

## Green Initiatives Towards a Sustainable Future: Insights from Libraries in Kenya

**Arnold Mwanzu**

Library, The Aga Khan University, Nairobi, Kenya.

E-mail address: [arnoldmwanzu@gmail.com](mailto:arnoldmwanzu@gmail.com)



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### Abstract:

*Environmental protection is an increasingly pressing issue all over the world. Ozone depletion, greenhouse effect, global climate changes, and global warming are among rising environmental concerns. The rising number of environmentally conscious consumers brings about more go green campaigns and a go green movement along with solutions and calls for consumers, corporations, and governments to be more proactive in going green in every aspect. Libraries are no exception to this. Much as this concept is so important, little is known about the green library concept in the African context and among Kenyan libraries. Subsequently, this study proposed to explore the adoption of green library concepts in Kenya for environmental sustainability with a view to proposing strategies that can be used to guide libraries in the going green transformation. The study adopted a qualitative approach. A sample of twelve libraries was purposively drawn from a population of 227 academic, public and special libraries in Kenya. Data was collected using semi-structured interview schedules complemented by observation and document review and analyzed using grounded theory.*

*The findings showed that libraries in Kenya, under their umbrella organizations, have taken advantage of their knowledge of greening concepts through adopting and implementing greening practices and coming up with strategies to enhance green libraries and promote environmental sustainability. They have done this majorly through redesigning and renovating to meet the ever-changing user demands in line with the green library standards. The study concludes that librarians in the Kenyan libraries understand the green building concepts and have adopted different green initiatives, albeit partially to reposition and guard their position globally. The study proposed three strategies for fully going green, i.e., active user involvement in green initiatives, improving performance and growth measuring metrics and maintaining green library standards as guided by the IFLA ENSULIB green library checklist.*

**Keywords:** Green Libraries, Environmental sustainability, green initiatives, Kenyan Libraries, Going green

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## Introduction

Climate change is real and human activities are the leading cause. Notably, since the industrial revolution, the average global temperatures have been increasing steadily, resulting in climate change threatening life on earth. In 2019, for instance, there was extraordinary global heat, retreating ice and record sea levels due to heightened human activities. Unfortunately, even with the increasing destruction of the environment due to climate change, there are no adequate global commitments to lessen climate change (WMO). The Emissions Gap Report (EGR) (2019) projected that by 2030 emissions will get to 56 Gt CO<sub>2</sub>e, which is double what they should be. Thus, the need to avert warming beyond 1.5°C and minimize emissions by 7.6% annually in the next ten years to 2030 (Olahoff & Christensen, 2019).

Currently, every institution, governmental and non-governmental, is an endeavour for the problem of global warming that requires urgent attention. Nations agreed to a legally binding commitment in Paris to limit global temperature rise to no more than two °C above pre-industrial levels. They also offered national pledges to cut or curb their greenhouse gas emissions by 2030. The Paris Agreement commitments were updated since they became ineffective. The update was reviewed at the climate change conference known as COP 26 in Glasgow, the UK, in November 2021, resulting in the Glasgow climate pact that is meant to drive action across the globe on mitigation- reducing emissions; adaptation – helping those already affected by climate change, finance – enabling countries to deliver on their climate goals and collaboration- working together to deliver even more significant action. The success of this pact will have great significance for the world. If countries cannot agree on sufficient pledges, in another five years, the emissions reduction necessary will leap to a near-impossible 15.5% every year. The unlikelihood of achieving this far steeper rate of decarbonization means the world faces a global temperature increase that will rise above 1.5°C. Every fraction of additional warming above 1.5°C will bring worsening impacts, threatening lives, food sources, livelihoods and economies worldwide (UN Environment Program, 2020).

Libraries have not been left behind and are engaging in green initiatives to lessen global warming and safeguard the environment through the green library initiative (Singh & Mishra, 2019). Librarians are slowly becoming eco-conscious and developing the sense of creating libraries that minimize power consumption and become energy efficient and environmentally 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).

