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Design and Development of Green Technology in Libraries: A proposed model for Central Library of Central Institute of Technology Kokrajhar

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Abstract

Design and Development of Green Technology in Libraries is generating a Green Library Movement. Environmental sustainability in library spaces, library management and library services comprises of Green library. Central Library of Central Institute of Technology Kokrajhar, an emerging library by Willey Library awards has been taking measures in order to guarantee an effective implementation of library services as well as effective environmental and educational management by aiming at environmental sustainability. This paper assumes that Central Library of Central Institute of technology Kokrajhar being the government funded institute should be the first to implement the green technology in libraries and turn into models for other libraries in the region. This work presents a brief scenario of Central Library of Central Institute of Technology Kokrajhar and the proposed design and development of the Green library. The objective of the study is to stimulate green technology in libraries.

Keywords: Green Technology, Green Libraries, Environment Sustainability, Library Services, Library management.

Introduction

Libraries once said to be Traditional libraries, the store houses of books are no longer the ancient rules that knowledge was accessible to only a particular section of people. Libraries are one sector that has developed rapidly with the support of Information Communication Technology (ICT). Libraries are nowadays called the Library without walls, the digital libraries. The Libraries whether they are traditional one or so called digital ones, they serve at least three roles in knowledge seeking. They serve practical role in sharing expensive sources-both physical and human resources. Libraries serve a cultural role in preserving and organizing artefacts and ideas. Third libraries serve social and intellectual role by bringing together people and the ideas (Daimari, 2017).

Green Technology

Green Technology encompasses a continuously evolving group of methods and materials, from techniques for generating energy to non-toxic cleaning products. The

goals that inform developments in this rapidly growing field include Sustainability, Cradle to cradle design, source reduction, Innovation and Viability[i].

Green Libraries

The statement at the 75th anniversary of the foundation of International Federation of Library Associations and Institutions (IFLA) in Glasgow in August 2002-

- Declared that all human beings have fundamental right to an environment adequate for their health and well-being.
- Acknowledged the importance of a commitment to sustainable development to meet the needs of the present without compromising the ability of the future.
- Asserted that library and information services promote sustainable development by ensuring freedom of access to information[ii].

With the advent of ICT in libraries and the global warming, Libraries are striving hard to implement the green technology. The implementation of green technology in libraries is known as green libraries. A green library is 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 (water, energy, paper), and responsible waste disposal (recycling, etc.). In new construction and library renovation, sustainability is increasingly achieved through Leadership in Energy and Environmental Design (LEED) certification, a rating system developed and administered by the U.S. Green Building Council (USGBC)[iii].

Green Library initiatives in India

India ranks third on the US Green Building Council's (USGBC) annual ranking of the top 10 countries for Leadership in Energy and Environmental Design (LEED) certified buildings. According to the survey by USGBC, the top 10 list highlights countries outside of the US that are using LEED and India, with more than 752 LEED-certified projects totaling over 20.28 million gross square meters of space, ranks third[iv].

Anna Centenary Library, Chennai is the Asia's first LEED Gold rated library building in India. Other libraries which have initiated Green Library are Perma karpo library, Ladhak; Delhi University Library, New Delhi; Madras University Library, Chennai; Calcutta University Library and Mumbai University Library.

Central Library of Central Institute of Technology Kokrajhar (CITK)

[i] https://www.green-technology.org/what.htm. Accessed on 23 January 2018
[ii] https://www.ifla.org/publications/statement-on-libraries-and-sustainable-development. Accessed on 24 January 2018
[iii] https://en.wikipedia.org/wiki/Green_library. Accessed on 23 January 2018
[iv] http://www.thehindubusinessline.com. Accessed on 24 January 2018

Central Library of Central Institute of Technology Kokrajhar is one of the most developed libraries in India which is equipped with high end technology. It was established with the establishment of Central Institute of Technology Kokrajhar in 2006 financed by the Ministry of Human Resource Development, Government of India. Its management and services are facilitated with Software for University Libraries (SOUL) 2.0 library management software and Radio Frequency Identification (RFID) technology. It has an independent server which runs 24*7. The total collection is 177014 resources which include print books, e-books, e-journals, CDs, magazine, standard, old question papers and reports[v]. It has a facility of shelf issue and return of books. The Central Library CITK Android mobile application and Knimbus, the e-library in a single platform to access the e-resources subscribed by the library. Within a short span of its services to the users it has earned the award of 'Emerging Library' by Wiley Library Awards in December 2017. Though the library is fully automated, the concept of green library is still a far cry at present. This paper proposes the design and development of green technology in the library.

