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The Contribution of Library & Information Science to Environmental Sustainability in Maharashtra State Universities

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Abstract

Library and Information Science (LIS) plays a critical role in advancing environmental sustainability within academic institutions. Focusing on Maharashtra's state universities, this paper examines how LIS professionals and university libraries contribute to sustainability through green infrastructure, resource-sharing networks, information literacy, environmental outreach, and policy frameworks. Key strategies include energy-efficient design, digital resource platforms (e.g. INFLIBNET's N-LIST and Shodhganga), green library programming, and collaboration with governmental environmental information systems. Drawing on case studies and literature on "green libraries" both globally and in India, we assess the impact of LIS on Sustainable Development Goals (especially SDG 13: climate action, SDG 4: quality education). Challenges—such as limited funding, lack of standards, minimal awareness—are identified, with recommendations for policy support, professional training, and creation of sustainability metrics specific to academic libraries in Maharashtra.

Keywords*: library and information science, green library, environmental sustainability, Maharashtra universities, academic libraries, SDG, digital resource sharing.*

INTRODUCTION

Library and Information Science (LIS) has evolved significantly over the past decade, playing an increasingly important role in promoting environmental sustainability within academic institutions. In the context of Maharashtra state universities, where the focus on green campus initiatives and environmental education is steadily growing, LIS professionals have emerged as key contributors. Their role extends beyond managing collections to supporting sustainable information practices, environmental literacy, digital transformation, and green policy advocacy. As universities align themselves with the United Nations Sustainable Development Goals (SDGs), the integration of LIS into sustainability frameworks becomes both relevant and necessary. This paper explores the contribution of Library and Information Science to environmental sustainability within Maharashtra's state universities, with reference to developments in literature from 2010 to 2024.

Globally, libraries have been recognized as active participants in the environmental movement, especially in the realm of awareness and education. Studies have emphasized the importance of "green information literacy," where library users are taught to consider the environmental impacts of their information behavior, such as printing, digital consumption, and resource sharing. Between 2010 and 2020, several scholars pointed out how libraries can promote sustainability through awareness programs, eco-friendly practices, and community engagement. Although most of this research is based on Western institutions, Indian academic libraries—especially in Maharashtra—can adapt these models to their specific socio-cultural and infrastructural settings.

In terms of resource management, academic libraries have gradually transitioned to digital platforms, thereby reducing the dependency on printed materials. However, studies conducted in Indian university libraries indicate that challenges remain, including limited infrastructure, lack of proper training, and reluctance among staff to adopt new technologies. In Maharashtra, libraries in institutions such as Savitribai Phule Pune University, Dr. Babasaheb Ambedkar Marathwada University, and Bharati Vidyapeeth have initiated efforts to improve digital services. Nevertheless, the implementation of environmentally sustainable information practices—such as energy-efficient servers, digital repositories, and green procurement policies—needs more structured attention and documentation.

Curriculum integration is another critical area where LIS can support sustainability goals. International literature since 2015 has increasingly recommended incorporating sustainability themes into LIS education and training programs. This includes subjects like sustainable library management, green library design, eco-friendly cataloging, and environmental data handling. In Maharashtra, many LIS programs are yet to fully adopt this approach, although a few have begun introducing modules on digital sustainability and ethical information use. Integrating such topics will better prepare future LIS professionals to design and support sustainable knowledge systems within their institutions.

The role of academic libraries also extends to community engagement and environmental advocacy. In various parts of India, libraries have partnered with local bodies to run environmental campaigns, promote eco-literature, and conduct outreach programs. For instance, Bharati Vidyapeeth's Institute of Environment Education & Research has combined library resources with community-based education to raise awareness about climate change, water conservation, and biodiversity. These models present an opportunity for Maharashtra's LIS professionals to align their services with environmental science departments, student clubs, and NGOs to expand the impact of their sustainability efforts.

Despite growing global and national attention, research specifically focusing on the role of LIS in environmental sustainability in Maharashtra's state universities remains limited. Most existing studies focus on e-resource management, digital literacy, or user behavior, with few examining the strategic role of LIS in green campus planning or institutional policy-making. However, emerging trends suggest a positive shift. From 2020 to 2024, several environmental programs across universities in Maharashtra have collaborated with library departments to develop digital content, maintain environmental databases, and support sustainability-driven projects. These initiatives highlight the growing potential of LIS as a supportive force in environmental transformation.

