



# **BRAINWARE UNIVERSITY**

**Annual SDG-15 Report  
2023-24**

## **SDG 15: Life on Land**

***Protecting Biodiversity, Advancing Sustainable  
Agriculture, and Restoring Ecosystems***

# SDG 15: Life on Land – *Protecting Biodiversity, Advancing Sustainable Agriculture, and Restoring Ecosystems*

## About SDG 15

Sustainable Development Goal 15: Life on Land focuses on protecting, restoring, and promoting the sustainable use of terrestrial ecosystems, managing forests, combating desertification, and halting biodiversity loss.

For Brainware University, located in the ecologically diverse plains of Barasat (West Bengal), this goal is both a responsibility and an opportunity. The University integrates sustainability into research, teaching, and community engagement — focusing on agriculture, forestry, biodiversity conservation, and climate-resilient land use.

Through its Schools of Agriculture, Biotechnology, and Allied Health Sciences, and the active involvement of the AI Research Centre and NSS Unit, the institution contributes to restoring ecological balance and improving rural livelihoods.

## Institutional Focus and Policy Orientation

The Brainware Environmental and Biodiversity Policy (2023) provides a comprehensive framework for land and habitat sustainability.

It emphasizes:

- Conservation of biodiversity and soil health
- Sustainable agricultural practices aligned with climate-smart farming
- Promotion of afforestation and campus greening
- Research in bio-fertilizers, natural pesticides, and renewable resources
- Community engagement through student-driven rural extension

Focus Area	Key Initiative
Afforestation & Green Cover	Tree Plantation initiative
Biodiversity Mapping	Botanical documentation of 65 species
Sustainable Agriculture	On-campus demo farms with drip irrigation
Waste-to-Compost	Organic waste converted to biofertilizer
Rural Training	Farmers' workshops on crop diversification

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### Research and Innovation for Ecosystem Sustainability

Brainware University's researchers and innovators contribute directly to land sustainability through applied projects, patents, and publications across agriculture, biotechnology, and environmental engineering.

#### A. Patents and Process Innovations (2023–24)

Patent Title	Department / Inventors	Relevance to SDG 15
<i>A Method for Development of Hybrids Utilizing Heterosis in Sweet Pepper</i>	Dr. Sourav Roy (Agriculture)	Enhances crop productivity using eco-resilient methods
<i>Dose Optimization Using Gamma Irradiation for Different Crop Species</i>	Dr. Soham Hazra (Agriculture)	Mutation breeding to improve yield without harmful chemicals
<i>Production of Potassium Nanoparticles from Coriandrum Sativum – A Potent Nano-Biofertilizer</i>	Dr. Nirlipta Saha et al. (Biotechnology)	Promotes sustainable farming and reduces soil toxicity
<i>Optimization of Storage Condition for Lentil (Lens culinaris L.)</i>	Dr. Pabitra Ghosh et al. (Agriculture)	Enhances seed longevity, reducing post-harvest losses
<i>Design and Development of Manually Operated Spring-Tooth Weeder for Horticultural Crops</i>	Mr. Sanjay Mochary et al.	Low-cost eco-friendly mechanical weeder
<i>Sugar-Free Wine from Mahua</i>	Dr. Prashant Shukla et al. (Biotechnology)	Promotes sustainable forest-based entrepreneurship

#### B. Research Publications and Book Chapters

Title	Authors / School	Publisher / ISBN	Focus Area
<i>Crop Sustainability and Intellectual Property Rights</i>	Mukherjee P., Dasgupta R. (Law)	Taylor & Francis, ISBN 9781003383024	Legal frameworks supporting sustainable agri-innovation

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<i>Advanced Materials and Manufacturing Techniques for Biomedical Applications</i>	Sriparna De (AHS)	Wiley, ISBN 9781394166190	Bio-based composites for sustainable manufacturing
<i>Perspectives in Sustainable Management Practices</i>	Adhikari S. et al. (Management)	CRC Press, ISBN 9781032640488	Integrates sustainability into rural economic development
<i>Bacterial Secondary Metabolites</i>	Soumik Mukherjee et al.	Elsevier, ISBN 9780323952514	Natural solutions for soil and plant disease management

### MoUs and Collaborations Relevant to SDG 15

Brainware University has established strategic collaborations that promote sustainable land management, agri-innovation, and environmental awareness.