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 2030 Sustainable Development Goals with specific targets addressing environmental dimensions of sustainable development. However, there is a gap in some countries where no notable resolutions have been made, for instance, Kenya and most African countries, 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 African context and more so among Kenyan libraries. Apart from the USIU-A Library, there was little knowledge on how other libraries in Kenya are adopting green concepts and, if not, why they are reluctant to participate in environmentally sustainable

practices. Subsequently, this knowledge gap necessitated a study to be undertaken to explore the adoption of the green library initiatives in Kenya for environmental sustainability to pronounce its importance and propose strategies that can be used to guide libraries in going green.

The objectives of this study were to: establish the comprehension and perception of Kenyan librarians towards the concept of greening libraries for environmental sustainability; analyze the greening methods/practices adopted by Kenyan libraries; determine the factors driving and impeding libraries' embracement and implementation of the green concept and propose strategies to guide libraries in transforming to green libraries.

### **Importance of Libraries Going Green**

When thinking about issues like climate change and global warming, libraries do not come into mind despite their contribution to the problem due to the large consumption of energy in the delivery of services. 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 the betterment of the environment as this is crucial in minimising the negative impacts on the natural environment. Besides, 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.

Kurbanoglu and Boustany (2014) identified that libraries act as the gateways to knowledge, making them particularly responsible for leading by example and disseminating the idea of sustainability. Libraries have a role in providing popular services and communicating a clear green identity. The improved daily operations and procedures can help educate the community about responsible environmental practices (Choudhury, 2015). Libraries should incorporate ecological sustainability in their marketing plan as a socially responsible body. According to Hauke and Werner (2012), green libraries are crucial to maintaining the ecological balance in the environment and preserving the planet's natural resources and systems. Scherer (2014) observes that going green can be influential in bringing environmental awareness to the community by teaching environmental sustainability.

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.

### **Methodology**

This study was founded on two theories and a standard rating system. The two theories included the norm-activation model theory and the Value-Belief-Norm (VBN) theory of Pro-Environmental Behaviour. The standard rating system is referred to as LEED Standards.

