Going Green: Libraries for Sustainable Development

Prasanth M and Vasudevan T M

National conference on Innovations and Transformations in Libraries (NCITL 2019)

Abstract
The paper discusses about the various measures for greening the library other than building green library buildings. It also puts forward various suggestions and methods for greening existing libraries and also discuss the need and importance of implementing green library concepts.

Keywords: ***Green Library, Sustainability, Environment, Green Library buildings, Green Concepts.***

Introduction

Our beautiful nature is continuously degraded by human beings and causing problems like global warming and climate change. Shrinking glaciors, melting ice caps and wide ranges in temperature provide evidence that something is happening with our climate. Libraries don't come into our mind when we think of problems like global warming and climate change. But Libraries consume a lot of energy for its services and hence contribute to the problem. A healthy natural environment is needed for our survival and quality of life. So it's high time for us librarians to play a major role for the betterment of environment. We can design a green library by means of choosing appropriate site for constructing library building, use of natural material and biodegradable products for construction, conservation of resources i.e., water, energy, paper etc. and responsible for recycling of waste materials. So the concepts of green libraries are now being popular and through proper designing of green library we can reduce the harmful impact on the environment and it also improve the environment inside the library.

The Online Dictionary of Library and Information Science (ODLIS) defines green/sustainable libraries as "A library designed to minimize negative impact on the natural environment and maximize indoor environmental quality by means of careful site selection, use of natural construction materials and biodegradable products, conservation of resources like water, energy, paper and responsible waste disposal recycling etc. So we can built a new library building according to green library principles or renovate existing library building and also provide green library services and facilities and embrace environmentally supportive and sustainable practices within the library.

Need for Green Libraries

All buildings uses resources such as land, energy, water and materials to fulfill the functional needs of a space. As such, there can be no building without environmental impact. A building is green when it is resource efficient and fulfills the functional requirement of the space with minimum negative impact on the environment over the longest possible time.

Affordable Cost

Now cost of constructing green libraries have become affordable and it is possible to construct or renovate the existing building within the budget.

Commitment to Society
As library is community organization. It has the social responsibility to reduce the harmful impact to environment.

Conservation of energy
Most of energy resources are finite and it is our responsibility to use these resources with care for our generation and future generations.

Reduction of Carbon foot prints
Greening libraries reduce the carbon footprint of our library building. The term carbon foot print is defined as "the total amount of green house gases produced to directly and indirectly support human activities, usually expressed in equivalent tons of carbon dioxide (CO_2).''

Economic Benefits
By way of using efficient lighting systems and recycling of waste material and reuse of water we will be able to get economic benefits.

Water Conservation
Reduce potable water use by considering alternative on-site water sources (for example rainwater, storm water and air conditioner condensate) for custodial uses and toilet flushing, planting native and adaptable vegetation reduces the need for irrigation.

Standards for Green Libraries

Indian Green Building Council (IGBC)
Indian green building council established in the year 2001 to promote and rate green buildings in India. There are about 2190 registered building, 398 rated buildings and also 1082 IGBC aggregated professionals.

Leadership in Energy and Environment Design (LEED-India)
LEED certification is the most widely accepted standard for environmentally friendly building design. Leadership in energy and environmental design (LEED-India) green building rating system is a nationally and internationally accepted benchmark for the design, construction and operation of high performance green buildings. There are four certification levels (certified, silver, gold, platinum) awarded according to achievement as evaluated by points using LEED score card.

Points	Rating
25 – 40	Certified
41 – 50	Silver
51 – 60	Gold
61 – 80	Platinum

Green Rating for Integrated Habitat Assessment (GRIHA)
In India TERI, is responsible for developing a tool called GRIHA (Green Rating for Integrated Habitat Assessment) for measuring and rating a building's environmental performance in the varied climate and building practices. GRIHA has been adapted by the Government of India as the national rating system. TERI has constructed its buildings, in Gurgaon, Bangalore and Mukteshwar which includes resource and energy efficient, demonstrating the sustainable implementation of green practices.

