

FROM POLICY TO PRACTICE: GREEN CAMPUS TRANSFORMATION IN INDIAN HIGHER-ED INSTITUTIONS

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Abstract

Higher education institutions (HEIs) now prioritise sustainability as a result of growing worldwide concerns about climate change and environmental damage. Green campuses, which emphasise sustainable operations, infrastructure, resource management, and cultural changes as essential to academic objectives, are becoming more and more recognised in policy and practice. But even with frameworks and certification programs like STARS, LEED, GRIHA, and IGBC, there is still a big gap between policy and successful implementation in Indian HEIs. This study explores the facilitators and obstacles to change as it looks at how institutional, state, and government rules on green campuses are implemented in actual campus settings. The literature study reveals limitations in empirical evaluation in Indian contexts and identifies methods of policy-to-practice transition. It examines the legal framework, certification requirements, policy environment, and institutional policies in India, including Green Offices at prestigious universities. Different environmental performance, socio-health consequences, economic outcomes, and institutional effects are revealed by empirical case studies of three Indian HEIs. Key implementation elements, such as funding, leadership, awareness campaigns, and governance frameworks, are identified by this analysis.

Keywords: Green Campus Initiatives, Sustainable Campuses, Higher Education Institutions, Policy Implementation.

1. INTRODUCTION

Transforming Indian higher education institutions into green campuses is more than just adopting a policy it is a meaningful journey towards embracing sustainability as a core value of campus life. With India's growing environmental challenges, universities are stepping up as responsible stewards, integrating eco-friendly practices into their daily operations and academic programs. This transformation reflects a collective commitment to not only reduce environmental footprints but also to nurture a culture of ecological awareness among students, faculty, and staff. Institutions like several Indian Institutes of Management (IIMs), Indian Institutes of Technology (IITs), and many universities are pioneers in this movement, adopting innovative strategies such as energy conservation, waste management, and biodiversity promotion, supported by

national frameworks like those from the University Grants Commission (UGC) and the Indian Green Building Council (IGBC) (Urkude & Jigeesh, 2025).

Such green campuses serve as living laboratories, where sustainability is woven into curriculum and campus governance alike, inspiring all members to take ownership of environmental stewardship. The shift from policy to practice demands continuous efforts in capacity building, participatory governance, and aligning institutional goals with national sustainable development objectives. Ultimately, these endeavors reaffirm higher education's vital role in shaping a sustainable future by modeling green practices and fostering ecological consciousness within and beyond campus boundaries (Urkude & Jigeesh, 2025).

2. OBJECTIVES OF THE STUDY

The primary objective of this research is to investigate how Indian universities implement green campus policies into workable, long-term solutions that lessen their environmental impact. It seeks to comprehend how these establishments contribute to raising staff, professor, and student awareness and educating them about sustainability. Additionally, the study looks at campus resource management strategies like trash reduction, water efficiency, energy conservation, and biodiversity preservation. Finding best practices that institutions can use is another objective, as is evaluating the opportunities and difficulties encountered when implementing green programs. The ultimate purpose of this study is to demonstrate how incorporating sustainability into academics and campus operations may promote ecological responsibility, advance climate goals, and drive larger social change in the direction of a greener future.

3. METHODOLOGY

This study takes a thoughtful, qualitative approach by carefully reviewing a wide range of existing research and reports on green campus initiatives in Indian higher education. It draws from research articles, policy documents, institutional reports, and real-life case studies to gather diverse insights. These materials are then closely examined and organized into themes to uncover important patterns, such as successes, challenges, and effective practices in sustainability efforts. The focus lies on key areas like energy use, waste management, water conservation, community involvement, and how institutions govern these processes. This method helps to reveal how policies are actually put into practice on the ground, considering the unique context of Indian universities. By bringing together varied findings, the study aims to build a complete, evidence-based understanding of green campus transformation, offering practical recommendations based on real-world experiences and academic knowledge.

4. LITERATURE REVIEW

4.1. Building Circular Campuses for Sustainable Development of Higher Education Institutes – Evidence from India

This study examines initiatives taken by Indian HEIs to incorporate the ideas

of the circular economy and the green economy on campus. It draws attention to national accreditation frameworks that support sustainable practices including waste management, energy saving, and recycling of natural resources, such as UGC, NAAC, and IGBC. In India, a number of HEIs, such as IITs, IIMs, and universities, aggressively integrate environmental education and sustainable infrastructure. A comprehensive case study from a private university in Hyderabad to create a comprehensive green campus framework is also included in the report (Urkude & Jigeeesh, 2025).

