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Green Library And Environmental Sustainability: A Study In Respect Of Academic Libraries.

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Abstract:

As a social institution, libraries have also responsibilities towards environment. Like other fields of the society, libraries also have to take some green initiatives, to protect the environment from its severe deterioration. Green library is an environmentally conscious library that minimizes negative impact on environment and maximizes use of renewable resources. This paper tries to elaborate some efforts that can be taken for greening the library, such as greening the library building, greening the library collection, greening the library services, greening the library practices and greening the library with green ICT. Green initiatives taken by some of the Indian academic libraries are discussed here. Challenges faced by the libraries to transform them into green libraries are also discussed here.

Index terms: Academic library, Environmental sustainability, Green building, Green collection, Green library.

1.Introduction:

As Mahatma Gandhi said, 'Nature provides enough to satisfy everyman's need, but not to any man's greed', the environment does not have enough resources to fulfill day-by-day increasing needs of human-being. Environmental components are seriously affected by the uncontrolled and unlimited use by human being. Sustainable use of natural resources is the only solution to save the environmental components that has been gaining importance over the last few years. Simultaneously, interest in the green revolution has grown practically in every sector, including the library. Libraries, which serve as knowledge gateways, are too accountable for promoting the view of sustainability, as it is socially responsible to its communities. Consequently green library concept has been has been developed. There is an urgent necessity to incorporate green features into the various library practices. The green library is a multi-faceted concept with various components like green buildings and infrastructure, green operations and practices, green programs and services, and green collections as an important evolutionary means for environmental literacy to create a more environmentally literate community.

Academic libraries the citizen building organization have great role in promoting sustainability in the institution. It can promote sustainability in terms of building, in terms of collection, in terms of services, in terms facilities, in terms of techniques and so on. This paper provides a comprehensive study in this regard.

2. Objective of the study:

2.1. To identify green library initiatives adopted by academic libraries;

2.2. To identify major academic libraries that adopted green practices in Indian context &

2.2. To know the challenges faced by academic libraries in promoting sustainability.

3. Methodology:

The study is based on secondary information. Information regarding the topic are searched in ResearchGate and Google Scholar by typing the keywords, 'Green library', 'Sustainable library', 'Academic library' and 'Environmental sustainability'. Results coming out are gathered, studied and try to draw conclusion.

4. Literature Review:

The earliest articles on green library were published in 1990s. An article entitled "The Green Librarian" by James and Suzanne LeRue was published in a special section namely "Libraries and Environment" of Wilson Library Bulletin (1991). In 1992, the first issue of Green Library Journal was published under a global editorial board. Later in 1994 the name was changed to Electronic Green Journal. Bill Brown (2003) discussed emerging trend of green libraries in his article "The New Green Standard" in Library Journal. In 2008, an article by Tom Peters entitled "Green Library PCs", described how libraries can reduce their computers' environmental impact and energy usage. This was probably the first article regarding impact of computers on library environment. Meher, P. &Parabhoi, L., (2017) took an overview of the concept of green library with special reference to Indian libraries. Sawant, U. S. & Sawant, R. G. (2018) discussed the concept, features and role of green librarian. Biswas, Ashis (2019) discussed elaborately the transformation of library into green library in Indian Perspective. Shukla, Ravi & Sharma, Akriti& Singh, Meghabat (2020) studied sustainability development of green libraries with its features, importance and standards. Khromiak, Yana (2022) published an article discussing green technologies in the library. Maina and Mwiti(2024) studied green library initiatives in university libraries of Kenya.

5. Role of academic library in sustainable environment through green initiatives:

Each and every sector of the current society adopts green initiatives to promote environmental sustainability. Like other fields libraries have also major responsibilities towards maintaining ecological balance between the library activities and indoor-outdoor environment. Here is a discussion about almost all possible green activities that can be adopted by academic libraries to transform its various components into green components.

Academic libraries, serving as pivotal centers for learning, research, and community engagement within universities, possess a unique capacity to champion and integrate sustainable practices.

