
**GREEN LIBRARIES: CONCEPT, ISSUES, STANDARDS AND AN OVERVIEW IN
INDIAN SCENARIO**

Dr.Virendrakumar L. Barde

Librarian,

Indira Gandhi Kala Mahavidyalaya, Ralegaon,

Dist. Yavatmal

virendralbarde@gmail.com

Dr.Kishor S. Damhare

Librarian,

Dr.R.G.Bhojar Arts, Commerce and, Science

College, Deloo, Dist. Wardha

dskishor@rediffmail.com

ABSTRACT:

This paper explores the transformative potential of libraries into green libraries in India, addressing the urgent need for sustainability in the face of environmental challenges. It outlines the definition and standards of green libraries, emphasizing their role in minimizing environmental impact through sustainable practices in operations, design, and community engagement. The paper identifies key challenges faced by libraries in adopting green practices, including budget constraints and lack of expertise, while highlighting the critical role of librarians in promoting sustainability literacy. Furthermore, it discusses various strategies for developing green libraries, such as utilizing renewable energy, implementing water conservation measures, and fostering community involvement. By examining successful green library initiatives in India, this paper aims to provide a comprehensive understanding of how libraries can evolve to meet modern social needs while contributing to environmental stewardship.

Key Words: Green Library, Green librarian, Sustainable Library, LEED (Leadership in Energy and Environmental Design), IGBC (Indian Green Building Council), Green Library Movement

INTRODUCTION

Libraries have become crucial in promoting sustainability and environmental stewardship, with the concept of "Green Libraries" emerging as a response to global challenges such as environmental degradation, resource reduction, and climate change. These libraries incorporate sustainable practices into their operations, physical spaces, and community programs, demonstrating how institutions can evolve to meet modern social needs. Green libraries not only reduce their environmental footprints by adopting environmentally friendly infrastructure, reducing waste, and promoting digital resources, but also serve as catalysts for change within the community. Green libraries focus on integrating environmentally responsible practices into library operations, design, and community engagement, aiming to reduce the environmental impact while promoting sustainability literacy and action among patrons. The Online Dictionary for Library and Information Science (ODLIAS) defines a green library as one designed to minimize negative impacts on the natural environment through careful site selection, use of natural building materials and biodegradable products, conservation of resources, and responsible waste disposal. A library that considers social, economic and environmental sustainability is taken into consideration green and sustainable.

Sustainability is increasingly achieved through the LEED (Leadership in Energy and Environmental Design) certification, developed and managed by the U.S. Green Building Council (USGBC). Libraries can qualify as a green library through energy-efficient, resilient, cost-effective, and environmentally friendly building designs. However, eligibility for a Green Library does not end there; it plays a significant role in bringing greater environmental sustainability to society and creating a sustainable community.

LITERATURE REVIEW: This review explores the growing recognition of green libraries as crucial in the global sustainability movement, examining key studies and perspectives on their principles, practices, and impacts.

MollahNitin (2024) discussed in his paper titled Green Libraries: A Review of Some Eco friendly Initiatives and Sustainable Practices on the surveyed the initiatives taken by the reputed organizations and programmes such as IFLA, LEED and GRIHA in this direction.

Petra Hauke (2019) discussed in his paper titled Green Libraries Towards Green Sustainable Development on a broader definition of a “Green Library”, followed by an overview of the aims and intentions of the IFLA Green Library Award including the criteria for the award.

BiswasAshis (2019) emphasizes in his article entitled Transformation of Library into Green Library: A Study in Indian that the social responsibility of libraries as leaders in environmental sustainability, particularly in countries like India where population growth negatively impacts natural resources and the environment.

PuspanjaliMeher, LambodaraParabhoi (2017) highlights in their paper -Green Library: An Overview, Issues With Special Reference To Indian Libraries on conditions of environment, their impacts on society and efforts of leading organizations towards an eco-friendly earth, modified standards for the betterment of green library, role features of green library, and role of librarian to make green library.

Bhattacharyya A. (2017) discussed on green libraries, designed to protect the environment and community, can demonstrate their social responsibilities by raising awareness about green practices.

Vijayalakshmi, (2014.) On his article on “Greening the Library for sustainable development” the article discusses the Green Library initiative in India and the global efforts to promote sustainable development

OBJECTIVES: The objectives of this paper are as followed

- To discover how libraries may be converted into green libraries in India.
- To depict standards for Green Libraries.
- To understand about challenges for libraries to go Green.
- To discuss the green libraries and role of librarians

What is a Green Library?

Green libraries are designed to minimize negative impacts on the natural environment and maximize indoor environmental quality through careful site selection, use of natural construction materials and biodegradable products, conservation of resources like water, energy, and paper, and responsible waste disposal. Libraries play a social role as leaders in environmental

sustainability, focusing on related services, events, activities, literature, and projects. A green building is defined by the US Green Building Council's LEED performance system as one that incorporates sustainable development, site selection, conserving water, efficiency of energy, waste reduction, local resources, and material conservation.

