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Green Initiative and Environmental Sustainability in South South Nigerian Academic Libraries

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ABSTRACT

Green initiative is a global phenomenon and one of the UN 2030 sustainable development goals on environmental sustainability. The green library is gradually being popularized because of the eco degradation that is ongoing globally. This study explores the level of awareness of librarians, availability and strategies employed by libraries for green initiatives. Three research questions and hypotheses guided the study. A descriptive survey research design method was used for the study. The population of the study is 102 librarians in South South federal University libraries using census sampling technique. The instrument (GIESAL) questionnaire was used to elicit information from the respondents. Data collected from the study were analyzed using weighted mean scores to determine the respondents' level of agreement on a particular item for the research questions. The hypotheses were tested using the z test at 0.05 significance level l. The findings revealed that the level of awareness of greening library among librarians is low, insufficient fund, lack of initiative and absence of sustainable policies. In conclusion the green initiative for environmental sustainability available in the libraries are sustainable sites, indoor environmental policy, innovation in design, water efficiency, solar and wind energy, which enhances sustainability of library resources.. The study recommended among others that there is a need to create more awareness for greening in libraries generally and employ strategic methods and planning sessions to ensure sustainability

KEYWORDS: *Green, Initiative, Environmental, Library, Sustainability*

INTRODUCTION

Greening initiatives embraces and promotes stable environment and climate, while in libraries it has to do with how facilities of libraries can be redesigned, replan for better utilization which will reduce its negative impact on the environment. According to the Online Dictionary for Library and Information Science, the Green Libraries are "designed to minimize negative impact on the natural environment and to maximize indoor environmental quality by means of careful site selection, the use of natural construction materials like nature and

biodegradable products, conservation of resources (water, paper, solar, and energy), and responsible waste disposal (recycling, etc.)"

Libraries are now part of green initiatives to lessen global warming and protect the environment through the green library initiatives (Singh & Mishra, 2019). Librarians are gradually becoming eco-conscious and developing the sense of having libraries that minimize power consumption and become energy efficient and eco-friendly to attain sustainable libraries or green libraries. Green library initiative emerged in libraries around 1990, and since then, libraries have been adopting several practices to reduce the negative impact of the library on the environment (Fedorowicz-Kruszewska, 2020).

The green library place emphasis on utilizing natural or renewable energies like solar energy; less dependence on fossil fuel, planting trees around the library to reduce overheating and the utilization of cooling equipment, water conservation; printing less; promoting digital library and e-books; and providing e-learning platforms to encourage sharing of good practices among patrons. The main purpose of creating a green library is to save sustainable energy and efficient resources. (Bhattacharya, Anindya, 2017). The importance of greening as thermal modifier for indoor and outdoor climate environment such as the tropics, and climate. Nigeria as a country enjoys, cannot be over-emphasized. Trees and other vegetation shield people from direct sunlight, block radiant heat loss from homes and people, protect soil and water quality, modify local climate, reduce noise and air pollution (Girling and Kellett, 2005). Some libraries in the developed world are now designing their library buildings to be environmentally green, while some others are embarking on renovations.

Sustainability is the capacity to improve the quality of human life living within the Earth's supporting eco-systems. It is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations (Sing h and Mishra 2019). It is a changing process through which individuals realize their potential and improve their quality of life to protect and enhance the Earth's life support systems. Environmental sustainability is defined as an interaction with the environment devoid of depletion or degradation of natural resources which lead to a long-term environmental quality. The environmental sustainability improves human welfare by protecting the sources of raw materials used for human needs by ensuring that the sinks for human wastes are not exceeded.

