IEM
श्रद्धावान लभते ज्ञानम्
INSTITUTE OF ENGINEERING & MANAGEMENT
Good Education, Good Jobs

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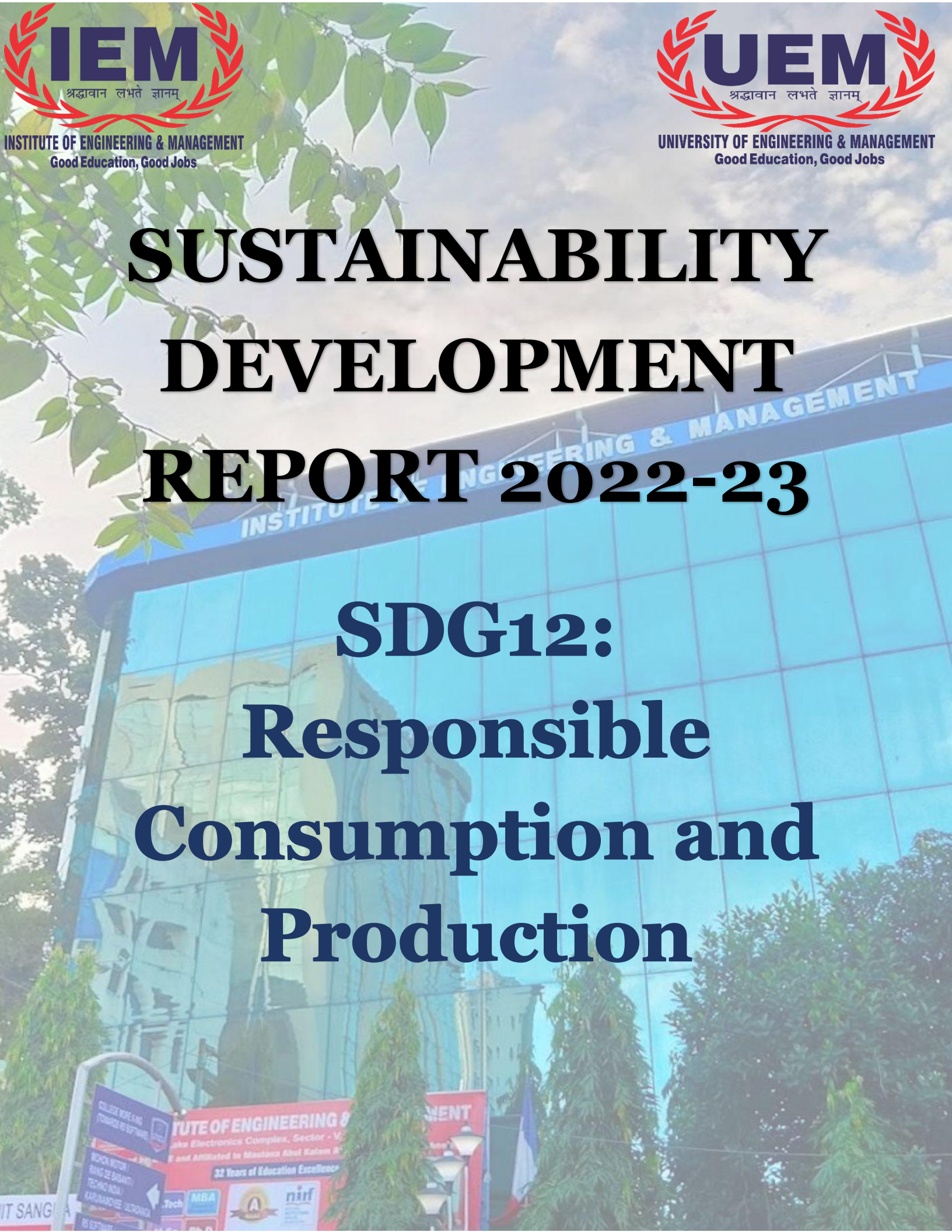
SUSTAINABILITY DEVELOPMENT REPORT 2022-23