Partner Organisation	Type	Nature of Collaboration
Eco Fast Agri Solutions Pvt. Ltd.	Industry	Sustainable irrigation, soil health improvement, and organic farming research
Krishibandhu Crop Science Pvt. Ltd.	Industry	Curriculum design, internship, and joint R&D in agri-technology
Matribhumi Agriculture India Pvt. Ltd.	Industry	Practical training, crop diversification, and farmer entrepreneurship
SAAHAS Society	Academic Partner	National seminars and extension activities in horticulture
INTA (Argentina)	International Institute	Collaborative research on agro-ecosystem management
Kasama University College of Health Science & Technology (Zambia)	Academic	Community health and agro-sustainability research

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Hridaypur Srija (NGO)	Community Partner	Rural green drives, CSR, organic composting
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### Campus and Community Green Initiatives

#### A. Campus Sustainability Programme

- Green Cover Expansion: 30% of campus now under vegetative cover; 100 new shade trees planned to plant along walkways.
- Medicinal Garden: 52 species of ethnobotanical plants maintained by Department of Biotechnology.
- Solid Waste Composting: Conversion of biodegradable waste from hostels and canteens to organic manure used in campus gardens.

#### B. Community Engagement & Rural Development

Activity	Date / Period	Partner / Village
<i>Soil Health &amp; Organic Farming Workshop</i>	Jan 2024	Krishibandhu Crop Science
<i>Tree Plantation Drive (World Environment Day)</i>	5 June 2023	NSS, Local Panchayat
<i>Farmers' Field School (Smart Irrigation Demo)</i>	Nov 2023	Eco Fast Agri Solution
<i>Organic Waste Management Camp</i>	Feb 2024	Hridaypur Srija NGO
<i>Agro-Innovation Bootcamp for Students</i>	Sept 2023	BWU Innovation Cell

### Biodiversity and Ecosystem Conservation

Category	Initiative / Research	Impact
Flora	Campus botanical survey documenting 65 species	Baseline for biodiversity index
Fauna	Bird count initiative (32 species recorded)	Data shared with WB Biodiversity Board
Pollination Study	Bee and butterfly activity assessment in campus garden	Publication under preparation
Land Restoration	Tree plantation in degraded plots around Barasat	2 hectares restored

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Waste Reduction	Paperless office movement – 45% reduction in paper use	Implemented across HR and Academic blocks
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### Integration in Curriculum and Research Training

- B.Sc. (Hons.) Agriculture: Core courses on *Soil Conservation, Plant Protection, and Sustainable Land Management*.
- Biotechnology: Modules on *Environmental Microbiology, Biofertilizers, and Waste Bioprocessing*.
- AI in Agriculture: Elective on *Smart Farming and Predictive Crop Modeling*.

Faculty and students regularly participate in national-level events like AgriVision 2023, India BioSummit, and Krishi Mela, presenting research on sustainable farming and land conservation.

### Alignment with National and Global Priorities

Brainware University’s initiatives align with:

- National Mission for Sustainable Agriculture (NMSA)
- National Biodiversity Authority (NBA) programmes
- India’s Green Campus Initiative Framework (UGC)

Through community outreach, interdisciplinary research, and technology adoption, the University’s impact contributes directly to SDG 15 targets—protecting life on land, ensuring soil and crop sustainability, and enhancing local biodiversity.

Brainware University’s commitment to *Life on Land* reflects an integration of technology, tradition, and community wisdom.

Its work in sustainable agriculture, biodiversity protection, and environmental innovation showcases how an academic institution can nurture both scientific progress and ecological balance.

By embedding sustainability into every layer — from classrooms to community fields — Brainware University continues to grow as a green knowledge ecosystem driving India’s 2030 vision for environmental resilience.

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