SRM UNIVERSITY – AP, ANDHRA PRADESH

Research, Publications and Startups

Waste, Resource Recovery and Circular Production in the University's Research and Incubation

SRM University-AP, Amaravati, Andhra Pradesh

12
RESPONSIBLE CONSUMPTION AND PRODUCTION

OVERVIEW

Research, Publications and Startups for SDG 12

Research gives the University's waste and resource work its evidence base. SRM University-AP researchers study how to recover metals from e-waste and spent batteries, turn food and agricultural waste into energy and materials, classify waste with artificial intelligence and reduce plastic use in laboratories. The incubator supports start-ups that turn waste into products. The annual reports for AY 2024-25 and AY 2025-26 record the output below.

115	126	1.46	39.7%
Publications mapped to SDG 12, 2024–25	Scholarly outputs, 2025–26	Field-Weighted Citation Impact, 2025–26	International co-authorship, 2025–26

2025-26 SNAPSHOT

SciVal Snapshot, 2025–26

Measure	Value
Scholarly outputs (2025–26)	126
Field-Weighted Citation Impact	1.46
Publications with international collaboration	50
International co-authorship share	39.7%
Citations received	526
Views count	5,308

Recurring keyphrases across this output, namely waste treatment, electronic waste, circular economy, life-cycle analysis, biochar and municipal solid waste, closely track the themes of SDG 12.

AY 2024-25

Selected Publications, 2024–2025

SRM University-AP has 115 publications mapped to SDG 12 for 2024–2025. The works below are those most directly concerned with waste, resource recovery and circular production, grouped by theme.

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E-waste, battery recycling and metal recovery

Title	Authors	Year	Type	DOI
Policy pathways to sustainable E-waste management: A global review	Grandhi, S.P.; Dagwar, P.P.; Dutta, D.	2024	Article	10.1016/j.hazadv.2024.100473
Applications of deep eutectic solvents in metal recovery from E-wastes in a sustainable way	Suffia, S.; Dutta, D.	2024	Review	10.1016/j.molliq.2023.123738
Sustainable recovery of rare Earth elements from industrial waste: A path to circular economy and environmental health	Dagwar, P.P.; Iqbal, S.S.; Dutta, D.	2025	Review	10.1016/j.wmb.2025.02.004
Upcycling of Li-Ion Battery Recycling Residues to Graphene Oxide: Life Cycle Hotspots and Production Scale Impacts	Nandikes, G.; Goswami, L.; Oh, S. et al.	2025	Article	10.1021/acssuschemeng.5c05262
Recovery of metals from spent lithium-ion batteries using agricultural waste, applications and circularity framework	Iqbal, S.S.; Ramadan, N.; Dagwar, P.P. et al.	2025	Article	10.1016/j.seppur.2025.133860

Organic waste, food waste and the circular bioeconomy

Title	Authors	Year	Type	DOI
Sustainable mitigation and management of segregated organic wastes: a socio-economic-environmental analysis for metropolitan cities	Carbonel, D.; Nandikes, G.; Pandey, N. et al.	2025	Article	10.1080/02772248.2025.2486821
Anaerobic digestion-derived digestate valorization: green chemistry innovations for resource recovery and reutilization	Jacob, S.; Kundu, D.; Chintagunta, A.D. et al.	2025	Review	10.1039/d5gc01053e
Advances on characteristics and valorization of food waste towards the sustainable production of bio-methane and purification	Sethupathy, A.; Arun, C.; Vigneswaran, V.S. et al.	2024	Review	10.1016/j.fuel.2024.131388
Advancements in microbial production of polyhydroxyalkanoates (PHA) from wastes for sustainable active food packaging: An eclectic review	Adak, S.; Kayalvizhi, R.; Bishai, M. et al.	2024	Review	10.1016/j.bcab.2024.103288