Environmental sustainability in the library

Academic libraries are the knowledge house of every higher institution. They are responsible for selection, acquisition and provision of information materials ultimately to support teaching learning and research activities (David-West 2020). The university libraries serve as the positive learning environment for all users'. They are the most important source of knowledge for the university community. They have been preserving knowledge in modern printed form. Libraries were eco-friendly with printed documents and other reading materials but there were constraints of place in the development of libraries due to explosion of research activities and publishing, In the 1950s, an invention of the computer brought a drastic change in this scenario, different application of ICTs started in the university libraries' work. This also affected the mode of learning and publishing and developed a better form of digitized documents. The nature and number of users also changed from offline mode to online mode. Use of imperishable electronic gadgets in the process of digitization poses a hazardous impact on the environment. Sustainable development of the digitized libraries is a necessity for the betterment of the environment. Aytac (2019) underscores that the opportunity for libraries to be directly involved in environmental sustainability was bolstered by IFLA's push for libraries to be co-custodians of the UN 20 30 Sustainable Development Goals with specific targets addressing environmental dimensions of sustainable development. However, there is a gap in some libraries where no notable resolutions have been made, to help address the issue of environmental change.

Much as this concept is so important, little is known about the adoption of the green library concept in the South South Nigerian academic libraries in adopting green concepts and, the level of awareness and the strategies it adopts in greening for environmental sustainability.

OBJECTIVES OF THE STUDY

The objectives of this study are:
i. To ascertain the level of librarian's awareness on green initiatives for environmental sustainability in South South federal academic libraries.
ii. To determine the green initiatives for environmental sustainability available in South South federal academic libraries.
iii. To identify the strategies employed by the libraries in greening for environmental sustainability in South South federal academic libraries.

RESEARCH QUESTIONS

i. What is the level of librarian's awareness on green initiatives for environmental sustainability in South South federal academic libraries?
ii. What are the green initiatives for environmental sustainability available in the South South federal academic libraries?
iii. What are the strategies employed by the library in greening for environmental sustainability in South South federal academic libraries?

LITERATURE REVIEW

Environmental degradation has become an issue of concern for contemporary and information professionals in developing countries; as a result, there is an ardent need to contribute to environmental sustainability.

Abiolu and Okere (2012) opined that information professionals have a role to play in minimizing the degradable state of the environment and its effects on human health. They identified new roles evolving for librarians as change agents, educators, electronic experts and partners to order change agents.

Crumpton (2009) who enthused about librarians' role in disseminating green information corroborates this.

The term 'Green Library' is emerging among librarianship recently with acceptance based on environmental protection. The term Green Library means a library that is environmentally conscious and practices improved library services both in academic and psychological terms (David 2022). The phrase "Green Library" refers to a library building that is certified with all eco-friendly accepted standards. The importance of greening as thermal modifier for indoor and outdoor climate environment such as the tropics, a climate Nigeria as a country enjoys, cannot be over-emphasize. Trees and other vegetation shield people from direct sunlight, block radiant heat loss from home and people, protect soil and water quality, modify local climate, reduce noise and air pollution (Saha 2019). The word is very much concerned with energy depletion, climate change, greenhouse effect, global warming and its abuses, so that people want everything to be green to save this planet on which they live. Basically, minimum negative impacts on to the natural environment and maximum indoor environment quality by means of careful selection of site, use of natural construction materials, and conservation of resources and responsible waste disposal (Sawant and Sawant 2018). The main purpose of creating a green library is to save sustainable energy efficient resources.

According to Prasanth and Vasudevan (2019), having a healthy natural environment is essential for the quality of life and human survival. Librarians have a role in ensuring that they play a crucial role in ensuring that libraries are eco-friendly using biodegradable materials in other to minimize negative impact on the environment. The natural and green environment helps in reducing air pollution, Oyelude & Alabi 2013). However, it also improves the internal environment in terms of quality by conserving resources such as energy, water and paper and using natural and biodegradable products and construction materials (Hauke & Werner, 2013).

Greening libraries will help reduce the carbon footprints, defined as the total amount of greenhouse gases produced indirectly and directly in support of human activities.

Gaffar, Sindhu and Kumar (2021) presented the green library construction and recognition to raise the awareness of the users, and also mentioned the role of librarians in enhancing the green library concept. Librarians should educate their community about healthy environmental practices in other to protect the eco system.

Energy saving methods in the library building are of great help like rooftop solar paneling, rooftop gardening, water harvesting/recharging for cultivation or collection in ponds, tanks and bunds. Keeping bins for collecting biodegradable materials which could be converted to fertilizers, manure, compost, biogas etc. for further use in plantations in institutions (David 2022).