SDG12: Responsible Consumption and Production



Executive Summary

IEM Kolkata advanced SDG 12 in 2022-23 by implementing robust energy efficiency measures, recycling 1,752.6 kg of e-waste, enforcing a complete single-use plastic ban, and operationalizing rainwater harvesting and wastewater recycling systems. Annual energy use stood at 1243600 kWh, supported by green audits, solar/biogas investments, and smart automation like LDR sensors and IoT. Waste segregation, organic composting, and community outreach, including training 70 teachers from 65 schools and 25+ student sustainability projects, fostered a circular economy culture. Transportation restrictions promoted bicycles and EVs, while IWC initiatives aided local communities through drives for food, health, and tree plantation. These efforts reduced environmental impact and positioned the institute as a sustainability leader.

Contents

Vision, Mission, and Strategic Objectives

Institutional Vision

To position IEM Kolkata as a model institution for sustainable resource management and responsible consumption in higher education.

Institutional Mission

Implement effective energy, water, and material use practices, foster waste minimization and recycling, and integrate sustainability into learning, research, and campus culture.

Strategic Objectives for 2022-23

- Enhance energy-saving measures and use of renewable energy.
- Achieve higher waste recycling rates, particularly for e-waste and organic waste.
- Expand water conservation and rainwater harvesting systems.
- Foster a culture of circular economy through awareness and training.
- Engage with local community and industry partners in sustainability initiatives.

Energy Efficiency and Renewable Energy

- **Annual Energy Consumption:** 1243600 kWh recorded, reflecting ongoing efficiency initiatives.
- **Green Audits:** Regular green and energy audits conducted for continuous monitoring and improvement.
- **Automation Innovations:** Increased use of timer circuits, Light Dependent Resistor (LDR) automation, and sensor-based controls for lighting and equipment.
- **Renewables:** Continued campus investment in solar energy and biogas as alternate energy sources.

Waste Management and Recycling

- **Solid Waste Management:** Segregation at source and daily collection. Tie-up with NKDA for disposal and recycling.
- **E-Waste Recycled:** 1,752.6 kg e-waste recycled and disposed with certified agency (Hulladek Recycling Pvt. Ltd.).
- **Organic & Liquid Waste:** Sewage treated using aerobic process; treated water reused for gardening.
- **Plastic Ban:** Complete prohibition of single-use plastics on campus.

Water Conservation and Sustainable Water Management

- **Facilities:** Rainwater harvesting and groundwater recharge systems fully operational.
- **Recycled Water:** Treated wastewater reused for landscaping and non-potable purposes.
- **Awareness:** Events and training sessions on water conservation best practices.

Sustainable Transportation & Green Initiatives

- **Automobile Restrictions:** Restricted vehicle entry, increased bicycle and electric vehicle use.
- **Smart Resource Management:** Use of automation and IoT for energy-use optimization.
- **Landscaping:** Ongoing tree plantation and maintenance activities for a green campus.

Research, Education, and Innovation

- **Outreach:** "Train the Trainers" program on circular economy and zero waste with 70 teachers from 65 schools.

- **Student Engagement:** Project-based learning in sustainable technologies, solar-powered mobility, and recycling solutions.
- **International Conferences:** Organization of forums and workshops with themes of technology, energy, and sustainability.
- **Innovation Labs:** Support for student startups in eco-friendly products and recycling technologies.

Community Engagement

- **IEM IWC Initiatives:** Projects such as food packet and stationery distribution for underprivileged children, sanitary napkin drives, and tree plantation (World Earth Day), benefitting hundreds of beneficiaries in local communities.
- **Lions and Rotary Initiatives:** Child and elderly support programs, free health camps, and resource donations.

Data and Metrics

Performance Indicator	**Achievement / Status**
Annual Energy Consumption	1243600 kWh
E-Waste Recycled	1,752.60 kg
Functional Green Audits	Regularly conducted, records maintained
Rainwater Harvesting Facilities	Operational campus-wide
Treated Water Recycling	Implemented for gardening/other use
Plastic Ban	100%
Solid Waste Segregation	Daily practice
Organic Waste Composting	Yes
Smart Automation Deployment	Timer circuits, LDR, IoT
Solar/Biogas Power Usage	Supported
Train the Trainers Outreach	70 teachers, 65 schools
IWC Community Projects	10+ social/environmental drives
IEM Student Projects on Sustainability	25+ implemented

In 2022-23, IEM Kolkata significantly reduced environmental impact through strong energy and waste management practices, adoption of automation technologies, and broad community participation in sustainability outreach. E-waste recycling exceeded 1.7 tons, audits ensured continuous improvement, and community clubs undertook impactful campaigns for food security, menstrual health, and environmental awareness.