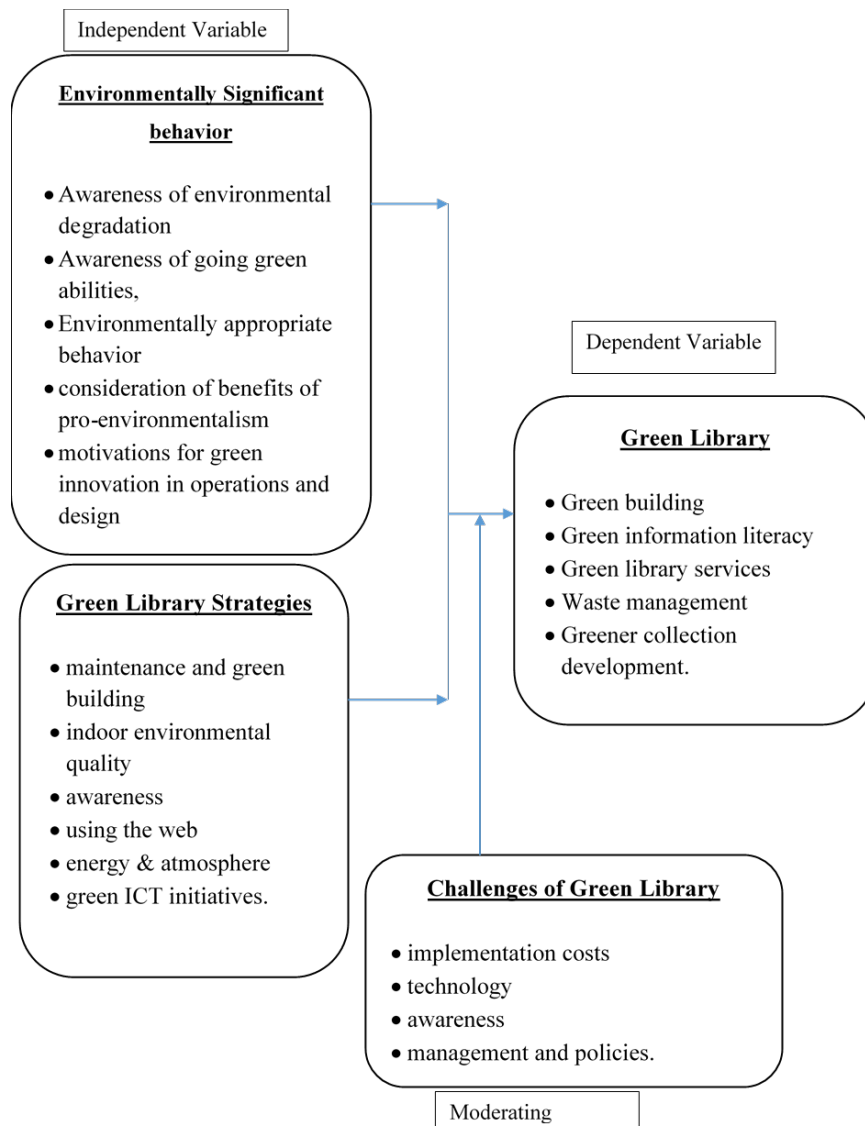


Figure 1: A conceptual framework

Figure 1 illustrates the conceptual framework of this study; it demonstrates the relationship of the variables under this study. Data was collected through face-to-face interviews, observation and document review.

A purposive non-probability sampling technique was employed. The libraries were purposively selected based on their appropriate infrastructure, green architectural design and procedural practice related to environmental sustainability concepts. With this method, sample selection criteria was based on maximum participant variation in the extent of adoption of the new or renovated library buildings that incorporate the green library concept, size and the ability to represent fairly the libraries in Kenya.

The selected libraries were deemed to have met the inclusion criteria as they had recently renovated or relocated to new incorporates the green library concept. These libraries include:

- i. Five public University libraries, i.e., University of Nairobi Graduate Research Library, Kenyatta University postmodern library, Moi University Margaret thatcher library, Masinde Muliro University and Embu University

- ii. Three private chartered University libraries i.e.
- iii. The Catholic University of Eastern Africa, United States International University – Africa and Adventist University Library
- iv. Two Public libraries, i.e., Kenya National Library Service- Upper Hill and Kenya National Library Service- Nakuru
- v. Two School and Special libraries, including the Mpesa Foundation Academy library and the International School of Kenya library.

Framework analysis was used to analyze data during the collection process. NVivo, a qualitative data analysis tool, was used to aid the data analysis.

## **Findings**

### **Librarians’ comprehension and perception of the concept of green libraries**

The concept of green libraries was adapted from the green movement initiative concerned with environmental sustainability. The green library movement in the local libraries is still taking shape; however, it has widely taken shape in the business world. It is thus critical to understanding how librarians comprehend and perceive green libraries. First, the study inquired whether librarians perceived their library to be green. Most the librarians considered their library green to some extent, as illustrated by some of the green library practices in their libraries. One of the librarians, while explaining the green concept of their library, stated that,

*“I can say that our library is green because the library building is made with enough lighting to minimise electricity use. We also encourage our users and even the staff during the day to put off lights and only switch on when it is dark.”*

In another instance, one of the librarians was quoted saying,

*“Our library is green as we make use of the available resources, for example, the saving of energy by using the sun, harvesting rainwater, and taking care of ventilation because we don't have air conditioning in this building.”*

The librarians’ sentiments reflect the observation made on some of the physical library buildings under observation in the study. The buildings were fitted with adequate windows to let sunlight light the building. The roofs were also provided with translucent roof iron sheets that allowed natural light into the library. This helps the libraries avoid relying on electricity and rely on natural sunlight. Figure 2 shows the images captured on some of the library buildings. The first two images show library buildings with adequate windows to let in natural light. In contrast, the third and fourth images show students reading in the library under the natural light from the windows and translucent roof sheets.



*Figure 2: Use of Natural Lighting in Libraries, Source - researcher*

Regarding adopting greening aspects in libraries, different interviewees expressed what areas the greening is evident. These aspects include environmental elements that have to do with energy, harvesting of water, limited usage of resources, and the use of digital libraries.

