



BRAINWARE UNIVERSITY

**Annual SDG-13 Report
2023-24**

SDG 13: Climate Action

***Strengthening Climate Literacy, Mitigation, and
Resilience Through Research and Action***

SDG 13: Climate Action – *Strengthening Climate Literacy, Mitigation, and Resilience Through Research and Action*

About SDG 13

Climate Action is not just an environmental responsibility—it is an educational and moral imperative. The United Nations’ SDG 13 urges countries and institutions to take urgent action to combat climate change and its impacts through awareness, adaptation, and innovation.

At Brainware University, climate consciousness is embedded in daily operations, academic design, and institutional planning. The University’s goal is to reduce its carbon footprint, integrate renewable energy technologies, and empower communities with scientific knowledge to mitigate and adapt to climate-related challenges.

Institutional Policy and Governance

Brainware University operates under the Green Campus Policy and the Climate Resilience and Energy Management Framework, led by the *IQAC Green*.

Focus Area	Key Practices (2023–24)
Energy Efficiency	Installation of LED lights, motion-sensor systems, and power audits
Renewable Energy	Solar panels installed in select academic blocks (pilot stage)
Tree Plantation & Carbon Sink	“One Student, One Tree” campaign; green cover mapping
Water Conservation	Rainwater harvesting and recharging systems in hostels
Waste to Energy Pilots	Composting and biogas trials in cafeteria block

Research and Innovation on Climate Action

Patents and Research Outputs (2023–24)

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Title / Project	Inventors / Department	Relevance to Climate Action
<i>AI-Optimized Portable Solar and Renewable Energy EV Charger</i>	Dr Gunjan Mukherjee et al. (CSE)	Supports low-emission mobility and renewable energy transition
<i>Sustainable Indoor Air Quality Improvement Using Aqua Algae-Based Filtration Systems</i>	Dr Priyanka Sen Guha et al. (Biotechnology)	Reduces indoor pollutants; enhances carbon sequestration
<i>Mitigating Nitrogen Oxide Emissions in Cloud Data Centers for a Greener Future</i>	Dr Debabrata Sardar et al. (CSE)	AI-driven emission control in high-power computing facilities
<i>Device for Detection of Methane Using Zeolite-Based Catalysts</i>	Dr Sayanti Datta et al. (Chemistry)	Helps monitor greenhouse gases in industrial processes
<i>AI-Enabled Smart Blood Test Analyzer</i>	Dr Subrata Sinha et al. (CSS)	Integrates sustainable design principles in device manufacturing
<i>Miniaturized Temperature-Regulated Storage Box (Solar-Powered)</i>	Dr Madhurima Basak et al. (AHS)	Reduces reliance on grid-based power sources

Book Chapters and Publications

Title	Authors / School	Publisher / ISBN
<i>Sustainable Smart Manufacturing Processes in Industry 4.0</i>	Prasad A. et al. (AHS)	Taylor & Francis, 9781003436072-5
<i>Crop Sustainability and Intellectual Property Rights</i>	Mukherjee P. et al. (Law)	Taylor & Francis, 9781003383024
<i>Environmental Evolution: The Process of Ecological Changes in India</i>	Sasmal D. & Adhikary S. (Law)	ISBN 978-81-970323-7-0
<i>Nanobiomaterials: Research Trends and Applications</i>	Manna S. & Jana S. (Pharma)	CRC Press, 9780429057038-12

Institutional Partnerships Supporting Climate Action

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Brainware’s collaboration ecosystem supports cross-sectoral sustainability—spanning academia, industry, and public agencies.

Partner / Organisation	Type	Nature of Collaboration
Cynasure Renewable Energy Pvt. Ltd.	Industry	Research on renewable power systems and green energy solutions
Eco Fast Agri Solution	Agri Industry	Sustainable farming and biofertilizer R&D
Redivivus Recyclers Pvt. Ltd.	Waste Management	Solid waste recycling and sustainability outreach
IIT Kharagpur – Virtual Labs	Academic Partner	Training on environmental simulation and remote sensing
Centre for Public Health Research	NGO / Academic	Climate-health interaction research
S Vyasa Deemed to be University	Academic	Yoga and climate resilience studies; health adaptation
Hridaypur Srija (NGO)	Community Partner	CSR collaboration for climate literacy and tree plantation

Student and Community Climate Engagement

Awareness & Outreach Activities

Event / Activity	Date	Outcome
<i>World Environment Day (Tree Plantation Drive)</i>	June 5, 2023	1,200 trees planted across 3 blocks
<i>Climate Literacy Week 2023</i>	Oct 2023	Workshops on AI for weather prediction
<i>Energy Conservation Campaign</i>	Dec 2023	20% power reduction in labs through awareness
<i>Rural Resilience Workshop</i>	Feb 2024	Farmers trained on crop diversification under erratic rainfall

NSS-Led Initiatives

- Coastal clean-up and *Plastic-Free Campus* movement

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- Carbon footprint audit by students of Environmental Science

Research-Based Student Projects (Innovation Cell 2023–24)

Project Title	Theme / Objective
<i>Smart Energy Audit System</i>	IoT-based system for real-time energy consumption tracking
<i>Green Mobility Index</i>	GIS-based mapping of low-carbon transport on campus
<i>Microplastic Detection using AI Vision</i>	Machine-learning model for monitoring water contamination
<i>Solar-Powered Drone for Environmental Monitoring</i>	Remote emission data collection

National and Global Alignment

The University's climate actions align with:

- India's National Action Plan on Climate Change (NAPCC) – Missions on Solar Energy, Sustainable Habitat, and Green India.
- National Education Policy (NEP 2020) – sustainability in curriculum and experiential learning.
- Mission LiFE (Lifestyle for Environment) – promoting climate-responsible behavior through training and awareness.

Conclusion

Brainware University views climate action not as an auxiliary goal, but as an academic responsibility. Every new building, research project, and student initiative reflects the institution's resolve to act locally and impact globally. Through renewable energy adoption, scientific research, and community resilience programs, Brainware continues to build a climate-responsible university ecosystem that aligns education with planetary well-being.

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