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Dr. Rajesh Kumar works as a University Librarian at Manav Rachna International Institute of Research and Studies, Faridabad. He holds a Ph.D. in Library Science and Geography and a B.L.I.Sc. and M.L.I.Sc, Degrees from the Department of Library and Information Science, University of Delhi, M.Phil. (Lib. Sc.), M.B.A. C.I.C & L.LB.

He has around 28 years of experience and has developed a unique concept, "Total Quality Librarian", in the field of Library and Information Science. He has contributed/presented 61 papers at different National and International Conferences. His seven papers have also been published in refereed Journals, UGC Care and Scopus listed Journals. He is the Associate Editor of the well-reputed UGC Listed Journal "Library Herald".He has also published Nine books as an editor. He has also published a poetry Book, "EK Anam Kavi ki Rachnaye".

He has been instrumental in organizing various Conferences, Workshops and Seminars. He has also conducted 68 Programmes (Workshop, Conference, Librarian Development Programme Seminar & Webinar). He was associated as the Organizing Secretary and member of several National and International Conferences in different capacities. IGNOU has also empanelled him as an Academic Counselor for C.L.I. Sc, B.Lib. PGDLAN and MLISc Courses. He has also been a resource person and a subject expert to train library professionals of the Delhi Government School. Under his supervision, 18 M.L.I.Sc and 4 PGDLAN students submitted their Project Reports.

He received many awards like the MANLIBNET Promoter Award and Distinguished Faculty Award for Outstanding contributions in the field of Library and Information Science from Delhi Library Association, New Delhi, Gandhi Peace Foundation and SDPA have conferred him the "The Best Leadership in Skilling of LIS Professionals" Award and the Award for outstanding performance and exceptional commitments towards contribution to the larger good in promoting MANLIBNET, Librarianship and Innovative Service by Institute of Management Technology at IMT Ghaziabad. He also received "The MANLIBNET Innovative Librarian Award 2023.

Before joining MRIIRS, he served in various reputed organizations, such as Viz. Indira Gandhi National Open University, New Delhi, Amity Business School, Noida, Sri Sringeri Sharada Institute of Management, New Delhi, Asia Pacific Institute of Management, New Delhi, ICFAI Business School, Noida, Indus World School of Business, Greater Noida, Lanco Infratech Ltd., Gurgaon and INMANTEC Institutions, Ghaziabad.
He has helped set up libraries for many universities and institutions. He is also elected Secretary of MANLIBNET and Delhi Librarian Association and Vice President of Bihar Library Association. He is the Life Member of MANLIBNET, ILA, IASLIC, ILSD, LAB and DLA

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Prof. M Masoom Raza

Prof. M. Masoom Raza is working as Professor & HOD in the Department of Library and Information Science, Aligarh Muslim University, Aligarh. He did his M.Sc. (Hons), ML&ISc and Ph.D from Panjab University, Chandigarh. He also worked as Professor and Head in the Department of Library and Information Science, North Eastern Hill University, Shillong from 2010 to 2013. He had been a member of various committees/boards of North Eastern India, IASLIC, SIS (Society of Information Science). He has been vice president of ILA for Eastern Region from 2013 to 2016 and chairperson of the ILA sectional committee for Health Science Libraries from 2016 to 2019. He has 26 years of experience in teaching and research. He has guided 100 Master's dissertations, 3 M.Phils and eight Ph.Ds. He has contributed about 70 Research Papers in different reputed journals along with 15 book chapters and 4 books. He is Chief editor of well reputed journal Gyankosh: The Journal of Library and Information Management. He has been invited speaker at many institution of higher learning like Punjab University, Chandigarh(UT), University of North Bengal Siliguri, North East Hill University, Shillong & ISI, Kolkata, Panjabi University, Patiala, Kurukshetra University, Kurukshetra, Jamia Hamdard New Delhi, JMI, New Delhi and Madurai Kamraj University, Chennai.