The green library movement emerged in the early 1990s and is gaining popularity in the field of library and information science. Libraries are striving to develop structures that minimize electricity consumption, energy efficiency, and environmental friendliness. Green libraries are structures designed, built, renovated, operated, or reused in an ecological and resource-efficient manner, as a collective effort to reduce global warming. The Online Dictionary of Library and Information Science defines green libraries as structures designed to minimize negative impacts on the natural environment and maximize indoor environmental quality.

ELEMENTS OF GREEN LIBRARY

Community & Locality: Library locations should be ideal, away from noise and public transportation, to ensure patron concentration and focus on study, as per guidelines from LEED and U.S. Green Building Council.

Area: India's diverse landscape necessitates comprehensive planning for construction, considering locality, weather, and area, ensuring effective planning for hilly and plain areas.

Constructional material: Green libraries are constructed using recyclable and sustainable materials, adhering to various Indian and international standards and protocols.

IGBC: The Indian Green Building Council (IGBC), a subsidiary of the Confederation of Indian Industry, offers green building rating programs, training programs, and certification services.

LEED: LEED is a renowned program that promotes environmentally friendly, high-performance green buildings, aiming to minimize waste at every stage of construction.

LIGHT: A library should have windows, glass windows, and skylights that allow natural light, reducing electricity usage during the day. Using low energy bulbs and lights in non-reading areas can indirectly save money and electricity.

AIR: Air quality is crucial for comfort and breathability, and proper plantation around campuses helps cool the library and control air conditioner operation.

Green Infrastructure: Other elements are important for green library as follows

Material choice: Material choice in elite construction projects is crucial for tenant prosperity and environmental connection. However, many materials have significant ecological impacts, such as toxin discharges and waste. Ecological life-cycle appraisal, a thorough evaluation of natural weights, can help limit these impacts.

A Green Rooftop: Green rooftops, featuring waterproofing, root repellent, waste, channel material, and plants, offer public and private benefits and have been successfully implemented globally.

Rainwater harvesting: Water harvesting is a method that collects and stores water from rooftops, reducing demand on mains supply, offering flexibility from neighbourhood supply issues, and reducing energy used for water treatment and transportation.

Space planning: Cabinetwork placement can affect air delivery, potentially overheating HVAC systems, and affect indoor air quality, necessitating careful placement to prevent overheating and furniture blocking air registers.

Outfit conservation: Active conservation of HVAC outfits is crucial for quality air delivery and proper functioning, with preventative conservation programs in well-run structures.

Plants: Plants, particularly broadleaf species, can absorb and catabolize poisonous substances in environment, known as phytoremediation. NASA recommends indoor plants for natural water-filtration, reducing adulterant situations in rooms. Tests show these plants can effectively combat pollutants.

Energy conservation: To conserve energy in the library, implement energy-effective practices such as using turning off electronics when not in use, buying energy-effective bias, minimizing artificial lighting, and checking doors and windows for reflective film..

Renewable Energy: Renewable energy technologies like rooftop photovoltaic systems utilize solar panels mounted on the roof to generate electricity directly from the sun.

STANDARDS FOR GREEN LIBRARY

Centre of Science and Science and Technology for Rural Development (COSTFORD): In 1984, a non-profit organization was established to offer low-cost, eco-friendly living environments using energy-efficient materials like bamboo, brickwork, and bamboo, minimizing cement and brick usage.

Habitat Technology Group (HTG), HTG, a non-profit government association founded in 1987 in Kerala, designs eco-friendly structures at low costs. With over 1 lakh green structures worldwide, they use structure-integrated PV systems to generate electricity directly from the sun. They also use solar thermal systems, heating and cooling systems, passive solar design, and energy storehouse systems, which use control systems to increase renewable energy use.

LEED, developed in 2000 by the US Green Building Council: The program aims to enhance the design and construction of eco-friendly, cost-effective, and well-erected green structures, achieving LEED certification, which contributes to a healthier environment and improved quality of life.

Building Research Establishment Environmental Assessment Method (BREEAM) The BREEAM system, the world's longest-established system, evaluates and certifies the sustainability and environmental aspects of structures in over 50 countries.

Chicago Illinois Norms Chicago : Chicago is a pioneer in incorporating environmentally friendly practices into public structures, largely guided by the LEED Green Building Rating System.

Brown Green Standard: California Governor Jerry Brown supports green library trends, requiring new or repaired state structures to meet LEED Tableware Instrument and incorporate clean energy generation.

. **IGBC Indian Green Building Council Standard**

The Indian Green Building Council (IGBC), established in 2001 by the Confederation of Indian Industry, promotes sustainable building practices in India. It has certified the LEED Green Building Standard and developed a Gold standing system, with over 5800 registered systems.

Herbage Standing for Integrated Habitat Assessment (GRIHA): The Energy and Resource Institute (TERI) in New Delhi is a key player in India's green structure movement, established in 1974 to promote sustainable development through clean energy, water, waste, pollution, and eco-friendly terrain.

