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SUSTAINABLE STRATEGIES TOWARDS GREEN LIBRARIES: A STUDY OF MANAGEMENT COLLEGES OF MUMBAI CITY

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Abstract

The study, which covers 38 management colleges in Mumbai city, examines the libraries of these institutions to see how much environmental awareness has affected these isolated regions of India.

The challenge of the research is to determine the extent to which Mumbai's management libraries are implementing environmental protection measures to preserve a green environment on both their internal and external campuses, as well as what sustainable development methods are being implemented for a green library.

The study is based on the survey method, and all of the data was gathered from 38 Managem ent Colleges in Mumbai City using a structured questionnaire. The questions were based on s pecific criteria selected from the IFLA (International Federation of Library Association and In stitutions) green library guidelines as stated in the book!

The Green Library: The Challenge of Environmental Sustainability (De Gruffer Saur, IFLA P ublications 161; edited by Petra Hauke, Itaren Latimer, and Klaus Ulrich Werner).

In order to understand about green library strategies and practices, the researcher physically visited the library and spoke with a library professional. Discussed the IFLA - provided green library parameters as follows
Universal access, energy consumption through green ICT, security, flexible service, acoustic insulation and recycling materials, HVAC system, sustainable service, LEED certific ation, etc. are some of the criteria.

Following data collection, analysis is done simultaneously in point score format and tabular format. Microsoft Excel program will be used for statistical tabulations. Data analysis serves as the foundation for interpretation. The American Psychological Association style (APS 7 edition) is used to cite references.

Keywords: IFLA guidelines, green IT, central libraries, green libraries, and environmental sustainability.

1. Introduction

Sustainability has become a global priority in the 21st century, influencing various sectors including education. Libraries, traditionally known as knowledge repositories, are now evolving into environmentally responsible institutions. A green library is

designed to minimize environmental impact through efficient use of resources, sustainable infrastructure, and eco-friendly services.

Mumbai, being one of India's largest metropolitan cities, faces significant environmental challenges such as pollution, energy consumption, and waste generation. Management colleges in Mumbai play a crucial role in shaping future leaders, and their libraries can serve as models of sustainability.

Sustainability has become a central theme in global development discourse, emphasizing the responsible use of resources to meet present needs without compromising future generations. Academic institutions are increasingly aligning their operations with sustainable practices, and libraries are emerging as key contributors in this transformation.

A green library is not merely an eco-friendly building; it encompasses sustainable services, efficient resource management, digital innovation, and environmental awareness. Libraries play a critical role in reducing carbon footprints by promoting digital resources, minimizing
paper usage, and adopting energy-efficient technologies.

Mumbai, as a major metropolitan hub, faces environmental challenges such as high energy consumption, pollution, and waste generation. Management colleges in Mumbai have the potential to influence future leaders, making it essential for their libraries to adopt and promote sustainable practices.

This study focuses on identifying sustainable strategies adopted by libraries in management colleges and evaluating their effectiveness.

2. Objectives of the Study

1. To identify green practices adopted by management college libraries in Mumbai
2. To assess the level of awareness regarding sustainability among library staff
3. To analyze challenges in implementing green library initiatives
4. To suggest strategies for improving sustainability in libraries

3. Literature Review

Antonelli (2008) focused on environmentally sustainable library buildings, while contemporary studies stress the importance of integrating technology with sustainability. In India, research indicates that green library initiatives are still developing, with a primary focus on digitization rather than holistic sustainability.

Green libraries integrate environmental considerations into their operations. According to Aulisio (2013), green libraries go beyond infrastructure and include sustainable services and user awareness. Jankowska and Marcum (2010) emphasized the role of academic libraries in promoting sustainability through digital resources and energy-efficient practices.

In the Indian context, Singh (2019) highlighted that green initiatives are still in the early stages, with most institutions focusing on digitization rather than comprehensive sustainability strategies.

Due to growing environmental concerns and the need for sustainable growth, the idea of "green libraries" has received a lot of attention lately. Green libraries use eco-friendly

procedures, resource conservation, and energy efficiency to reduce their negative effects on the environment.