5.1. Developing Green Library Building:

5.1.1. International Standard for Green Building:

United States Green Building Council (USGBC) defines green building as, "a holistic concept that starts with the understanding that the built environment can have profound effects, both positive and negative, on the natural environment, as well as the people who inhabit buildings every day". Green building itself possesses various sustainable features such as, natural light, solar energy systems and proper ventilation for adequate air circulation to provide indoor environmental comfort. To design the green building, USGBC introduced LEED (Leadership in Energy and Environmental Design), a globally recognized body for building rating in the year 2000 for new as well as existing buildings. LEED certified buildings are environment friendly as they have lower carbon emissions and provide healthier places for people. LEED identifies five criteria for green building, which are site location, energy efficiency, water conservation, indoor air quality and building material. Based on these five components, LEED certifies building as platinum (80 points or above), Gold (60-79 points), Silver (50-59 points) and certified (40-49 points) on the basis of above mentioned five criteria.

5.1.2. Indian Standards for Green Building:

5.1.2.1. Indian Green Building Council (IGBC): As USGBC, Indian Green Building Council (IGBC) was formed in 2001 under the Confederation of Indian Industry (CII). The vision of the council is, ' To enable a sustainable built environment for all and facilitate India to be one of the global leaders in the sustainable built environment by 2025. IGBC has licensed the LEED Green Building Standard from USGBC.

5.1.2.2. GRIHA: Another notable organization of India working in the field of eco-friendly environment, The Energy and Resource Institute (TERI) developed a rating system named Green Rating for Integrated Habitat Assessment (GRIHA). In 2007, Government of India adopted GRIHA as the national rating system for green building.

5.1.2.3. BMTPC: BMTPC (Building Materials and Technology Promotion Council), India identifies 27 types of potentially viable building materials based on agro-industrial wastes, by-products, residues, natural fibers, plantation timbers, including rice and wheat husk, bagasse from sugarcane etc., that are cultivated on a large scale in Indian farms. These sustainable building materials can be used at the time of constructing new library building in India.

By following any of the standards green library buildings can be developed. Importance should be the given to the usage of green building materials, adequate provision for natural light and ventilation, rain water harvesting system for water conservation, installation of solar panels and proper plantation for indoor and outdoor environment quality

Eco-friendly furnishing materials such as bamboo, flawed wood, trees can be utilized for library furniture, which assures strength, longevity and beauty of the library.

Developing a green building is cost-effective, so that any organization or institution can try to

develop it.

5.2. Developing Green Library Services and Facilities:

5.2.1.1. Automated circulation: Issue and return by using Integrated Library Management software (ILMS) reduces use of paper and accordingly reduces the use of paper, which in turn promotes sustainability.

5.2.1.2. Automated entry and exit: Similarly manual gate register can be replaced by placing a terminal of ILMS at the entrance of the library. Users should be provided digital card and should scan their card during entry and exit.

5.2.1.2. Automated cataloguing: Using of ILMS in cataloguing reduces use of paper card, which supports sustainable use.

5.2.1.3. OPAC: Online Public Access Catalogue replaces manual paper catalogue, which is a significant step towards environmental sustainability.

5.2.1.4.Green printing and photocopying service: Green or eco-friendly or sustainable printing and photocopying are nothing but the practice of using renewable energy resources, reducing the use of energy and greenhouse emissions, and using recycled materials. Using eco-friendly paper enhances green printing service. Refilling the toner cartridges rather than buying new is preferable. Now-a-days eco-friendly ink is available, which has no adverse effect on environment.

5.2.1.5. Online dissemination of information: To reduce the use of paper, information can be disseminated online as far as possible. Documents can be shared through cloud computing services such as google document, through email and through whatsapp rather than mailing print form.

5.2.1.6. Open Access Books and Journals: Libraries may provide facilities for accessing open access books and journals for its users. Open access online resources such as, Directory of Open Access Books

(DOAB), Directory of Open Access Journals (DOAJ), NDLI, e- gyankosh etc. can be used fruitfully in the libraries. It requires no extra space and reduces the use of paper.