In Kenya, the USIU library has a garden with trees and plants to create a green environment and provide fresh air to staff and library users in the enormously sizeable green building (Mwanzu, 2018). A flat roof allows rainwater harvesting to water the garden, which gives the library an outdoor effect and ambience.

According to Ogola (2018), the design of this library indicates that the green library movement has been embraced all over the globe and is now used as a benchmark for new buildings. Notably, many libraries use strategies such as architectural innovations and renovations to transform into green libraries. The libraries adopted other methods such as attending special greening events, setting targets for the tree planting days, and raising awareness while incorporating man y stakeholders. Architectural innovations and renovations that guided the libraries in their effort to achieve greening included green garden spaces, green roofs, and provisions for natural lighting.

Reynolds, Brondizio & Robinson (2010) opined that greening can be attained through the practice of sustainable technologies or "greening operations" in the way of architectural designs, waste management, renewable energy generation and use of energy efficient lighting.

Adlrich (2010) argues that libraries should obtain the services of a "sustainable building advisor" when planning their buildings to ensure that greening standards will be met.

Meher, Puspanjali, and Lambodara Parabhoi (2017) is of the view that following green library initiatives like the United Nations Development Programme, IGBC (Indian Green building Council), and LEED (Leadership in Energy an d Environmental Design) will lead to an eco-friendly earth.

METHODOLOGY

The study adopted a descriptive survey research design. The study area is South South federal University libraries in Nigeria namely University of Port Harcourt, Rivers State, University of Benin, Edo State, University of Calabar, Cross Rivers State, University of Uyo, Uyo, Federal University Otuoke, Bayelsa State, Federal University of Petroleum Resources Effurum, Delta State. The population of the study comprised of all librarians in federal University libraries in South South Nigeria with a population of 110, the entire population was used for the study. Questionnaire was the research instrument used for the study. Out of 110 instruments administered to responds 102 were retrieved and used for the study. Data collected from the study were analyzed using weighted mean scores. Thereafter, the mean score of 2.00 and above was regarded as agreed whereas item with below 2.00 mean score was regarded as disagree Low Extent Great Extent No Extent Very Great Extent. The hypotheses were tested using z test at 0.05 significance level.

Table 1: Mean responses of the level of staff awareness on green initiatives for environmental sustainability in Federal University libraries in South South Nigeria.

Awareness of green library	Response	Percentage
Yes	75	72.1%
No	29	27.9%
Total	104	100%

Table 1 show the response summary of these respondents on each option specified as the level of staff awareness on green initiatives for environmental sustainability in the university libraries. The study revealed that the respondents, 75(71.2%) are not familiar with the 'Green library' concept. Only 7(27.9%) respondents are aware of this concept.

Table 2: Mean responses of the green initiatives for environmental sustainability available in federal University libraries in South South Nigeria.

S.N.	Items Descriptions	SA	A	D	Total	X	Decision
		4	3	2	1		
1	Sustainable sites	34	39	15	13	2.93	Agree
2	Water efficiency	43	47	7	4	3.33	Agree
3	Energy and atmosphere	39	45	10	7	3.15	Agree
4	Vegetative roof	-	-	10	90	1.07	Disagree
5	Indoor environmental quality	52	36	9	3	3.37	Agree
6	Using solar and wind energy (conservation of energy)	36	52	14	13	2.82	Agree
7	Excessive light	39	39	13	12	3.00	Agree
8	Glass technology	-	-	5	95	1.02	Disagree
9	Innovation in design	35	36	9	4	3.36	Agree

Table 2 shows the response summary of these respondents on each option specified as the responses of the green initiatives for environmental sustainability available in academic libraries. The study revealed that all options are significant and reflect the green initiatives for environmental sustainability in the university libraries except vegetative roof and glass technology. Indoor environ mental policy has the highest mean score of 3.37, innovation in design has the mean score of 3.3 6, water efficiency has the mean score of 3.33, and sustainable sites has the mean score of 2.93.

Table 3: Mean responses of the strategies employed on green initiatives for environmental sustainability in federal University libraries in South South Nigeria.

