

The emerging role of LIS professionals in combating adverse environmental effects

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Abstract:

In modern librarianship there is a lot more need for practical engagement than just fostering information literacy and dissemination. The 2030 United Nations agenda emphasizes action points for environmental sustainability, which involve reduction of pollution and waste, governing the environment, boosting the renewable energy, health ecosystems, combating climate change, improving soil and water sanitation, increasing resource efficiency, and safeguarding the oceans. These actions necessitate collective responsibility from all stakeholders including; LIS professionals, policy makers, politicians, development partners and practitioners. The aim of this paper was to establish the practical and probable measures through which LIS professionals can engage in the action of environmental restoration. The study was informed by published literature on the involvement by LIS and other professionals, locally and internationally in environmental sustainability actions. An online questionnaire, with structured and open ended questions, was used to collect data from 60 LIS professionals in Africa, of whom the majority (55%) were from Uganda, 56.7% male, and 81.7% primarily working as librarians. The study revealed that LIS professionals are aware of environmental degradation activities though only 55% are aware of the global environmental strategy of the 2030 UN Agenda. Deforestation and air pollution were reported as the most commonly known activities which destroy the environment. It was established that LIS professionals and their affiliate institutions and organizations are mostly involved in the greening campaign more than any other activity. The main challenge to environmental conservation, as reported from the study, is lack of sufficient resources to support the planned activities, however, it was suggested that LIS professionals engage more in the development, implementation, and promotion of awareness campaigns for waste reduction and environmental literacy. Finally it was recommended that LIS professionals develop a strong collaboration with other stakeholders and engage in all other possible activities to enhance environmental sustainability.

Keywords: Environmental restoration, Environmental protection, LIS involvement, 2030 UN Agenda, Conservation.

INTRODUCTION: ENVIRONMENTAL CONSERVATION AND LIBRARIANSHIP

In modern librarianship there is a lot more need for practical engagement than just fostering information literacy and dissemination. While professional librarians are experts in information searching and retrieval, there is need to join the other professionals in putting information to use, through translating it into productive knowledge that can yield logical solutions to the global challenge posed by environmental degradation, as ascertained by Abiolu and Okere (2011).

Some libraries have developed and implemented green operation policies within their activities, others have fostered environment considerations in buildings, while others work with other environmental aspects in terms of creating awareness and in communication (Niegaard, 2015). According to Chauhan (2015) The movement for green Library was started by United States in the early 1990s, when the libraries, cities, towns, college and university campuses committed to greening libraries so as to reduce their environmental impact. In support of the movement the International Federation of Library Associations and Institutions (IFLA) provided guidelines for library buildings to cater for environmental conservation.

In September 2015, the United Nations member states formally adopted the Sustainable Development Goals (SDGs) as key elements of the post-2015 development agenda, the successors to the Millennium Development Goals (MDGs) that focused at a global development movement from 2000 to 2015 (Colglazier, 2015). According to Palmer (2015) the seventeen Sustainable Development Goals (SDGs) replaced the eight Millennium Development Goals (MDGs) of the 15-year development round of a revitalized Global Partnership for Sustainable Development which came into force effective January 2016.

The 17 SDGs as listed by Global View (2015) are all tailored around improving the livelihood of man within the natural ecosystem. These SDGs are as follows;

Goal 1: End poverty in all its forms everywhere

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Goal 5: Achieve gender equality and empower all women and girls

Goal 6: Ensure availability and sustainable management of water and sanitation for all

Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 10: Reduce inequality within and among countries

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12: Ensure sustainable consumption and production patterns

Goal 13: Take urgent action to combat climate change and its impacts

Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development

All the goals require sufficient information support if there are to be achieved by the target set period of 2030. However, more emphasis requires to be put on goals 1, 2, 3, 6, 7, 9, 13, 14, and 15 because they are directly interlinked in respect to Environment. Therefore, not only should information be collected and processed for dissemination to other professionals, but put to active use by designing strategies and engaging with stakeholders in active conservation of the environment.