5.3. Developing green collection:

5.3.1.Digitization of library collection minimizes the costs related to managing print collection such as space, other paper works such as fixing ownership slip, book pocket, date label and spine label & printing book card for each and every book and thereby reduces the use of paper.

5.3.2. Weeding out of library resources such as old books, CDs and DVDs and other electronic products can be reused and recycled to minimize the bad effect on indoor environment quality. Weeded books can be sold at nominal cost both through online and offline trading.

5.3.3. Providing e-collection also, helps in developing green collection. E-resources such as e-books, e-journals, e-papers are preferable formats for green collection as it reduces use of paper.

Some efforts have to be taken by the librarians towards developing green collection. Librarians should educate themselves about green practices, green collection and green programming materials.

5.4. Use of Green Information and Communication Technology:

5.4.1. **Computers and internet** are the inevitable part of a modern library. Increasing use of computers and internet increases emission of green house gases to the environment. It is estimated that ICT contribution is around 2% of the world's greenhouse emissions. Even though the overall contribution of the ICT appears to be low, it is growing at an accelerated rate. To reduce the use of green house gases, computers can be turned off, while not in use.

5.4.2. **Introducing RFID** (Radio Frequency Identification Technology)may enable green ICT in libraries. Automated circulation system can be developed either through RFID or through Barcode. RFID or Barcode can be used for item identification as well as user identification. This automated circulation system can be connected with internet mailing server or SMS gateways to send check in and check out receipts to the users and thereby limiting the use of paper. The use of RFID tags can have direct impact on the environment by enabling more efficient waste management and recycling. Being the bond between the physical and the cyber world, the tags can be the key drivers in attacking the 98% opportunity of carbon emissions.

5.4.3.KIOSK: Instead of desktop computer, KIOSK terminal can be used for browsing OPAC and e-resources by the users, which is highly cost effective and power efficient.

5.5. Other Green Practices:

Academic libraries may follow some other easy-to-adopt green practices, such as waste management, using more environment friendly cleaning products instead of toxic chemical products, use of environment-friendly or recycled materials, use of eco-friendly preserving materials, plantation of anti-pollutant plant inside the library and turning off computers, fans and lights while not in use.

6. Academic Libraries in India that adopt Green Library Initiatives:

6.1. Calcutta University Library, Calcutta: Adequate height, vast open areas and windows all through the eastern wall bears features of green library.

6.2.. Delhi University Library, Delhi: Library building has broad opening with natural light.Here Delhi summer desert coolers are used which have pads with indigenous material 'Khuskhus' that prevents heat from coming inside.

6.3. Karnataka University Library, Dharwad: This library is developed in open and natural green environment, where benches are installed under the trees for studying.

6.4. Madras University Library, Chennai: The library possesses green features with large windows for both fresh air and sunlight.

6.5. Mumbai University Library, Mumbai: The university provides an environment friendly building using wood as stack material and having ample space for the users.

6.6. NIT Library, Silchar: The library building is designed according to LEED certification system. It is probably the first library in Assam to take such initiative.

5. Challenges faced by going green library:

- Cost of going green library with reconstruction is very high, not easy to afford.
- Electricity consumption is another key factor for going green library, as using e-resources increases electricity consumption.
- Lack of consciousness as well as awareness towards green technology is another factor influencing it.
- Lack of expertise required to introduce components of green technology.

6. Conclusion:

To meet the environmental challenges, academic libraries have to be transformed into green or sustainable libraries with minimum electricity consumption and maximum use of renewable sources like air, sunlight, woods. Efforts should be taken by the concerned authority to make the libraries green. Interest and attention is required to implement green initiatives. Government should encourage academic libraries to adopt green initiatives. Some of the Indian libraries already have taken successful green initiatives. In Assam, NIT, Silchar has taken initiative to make the library green. It is probably the first in Assam. All the library professionals should be an active part of the green library movement to transform their libraries to green or sustainable one.

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