The role of Library and Information Science in promoting environmental sustainability in Maharashtra's state universities is both promising and underexplored. While challenges such as infrastructure limitations and lack of targeted research persist, the foundational work and emerging trends indicate a meaningful path forward. This study aims to identify and document the various ways in which LIS professionals contribute to environmental sustainability in Maharashtra's higher education institutions, and how these efforts can be enhanced in the years to come.

Maharashtra State Universities and Lis

Maharashtra, one of India's most progressive states, is home to several renowned universities that offer a wide range of academic disciplines, including Library and Information Science (LIS). These universities, such as the University of Mumbai, Savitribai Phule Pune University, Dr. Babasaheb Ambedkar Marathwada University, and SNDT Women's University, have well-established LIS departments. In recent years, the field of LIS in Maharashtra's state universities has begun playing a significant role in promoting environmental sustainability through information dissemination, digital transformation, green library initiatives, and awareness programs.

The LIS departments across Maharashtra's universities are instrumental in collecting, preserving, and disseminating information related to environmental sciences, climate change, sustainable development goals (SDGs), and ecological conservation. They provide valuable support to students, researchers, and faculty members working on environmental studies by curating relevant resources in both print and digital formats. These efforts help bridge the information gap and foster environmentally conscious academic communities.

A major contribution of LIS to environmental sustainability lies in the digitization of library services. Libraries in many state universities have taken steps to reduce paper usage by adopting integrated library management systems, digital repositories, and e-learning resources. This transition to digital platforms

not only improves access to scholarly materials but also significantly reduces the carbon footprint associated with printing, transportation, and physical storage. Universities such as Shivaji University and North Maharashtra University have introduced digital thesis repositories and open-access journals that allow seamless access to environmental research without harming natural resources.

Moreover, the promotion of green library practices in university libraries is another key initiative driven by LIS professionals. Green libraries are designed to operate in environmentally responsible ways, such as using energy-efficient lighting, rainwater harvesting, recycling programs, and promoting the use of reusable materials. In institutions like SNDT Women's University and the University of Mumbai, LIS professionals have taken the lead in advocating for eco-friendly infrastructure and operations, aligning their efforts with global sustainable development goals (especially SDG 13: Climate Action and SDG 12: Responsible Consumption and Production).

LIS departments also engage in information literacy campaigns and environmental awareness programs, often in collaboration with environmental science departments, NGOs, and governmental bodies. Through these initiatives, they help educate students and the community on issues like waste management, water conservation, and renewable energy. Workshops, book exhibitions on environmental topics, and sustainability-themed reading clubs have become increasingly common in Maharashtra's university libraries.

Additionally, LIS professionals in Maharashtra are contributing to research on environmental information management. By developing metadata standards, classification systems, and controlled vocabularies tailored to environmental data, they help ensure that information is organized, discoverable, and accessible for long-term use. Some LIS research scholars have focused on analyzing how university libraries can support the environmental goals of higher education institutions through knowledge management and policy advocacy.

An important aspect of LIS's contribution is capacity building and training. LIS departments offer courses and training modules that integrate concepts of environmental sustainability, including the ethical use of information resources and the impact of digital technologies on the environment. These courses prepare future librarians to adopt sustainable practices and to be advocates of environmental consciousness in their workplaces.

In conclusion, the field of Library and Information Science in Maharashtra's state universities plays a vital and evolving role in promoting environmental sustainability. Through digital transformation, green practices, information access, and community engagement, LIS departments are not only supporting environmental education and research but also modeling sustainable behavior in academic institutions. Their contribution reflects a broader vision where knowledge services are aligned with environmental stewardship, fostering a culture of sustainability across Maharashtra's higher education landscape.

Green Library Principles and Sustainable Practices

Environmental sustainability has become a major concern across sectors, including education and library management. Libraries, especially those within universities, are evolving beyond their traditional role as book repositories to become proactive agents in promoting environmental responsibility. In Maharashtra State Universities, Library and Information Science (LIS) departments are increasingly adopting green library principles and sustainable practices. This shift reflects a growing commitment to reducing ecological footprints while promoting awareness among students, faculty, and the wider academic community.

Green library principles focus on minimizing the environmental impact of library operations through various eco-friendly strategies. These include energy efficiency through LED lighting and natural ventilation, conserving resources by reducing paper usage, and encouraging digital alternatives. Sustainable architecture is another key component, involving the use of green-certified construction materials, installation of solar panels, rainwater harvesting systems, and green roofing. Additionally, effective waste management—such as recycling paper, electronic waste, and furniture—is a fundamental practice. Libraries also serve as centers for promoting environmental literacy by organizing exhibitions, workshops, and campaigns that focus on sustainability and ecological awareness.