Smart waste classification and plastic use

Title	Authors	Year	Type	DOI
Intelligent waste classification approach based on improved multi-layered convolutional neural network	Chhabra, M.; Sharan, B.; Elbarachi, M. et al.	2024	Article	10.1007/s11042-024-18939-w
Advanced YOLO-Based Trash Classification and Recycling Assistant for Enhanced Waste Management and Sustainability	Kumar, M.G.V.; Kumar, M.; Rao, K.N. et al.	2024	Conference Paper	10.1109/ICoICI62503.2024.10696214
The Plastic Problem in Research Laboratories: A Call for Sustainability	Dasari, V.V.; Suresh, A.K.	2025	Note	10.1021/acssusresmgt.5c00114

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AY 2025-26

Highlighted Publications, 2025–26

The strongest publications for this goal in the 2025-26 report are listed below, with the authors and year as given in the report.

Publication and authors	Year	What it shows
Sustainable E-waste management: Global challenges, recovery techniques, and regulatory approaches (Iqbal, Dagwar and Dutta)	2026	Reviews the global e-waste crisis and the recovery technologies and regulatory measures needed to close the loop on electronic waste
Upcycling E-waste for sustainable innovation: functional materials, toxicity reduction, and circular design (Dagwar, Kundu and Dutta)	2026	Explores converting e-waste into functional materials, reducing toxicity while enabling circular product design
Sustainable recovery of rare Earth elements from industrial waste: a path to circular economy and environmental health (Dagwar, Iqbal and Dutta)	2025	Examines recovering high-value rare-earth elements from industrial waste streams
Recovery of metals from spent lithium-ion batteries using agricultural waste (Iqbal, Ramadan, Dagwar, Dutta and Abdo)	2025	Uses agricultural waste to recover metals from spent batteries, tying two waste streams into one circular process
Biowaste-derived biochars for treatment of wastewater contaminated by dyes (Chizitere Emenike et al.)	2025	Converts organic waste into biochar for treating industrial wastewater
Plastic Pollution Management – Innovative Solutions for Plastic Waste (Ray, Singh, Ganesapillai and Ahn)	2025	Surveys technical and policy solutions for managing plastic waste
AI-Powered Waste Segregation: Enhancing Recycling Efficiency Through Machine Learning (Nuthalapati, Muddana, Kommineni, Vegesna and Senapati)	2026	Applies machine learning to automate and improve the accuracy of waste segregation
Geotechnical, shear strength and physicochemical characterization of incinerated MSW ash for liner applications, a 3-part study (Kaveri and Raviteja)	2025–26	Investigates reusing incinerated municipal solid waste ash as a construction material for landfill liners
Mining tailings as a frontier for sustainable nanomaterials: advancing circular economy and environmental innovation (Singh, Maurya, Karmakar, Maurya, Pandey, Kumar and Gupta)	2025	Investigates converting mining tailings into sustainable nanomaterials
Integrating sustainable development goals in higher education: A review and framework (Dutta, Moganti and Kundu)	2026	Proposes a framework for embedding SDGs in higher-education institutions

STARTUPS

Startups and Innovation

Three incubated startups have SDG 12 as their primary SDG. Each takes a different route to responsible production: converting waste into materials, making durable products from natural wood, and automating waste segregation.

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Startup	What it does	Incorporated	Incubation	Founder
Dwell Crafts Innovations Private Limited (waste to wealth)	Collects vegetable and fruit waste to generate vegan leather, turning an organic waste stream into a material for products	7 Apr 2024	10 Apr 2024 – 10 Oct 2025	Staff
Neemtoys Private Limited (toys, social impact focus: sustainability)	Manufactures neem wooden toys and sells them through a direct-to-consumer brand	27 Dec 2023	22 Jan 2025 – 22 Jan 2026	External
Ekovamps Pvt Ltd (waste management, social impact focus: sustainability)	Its Smart Trash Colonizer uses AI and ML concepts for waste segregation and redirection to the respective bins, reducing waste volume and offering up to 700% more capacity than conventional bins	27 May 2023	22 Mar 2025 – 22 Mar 2026	External

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