Green Library Initiatives in National and International Level

Green Library Initiatives in India

Anna Centenary Library is a model green library in India. It is Asia's first LEED Gold rated library building. This building would consume 30% less energy and 20% less potable water consumption without affecting the indoor condition and occupants comfort. It was started with a vision to be an internationally recognized urban library known for excellence in learning, innovative research, and community engagement that contributes to the economic vitality, environmental sustainability and quality of life in the Chennai region and beyond.

Besides Anna Centenary library, other significant green library initiatives in India are:

a. Permakarpo library, Ladakh in Indian Himalayas.
b. National Library of India, Kolkata.
c. NIT library, Silchar. Apart from this, green initiatives and measures has been taken up by Madras University, Calcutta University, Delhi University and Mumbai University library system.

Green Library Initiative at International Level

The Singapore National Library has been known as the greenest building on the planet, designed by Ken Yeang. It opened in July 2005. It was designed using light shelves that allow the light to filter into library without any negative effects. Another example is Seattle central library designed by Rem Kodhars opened in 2004. It has triple glazed glass, used to reduce heat buildup. The Children's Museum of Pittsburgh underwent extensive expansion and renovation in 2004 using sustainable techniques and guiding principles thereby earning silver LEED – certification, one of the largest museums and the first children museum in America to do so.

Methods for Greening Libraries

Most libraries were built before global warming and climate change were critical issues. Constructing green libraries are part of a larger environmental building movement. LEED is an acronym for Leadership in Energy and Environment Design green building rating system, an organization encouraging global adoption of sustainable green building. Due to shrinking library budgets every library may not be able to construct new library building according to LEED certification. Instead they can implement environmental practices by looking at their existing buildings.

Materials & Equipments

All the materials and equipments used in the library should be selected keeping in mind the green library practices such way that it reduces the overall consumption of energy and the following measures may be practiced to make the library green.

- Charging system may be through software. Avoid readers ticket as it is made of plastic.
- Application of membership may be made through online mode. Required supporting documents may be collected in soft copy only.
- Card catalogue may be removed and OPAC may be provided.
- Provide online services by making use of web2.0 technologies
- E-receipts may be given instead of paper receipts.
- All the electronic equipments used in the library may be according to the latest star rating for reducing the consumption of electricity and also reduces the electricity bill.
- Lighting of the library may be in a such a way that natural light may be most used during day time and there arrangements may be made such way that no constraints block the passage of natural light.

- Light sensors may be used for lighting so that the areas will be lighted when in use by users.
- LED bulbs and tubes may be used for lightning.
- Laptops which use less electricity than desktop versions may be used.
- Scanning of documents may be promoted by providing scanning service instead of xerox which reduce use of paper.
- Old electricity consuming equipments may be changed into new star rated products.
- Natural products may be used for preservation of books.
- Solar panel may be placed on library building for creating solar energy and inturn for use in the library.
- Library building may be in modular structure so that solar energy and also roof top vegetation can be made by team work of the library staffs. It also increases the inter personal relationship and provides a good message to the society about the awareness on sustainability.
- Indoor air quality may be increased by growing indoor plants.
- Avoid A.C. in library as far as possible and as it emits toxic elements to nature. Only digital library and labs where we cannot avoid A.C may only used.
- OPAC may be started by the first user who approaches and training for that may be given in orientation program.
- Paper pens may be used by staff and users.

Energy

Energy efficiency is considered to be the major category in becoming the library green. Energy can be produced by solar, hydro and wind sources. Using efficient renewable energy system can gain cost effectiveness, reduce greenhouse emissions and also decreases the dependency on conventional energy resources. Libraries can save a lot of energy by following the measures stated below.

- Use only star rated electrical fittings and electronic equipments in library.
- Glass technology is gained popular and can be used in different parts of library building so that natural light is maximum utilized there by saving energy.
- Use of solar energy saves money.
- Motion and light sensors, timers and energy saving dimmers can be used which helps in reducing energy consumed.
- Renovating existing library building according to LEED certification under the LEED for existing building (LEED-EB) option.
- Train library users and staffs in the effective use of energy.
- Optimizing the use of natural lights also saves energy.
- Designing proper ventilation system, climate and temperature controlling systems, energy efficient light fittings and passive heating and cooling can save lots of energy.