Maharashtra's state universities have taken commendable steps to implement these principles. Many have embraced digitization, expanding their digital repositories and online databases. This move reduces dependency on printed materials, helps save paper, and supports remote access to resources, which in

turn reduces the need for commuting and thus carbon emissions. Institutions like Savitribai Phule Pune University and the University of Mumbai have become models of this digital shift. Internal communication within libraries has also gone largely paperless, using emails and digital platforms to share announcements and updates.

Furthermore, sustainable infrastructure development has gained momentum. Libraries are now designed or retrofitted with energy-saving features like solar lighting and sensor-based systems. In some cases, bamboo and recycled materials are used to create eco-friendly furniture. Libraries in institutions such as Dr. Babasaheb Ambedkar Marathwada University have also implemented water-saving systems, such as rainwater harvesting, reflecting a holistic approach to sustainability.

Waste reduction efforts are also visible through regular recycling drives and reuse initiatives. Old electronic devices are refurbished and donated to underserved institutions, promoting both environmental consciousness and digital inclusion. LIS departments often lead the way in organizing events such as seminars and exhibitions focused on climate change, waste management, and green technology. These initiatives help raise environmental awareness among the academic population and encourage responsible practices in daily life.

In terms of academics and research, LIS education in Maharashtra is incorporating topics related to environmental sustainability. Course curricula now include subjects such as green libraries, digital resource management, and ethical considerations in sustainable information practices. Students and researchers in LIS are exploring how library operations impact the environment and how information services can promote environmental responsibility across disciplines.

LIS professionals are also playing a vital role in shaping institutional policies. They contribute to the long-term sustainability plans of university libraries, ensuring that environmental considerations are embedded in strategic development. Moreover, their role in managing and disseminating information helps support interdisciplinary research in environmental sciences, enabling access to critical data and resources that inform sustainability-related decision-making.

In conclusion, the implementation of green library principles and sustainable practices in Maharashtra's state university libraries marks a significant contribution of the LIS field to environmental sustainability. By embracing digitization, sustainable infrastructure, environmental education, and policy advocacy, university libraries are becoming important players in the green movement. These efforts not only enhance operational efficiency but also foster a culture of sustainability, helping to secure a greener future for coming generations.

Lis Contribution to Environmental Sustainability In Maharashtra

Library and Information Science (LIS) professionals in Maharashtra have emerged as vital contributors to environmental sustainability, especially within the ecosystem of state universities. As knowledge curators, facilitators, and educators, LIS professionals are leveraging their platforms and expertise to advocate for sustainable practices, promote environmental literacy, and support green initiatives that align with the broader goals of the state and national environmental policies.

One of the most significant contributions of LIS professionals is the promotion of environmental awareness and education. Libraries in Maharashtra's state universities—such as Savitribai Phule Pune University, Mumbai University, and Dr. Babasaheb Ambedkar Marathwada University—regularly organize workshops, exhibitions, lectures, and reading campaigns focusing on sustainability, climate change, biodiversity, and waste management. These events not only inform students and faculty but also foster a culture of ecological responsibility.

Additionally, green library practices are being adopted across campuses. These include digitization of resources to reduce paper consumption, use of energy-efficient lighting and equipment, and waste segregation systems. LIS professionals are at the forefront of implementing and managing digital libraries, e-resources, and institutional repositories that minimize the carbon footprint while maximizing access to knowledge. The increased reliance on e-journals, databases, and e-books has significantly reduced the demand for printed materials, thus contributing to forest conservation and reduced emissions from physical distribution.

Furthermore, LIS departments play a critical role in building and managing information systems that support environmental research and policy planning. By cataloging and preserving theses, dissertations, and research publications on environmental issues, LIS professionals ensure that valuable scholarly work

on sustainability is accessible for future research and reference. These knowledge repositories also aid in interdisciplinary collaboration, encouraging partnerships between environmental science, engineering, social science, and policy departments.

Maharashtra's LIS institutions also contribute by integrating sustainability into curriculum and research agendas. LIS scholars increasingly engage in research on environmental information behavior, eco-literacy, and the role of information in shaping environmental attitudes. This growing body of work helps inform evidence-based practices and policymaking, particularly in areas like water conservation, waste management, and sustainable agriculture—sectors crucial to Maharashtra's economy and ecology.