The biggest component of environmental distresses is the impact of climate change. Solheim (2010) emphasizes that climate change reduces human security as a result of drought, flooding, storms, disease and food and water shortages. It is further noted that climate change affects everyone, but the least guilty are the worst affected. It is noted that environmental degradation is an obvious outcome of industrialization, and that it is necessary to maintain a balance between industrial growth and the environment with respect to optimum use of natural resources for the overall progress and wellbeing of mankind (Goyal, Nema, & Devotta, 2008). Therefore it is necessary to tackle environmental degradation by embracing a holistic approach so as to warrant economic as well as environmental sustainability. The major factors of environmental degradation are: air pollution; water pollution; toxic pollutants; deforestation; solid waste pollution (trash and garbage); global warming (Donohoe, 2003; Tyagi, Garg, & Paudel, 2014); poor agricultural practices; overfishing; uneven distribution of wealth and the “Booming Economy”; third world debt crisis which increases poverty levels; military practices; disproportionate suffering of women in some economies; poverty, hunger and infectious diseases; species loss and; environmental ignorance (Donohoe, 2003). Other causes include; land disturbances, technology development, natural causes and bush burning.

DEFINITION OF KEY TERMS

Environmental restoration – This is the ideology that seeks a return to the original (predisturbance) form of the natural ecosystem (Eden, Tunstall, & Tapsell, 1999). Ranjan (2008) connotes that restoration would be more relevant for recovery of habitats such as grasslands, lakes, and wetlands, among other habitats, which provide environmental services to the society in their un-invaded states.

Environmental protection – This concept refers to any activity to maintain or restore the quality of environmental media through preventing the emission of pollutants or reducing the presence of polluting substances in environmental media (United Nations, 1997). It consists of changes in characteristics of goods and services, changes in consumption patterns, changes in production techniques, treatment or disposal of residuals in separate environmental protection facilities, recycling, and prevention of degradation of the landscape and ecosystems. Other principles “environmental conservation” and “natural resources conservation” are used synonymously to environmental protection.

ENVIRONMENTAL CONSERVATION ACTIVITIES

There are a number of activities done to ensure environmental sustainability. Aichi Prefecture (1994) introduced a programme the “Aichi Agenda 21” in which 21 broad activities were listed

to be practiced in order to conserve local and global environment. All the activities are tailored around creating a suitable environment for life, through environmental conservation, restoration and protection. The activities include, among others, garbage reduction, recycling, waste disposal, reduction of chlorofluorocarbon, reduction of energy consumption, conservation of forests, promotion of greening activities and practicing of environmentally friendly agriculture.

With the emerging technologies, there are new ways of doing some of the activities, and the trend will keep revolving as the future arises. However, one should be aware of how they can collectively and individually contribute to a healthy environment. Whereas some environmentally destructive activities are, to some extent, unavoidable, one must to the consequences of their effects. This helps to minimise the extent of engagement with the activities and to innovatively devise alternatives.

ENVIRONMENT AS A GLOBAL CONCERN

The 2030 United Nations agenda, specifically emphasizes action points for environmental sustainability, which involve reduction of pollution and waste, governing the environment, boosting the renewable energy, health ecosystems, combating climate change, improving soil and water sanitation, increasing resource efficiency, and safeguarding the oceans (United Nations Environment Programme, 2015). These actions necessitate collective responsibility from all stakeholders including; LIS professionals, policy makers, politicians, development partners and practitioners. LIS professionals usually engage with academics, researchers and other information seekers who approach them. However, there are key players in this cause who may never seek information support from librarians. Therefore, there is urgent need for outreach by LIS professionals to all people (elites and non-elites), politicians, policy makers, farmers, business persons, children and the, government, environmentalists, traditionalists and other communities, to work collaboratively in ensuring environmental conservation and restoration. The collaboration should see LIS professionals getting actively engaged in activities that support environmental conservation.

OBJECTIVE

This paper was intended to establish the practical and feasible measures through which LIS professionals can engage in the action of environmental restoration and conservation. This general objective was realized through the following specific goals;

- Determining the Librarians' knowledge and awareness of environmental conservation, restoration and the 2030 UN agenda.
- Establishing the current role of Librarians in enhancing environmental conservation.
- Determining the challenges librarians face, or are likely to face while participating in environmental conservation activities.
- Establishing effective strategies through which Librarians can collaborate with other professionals to actively participate in environmental conservation, in line with the 2030 UN agenda.