Prof. Sonal Singh

Dr. Sonal Singh is working as Professor of Library & Information Science at Vikram University, Ujjain, Madhya Pradesh. She holds M.Sc. degree in Zoology securing Fifth Rank in Vikram University. Turning to Library Science, she did her B. Lib. Sc., M. Lib. Sc. and Ph.D. from the School of Studies in Library & Information Science, Vikram University, Ujjain. She also holds "Post Graduate Diploma in computer application" (PGDCA), B.Ed., B.Mus., Diploma in Vastu and Fengshui and Sangeet Visharad in Kathak.

She is the first and only lady Professor of Library & Information science from the universities of Madhya Pradesh. She has a long teaching experience of 35 years, Research experience of 28 years, Professional experience of 07 years for School Librarianship at Kendriya Vidyalaya, and administrative experience of 13 years as Head of Department, School of Studies in Library & Information Science, Vikram University, Ujjain. She is the Chair Person for Board of Studies, Examination Committee, Research Advisory Committee and Research Degree Committee.
She has been conferred by many honours and awards. She was honoured by Malwa Rang munch for the Publicity of Malwa language by musical means, she was honoured on National Librarian's Day by Government Ahilya Central Library in association with Indian Division Library Association, she was Honoured for contributing articles in Hindi language at the Golden jubilee function of "Granthalaya Vigyan"- a library Science journal in Hindi language. She was honoured as "CORONA Commando" for participating in awareness program "CORONA ko Harana hai." She received Professor Sushila Motiwale Best LIS Teacher Award on World Book Day from Indore Division Library Association, Manisha Award from Bhartiya Manisha Sutram, Prayag, Distinguished Leadership Award from Home of Letters, India, Life Time achievement award from Madhya Pradesh Library Association, Award of Honour from Shri Sanmati Pustakalaya, Jaipur , Library Indian Pride Award from Anecdote Publishing House, New Delhi, and Best Women Teacher Award from Social Science and Management Welfare Association, Jabalpur.
She is Life member of Indian Library Association (ILA), Indian Association of Teachers of Library & Information Science (IATLIS), Indian Association of Special Libraries and Information Centres (IASLIC), Foundation of Information and Communication (FIC), Management Library Network (MANLIBNET). She is patron member for Association of Senior Library and Information Professionals (ASLIP) and Library Association of Bihar (LAB).

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EDITORIAL

In today's rapidly evolving digital landscape, libraries are significantly transforming. Traditional brick-and-mortar libraries are expanding their horizons to embrace digital technologies, providing users with seamless access to vast information resources and services. This evolution demands a new set of skills from librarians, who must adapt to become practical navigators and facilitators in the digital realm.

Libraries play a crucial role in shaping communities and fostering a love for learning. However, the digital age has presented challenges and opportunities for these institutions. The conference motto is to connect library professionals with innovative strategies to empower libraries with technological advancements and leverage them to enhance their services to engage with diverse audiences.

Provide thought Leadership in promoting the Library and Information Science profession as the backbone of Education. Provide a platform to discuss contemporary academic teaching and learning challenges and the opportunities offered through updated library systems. Explore opportunities for digital libraries and online resources provided by libraries.

Libraries must cultivate a culture of adaptability, encouraging staff to embrace change and swiftly respond to emerging technologies. This adaptability extends to meeting user demands, ensuring that library services remain aligned with the evolving expectations of patrons in the digital age.

The Conference will help participants learn about empowering Library professionals in the Digital age. This Conference has provided a platform for the LIS Professionals to exchange their view, experiences and ideas about the latest developments in the Digital library. The Conference included library Professionals' presentations, invited talks by experts and penal discussions on themes.

Conference editorial team has put tremendous effort into scrutinizing and short-listed 34 papers out of 66 papers. Research papers for this conference will help researchers, librarians, and LIS students become aware of technological advancements and leverage them to enhance their services and engage with diverse audiences.

Editors

Acknowledgement

The Book titled "Transformative Strategies for Empowering Libraries in the Digital Age " is an amalgamation of intensive research carried out by many authors from India for publication as well as a presentation at the International Conference "Transformative Strategies for Empowering Libraries in the Digital Age " on 29-30th August 2024 at Manav Rachna International Institute of Research and Studies in collaboration with MRIS, Gurgaon & Dr O P Bhalla Central Library supported by Library Association of Bihar.