4.2. Systematic Review of Literature on Sustainable Practices by Indian Higher Education Institutions

With an emphasis on governance, curriculum, student participation, and operational green efforts, this literature synthesis charts the integration of sustainability in Indian HEIs. It highlights achievements such as the waste management program at TERI University and the net-zero emissions campus at IIT Bombay. The analysis identifies policy incentives and capacity-building as critical facilitators and advocates for deeper academic integration of sustainability and context-specific assessment methodologies (Sharma, 2021; TERI, 2022).

4.3. IGBC Green Campus Rating System: An Initiative to Sustainable Campuses in India

Site planning, water use, green cover, building sustainability, waste management, and occupant well-being are all covered in the structured evaluation offered by the Indian Green Building Council's Green Campus Rating System. This framework is a crucial tool for Indian HEIs since it helps both new and current campuses improve their environmental performance and is in line with larger national sustainability objectives (Parvez, 2017).

4.4. A Review of Green Campus Management Sustainability Practices

The operational and managerial aspects of sustainability in higher education are examined in this research, with a focus on methods that lessen their negative effects on the environment through purchasing practices, waste reduction, and energy efficiency. It emphasises the importance of leadership and ongoing oversight in upholding and improving green campus standards for long-lasting environmental advantages (Iieta, 2024).

4.5. Water Management and Conservation in Green Campuses

This theme's studies evaluate groundwater recharging, wastewater recycling, and rainwater harvesting projects carried out by Indian institutions. By preserving valuable water resources, increasing self-sufficiency, and teaching the campus community conservation skills, integrated water management strategies support sustainability, according to the literature (Sharma & Verma, 2023).

4.6. Biodiversity Preservation Efforts in University Campuses

The development of botanical gardens, green belts, and biodiversity parks by Indian colleges to conserve indigenous plants and animals is highlighted in this

literature. These projects improve campus aesthetics and environmental quality while serving ecological and educational goals by giving researchers and students living laboratories (Joshi & Mehta, 2023).

5. BACKGROUND AND CONTEXT:

Sustainability is becoming a more important aspect of the purpose of Indian higher education institutions. These institutions have the challenge—and opportunity—of becoming leaders in environmental sustainability while the industry experiences tremendous expansion. Integrating sustainability into campus operations, academics, and living is emphasised in national initiatives, such as the National Education Policy 2020. To assist universities in implementing eco-friendly practices, organisations such as the Indian Green Building Council (IGBC) and the University Grants Commission (UGC) have proposed comprehensive rules and ranking systems.

By incorporating renewable energy, water conservation, waste management, and biodiversity preservation into their campuses, numerous organizations—including IITs, IIMs, and prestigious universities like Ashoka and Manipal—are already setting the standard. In addition to lessening ecological footprints, these initiatives aim to teach employees and students how to promote a sustainable culture.

But transforming policy aspirations into practical, on-the-ground execution frequently requires overcoming obstacles related to funding, infrastructure, and engagement. This study, which attempts to investigate how Indian universities convert green campus regulations into significant initiatives that can act as future examples of sustainable development, is motivated by this changing environment.

6. INDIA'S INSTITUTIONAL AND NATIONAL POLICY ENVIRONMENT

A number of important frameworks and efforts that support sustainable development in higher education have moulded India's institutional and national policy environment for green campus transformation. Ecological restoration, expanding forest cover, and improving biodiversity are given top priority in national and state-level initiatives like the Revised Green India Mission (GIM), which was introduced under India's National Action Plan on Climate Change (NAPCC). With an emphasis on important ecosystems including the Western Ghats, Himalayas, and mangroves, the mission aims to absorb 2.5 to 3 billion tonnes of carbon dioxide by 2030 through afforestation and restoration efforts (Ministry of Environment, Forest & Climate Change, 2025).