LITERATURE REVIEW

The involvement of LIS professionals in environmental conservation and restoration strategies requires thorough studies, yielding viable strategies for practical engagement to the cause. However, recent studies on the green movements in the libraries by Chauhan (2015) and Niegaard (2015) mainly focus on utilization of environmentally friendly energy resources such as natural lighting and solar systems in reading rooms, and reusable materials for construction of library buildings and library other infrastructure such as tables and chairs. A study by Abiolu and Okere (2011) looked at environmental literacy in the developing economies and how librarians can reposition themselves to create a much improved impact in environmental conservation issues. In their study they (Abiolu & Okere, 2011) argue that information professionals need to reposition themselves if they are to remain relevant in supporting the needs of sustainable environment. They recommend revitalization of public libraries, getting training in ICT skills and collaborate with interest groups. In terms of extending awareness Chauhan (2015) emphasizes that librarians should not only choose the methods for green libraries but also make the public aware about the green libraries for sustaining the future. However, in the current digital age where children grow up interacting with ICTs, and learning in virtual environments, it is likely that strategies focusing on teaching ICT skills and creating awareness will be short-lived. There is need for solutions and strategies, to global problems, which can stand the test of time.

According to Chauhan (2015) some of the major challenges facing libraries, in going green campaign, include; stringent budget cuts which makes it very hard for libraries to meet some obligations, lack of awareness in green technology and among LIS professionals recruited with traditional knowledge and skills, attitudinal impediments (resistance to change) arising from lack of awareness of the green technologies and environment conserving strategies by administrators. More challenges come with the need of using paper in many libraries in developing economies. It is asserted that libraries and librarians consume a lot of energy and waste a lot of paper simply to exist (Williams & Koester, 2013). The energy wastage ranges from supporting the physical building to powering the networked computing technologies which are needed to host growing electronic resources and services in the libraries.

Environmental conservation is affected by certain beliefs of some societies. Some communities believe in exploitation of the resources and take care of the environment later, when damage is already done. For example the Chinese saying of “get rich first, clean up later” is a principle that still rules in some parts of the country (Zhang & Wen, 2008), and this continues to significantly affect conservation schemes of the communities. Sovacool (2012) conducted a study on environmental conservation problems and possible Solutions in Myanmar. In his study he identifies four major challenges that affect environmental conservation; Poverty and subsistence needs, conflicting priorities, lack of resources, and policy fragmentation. In response to the challenges, Sovacool (2012) goes ahead to provide solutions, applicable, both locally and globally. The main focus is on promoting of community ownership and community involvement, integrating environmental protection with income generating activities, initiating community relations campaigns to increase awareness about environmental degradation and proper park management, increasing and enforcing fines and penalties for non-compliance with environmental statutes, and improvement of staff employment and training. According to Brundtland et al. (2012) it is anticipated that the world population will grow from 7 to 9 billion by 2040. This exponential population growth is likely to affect the production and consumption patterns, thereby affecting environmental conservation initiatives. The other key determinant is the social inequality, which arises from wide social diversities in ethnicity, culture, religion

and race, and this can dramatically affect people's willingness to adjust (Brundtland et al., 2012).

METHODOLOGY

An online questionnaire was purposively distributed to all LIS contacts within the network of the researcher to generate responses from LIS professionals on the research objectives. The questionnaire was circulated to respondents from different countries in Africa. The survey gathered sixty (60) responses, and the respondents included professionals from Uganda, Nigeria, Ghana, Tanzania, South Africa, Central African Republic, Zambia, and Zimbabwe. The results of the study were analyzed using SPSS to generate meaningful statistical inferences. The data was then presented in form of charts, and tables, with frequencies and rational representations in form of percentages. The distribution of the respondents is as shown in the figure 1.