Papers from this book were selected based on reviewers' feedback, plagiarism check results, and relevance to the conference theme and sub-themes.

Well-dedicated teamwork for the entire publication worked internally at the University, and many professional colleagues have also slogged hard to achieve the final outcome. On behalf of the Dr O P Bhalla Central Library, MRIIRS, MRIS and LAB and Conference organizing committee members, we sincerely thank everyone who participated in this publication.

Thanks to the Library Association, who trusted us to organize this International Conference.

Our heartfelt gratitude goes to all the contributors who have contributed their Papers for this Conference as per the theme and Sub-themes. It could not have been possible without their wholehearted support as contributors, especially at this magnitude.

We were little hesitant at first, but after discussing the issue of organizing this International Conference with our Honorable Vice Chancellor, Pro Vice Chancellor, Registrar, Executive Directors, Director and Principal MRIS Gurgaon, the idea was well appreciated and enthusiastically agreed upon to work in unison. As a result, we are grateful to our university administration and MRIS School administration, particularly our Honorable Vice Chancellor Sir, PVC Sir, Registrar Sir and MRIS, Gurgaon Executive Director Sir, Director and School Principal Madam, for allowing us to hold this International Conference and for their unwavering support.

Our special Thanks to Dr O P Bhalla's ever enthusiastic Library Staff and MRIS Gurgaon, who helped us at every stage of this Conference. We humbly thank the editors, Dr M Masoom Raza and Dr Sonal Singh, for their invaluable editorial support.

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Last but not the least; we are thankful to our family members for their moral and personal support. They have sacrificed their valuable time and have always put a smile on our faces whenever we were tense.

Dr. Rajesh Kumar & Dr. Chhavi Jain

Organizing Secretary- International Conference

Manav Rachna International Institute of Research and Studies

Faridabad, Haryana

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Green Library: An Innovative 21st-Century Approach

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Abstract

This study aims to determine how a green library is essential in the current era. This study aims to shed light on the environmental implications of the library's need to go green. The current study aimed to examine the problems, advantages, and motivations of becoming green. The survey approach was employed to gather information from several databases. A qualitative research design was adopted to finish this work. The chosen objectives have guided the review of the gathered material. The literature research indicates that there has been global participation in the green library movement. It also develops norms for development and discusses green India, green libraries, the role of librarians in these efforts, and efforts within and outside of India. The articles also cover the function of programs like LEED (Leadership in Energy and Environmental Design), IGBC (Indian Green Building Council), and UNDP (United Nations Development Programme). A summary of green libraries and contemporary librarians' role in creating them is also provided. Furthermore, the paper focuses on the importance of green libraries in the ongoing era and green library initiatives in India, such as Madras University Library, Karnataka University Library Dharwad, Mumbai University Library, and Anna Centenary Library, have been trying to make a successful green library. The study's conclusions show that every country is making significant efforts to "green" its libraries.

Keywords: Green Library, Sustainable Library, Green librarian, LEED, IGBC, Green Library Movement

Introduction

Libraries are always seen as non-profit institutions and reservoirs of knowledge. The most common form of knowledge and information is another term for libraries. The modern world has been significantly transformed by information technology and the tools that accompany them. In addition to these details, libraries have a solid connection to the natural world. Libraries are continually changing, embracing these changes for their interest and the sake of their community. Libraries are constantly open to change, from traditional to hybrid, then from hybrid to virtual, and finally from virtual to green.

The evolution of human lifestyle is happening quickly due to the advancement of modern technology. Both the quality supply and the demand should now be met in seconds. Excitement and interest in new technology are in a constant state of transition to meet the never-ending needs. Therefore, amid all of this, we are missing something crucial that needs to be understood before sustainable development, and only this endless productive development can allow us to create a sustainable environment. In this context, "green" is crucial to a healthy existence. Every industry has seen a rise in enthusiasm for the green revolution in recent years, and libraries are no exception. The issue of climate change has become stressful for dependents, particularly worldwide populations. Thus, numerous studies and advancements are being conducted to lessen the difficulty, and numerous scientists are working on various projects to find solutions.