According to a number of studies, green libraries incorporate energy saving, trash management, digital resource usage, and sustainable building design as important tactics. Numerous academics' studies highlight how libraries are shifting from conventional systems to ecologically conscious establishments by embracing renewable energy, cutting back on paper use, and fostering digital resources.

Recent research indicates that digital transformation is essential to green library projects. Adoption of e-books, e-journals, and institutional repositories promotes sustainability and lessens reliance on physical resources. Libraries are putting more of an emphasis on digital access in order to reduce their carbon footprint and improve user convenience.

Research done in India shows that although there is awareness of green libraries, there is still a moderate level of implementation, particularly in academic institutions. Adoption of green techniques is hampered by issues like low legislative support, infrastructure deficiencies, and financial limitations.

Additionally, research reveals important sustainable tactics like:

Utilizing energy-saving technologies, such as solar energy and LED lighting use of waste management techniques (reduced printing, recycling) adoption of green building guidelines Organizing user education campaigns and awareness campaigns

These tactics encourage environmental responsibility in libraries and are consistent with worldwide sustainability guidelines.

Additionally, research on Indian university libraries shows that while some environmentally friendly practices, such as water management and energy conservation, are implemented, comprehensive green certifications and standards are still lacking. This implies that institutional support and organized planning are necessary.

Librarians are essential in advancing green initiatives through information literacy

programs,
awareness campaigns, and policy implementation, according to prior study on sustainable strategies in academic libraries.

4. Research Methodology

4.1 Research Design

Descriptive research design was used to analyze existing practices.

4.2 Sample Size

38 Management Colleges in Mumbai were selected.

4.3 Data Collection

- Primary Data: Questionnaire and interviews
- Secondary Data: Journals, reports, institutional websites

4.4 Sampling Technique

Convenience sampling
method

5. Data Analysis and Interpretation

Table 1: Adoption of Digital Resources

Institution	E-books	E-journals	Institutional Repository
College A	Yes	Yes	Yes
College B	Yes	Yes	No
College C	Yes	No	No
College D	Yes	Yes	Yes
College E	Yes	Yes	No

Caption: Table showing adoption of digital resources across selected colleges

Interpretation

Table 1: Adoption of Digital Resources

Most institutions have adopted e-books and e-journals, indicating strong digital

transformation. The table highlights the adoption of digital resources such as e-books, e-journals, and institutional repositories across selected colleges. It is observed that all institutions have adopted e-books, and most have access to e-journals, reflecting a strong shift

towards digital learning. However, institutional repositories are not uniformly implemented, indicating scope for further development in knowledge preservation practices.

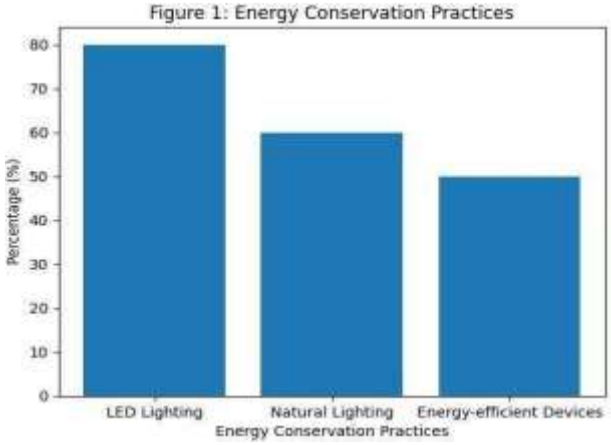
Figure 1: Energy Conservation Practices

(Bar chart representation: LED lighting – 80%, Natural lighting – 60%, Energy-efficient devices – 50%)

Caption: Figure showing percentage of libraries adopting energy conservation practices

Interpretation

Energy-saving practices are moderately implemented, with LED lighting being the most common.