Frameworks for certification are essential for directing and comparing green campus projects. Standards for energy efficiency, water conservation, waste management, and sustainable infrastructure are provided by internationally and domestically renowned programs like the Indian Green Building Council's (IGBC) Green Campus Rating System, LEED (Leadership in Energy and Environmental Design), GRIHA (Green Rating for Integrated Habitat Assessment), and STARS

(Sustainability Tracking, Assessment & Rating System). In order to validate and enhance their environmental performance and receive acknowledgement for their sustainability initiatives, Indian HEIs are increasingly implementing these certifications (Parvez, 2020; Urkude & Jigeesh, 2025).

Universities have set up specialised Green Offices or Sustainability Cells at the institutional level to develop, carry out, and oversee green activities. These organisations plan awareness campaigns, coordinate activities among campus departments, and make sure national regulations are followed. As change agents, Green Offices involve administration, professors, and students in promoting a sustainable culture and advancing ongoing development (Roychowdhury, 2021).

7. AN EMPIRICAL STUDY OF GREEN CAMPUSES IN INDIA

Institutional planning and strategy development are major areas of focus for Indian higher education institutions undergoing green campus transformation. Universities create thorough sustainability plans that take stakeholder input into account, set quantifiable goals for environmental performance, and are in line with national policies. Institutions can use this strategic framework to assist them prioritise campus-specific projects including waste management, biodiversity development, water conservation, and energy efficiency (Roychowdhury, 2021).

Two essential foundations of green campus initiatives are monitoring and assessment. Key environmental performance metrics, including as energy use, water use, and solid waste generation, are routinely monitored by Indian HEIs. In addition to promoting ongoing development, these data-driven assessments offer accountability and transparency for sustainability objectives. Institutions are helped in benchmarking and comparative analysis by tools such as Environmental Performance Index measurements that have been modified for campus-level evaluation (Chandrasekharan et al., 2020).

Another way that green campus efforts show both expenses and long-term savings is through economic analysis. Initial expenditures for waste management infrastructure, water recycling facilities, and renewable energy systems are weighed against lower utility costs, improved resource efficiency, and possible grants or financial incentives. Institutional decision-making and sustainable budgeting are informed by this economic viewpoint (Urkude & Jigeesh, 2025).

8. KEY PILLARS OF GREEN CAMPUS EXECUTION

Strong governance frameworks and leadership are the primary forces behind the green campus movement in Indian higher education institutions (HEIs). To plan, carry out, and oversee sustainability initiatives, many universities have established specialised Green Offices or Sustainability Cells, guaranteeing the incorporation of environmentally friendly practices into daily operations and policy. With an emphasis on responsibility, participatory leadership, and adherence to national sustainability targets, these organisations promote cooperation between academics, staff, and students, eventually producing more cohesive results (SRM University Green Campus Policy, 2021).

Clear sustainability benchmarks are provided by certification conformance with recognised standards like the Indian Green Building Council (IGBC), GRIHA, LEED, and STARS, which improves institutional reputation and draws investment. Important initiatives like water conservation, waste minimisation, energy efficiency, and sustainable infrastructure are supported by these certificates. Stakeholder confidence is fostered and continuous improvements are encouraged via systems such as the IGBC Green Campus Rating System (IGBC Green Campus Rating System, 2020).

Strategic funding and partnerships are essential to achieving green campus goals. In order to obtain financial and technical resources for projects like garbage recycling, solar energy deployment, and rainwater harvesting, Indian HEIs are increasingly working with governmental agencies, non-governmental organisations, business, and international organisations (Roychowdhury, 2021).

9. KEY BENEFITS OF GREEN CAMPUS IN HIGHER EDUCATION INSTITUTION

1. ***Reduction of Resource Consumption:*** By implementing energy-efficient infrastructure, water conservation strategies, and the utilisation of renewable energy, green campuses drastically lower their energy and water usage. Long-term campus sustainability is increased as a result of reduced operating expenses and a lesser environmental impact (Urkude & Jigeeesh, 2025).
2. ***Better Health and Wellness:*** Students' and employees' mental and physical health is improved when they have access to green areas, natural light, and clean air. These settings improve concentration and productivity, lower stress levels, and foster more favourable working and learning environments (Forbes India, 2024).
3. ***Financial Savings and Returns on Investments:*** Green projects save money over time by reducing maintenance and utility expenditures, even though they demand initial investments. In addition to saving money, energy-efficient technology and waste management systems can draw grants and financing, which supports sustainability objectives (NIIT University, 2022).
4. ***Increased Impact on Education:*** Green campuses incorporate environmental consciousness into research and courses, acting as living laboratories for sustainability teaching. This develops environmentally conscious attitudes and equips students to lead responsibly in the future (Universal Business School Mumbai, 2024).
5. ***Biodiversity and the Protection of the Environment:*** Urban sustainability and ecological health are enhanced by establishing green cover and fostering biodiversity. Campuses serve as models for conserving the environment and using land responsibly (Gargicollge, 2020).