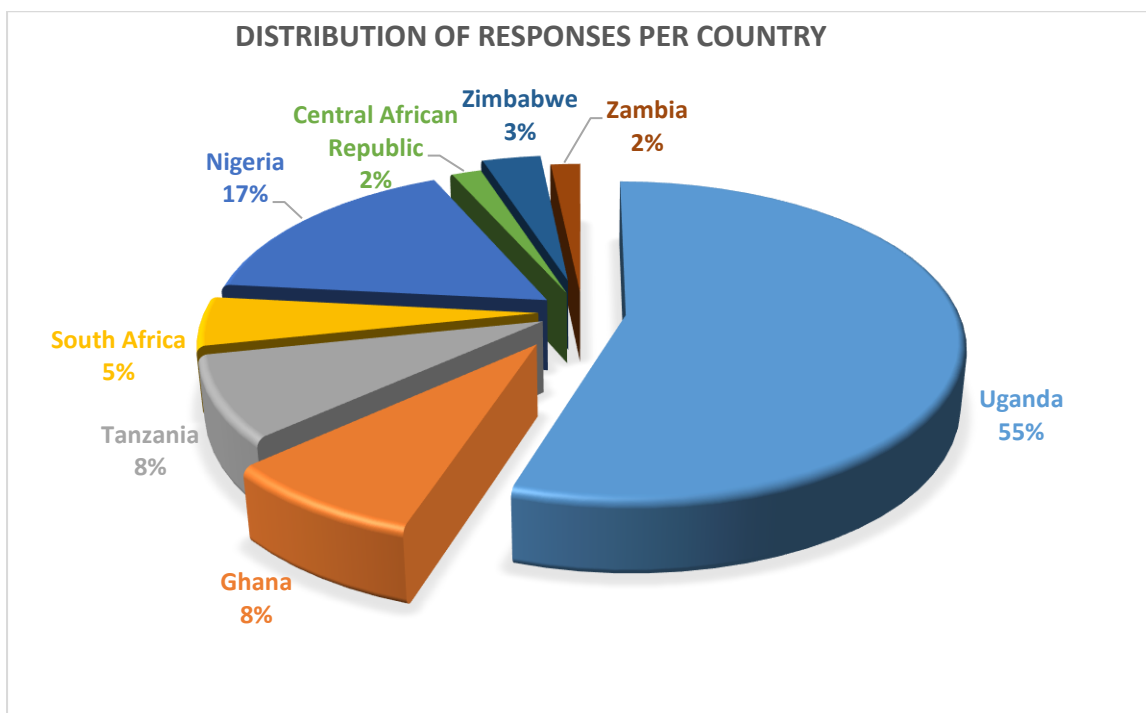


Figure 1: Distribution of respondents per country

The distribution in figure 1 shows that the researcher gained more responses from Uganda than any other country probably because the researcher, being a Ugandan, had more contacts from Uganda than any other participating country.

RESULTS

The gender distribution of the participants of the study was 34 (56.7%) male and 26 (43.3%) female. This gender distribution probably reveals that there is a growing male dominance in the library profession, reversing the scenarios observed in previous reports by Davis (2009); Record and Green (2008) which report a female dominance in the library profession. It is also likely that male professionals are more receptive to participation in research studies than females, and hence the outcome of this study. The study reveals that LIS professionals work in

different capacities in their institutions/organizations. Well as many LIS professional work in more than one position in their institutions/organizations, it was reported that of the 60 respondents 49 (81.7%) primarily work as Librarians, well as others primarily work in different positions, ranging from administration to research. The results is the survey in relation to the primary roles of LIS professionals are as summarized in table 1.

Primary Roles of the LIS professional			
Roles	Responses		Percent of Cases
	N	Percent	
Librarian	49	59.8%	81.7%
Information / Communication officer	6	7.3%	10.0%
Records Manager	3	3.7%	5.0%
Faculty / Lecturer	8	9.8%	13.3%
Administrator	4	4.9%	6.7%
Researcher	6	7.3%	10.0%
Other	6	7.3%	10.0%
Total	82	100%	136.7%

Table 1: Primary roles of LIS professionals

The other roles LIS professionals play include activities related to Information Technology, Systems Administrator and networking. Therefore, with the skilling LIS professionals acquire during their course of training, they can effectively perform in different roles within the organization.

Awareness of Environmental degradation, Conservation, and the 2030 UN agenda

All LIS professionals were found to be aware of the activities that destroy the environment. However, only 33 (55%) were aware of the 2030 UN agenda, 17 (28.3%) were not aware, and the rest (16.7%) claimed to be somehow aware of the 2030 UN Agenda. This implies that a lot of environmental awareness has been done at different levels of education and that by the time one goes through University education, they are aware of environmental conservation and degradation. Since the end of the MDGs in September 2015, and the initiation of the SDGs and the 2030 UN agenda, many professionals have tried the follow the trends and strategies of action, locally and globally.

According to the participants of the study, there are a number of activities which cause environmental degradation. Some of the activities were reported to be more commonly known by the LIS professionals than others. Figure 2 shows the activities and their commonality, according to the LIS professionals.