- a) Environmental aspects: The concern over the environment was mainly linked to natural lighting, tree planting (Figure 3) and the proper use of available resources. These environmental factors were considered an integral part of the library model, and there have been many strategies to incorporate greening in all the activities of the libraries. One librarian was quoted saying,

*“When this library was being commissioned, the plants to be planted were considered to make it green and make the library more environmentally friendly. We planted some trees here within the library community.”*

b) Considerations for natural light: The building has big windows for natural lighting to



*Figure 3: Tree Planting Inside the Library*

minimize electricity use. The library also encourages users and staff to put off lights during the day. One librarian pointed out that,

*“The architectural makeup of the buildings is done to allow for natural light including using more windows and constructing atriums or transparent roofs.”*

Another librarian stated that,

*“I think we have used natural light most of the time by having glass walls and part of the roof roofed using a transparent material. We have more natural light coming in.”*

- c) Planting trees: - The other aspect reported was planting plants. Interviewees mentioned that libraries planted trees as an aspect of greening (Figure 4).



*Figure 4: Planting trees*

- d) Harvesting water: - harvesting water, taking care of running taps and other aspects. One librarian reported that they try to put notices urging users to turn off the taps after using water.



They also have fixtures that automatically produce water using sensors (Figure 5).



*Figure 5: Automatic taps that produce water*

Some libraries reported to be harvesting water using the roof and using it to irrigate the green gardens around the libraries,

*“We have water harvesting whereby we have huge water tanks surrounding the library to tap rainwater and irrigate plants. We have put gutters that collect water into our underground tanks.”*

- e) Limited usage of resources: - In limiting the use of resources, some libraries reported that they fail in this component since they lack policies that can guide the library in resource usage. People tend to waste resources when there are no policies on using natural resources like water and acquired resources like electricity and papers. However, libraries are trying to minimise the usage of power. Various strategies are used, for example-controlled switches where the library official has total control of the lighting system of the library. Another element of proper utilization of resources available in the library is minimizing paper usage.

*“We do not print on paper; we always encourage working online. We just print when it is essential. We do not encourage printing of everything. Minimizing the usage of paper saves on the resources as libraries use less pap, meaning fewer trees are cut, creating environmental sustainability”.*

- f) Use of digital libraries: - libraries reported migrating to digital paperless tools. In other instances, the old books are being converted to digital formats. This allows for no further dependence on the hardcopy books, which ensures that libraries no longer need to reprint hardcopy, even for the old books. Some Libraries reported that they are now making more electronic resources than hard copy books. Libraries are also

subscribing to e-journals to offer their readers a variety of online resources instead of relying on hardcover books.

Further probing sought to determine the extent of the greening of the libraries. Some of the participants considered their library to be partly green. One librarian indicated that,

*“I think our library is partially green because of how it was built. Certain things in its structure make it partly green, such as the garden in the middle, the way the roof is built, and the way the building was designed, making me feel that it's a partially green library. And then also the way the windows let in natural light.”*

Another librarian stated that:

*“I consider our library partially green because we are currently going into the virtual library. We are working towards, providing accessibility through online resources, virtual library, eBooks and stuff.”*

### **Insights from research findings**

The green concept in the Kenyan libraries is still taking shape compared to the business world, where it has already taken form. Most participants described their libraries as partially green following the practices they were involved in and revealed that the libraries have a lot of good plans for the future in going fully green while also impacting the mindset of library users and the communities around them. The results also revealed that the libraries in Kenya are offering green services such as user training on environmental sustainability by designated librarians, green collection lending services, digital library services, awareness campaigns spearheaded by energy management committees etc.

Libraries in Kenya have adopted greening initiatives such as architectural building designs with atriums and green roofing, maintenance-friendly and eco-friendly construction, zoning of lighting, redesigning as per LEED standards, and coming up with bicycle parking spaces, recycling, and reuse of resources etc. Moreover, the findings confirmed that efforts to go green in the library majorly affect the surrounding environment of the library by providing a more conducive climate through cleaner air for reading and less carbon footprint impact on the society. In Kenya, vision 2030 was acknowledged as one of the policy factors that influenced the libraries to embrace the green concept. The libraries have been embracing and implementing green initiatives in line with the policies of vision 2030.