Design and Development of Central Library CITK into Green Library

Central Library of CITK has its permanent building which has an area 22,000 sq. ft.[vi]. There is a proposal of new library building to the authority at the adjacent site to the present building. There is every scope to design and develop Central Library of CITK into Green library. There is a system of rating issues which are held in certifying green library.

Petra Hauke (2015) developed a system rating issues like building – water- transport- workflows – events – and management defining sustainability criteria that might be put into practice by public libraries:

Theme	Item
Building	• Solar energy • Windows glazing quality (thermal insulation) • Use of day light • Light bulb recycling: fluorescent and energy saving lamps, also LED • Structural protection from sunlight • Lighting system with movement sensors • Power supply: proportion of electricity from renewable sources
Water	• Water saving features (WCs, Wash basin equipment)
Transport	• Bicycle rack • Connection of public transport

[v] http://centrallibrary.cit.ac.in/. Accessed on 26 January 2018
[vi] http://centrallibrary.cit.ac.in/. Accessed on 26 January 2018

Workflows	• Waste separation • No more plastic bags • Library café: China and glass bottles instead of plastics, fair trade products • Switch off light and electronic equipment at night and in empty offices • Sustainable stationary • Ecological products for cleaning the building • Reduction of printouts • Recycling of stationary
Events and activities	• Lectures about ecological themes • Do-it-yourself events and exhibitions • Books and other materials on sustainability • Loan of e-media and appropriate readers
Management	• /Green Vision/Guidelines/ • Target planning in terms of green issues • Press work as to sustainable issues • Library Staff eco-team • Further education for library staff [vii]

For more internationally suitable items, Werner (2013) have checklist Sustainability buildings, Equipment, and management, published within the IFLA publication, The Green Library[viii].

The architecture and the use of sustainable materials used for building is provided in LEED certification. Green Rating for Integrated Habitat Assessment (GRIHA) is also a national rating system for green buildings in India which is jointly developed by the Energy and Resources Institute and Union Ministry of New and Renewable Energy[ix].

The design of the library value its relationship with the region. The region is warm and temperate. The average annual temperature at Kokrajhar is 24.3^0C and rainfall is 3139 mm[x].

The building having wide windows for allowing natural light to enter to minimize the use of electricity. The window glasses that reduce heat should be installed. The ventilation too be taken care off for free flow of fresh air inside the library.

Eco-roofing by installing a photovoltaic power generation plant for ensuring saving in the consumption of energy is a system item for LEED and GRIHA certification. The

[vii] http://library.ifla.org/1237/1/095-hauke-en.pdf. Accessed on 24 January 2018
[viii] http://library.ifla.org/1237/1/095-hauke-en.pdf. Accessed on 25 January 2018
[ix] http://www.grihaindia.org/index.php?option=com_content&view=article&id=73&t=Green_Rating_for_Integrated_Habitat_Assessment. Accessed on 25 January 2018
[x] https://en.climate-data.org/location/47595/. Accessed on 25 January 2018

design of the roof for management of rain water to be collected and used for plants and toilet discharges will eventually minimize environment impacts associated with the generation and consumption of water and energy.

The above design of the building will itself bring environment benefits through the use of natural light, solar energy and rain water. The library should also use sustainable cleaning materials and work on environmental management issues on waste disposal.

The commitment of libraries in expressing their values for green technology in the way of open and easy access to environmental knowledge. Giving space to environmental sustainable activities and creating visions of green values for the community in larger is a true green library.

Conclusion

The Green Technology has made the librarians think to go for green libraries. This is the right time that librarians set up green libraries and support the issue of green and Environmental sustainability. By going Green, Central Library of CITK will support a life-long reading behavior. It will improve and strengthen the environment consciousness among the communities. It will attract and play as a role model to encourage other libraries to design and develop green libraries in North East India.

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