.036	1277.352
	Vehicles (Petrol)	8738 L	2.3 kg/L	20.097		0.0315	275.247
	Vehicles (CNG)	4964 Kg	2.7 kg/Kg-CNG	13.403		0.055	273.02
	Generator (Diesel)	15306 L	2.6 kg/L	39.796		0.036	551.016
Scope 2	Grid Electricity Consumption	4982846 kWh	0.75 kg/kWh	3737.135	3858.185	0.0036	17938.25
	Solar generation	1495263 kWh	0.075 kg/kWh	112.145		0.0036	5382.947
	Bio-Gas	29434 kWh	0.3 kg/kWh	8.83		0.0036	105.9624
	Solar Heating	1000 kWh	0.075 kg/kWh	0.075		0.0036	3.6
Scope1 & Scope 2 Emissions					**4023.734**		
Scope 3	Population (13266)*Operation days(250)		1.2 kg/person/day	**4153.200**			25807.39

Carbon Intensity Metrics	
	Included Sources
Scope1 & 2 CO_2 per m^2 (built-up)	0.0143 t CO_2e /year
Renewable energy share in electricity	23.4%
Scope1 & 2 CO_2 per staff + student	0.303 tCO_2e /year

Low Carbon Vehicles, Trees and AQI	
Description	Numbers
Number of eco-friendly transportation facilities	42
Total capacity of eco-friendly transportation	2532
Total number of trees in the campus	2722
Maximum air quality index (AQI)	165
Minimum AQI	64

Sustainability: Waste Report

Session2023–24 (01 July 2023 - 30 June 2024)

Prepared for: Department of Environment Date: 25 November 2024

The Waste Audit assesses waste generated across Integral University's campus for the session 2023-24. This report provides a formal evaluation of overall waste generation, segregation efficiency, recycling practices, and disposal behaviors and is intended to assist the IQAC, Sustainability Office, in planning waste reduction strategies, and updating relevant policies.

Objectives and Scope

- Quantify the total waste generated across campus in the session 2023-24.
- Analyze waste composition, segregation effectiveness, and recycling rates.
- Identify major waste streams and areas for intervention in waste prevention and diversion.
- Support sustainable waste management planning and performance monitoring.

Methodology

Waste was systematically collected and measured at various collection points across the university, including bins designated for recyclables, organics, landfill etc. . Custodial and waste management teams coordinated the data collection process, ensuring proper labeling and recording of waste weights and types. Manual sorting and classification of waste samples were conducted to determine material composition and contamination levels, enabling detailed analysis and actionable insights.

Waste Generated			
Waste Type	Waste (MT)	Recycled (MT)	Detail
Organic Waste			
Leaf etc.	16.000	14.520	Vermicompost
Food Waste: Campus	46.847	44.505	Bio Gas Generation
In Organic Waste			
Paper	8.008	0.990	
Soft Plastic	0.200		
Hard Plastic	0.800		
Other Inorganic	1.000		
Toxic Waste			
E-Waste Generated	1.340		
Chemicals etc.	0.652		
Total (A)	74.847		
Solid Waste			
Other Solid Waste	222.160		
Total Waste generated	297.007	60.015	
Food Waste Recorded & Treated by Vendor through third party			
Waste Type	Waste (MT)	Recycled (MT)	Detail
Food Waste: Hostel Mess and Events	70.200	70.200	Vendor Treated

Sustainability: Water Report

Session2023–24 (01 July 2023 - 30 June 2024)

Prepared for: Department of Environment Date: 15 November 2024

The Water Audit assesses water consumption and management across Integral University's campus for the session 2023-24. This report provides a formal evaluation of total water usage, efficiency of conservation measures, recycling and reuse practices, and discharge management and is intended to assist the IQAC, Sustainability Office, in developing water conservation strategies, enhancing water efficiency systems, and updating institutional policies for sustainable resource use.

Objectives and Scope

- Quantify total water consumption across campus during the session 2023-24.
- Analyze patterns of water use across academic, residential, and service areas.
- Evaluate the efficiency of water recycling, rainwater harvesting, and reuse systems.
- Identify key areas for intervention in reducing water wastage and improving conservation.
- Support sustainable water management planning and performance monitoring.

Methodology

Water usage data was systematically collected and monitored at multiple points across the university, including academic buildings, hostels, canteens, and landscape zones. Flow meters, storage tanks, and recycling units were inspected and recorded to assess total inflow, usage, and discharge volumes. Data collection was coordinated with maintenance and environmental teams to ensure accurate readings and consistency. Water samples were analyzed to evaluate quality and reuse potential, leading to detailed insights into consumption efficiency and areas for improvement.

Water Consumption and Recharge	
Capacity of Rainwater Harvesting (in Million liter)	301.93 ML
Total Water Consumption (in Million litre)	326.34 ML
Total Water Consumption (in m3)	326336.00
Energy Consumption/ million liters draw at 100 feet	12.08
Average rainfall (mm)	696.6
infiltration factor	80
Estimated water recharge in open soil space (Millon liters)	295.50
Estimated water recharge through Ground water recharge (Millon liters)	6.40

Sustainability Report

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Prepared for: Sustainability Committee Date: 02 April 2025

Sustainability Initiatives

- 1.1 MWp rooftop solar plant with net-metering
- Full LED lighting replacement project
- Smart metering and energy audits
- Building design for natural lighting & ventilation
- Battery-operated campus vehicles
- Biogas plant using organic waste
- 1 MLD Sewage Treatment Plant (STP)
- STP-treated water for landscaping and flushing
- Ban on single-use plastics
- Green campus programs and environmental clubs
- Tree plantation drives and Gardens
- Seminars and Events on Environment & Sustainability
- Partnership with local recyclers for e-waste.
- Create More composting capacity.

Benchmarking and Recognition

UI Green Metric:	World Rank	552
	Country Rank	20
Wuri-Social responsibility	World rank	41

Environmental Management System ISO 14001
Green certification as per International Green Building Certification Standard

Recommendations

- Expand solar capacity to meet 50% of annual energy demand
- Initiate carbon accounting for Scope 3 (travel, procurement)
- More EV based vehicles for inter-campus transport
- Promote cycling by providing secure stands and reward programs.
- Promote Cycling
- Implement green procurement and lifecycle emission tracking
- Integrate waste segregation awareness in student orientation.
- Expand rainwater harvesting structures by 20%.
- Launch a “Zero Waste Mess” initiative.
- Conduct food waste awareness drives twice yearly.
- Establish an annual Carbon Neutrality Roadmap for 2047.