The bar chart illustrates the percentage of libraries implementing energy conservation practices. LED lighting is the most widely adopted method (80%), followed by natural lighting (60%) and energy-efficient devices (50%). This indicates a growing awareness of sustainability, although there is still room for improvement in adopting advanced energy-saving technologies.

Table 2: Waste Management Practices

Practice	Percentage of Adoption
Paper Recycling	70%
Reduced Printing	60%
E-waste Management	40%

Caption: Table showing waste management practices in libraries

Table 2: Waste Management Practices

This table presents the adoption of waste management practices in libraries. Paper recycling is the most common practice (70%), followed by reduced printing (60%), while e-waste management is comparatively lower (40%). This suggests that while basic sustainability practices are in place, specialized waste management like e-waste handling needs more attention.

Figure 2: Awareness Programs Conducted

(Pie chart: Workshops – 40%, Campaigns – 30%, No programs – 30%)
Caption: Figure showing types of awareness programs conducted

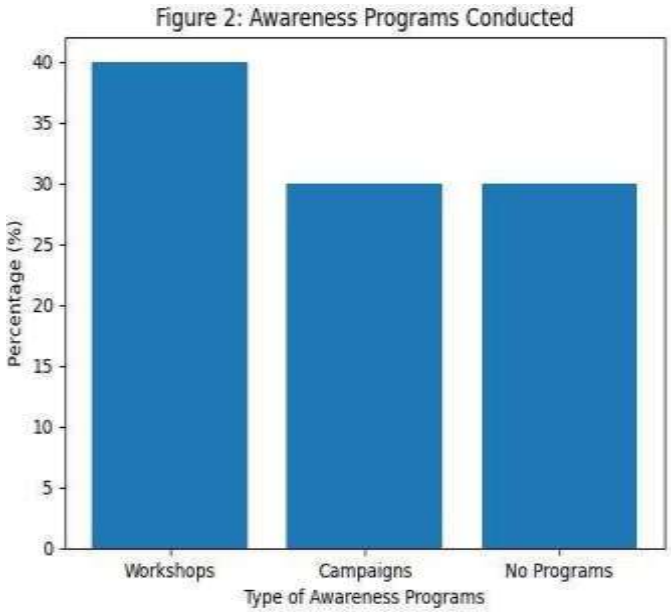


Figure 2: Awareness Programs Conducted

The pie chart shows the types of awareness programs conducted by libraries. Workshops (40%) are the most common, followed by campaigns (30%), while 30% of institutions have not conducted any programs. This highlights the need to increase awareness initiatives to promote sustainable and digital practices among users.

Overall Interpretation

The data indicates that while digital resource adoption is strong, sustainability practices such

as energy conservation, waste management, and awareness programs are moderately implemented. There is significant potential for libraries to enhance their role in promoting green and digital initiatives.

6. Findings

1. Digital resources are widely adopted
2. Energy conservation practices are partially implemented
3. Waste management systems are not fully developed
4. Awareness programs are irregular

There is little research that particularly addresses management college libraries in large cities like Mumbai, and the majority of studies that are currently available concentrate on university and public libraries. Additionally, there is a dearth of actual evidence regarding these colleges' institutional embrace of green practices.

7. Challenges

- Budget constraints
- Lack of awareness
- Limited technical expertise
- Resistance to change

8. Suggestions

- Develop green policies
- Increase funding
- Conduct training programs
- Promote paperless systems

9. Conclusion

Green libraries are essential for sustainable development. While management colleges in Mumbai have initiated some practices, there is a need for systematic implementation and continuous improvement.

The study reveals that digital transformation is the most effective and widely adopted green

strategy. Libraries are increasingly shifting toward electronic resources, reducing dependency on printed materials. However, the adoption of energy-efficient systems and waste management practices remains inconsistent.

According to the research, green libraries are crucial for sustainable growth, although different institutions execute them differently. Environmental practices are continually evolving, despite the widespread adoption of digital tools. In order to comprehend present practices and make recommendations for improvements, it is necessary to study sustainable techniques in Mumbai's management institutions.

Additionally, the absence of institutional policies limits the effectiveness of green initiatives.

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