Challenges, Institutional Responses, and Mitigation Strategies

- Scaling up recycling and composting efficiently to achieve higher rates of waste diversion and reduce landfill dependency.
- Promote decentralized solid waste management systems including micro-segregation at source and backyard biogas or composting plants with subsidies for households.
- Sustaining long-term community engagement and behavior change regarding plastics use and waste separation.
- Enhance circular economy educational programs and hands-on student-led projects to build skills and awareness in sustainable consumption and waste reduction.
- Accurately monitoring resource savings, waste reduction, and quantifying environmental benefits in real time.
- Deploy advanced real-time resource metering, data tracking, and transparent reporting tools to ensure accountability and ongoing improvement.

Future Roadmap and Strategic Plan (2023-24 and Beyond)

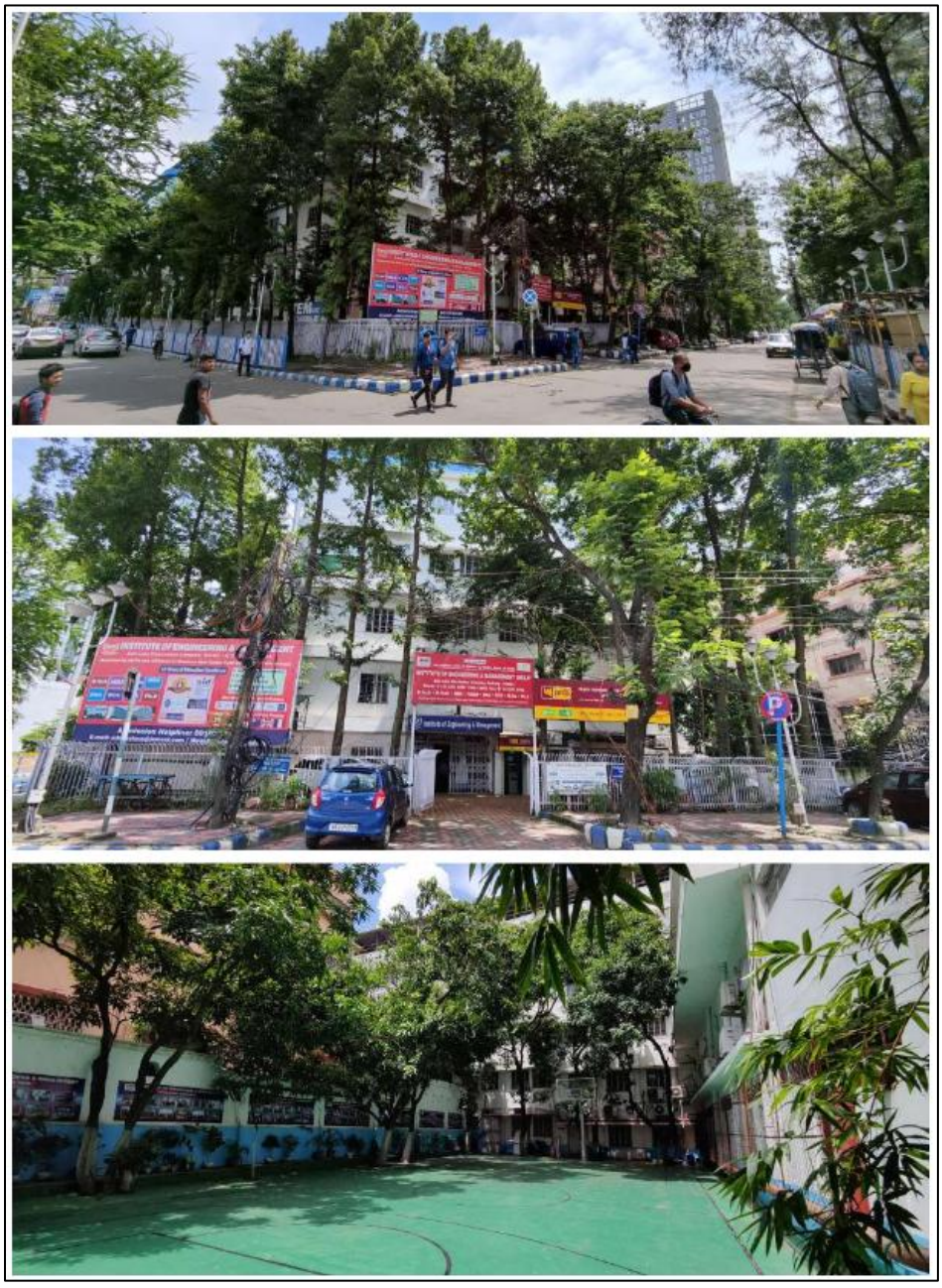
- **Increase Renewable Energy:** Add 40 kW new solar capacity and explore wind/biogas expansion.
- **Curricular Innovation:** Integrate sustainability modules in all STEM courses.
- **Community Scale Projects:** Launch internships and field programs focused on sustainable innovation.