Objectives

The following list of this research paper's goals is provided below:

- To make a small effort toward creating a green earth.
- To utilize products with reusable qualities?
- To make appropriate use of technology to lower costs for libraries.
- To equip library users with green services and current, technologically advanced knowledge.
- To reduce energy use by introducing greenery to the library compound.
- To raise people's awareness of environmental issues.
- To promote the benefit of green libraries.

Green Library

In the library and information science area, the green library concept first gained traction in the early 1990s. Professionals in libraries are also working to create libraries that use the least electricity possible while being environmentally friendly and energy efficient. Even though it still needs to be fully implemented in libraries, we continue to make progress. It is optional to place additional emphasis on understanding green libraries. Libraries established, reconstructed, maintained, or converted environmentally and resource-consciously are called green or sustainable libraries

(Anonymous, 2008). Reducing global warming is a joint endeavour by humanity to create a greener planet.

Definition of green library

According to the Online Dictionary of Library and Information Science (ODLIS) "a green/ sustainable library is a library designed to minimize the negative impact on the natural environment and maximize indoor environmental quality using careful site selection, use of natural construction materials and biodegradable products, conservation of resources like water, energy, paper, and responsible waste disposal recycling, etc."

According to Wikipedia(2020) "A green library is designed to minimize negative impact on the natural environment and maximize indoor environmental quality using careful site selection, use of natural construction materials and biodegradable products, conservation of resources (water, energy, paper), and responsible waste disposal (recycling, etc.)" (Figure1).

Figure1: The National Library of China

Research Questions

1. How do libraries get affected by climate change?
2. What challenges and obstacles does a green library face?
3. Which advantages can green libraries offer?
4. How do users fit into the greening of libraries?

Characteristics of Green Library

Green libraries are referred to as sustainable or eco-friendly libraries. Additionally, every green library needs to contain specific qualities like:

1. Using locally sourced, reused, and natural materials;
2. Making use of ground and roof reflections;
3. Using windows with insulation energy, water, and paper upkeep;
4. Utilizing lights that are energy-efficient to decrease down on usage;
5. An optimal cooling system;
6. Appropriate landscaping both within and outside the structure;
7. The movement of clean, fresh air
8. Using eco-friendly technology

Research Methodology

A review of the literature was the basis and foundation for this research. To conclude this article, the technique of qualitative research was applied. In order to obtain information and conduct a review by the study's objectives, the survey method was utilized to gather relevant literature from several websites, including Wikipedia, Google Scholar, Google, and other databases.

United Nations Development Programme

At the international level, the **United Nations Development Programme (UNDP)** is crucial to sustainable development. It adheres to specific UNDP-established objectives to promote a long life for the environment and a human lifestyle. Objectives include living on land, cost-effective and clean energy, sanitation and clean water, industry innovation and infrastructure, environmentally friendly communities and cities, tackling climate change, and wellness and good health.

Literature review

Ahmed & Jidokson (2018) state that the green library's implementation focuses on the environment. They determined which elements can help the green library be implemented more successfully. The service impact was exposed by putting the suggested strategy for going green library into practice.

Nikam (2017) identified that the more recent idea of the "green library" aims to make the library green and enhance the possible users' thinking. Furthermore, the goal of the green library is to be environmentally friendly, not just the library's resources and services but also the surrounding community and section of the building.

Meher and Parabhoi (2017) searched using the green library: an overview, concerns, with a focus on Indian libraries specifically. They looked at the conditions that might be harmful to the green library. They also discovered that society is an institution that can help develop superior environmentally friendly libraries in India. The authors noted the United Nations Development Program's contribution to greening libraries by applying LEED (Leadership in Energy and

Environment Design).

Thomas (2017) highlighted the benefits of greening libraries: reduced gas emissions, green roofs, and lower electricity usage. Dewier, sunshine, and UV rays may harm the library's books and other materials. They also listed a few causes: reduced building costs, a smaller budget, the accessibility of energy resources, and a decreased carbon footprint.