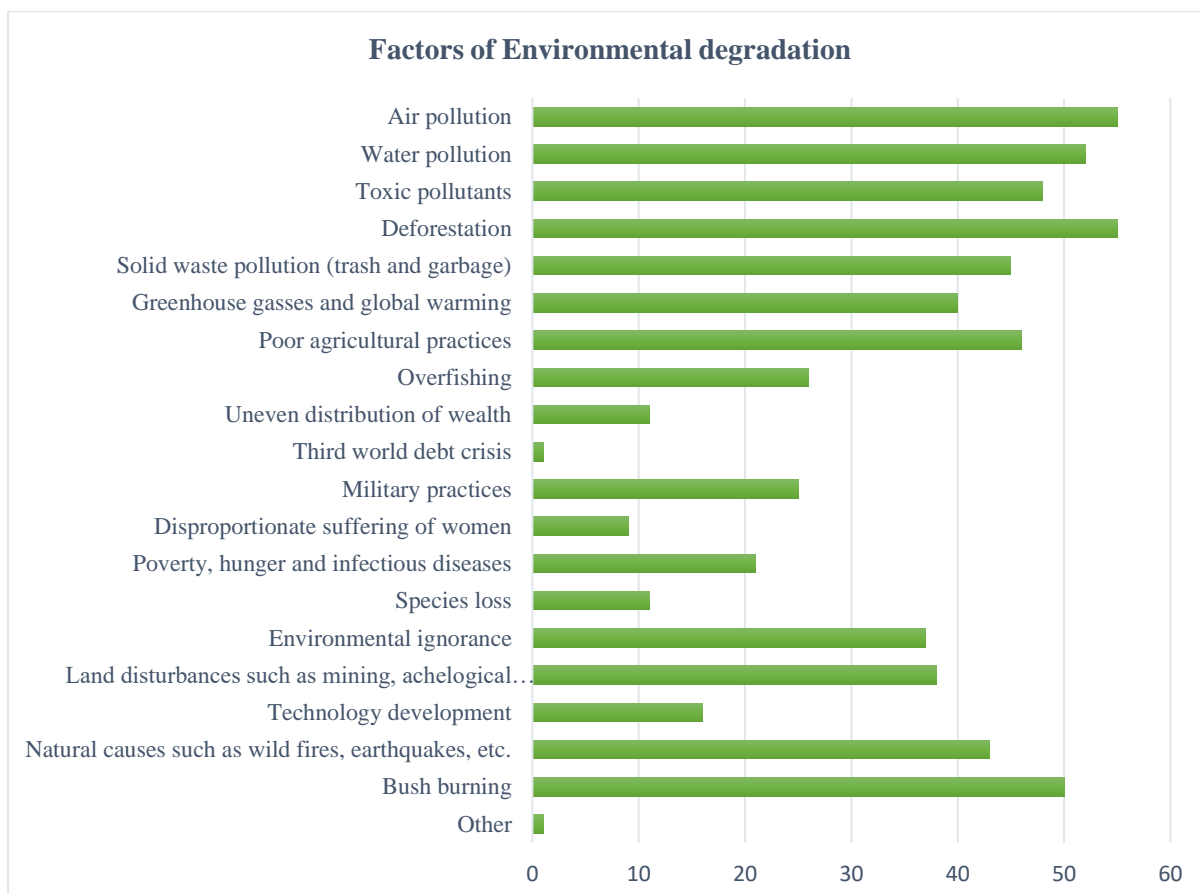


Figure 2: Activities which cause environmental degradation

The most prominent activities according to the LIS professionals are deforestation and air pollution. Water pollution, bush burning and poor agricultural practices are some of the other activities observed to have a significant impact to the environment. On the other hand, most LIS professionals see no major correlation between the Third world debt crisis and environmental degradation. Despite the awareness of the effects of deforestation in Africa, the practice just keeps rising as ascertained by Cooney (2011) that “a new wave of deforestation is sweeping across Africa decimating wildlife and threatening the resilience of its ecosystems to withstand the effects of climate change”.

Involvement of LIS professionals in environmental conservation

Environmental conservation is a responsibility of every individual, institution or organization. The ordinal scale was used, with values 1 through 5, where 1=strongly disagree and 5=strongly agree, to establish the level of agreement for organizational/institutional participation in environmental conservation practices and activities. It was established that the practice with a mean value of 3.211 and standard deviation of 1.645, as shown in the summary item statistics in table 2.

<i>Summary Item Statistics</i>							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.211	2.650	3.833	1.183	1.447	.150	15
Item Variances	1.645	1.199	2.105	.906	1.756	.057	15

Table 2: Summary of response statistics to institutional/organizational participation

The activities considered in the study in which institutions and organizations engage and collaborate in environmental conservation are as shown in table 3.