10. BARRIERS TO EFFECTIVE GREEN CAMPUS

1. ***Absence of Dedication to Administration:*** The lack of dedication from university administration is one of the main obstacles. It becomes challenging

to secure the resources required and promote a green culture without the strong support of upper management. In order to integrate sustainability into institutional policies and practices, leadership engagement is essential (Barnett-Itzhaki et al., 2025).

2. ***Insufficient Knowledge and Awareness:*** Faculty and staff are among the many stakeholders who are unaware of the significance and advantages of green efforts. Effective implementation of sustainable practices may be hampered by resistance or indifference brought on by this knowledge gap (Ganin et al., 2024).
3. ***Budgetary Restrictions:*** Green projects can necessitate large upfront expenditures for sustainable materials, renewable energy technologies, and environmentally friendly infrastructure. Adoption of crucial green measures may be hampered or delayed by constrained resources and conflicting financial priorities (Islam et al., 2024).
4. ***Insufficient Frameworks and Alignment of Policies:*** Policies that are inconsistent or poorly implemented might lead to misunderstandings and a decrease in accountability. Institutions find it difficult to successfully operationalise sustainability goals in the absence of clear norms, benchmarks, and certification criteria (Shange et al., 2025).
5. ***Opposition to Change:*** Managing change is still difficult, particularly when institutional culture is ingrained in conventional procedures. Progress may be slowed by opposition from employees or students used to traditional methods (Abo-Khalil et al., 2024).
6. ***Insufficient Skilled Labour and Capacity Development:*** Green policy implementation calls for skilled workers and continuous capacity building. Project implementation, monitoring, and evaluation procedures that are essential for long-term success are hampered by a lack of experience (Sustainability in Higher Education, 2024).
7. ***Inadequate Involvement of Stakeholders:*** Students, teachers, administrative personnel, and local communities must all actively participate in the implementation of green policies. Initiatives' societal impact and sustainability are reduced when stakeholders are not involved and aware of them (Shange et al., 2025).

Strategic planning, capable leadership, capacity building, stakeholder involvement, and sufficient money are necessary to overcome these obstacles and guarantee that sustainability policies are implemented in a way that has a real, noticeable impact.

11. RECOMMENDATIONS FOR INSTITUTIONAL PRACTICE AND POLICY

1. ***Increase Leadership Dedication:*** By incorporating sustainability into the organization's fundamental goals and decision-making procedures, university administration should actively support green campus activities. Accountability and resource allocation are guaranteed by strong leadership.

2. **Include Sustainability in Research and Curriculum:** To promote awareness and creativity, environmental education needs to be integrated into all subject areas. Promoting multidisciplinary research on sustainability issues improves student participation and yields useful answers.
3. **Create Comprehensive and Explicit Policies:** Institutions require strong, widely disseminated green campus policies that clearly define objectives, standards, and roles. For consistency and efficacy, policies should be in line with both international and national environmental norms.
4. **Encourage Training and Capacity Building:** For teachers, staff, and students to develop the skills and knowledge necessary for running and maintaining sustainable campus systems, regular workshops and training programs are essential.
5. **Establish Long-Term Partnerships and Funding:** Sustainability initiatives should be given top priority in financial planning, which should look for a variety of funding sources such as government grants, business partnerships, and charitable donations. Partnerships increase resources and skills.

12. CONCLUSION

In conclusion, this study shows how important it is for Indian universities to turn green campus policies into real, effective actions. While having strong policies and certification systems is a good start, many institutions still face challenges like limited funding, lack of strong leadership support, and difficulties engaging everyone on campus. The research highlights that success depends on committed leadership, enough resources, clear governance, ongoing monitoring, and active involvement from the campus community. By following simple yet impactful best practices, universities can create meaningful environmental, social, and economic benefits. These efforts will help move campuses beyond just ticking boxes to truly embracing sustainability, playing a key role in building a greener, healthier future for all.

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