According to McElreath and Sufferland (2015), the green library movement is growing daily. Before it, nobody knew how global warming might affect libraries and information hubs in the future. Moreover, library professionals areneeds to be made aware of how the environment and global warming affect libraries. Modern green libraries must address the challenges of climate change and global warming to make them environmentally friendly. Adopting a green library should be governed by appropriate legislation to reduce climate change and global warming.

Pangail (2015) studied green libraries' concept, usage, and standards. She said that green libraries are being established worldwide, including in India. She emphasized that both climate change and environmental issues can have an impact on greening libraries.

Datta (2015) investigated the idea that green is the new black and how libraries may fit into this trend. According to her, alterations in the environment may indicate harm to libraries, and librarians should take simple steps to safeguard their institutions and go green. "Live green, Love green, and Think green" is a quote she offers (Figure 2).

Figure2: Sichuan Library taken in Chengdu, China

Vijayalakshmi, 2014, provides information on the Green Library or Sustainable Libraries program in India and worldwide in his article "Greening the Library for Sustainable Development."

Hauke and Werner, 2013) described The Green Library Movement's early years in the 1990s thoroughly. Antonelli, 2008) provides information about many webpages and websites about the Green Library Building.

➢ **Components of the Green Library**

- **Locality & Community**

  Since the library is the heartbeat of any department, institution, or university, it should be located in a quiet area away from an activity centre, theatre, or entertainment venue, to allow students to focus on their studies. Another essential factor to consider when selecting a location is the public transportation system for the library. Several agencies and organizations, such as the U.S. Green Building Council and LEED, have provided guidelines for developing world-class green libraries.

- **Region/Area**
- India is diverse in terms of its languages, customs, and culture and how it sets itself apart geographically, weather, and locally. Therefore, the institutional head's primary responsibility when preparing a construction setup is to consider its advantages and disadvantages, including creating separate plans for setups in plain and hilly areas.

- **Constructional material**

  The library building is the first thing that springs to mind when we think of a green library. Using recyclable and environmentally friendly materials to create green construction is governed by numerous norms and protocols inside and outside India.

  IGBC As a division of the Confederation of Indian Industry, the Indian Green Building Council (IGBC) provides various services, such as certification services, training programs, and green building rating systems.

  LEED A globally recognized program called LEED (Leadership in Energy and Environmental Design) plans outstanding-performance green buildings that are ecologically friendly and promote a healthy environment. According to LEED, waste should be reduced at every stage of a building's construction.

- **Light**

  A library should have adequate windows, including glass windows and skylights, to let natural light enter the space. This way, during the day, no artificial lighting is needed. Additionally, utilizing energy-efficient lights and bulbs in non-reading areas at night helps the library fiscally and reduces its overall electricity usage.

- **Air**

  Air is an essential element nowadays. Pure, breathable air is necessary for breathing. For the plain area library to remain calm and to offer clean, pure air, a suitable plantation must be established around the campus. Additionally, trees provide cool air and regulate the use of air conditioners in the heat. Buildings in hilly areas should face the sun to help with temperature regulation and save energy costs associated with room heaters and blowers. The more air ventilators that are planned, the less electricity is used.

- **Electricity**
- Direct sunlight can create electricity by installing solar panels on the library building's roof.

Additionally, excess energy can be saved, which is helpful in the summer when libraries require more electricity to run air conditioners, fans, and coolers.

- **Water**

  A well-designed sanitation system for a library should include an appropriate water-available area that promotes cleanliness, sustainability, and health. Humans must preserve drinking water since natural resources are being depleted, and drinking freshwater is one of them. Through investigation, a library can recover and repurpose rainwater and wastewater for planting, harvesting, and toilet flushing.