<i>Environmental conservation activities</i>	<i>Responses</i>		<i>Percent of Cases</i>
	N	Percent	
• Reducing amount of garbage by avoiding buying excess material	6	3.5%	17.1%
• Support the recycling of garbage e.g. sorting/separating of garbage (cans, paper, bottles, etc.)	12	6.9%	34.3%
• Using of recycled products such as paper bags, tissue paper, etc.	9	5.2%	25.7%
• Use of non-chlorofluorocarbon (CFC) emitting air conditioners, refrigerators, and other non-CFC emitting products.	4	2.3%	11.4%
• Carrying out environmental studies and awareness	15	8.7%	42.9%
• Promotion of Greening, such as planting of flowers, trees and grass.	22	12.7%	62.9%
• Preserving the natural environment by not destroying other living things around you.	19	11.0%	54.3%
• Using of renewable energy such as solar and wind turbines BUT NOT Hydro-electricity	11	6.4%	31.4%
• Construction and use of sewage systems	14	8.1%	40.0%
• Harvesting and use of rain water	12	6.9%	34.3%
• Use of cars with low fuel consumption and low gas emissions	8	4.6%	22.9%
• Exclusive use of natural lighting systems (sunlight) in buildings during day time.	9	5.2%	25.7%
• Participation in Environment conservation campaigns.	14	8.1%	40.0%
• Use of no paper during meetings, conferences, classes, etc.	7	4.0%	20.0%
• Exclusive use of virtual servers for storage and access of library material rather than physical material.	11	6.4%	31.4%
Total	173	100.0%	494.3%

Table 3: Environmental conservation activities for organizations and institutions involvement

The study revealed that most Libraries, organizations and institutions, in which LIS professionals work, are largely engaged in promotion of greening, such as planting flowers, trees and grass. This activity is respectively followed by preservation of the natural environment, environmental studies and awareness trainings, construction and use of sewage systems, participation in environmental conservation campaigns, harvesting and use of rain water, and supporting the recycling of garbage, among other activities as shown in table 3. On the other hand the most ignored environmental conservation activity is the use of non-chlorofluorocarbon (CFC) emitting air conditioners, refrigerators, and other non-CFC emitting equipment. This is probably because most LIS professionals lack enough knowledge about chlorofluorocarbon emitting equipment and how it affects the environment.

Besides institutional participation, LIS professionals individually participate in environmental conservation activities when at home, workplace or in the community. The study reveals that LIS professionals participate more prominently in the greening promotion such as planting of trees, grass and flowers. This activity accounts for 57.9% of the total response in which respondents strongly agreed to participate in activities that promote environmental conservation. Other major activities respectively include; harvesting and use of rain water (55.3%), preserving the natural environment through conservation and protection of other living organisms (50%), exclusive use of natural lighting systems (sunlight) during the day

(44.7%), use of energy-saving stoves to reduce on amount of fuel such as charcoal and firewood (44.7%), reducing the amount of garbage by carrying own shopping bag and reducing the amount of kitchen refuse (36.8%), construction and use of sewage systems (34.2%), supporting the recycling of garbage, i.e. sorting/separating of garbage such as cans, paper, bottles, etc. (31.6%), carrying out environmental studies and awareness (28.9%), and preservation of forests and other natural ecosystems (28.9%). Other activities in which a few of LIS professionals actively engage include; promoting environmentally friendly businesses with limited pollutant effluents to the environment, using of renewable energy such as solar and wind turbines, use of cars with low fuel consumption and low gas emissions, promotion of environmentally friendly agricultural practices, i.e. none use of chemical substances as herbicides, pesticides, fertilizers, etc. This also includes use of climate-smart agriculture practices such as planting basins. As is the case in institutional participation, use of non-chlorofluorocarbon (CFC) emitting air conditioners, refrigerators, and other non-CFC emitting equipment is the most unpopular environmental conservation practice, and this accounts for only 18.4% response rate. The results of the study imply that institutions and LIS professionals engage in environmental conservation activities, though to a very limited extent compared to the magnitude of effect of the prevailing global climate change and the international call.

Challenges and strategies to environmental conservation and control of climate change effects

Challenges

The process of climate change effects mitigation is faced with very many challenges. The challenges could be economic, social, legal or political. This study identified a number of challenges to environmental conservation. Some of the challenges are observed to be more prominent than others. The challenges identified in this study are summarized in figure 3.