- **Benchmarking:** Engage more in international sustainability rankings (AASHE STARS, THE Impact).
- **Resource Efficiency:** Broaden smart automation and expand water recycling.

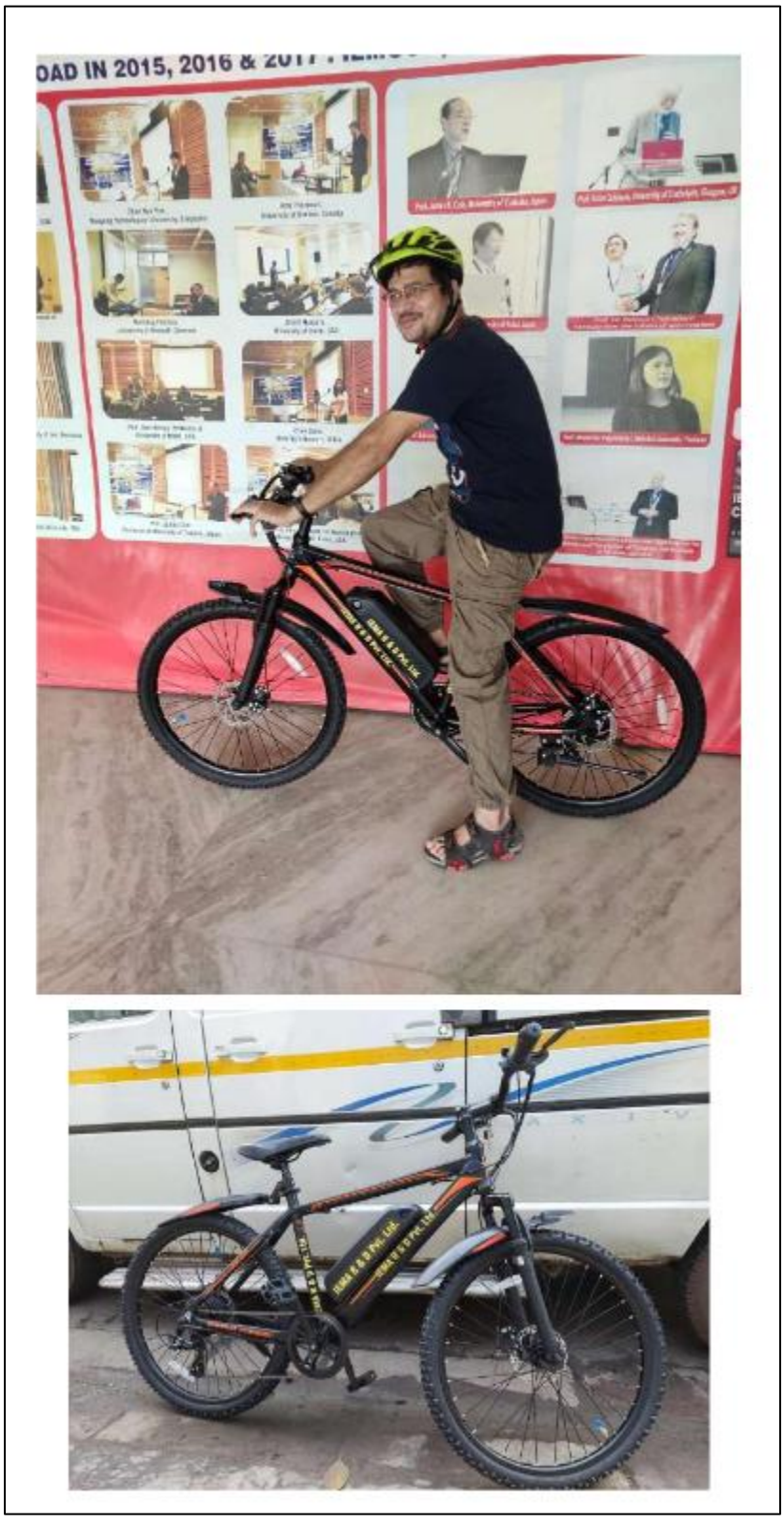
Conclusion

In 2022-23, IEM Kolkata demonstrated exemplary commitment to SDG 12 through integrated practices in energy efficiency, waste management, water conservation, and sustainable transportation, achieving key metrics like 1,752.6 kg e-waste recycling, full plastic ban compliance, and operational green audits. Innovations in automation, renewables, and community engagement, such as Train the Trainers outreach and IWC projects benefiting hundreds, embedded responsible consumption across campus life, research, and education. Challenges like scaling recycling and