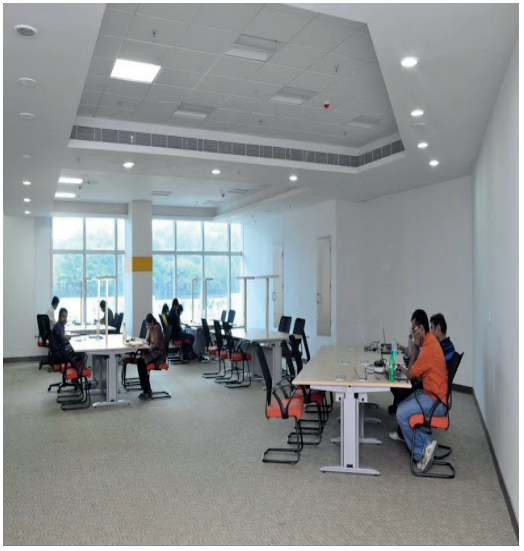
Role of Green Librarian

- Librarians should always endeavour to support campaigns for green libraries by utilizing various internet resources, such as social media.
- The librarian consistently demonstrates a willingness to work within the Eco-library system and finds people who share this commitment to the work environment.
- He can motivate others by promoting green library tools and approaches.
- Librarians can inspire others to adopt green libraries through conferences, seminars, and discussions.
- The green librarian, also known as the eco librarian, is the most dynamic function, as he is responsible for managing the budgets that support the organizations.
- Use biodegradable materials such as wood for furniture and other items.
- Wool brick can be used in libraries in place of burnt brick.
- A roof made of solar panels or tiles is an option.
- Another best practice for creating environmentally friendly buildings is paper insulation. Newspaper and recyclable cardboard are used to make it. It also shields the wall from insects and fire.
- We are increasing the amount of bamboo used in place of steel.
- Planting on your roof can be a brilliant idea.

Indian Initiatives Towards Greening India

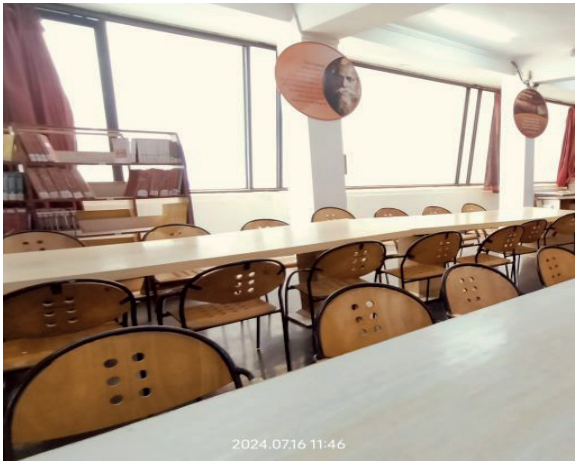
Name of the Library	Location	Features
Mumbai University Library	Mumbai	The reading hall's huge windows allow natural light to enter and provide ventilation, and the library uses wood for its stack materials.
Karnataka University Library	Dharwad	a green area where students can study with books from the library and sit beneath the trees.
Delhi University Library	Delhi	The building will feel pleasant and calm by nature.

Anna Centenary Library	Chennai	The library is well-equipped with modern technologies and uses wood, air, and light well. Reputable green libraries with a gold LEED rating exist in India.
NIT Library	Silchar	The New Library Building, now under construction, has been designed with the LEED certification system to create green libraries (Barak Valley).
Calcutta University Library	Kolkata	Every reading room has vast open spaces, thick walls, and a lot of space.
Perma Karpo Library	Ladakh	Solar panels encircle white lotus gardens and green space.
Lovely Professional University	Punjab	The library has installed much of the latest technology. The reading hall's huge windows allow natural light and ventilation, and the library uses wood for its stack materials. The garden surrounding the library.



Anna Centenary Library: Reading Section
Reading Hall Madras Library

Karnataka university library



Lovely Professional University Library

Conclusion

The idea of a "Green Library" is rapidly gaining traction, and at the level of the government, some significant initiatives have already been implemented. In the context of contemporary library services and open-space learning, the concept of creating green libraries is still relatively new. To be proactive in greening libraries and minimizing their negative environmental impact, librarians, libraries, colleges, universities, parent institutions, etc., still need to do a great deal of work. Selecting a green library with a LEED certification and adhering to the strict guidelines established by the IGBC in India would significantly impact the calibre of services that libraries offer to their patrons. The current study demonstrates that, like other developing nations, individuals in India have become more aware of green buildings, and the government has begun to take action in this regard. However, more has to be done. The libraries should take collective efforts to be green and

eco-friendly by protecting priceless natural resources, maintaining the environment, and engaging in green ideas and activities.

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