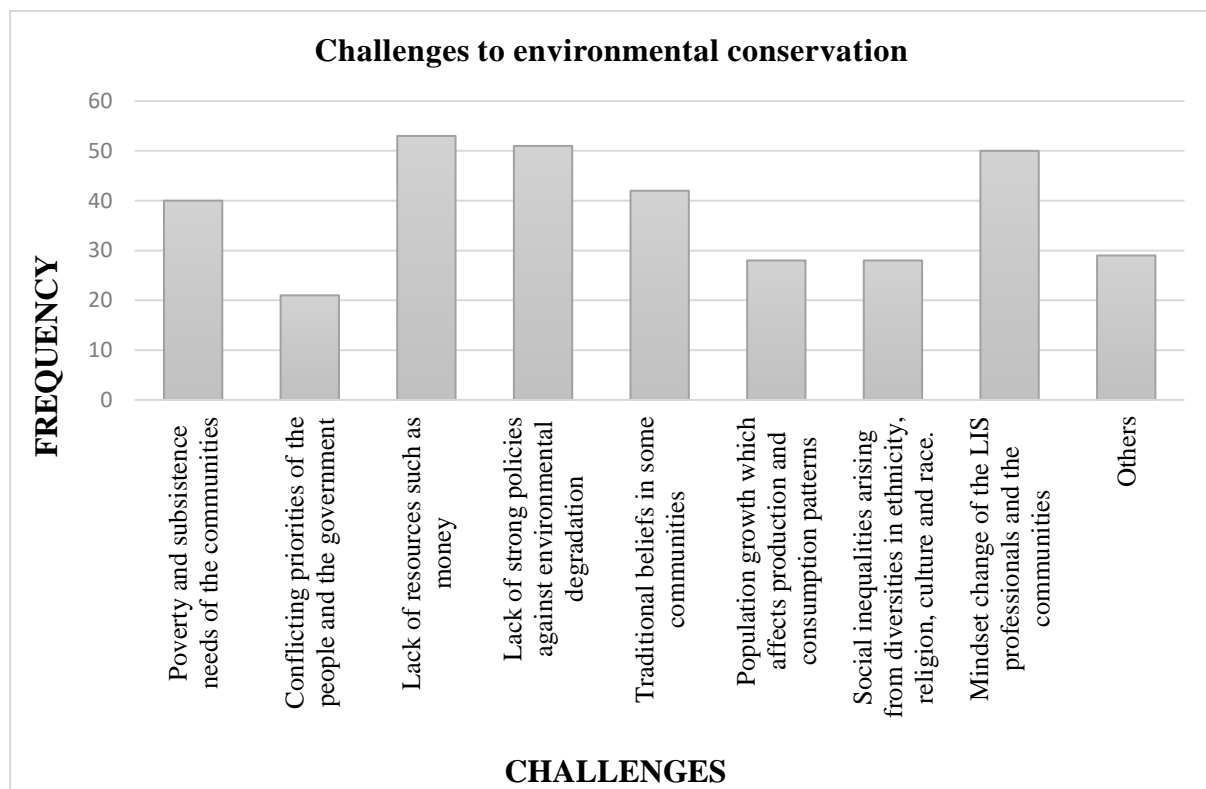


Figure 3: Rating of challenges to environmental conservation

The challenges to environmental conservation have existed for very many years. However, the effects of environmental degradation are more experienced today more than ever. Climate change is one of the biggest concerns to the ecological existence of life. While LIS professionals should engage in environmental restoration and conservation practices and activities. There are a number of challenges that hinder the efforts. The most prominent challenge is lack of enough resources such as money and human capacity. Other major problems as shown in figure 3 include; the weaknesses in the legal framework (lack of policies), mindset change of both the LIS professionals and the communities, traditional beliefs in some communities, poverty, population growth, social inequalities, and conflicting priorities among the communities and the governments. The other challenges as observed from the study include; lack of top management support for planned activities, and limited recognition of the LIS profession compared to other professions. Despite the above challenges, there are several strategies which were suggested to strengthen the involvement of LIS professionals in combating climate change effects in collaboration with other organizations, individuals and professionals. These strategies are presented in the next section.

Strategies

There are several strategies that can be used by any organization and individual to protect the environment against destruction. Research and the advance in technology have yielded innovative ways of combating climate change. The strategies in figure 4 were rated by the participants of this study with varying perceptions of their effectiveness and practicability in enhancing environmental conservation.