While implementing the green concept, some challenges barred the libraries from effectively going green. This included: inadequate financial facilitation, lack of awareness and understanding of the green concept, lack of clear policies and strategic plans to guide implementation, organizational culture, and lack of interest from the library users and the management. Some of the projected solutions to these challenges included: increasing green information literacy, emphasizing the role of leadership in setting up eco-friendly buildings, local practical solutions such as improving lighting, development and adoption of policies and standards such as the LEED building standards, and better waste management.

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 many 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. Remarkably, many libraries achieved less energy consumption

through natural lighting provisions enabled by installing large windows, creating spaces within the library, and using atriums on their roofs. Further, the libraries recorded the adoption of solar energy and LED bulbs to help conserve energy.

The libraries were more intentional in finding ways to cut electronic waste. The Kenyan libraries reported using technology to reduce electronic waste, which has become the hardest to dispose of. This was characterized by more internet usage for communication purposes and the use of refurbished computers. To further cut electronic waste, libraries in Kenya reported partnering with companies that refurbish disposed or outdated computers and machines. The libraries in Kenya confirmed that participating in annual greening events such as tree planting, cleaning nearest towns and marketplaces aimed at environmental sustainability contributed to their going green initiatives.

Libraries in Kenya are reported to have campaigns to create awareness of the greening initiatives toward a sustainable environment. Most libraries reported using ICT in creating awareness of environmental sustainability. Green information literacy and user education has helped library users to understand the direction the libraries are taking globally using green initiatives. Notably, the green concept is effectively and successfully taking shape in Kenya, specifically in public and academic libraries. As a result, respondents reported that many libraries that benchmark with them have indicated their desire to build fully green libraries or renovate their existing buildings to incorporate environmental sustainability as a standard of measure and quality control. All libraries in the study confirmed that they intend to improve their structures and policies to go green fully, just like the libraries in developed countries. Some of the libraries' plans to achieve this include adopting solar energy, green roofs, improved water systems, more partnerships on greening, and proper waste management.

## **Conclusion**

Under their umbrella organizations, Libraries in Kenya have taken advantage of their knowledge of greening concepts by adopting and implementing greening practices and developing strategies to enhance green libraries and promote environmental sustainability. They have done this majorly through redesigning and renovating to meet the ever-changing user demands in line with the green concept. Therefore, this study concludes that librarians in the Kenyan libraries understand the green building concepts and have embraced and adopted different green initiatives, albeit partially to reposition and guard their position across the globe.

Achieving green libraries is not a distinctive project; rather, different stakeholders ought to come into play and library users are part of these stakeholders. 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 environmental sustainability. Despite the libraries in Kenya fully or partially adopting the green concepts and initiatives that promote it, the library users are reluctant. They have persistently shown a lack of awareness concerning greening initiatives. For the library to achieve its greening objectives, users are stakeholders and have a role to play. Therefore, this study shows that users lack involvement in the library's greening practices. This has delayed the efforts by the libraries to achieve green standards fully.

In the process of the adoption of green initiatives in libraries, challenges are projected. Most of these challenges root from the management goodwill and buy-in and operations that make up the environmentally sustainable practices of a library. Most of the processes and decisions concerning environmental sustainability adhere to the proposed theories; norm-activation model and value belief model, where most decisions are made depending on the belief and behaviors of the managers and staff and not in the institution's best interest. Most of the challenges noted are internal, meaning that the organization can devise mechanisms to solve them. The challenges realized did not alter the adoption of the greening initiatives in a big way. Therefore, the study concludes that challenges encountered are part of any scheme if they are internal. The study proposed three strategies for fully going green, i.e., active user involvement in green initiatives, improving performance and growth measuring metrics and maintaining green library standards as guided by the IFLA ENSULIB green library checklist.

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