GREEN LIBRARIAN ROLE OVERVIEW

- Makes use of internet resources for advertising.
- Recognizes users for the Eco-library system.
- Encourages the use of green library technologies and methods.
- Promotes green libraries to other librarians.
- Oversees supporting organizations' budgets.
- Makes use of solar panels and biodegradable materials.
- Bamboo is used more often than steel.
- Encourages plants on rooftops to improve air quality.
- Suggests other OPACs and reading places.
- Verifies that book shelves are no longer than 110 cm.
- Makes accommodations for users with physical disabilities at the library.

HOW TO DEVELOP A GREEN COLLECTION

Librarians educate themselves on green practices, resources, and materials, and gather green information for patrons to develop a green collection.

ALA (2009) suggests a few methods to help community needs for inexperienced facts these are:

- Open forums for green book clubs and environmental video viewings
- Create opportunities for children to understand their environment through competitions, poems, or essays.
- Select materials on organic gardening, composting, green computing, and energy conservation.
- Set library computer links to environmental issue sites.
- Build outreach relationships with local environmental groups.
- Collaborate with local schools to support green curriculum and projects.

INDIAN INITIATIVES TOWARDS GREENING INDIA:

India ranks third in the top 10 countries for Leadership in Energy and Environmental Design outside America, according to the US Green Building Council report. Canada and China are the top two in LEED rankings. India has numerous green libraries, including Asia's first LEED Gold-rated library building, Anna Central Library in Chennai. Other green libraries in the country include Anna Central Library, Chennai.

Karnataka university library Dharwad: Since 1950, the university's eco-friendly library has provided students with a green space, following the traditional Gurukul system. The library aims to facilitate group discussions and offers open study spaces with sitting, dirking, and WiFi

facilities. Located near all P.G departments, the green library ensures maximum benefits for students, ensuring a comfortable and conducive learning environment.

Mumbai University Library: The Mumbai University Library, established in 1880, utilizes eco-friendly wood-based equipment and wide windows for proper light access. The library provides ample open space for readers and uses wood as a stack material.

Madras University Library: The 1907 Indo-British-style library features wood materials in stack areas, reference halls, and reading halls. Large windows provide proper lighting and fresh air for reading, enhancing the library's aesthetic appeal.

Anna Centenary Library (ACL): The Tamilnadu Government established a modern library in Kotturpuram, Chennai in 2010. The 8-acre building, costing 172 crore, is equipped with modern technology and proper use of light, air, and wood. It is one of India's reputed green libraries, earning a gold LEED rating.

The PermaKarlo Library: Arup designed the PermaKarlo Library for a small village in Ladakh, India, as part of their pro bono work. The library, part of the Druk White Lotus School, uses sustainable and beautiful materials like Trombe Walls, hair sequestration, a slush roof, timber paneling, and solar panels. The design was initiated by Arup, who supervise the project on-site, with a platoon responsible for delivering practical results. The local accoutrements are sourced locally, and the design process is carried out with local people to ensure knowledge retention.

Indian Institute Technology (IIT) Library, Roorkee: The Mahatma Gandhi Central Library of the Institute is a unique academic library, blending classic and ultramodern elements. As one of the oldest in the country, it is housed in a state-of-the-art, centrally broiled structure with advanced ICT installations.

NIT, Silchar: NIT, Silchar is constructing a new library building, the first of its kind in the North East Region of India, designed according to the US LEED certification system.

The Energy and Resources Institute (TERI) Library, established in 1974, is a pioneering exploration library and information center in South Asia, serving in-house experimenters and providing value-added services to energy and terrain professionals worldwide.

Delhi University Library: The Library Building in Delhi uses indigenous Khuskhus pads to prevent excessive heat, and is designed to be naturally cool with a broad opening for natural light. Other green library initiatives in India include Calcutta University Library and PermaKarlo Library in Ladakh.

GREEN LIBRARY CHALLENGES Green libraries, a part of the green building movement, face unique challenges such as preserving books from sunlight, moisture, and temperature changes, which can reduce reliance on artificial lighting. New developments in glass technology have provided designers with more flexibility in arranging collections. Another challenge is the weight of books, which can hinder circulation strategies. To address this, designers have zoning libraries into designated areas for different strategies. Libraries need to be built flexibly to accommodate expansions in size and wiring capabilities. As long-term investments, architects must consider the special needs of the library from the beginning of the project, as these obstacles are not insurmountable.

Notwithstanding the green library movement and sustainable practices are realized across the world, still there are some challenges to be dealt with:

- Libraries face budget cuts, hindering the implementation of green goals.
- Library buildings are often neglected, especially in colleges.
- Green practices require expertise from management to maintenance, leading to potential lack of awareness.
- Attitudinal barriers hinder sustainable practices, especially in administration.
- A well-planned green library building can overcome resistance to change.

CONCLUSION:

Library spaces and budgets are often insufficient, and books face issues like dust, moisture, and fungus. A green library, or sustainable library, minimizes electricity consumption and maximizes renewable sources like air, sunlight, and woods. Librarians should make decisions to create a green library and participate in the green library movement. National and international bodies are helping to promote green libraries, and the government should encourage and guide libraries in making these changes. Some Indian libraries have successfully implemented green initiatives, and librarians should take initiative and participate in the green library movement.

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