Waste Management

Waste management plays an important role in making libraries sustainable. Repair, recycle and reuse are the three principles to be followed in making the libraries green. Proper maintenance of the waste by cooperating with other departments of the parent institutions make the library equip to follow the green principles. The following measures may be practiced by the librarians in achieving the proper maintenance of the waste.

- Reuse and recycle water, paper etc.
- Recycle computers and buy recycled ink catridges and other supplies.
- Get rid of waste by composting and stop using plastic bags.

- Discard weeded books by selling it to used book dealers, exchange library materials with other participating libraries or donate to other libraries.
- Old furniture may be send to other needed departments or recycled and used again.

Recommendations

Considering the different the sections of the library and following the green library principles following recommendation are made to make all the libraries green and protect our environment and there by making libraries sustainable.

- Government or management should consider the adaption of sustainable principles in their buildings. Services and practices in order to reduce the negative impact to the environment of the region it belongs.
- Spread awareness and popularize and market the libraries green activities through various program and also through social media or other methods regularly.
- Teach LIS students about green library activities so that new generation libraries will adapt these ideas.
- UGC/approving agencies should make it mandate for all institutions to get the approval to go for green libraries and also green buildings.
- Encourage organic roof top gardening which decreases the heating of library buildings as well as increases staff team building skills development and fostering staff morale.
- Encourage sustainable collection services such as e-books, e-journals which reduces paper consumption.
- Reuse and recycling concepts should be promoted and practiced.
- Government should take steps to promote green libraries through award and financial aid to maintain such libraries.
- UGC should conduct conferences, seminars on green library concepts and also provide financial aid to institutions to conduct programs on green library practices.

Conclusion

Libraries by their nature are "green" because their resources are shared by the larger community. Libraries can play an important role in promoting sustainable practices. Librarians should act as role models for sustainability by providing suitable and relevant information related to green issues and concerns. The first step is coming up with a plan incorporating green policies and activities. Eventually, this plan could be included in the mission, vision or strategic plans of the library. Encourage participation from staff and patrons in developing a green initiatives. A marketing program may be done to bring awareness about libraries green initiative. These can raise awareness of "going green" issues and initiatives. Thus librarian can act as a role model for sustainability and lead by example and make our environment a better place to live in.

References

Dalbehera, Sanghamitra (2015). *Greening the libraries for sustainable development: a case study of Technical University libraries in Odisha*. In 60th ILA International Conference on Embedded Librarianship and Technological Challenges of the Digital Age, 2015. [Conference Paper].

Divya, P.I. and Vijayakumar, K.P. (2017). Implementation of Green library techniques for Kerala University Library: A feasibility study. *Kelpro Bulletin*, 21(2), 110-116.

Fourie, Ina. (2012). A call for libraries to go green: An information behaviour perspective to draw interest from twenty-first century librarians. *Library Hi Tech*, 30(3), 428-435, doi10.1108/0737883/211266573.

Jones, Louise and Wong, Winky (2016). More than just a green building : Developing green strategies at the Chinese University of Hong Kong Library. *Library Management*, 37(67), 373-384, doi.10.1108/LM-05-2016-0041.

Khallar, Leena (2015). *Redesigning Libraries to Handle the Environmental Challenges of the Future: Green Libraries*. In 60th ILA International Conference on Embedded Librarianship and Technological Challenges of the Digital Age, 2015. [Conference Paper].

Rajan, Uma (2015). *Environment friendly Library: Green Signal for Green Libraries in Digital Environment.* In 60th ILA International Conference on Embedded Librarianship and Technological Challenges of the Digital Age, 2015. [Conference Paper].

Sharma, Saneev Dutt and Vajpa, Vyas Kumar (2015). *Green Library : An Overview*. In 60th ILA International Conference on Embedded Librarianship and Technological Challenges of the Digital Age, 2015. (Conference Paper).

Yadav, Reshmi and Kaur, Sarbjot (2015). *Green Library: A Conceptual Overview*: In 60th ILA International Conference on Embedded Librarianship and Technological Challenges of the Digital Age, 2015. [Conference Paper].

About Author

Prasanth M., Research Scholar, Dept. of Library and Information Science, University of Calicut , E-mail: m82.prasanth@gmail.com

Dr. Vasudevan T.M., Professor, Dept. of Library and Information Science, University of Calicut , E-mail: m82.prasanth@gmail.com