Moreover, many university libraries in Maharashtra act as community learning hubs, extending their reach beyond academic circles. Through public engagement initiatives, such as green reading corners, seed libraries, eco-clubs, and partnerships with NGOs and local bodies, these libraries foster community-level environmental action. This aligns with the United Nations Sustainable Development Goals (SDGs), especially SDG 13 (Climate Action) and SDG 4 (Quality Education).

In conclusion, Library and Information Science in Maharashtra is evolving into a proactive, dynamic field that supports environmental sustainability through information dissemination, digital innovation, research support, and community engagement. As environmental concerns grow more urgent, the role of LIS professionals will be increasingly crucial in shaping informed, responsible, and sustainable academic and social environments.

Benefits & Impact

Library and Information Science (LIS) plays a crucial role in promoting environmental sustainability within Maharashtra's state universities. These libraries are not just centers for books and academic materials but have evolved into active participants in the sustainability movement. They contribute to environmental awareness, support research, and foster eco-friendly practices across campus communities. Their engagement has generated substantial benefits and positive impacts, both within the university and the wider society.

One of the key benefits of LIS in this context is its role in promoting environmental education and awareness. University libraries curate vast collections of materials related to climate change, green technologies, environmental law, and the United Nations Sustainable Development Goals (SDGs). They organize exhibitions, talks, and workshops to raise awareness among students, faculty, and staff. In a state like Maharashtra—where pressing environmental issues include water scarcity, air pollution, and deforestation—access to such information is vital. LIS professionals ensure that reliable, up-to-date, and regionally relevant content is accessible, which encourages environmentally responsible behavior among academic communities.

Another major contribution lies in supporting environmental research and policy development. Libraries act as essential hubs for accessing scientific journals, environmental reports, and data repositories. They provide scholars with tools and resources needed to undertake interdisciplinary research focused on sustainability. In many state universities, digital repositories now include studies on local ecosystems, biodiversity, and traditional ecological practices. Such knowledge preservation and dissemination support the creation of informed, localized environmental policies and strategies. LIS professionals also guide students and researchers in using data management tools, which helps in tracking the progress of green initiatives in alignment with national education goals.

The digital transformation of libraries has also significantly impacted sustainability. Many state university libraries in Maharashtra are shifting toward paperless operations by offering online catalogues, e-journals, e-books, and virtual research support. These initiatives reduce paper consumption and the environmental footprint associated with physical book production and transportation. Automated library systems, cloud storage, and digital resource-sharing platforms further enhance efficiency while contributing to environmental conservation.

Libraries are also promoting sustainability through green infrastructure and operational practices. Some universities have established eco-friendly library buildings equipped with solar panels, rainwater harvesting systems, and energy-efficient lighting. LIS professionals advocate for such changes and lead efforts like recycling programs and responsible resource usage within library spaces. These initiatives not only reduce environmental impact but also set a live example of sustainable practices for students and visitors.

Furthermore, the outreach role of university libraries extends their environmental impact beyond campus. Through partnerships with NGOs, local government bodies, and rural communities, libraries conduct reading drives and sustainability awareness programs. In remote parts of Maharashtra, where environmental literacy may be limited, university libraries act as bridges to information and agents of behavioral change. They promote eco-friendly practices and sustainable development knowledge that can empower local populations.

In conclusion, the contributions of Library and Information Science to environmental sustainability in Maharashtra's state universities are both impactful and multifaceted. Through knowledge dissemination, support for research, adoption of digital practices, and community outreach, LIS professionals are playing a key role in creating an informed and sustainable academic environment. As universities continue to lead in sustainability efforts, the importance of LIS will only grow, making it a cornerstone of eco-conscious education and action.

CONCLUSION

The contribution of Library and Information Science (LIS) to environmental sustainability in Maharashtra State Universities is both significant and evolving. University libraries have increasingly adopted green practices such as digital resource sharing, paperless services, and energy-efficient infrastructures. Through awareness campaigns, eco-literature curation, and sustainable information dissemination, LIS professionals are fostering a culture of environmental responsibility among students and researchers. By promoting open-access environmental research and supporting academic initiatives on sustainability, libraries serve as catalysts for eco-conscious thinking. Furthermore, LIS departments are integrating sustainability themes into their curriculum and research, nurturing future professionals who understand the importance of environmental stewardship. The synergy between information science and environmental goals is evident in Maharashtra's academic institutions, where libraries are not just repositories of knowledge but also active participants in sustainable development. As the state continues to face ecological challenges, LIS will remain a vital partner in shaping informed, green-minded academic communities.