S.N.	Items Descriptions	SA	A	D	SD	X	Decision
1	plant flowers round the library	34	39	15	13	**2.93**	Agree
2	of using safe pesticides	43	47	7	12	**2.97**	Agree
3	organize programs and special events and projects that can promote sustainability in the environment.	7	10	45	39	**1.79**	Disagree

4	use energy saving bulbs in the library	36	38	15	4	**3.35**	Agree
5	commonly get rid of waste by composting	52	36	9	3	**1.57**	Agree
6	consciously recycle paper	35	37	16	13	**3.00**	Agree
7	Using more laptops and notebook computers than desktops.	39	39	13	12	**3.00**	Agree
8	Installing sufficient windows for natural light	52	36	9	4	**3.36**	Agree
9	Opt for natural mosquito repellant plants like catsup and citronella	13	14	36	38	**1.91**	Disagree
10	Using stairs instead of Elevator	39	39	13	12	**3.00**	
11	Sitting in a noise prone area	39	40	12	10	**3.09**	Agree

Table 3 shows the response summary of the respondents to each option specified as the strategies used in green initiatives for environmental sustainability in federal University libraries. The result indicated that the average responses of the librarians to each option specified are greater than the decision rule of two point zero (2.0) except commonly get rid of waste by composting and op t for natural mosquitoes repellant plants like catsup and citronella which has the mean score of 1.5 andl.91 respectively. Installing sufficient windows for natural light with mean score of 3.36 has the highest mean score. Sitting in a noise prone area has the mean score of 3.09, of using safe pesticides has the mean score of 2.97 and using more laptops and notebook computers than desktops have the mean score of 3.00.

FINDINGS AND DISCUSSION

The findings on the level of staff awareness on green initiatives for environmental sustainability in federal University libraries in South- South are low. The implication of this is that the level of awareness of greening among librarians is still to a low extent hence there is a need to sensitize librarians on greening in libraries, so that librarians in Nigeria can as well conform to the trend globally in promoting a sustainable environment. When the level of awareness on greening among librarians is high, it will not be difficult for them to become environmental literacy experts and conform to their new role of

developing the environmental literacy competency of library users as opined by Abiolu and Okere (2012).

The findings on the green initiatives for environmental sustainability available in the library are sustainable sites, indoor environmental policy, innovation in design, water efficiency, sustainable sites and using solar and wind energy (conservation of energy). This is in consonance with the findings of Mwanzu (2022) that found that green garden spaces, water efficiency, green roofs, and provisions for natural lighting as green initiatives available for environmental sustainability in the library.

According to the findings, the strategies used in green initiatives for environmental sustainability in the library include installing sufficient windows, sitting in a noise prone area, of using safe pesticides, using more laptops than desktops and organizing programs and special events and projectors that can promote sustainability in the environment among others. Getting rid of waste by composting and opting for natural mosquitoes repellant plants like catsup and citronella are hardly used as techniques in green initiatives for environmental sustainability in the libraries according to this study. This agrees with Reynolds, Brondizio & Robinson (2010) that found that greening can be attained through the practice of sustainable technologies or "greening operations" in the way of architectural designs, waste management,

renewable energy generation and use of energy efficient lighting.

RECOMMENDATIONS

(1) Awareness should be created by library management on greening libraries.

(2) Displays and exhibitions about reducing individuals' carbon footprint would also not be out of place.

(3) Seminars, talks and lectures should be regularly organized to develop environmental literacy. This will create more awareness for greening in libraries generally.

(4) University libraries should collaborate locally, nationally, and internationally to build stronger greener networks, training, fundraising and building green collections for a more sustainable environment.

CONCLUSION

In other to reduce environmental degradation it is expected that every environment goes green including the library which is the gate way to knowledge. As a way of conceptualizing the social responsibility of libraries as they are the most important source of knowledge for the society, achieving green libraries is not a distinctive project; rather, different stakeholders ought to come into p lay and library users are part of these stakeholders. To become sustainable, libraries can play their important role by performing well on all aspects of green practices. This exploration concludes that overlooking stakeholders such as library users to whom the reason for greening libraries is essential is detrimental to the achievement of the greening concept. They should be involved through education, creating awareness and participating in programs and conferences aimed at environ mental sustainability.

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