monitoring were proactively addressed via decentralized systems, educational programs, and real-time metering. Looking ahead, the 2023-24 roadmap targets 40 kW additional solar capacity, STEM sustainability curricula, international benchmarking (AASHE STARS, THE Impact), and expanded internships. These strides reinforce IEM's vision as a model for higher education sustainability, driving long-term circular economy adoption and community impact.

Photo Gallery

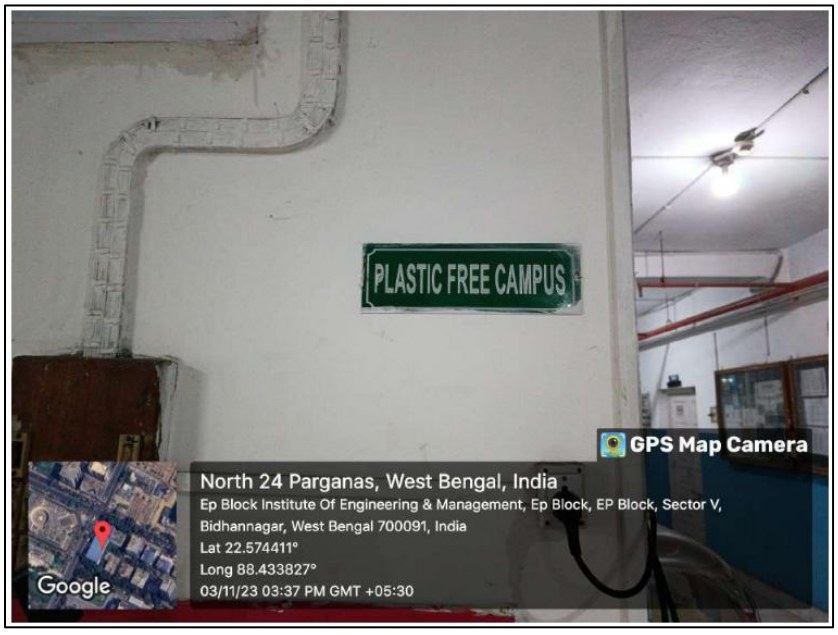


Green Campus Initiatives



Battery powered Bicycle

E-Waste Recycling



Plastic Free Campus

Sensor-based energy conservation system

The E waste bin has been officially inaugurated by the officials from Hulladek recycling on 27th Jan, 2022. The bin is placed at the Buddha Auditorium