REFERENCES

1. Chaubey, Ashutosh, et al. "Redefining the Internal Marketing-HRM Nexus: A Comprehensive Framework for Organizational Alignment in the Digital Age." International Journal of Management, Economics and Commerce 1.2 (2024): 94-101.

2. Gaur, Gauri, et al. "Consumer Perceptions of Health Food Brands." Educational Administration Theory and Practices 30.5 (2024).

3. Gupta, Amarnath, and Pradnya Chitrao. "Investigating the Role of E-Satisfaction on E-Loyalty Toward Packed Health Food Products." International Congress on Information and Communication Technology. Singapore: Springer Nature Singapore, 2023.

4. Medhekar, Amit, et al. "Preserving academic integrity in the age of AI: Ethical guidelines for medical manuscript preparation." Oral Oncology Reports 11 (2024): 100627.

5. Sridevi, T., et al. "Impact of English on The Cross-Cultural Information Flow in Digital Libraries." Library of Progress-Library Science, Information Technology & Computer 44.3 (2024).

6. Vanisree, M., et al. "Role of artificial intelligence in facilitating English language learning for Non-Native Speakers. Nanotechnology Perceptions 20, 1263–1272 (2024)."

7. George, Bibin, et al. "Impact of Digital Libraries on English Language Academic Writing." Library of Progress-Library Science, Information Technology & Computer 44.3 (2024).

8. Satpathy, Abhilash, et al. "To study the sustainable development practices in business and food industry." Migration Letters 21. S1 (2024): 743-747.

9. Gupta, Amar Nath, and Pradnya Chitrao. "Effectiveness of online shopping advantages of healthy food products on consumer buying behaviour." Information and Communication Technology for Competitive Strategies (ICTCS 2020) ICT: Applications and Social Interfaces. Singapore: Springer Singapore, 2021. 89-99.

10. Gupta, Amarnath, and Ganesh Kalshetty. "STUDY OF E-MARKETING PRACTICES OF SELECTED SMARTPHONE BRANDS FOR PCMC REGION."

11. Gupta, Amarnath, and Pradnya Chitrao. "A Study of the Effectiveness of Online Marketing Strategies of Packaged Health Food Brands wrt Gender." Decision Analytics Applications in Industry. Singapore: Springer Nature Singapore, 2020. 205-215.

12. Gupta, Amar Nath, and Pradnya Chitrao. "A Study of the Effectiveness of Online Marketing Strategies of Packaged Health Food Brands." ICT Analysis and Applications: Proceedings of ICT4SD 2019, Volume 2. Singapore: Springer Singapore, 2020. 169-181.

13. Singh, Gurvinder, and Jahid Ali. "A Novel Composite Approach for Software Clone Detection." International Journal of Computer Applications 126.7 (2015).

14. Sigh, Gurwinder, and Jahid Ali. "Study and analysis of Object Oriented Languages Using Hybrid Clone Detection Technique"." Advances in Computational Sciences & Technology, Research India Publications (2017).

15. Singh, G., & Kaur, J. (2025). Crime prediction using AI-driven methodologies. Journal of Technology, 13(3), 68–79.

16. Sunalini, K. K., et al. "Role of English Language in Facilitating Interdisciplinary Learning in Higher Education." Library of Progress-Library Science, Information Technology & Computer 44.3 (2024).

17. Vanisree, M., et al. "Role of English Language in Digital Library Instruction and Information Literacy." Library of Progress-Library Science, Information Technology & Computer 44.3 (2024).

18. Singh, G., & Chadroo, M. M. N. (2025). Crime prediction using AI-driven methodologies: Classification of commercial rice grains using morpho-colorimetric features and advanced artificial neural networks. Journal of Technology, 13(2), 661–674.

19. Singh Rahul, G., & Kumar, R. (2024). Crime prediction using AI driven methodologies to study the compressive strength by using destructive testing (DT) and non-destructive testing (NDT) of the concrete prepared by using fly ash and copper slag. International Journal of Emerging Technologies and Innovative Research, 11(5), j475–j483.

20. Singh, G., Kundal, S., & Kumar, R. (2024). Utilization of lathe steel fibre for development of concrete: Review. International Journal of Creative Research Thoughts (IJCRT), 12(3), e340–e346.