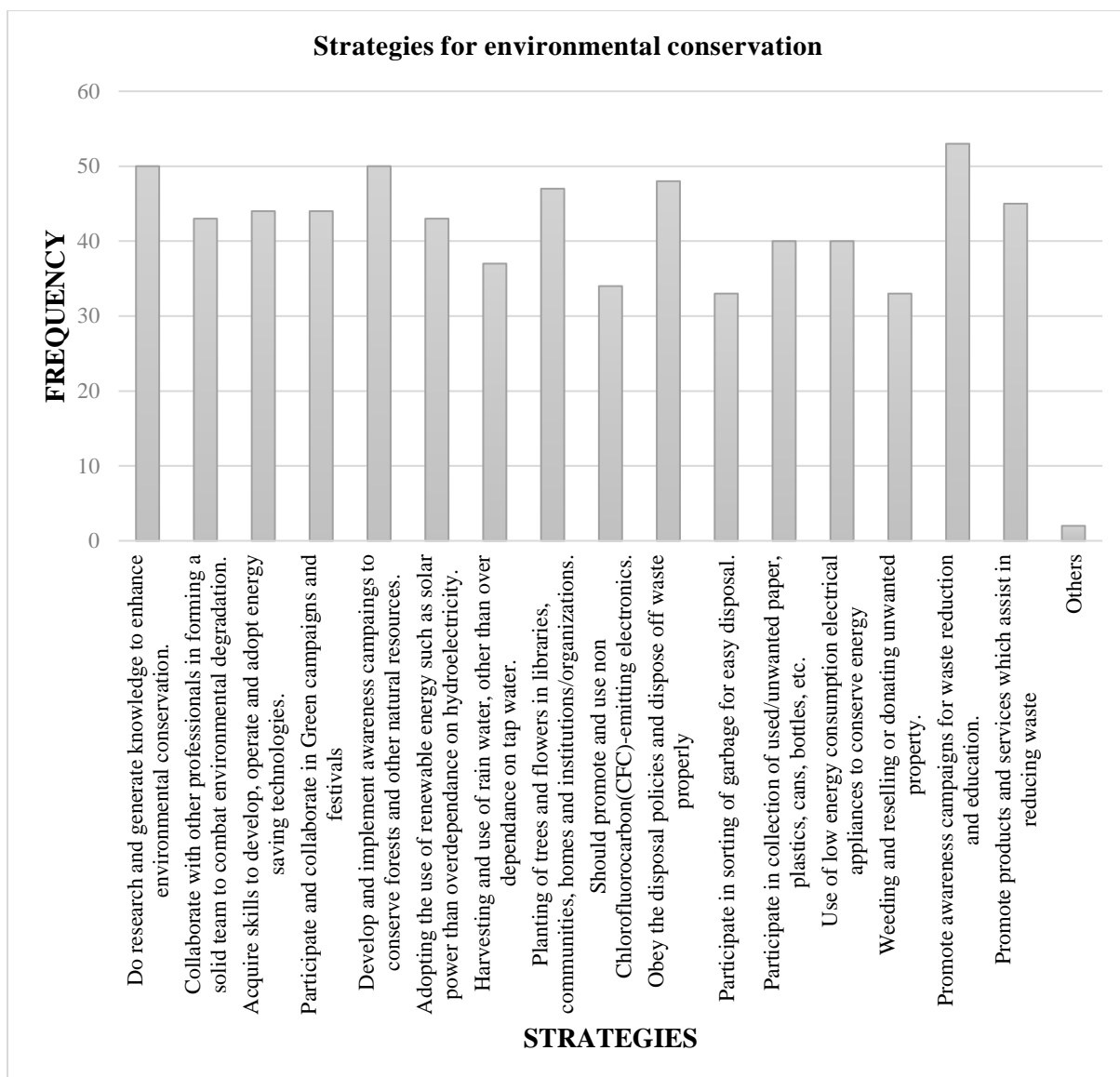


Figure 4: Rating of strategies for environmental conservation

From the study it is observed that the most prominent strategy that LIS professionals should engage in is the development, implementation and promotion of awareness campaigns for waste reduction and environmental literacy. Other major strategies include; generation of knowledge about environmental conservation innovations and development through research, planting of trees and flowers in libraries, homes, communities and at institutions and organizations, proper disposal of waste in accordance with the existing policies, promoting products and services which assist in waste reduction, acquisition of skills to develop, operate and adopt energy saving technologies, adoption of the use of renewable energy such as solar and bio-gas rather than exclusive dependence on hydro-electricity, collaborating with other professionals, participating in collection of garbage, and the use of low energy consumption appliances. More strategies are as listed in figure 4. Other strategies obtained from the study include; making use of displays in the library to promote environmental conservation, and organizing regular environmental awareness days for the library patrons. It is further recommended that LIS professionals who are in faculties should develop and introduce independent courses related to environmental literacy. In addition, LIS researchers should investigate and communicate findings on how effective library weeding conserves the

environment. On the other hand, there is need for proper documentation and display of success stories and cases of LIS involvement in environmental conservation campaigns.

CONCLUSION

Climate change affects all sectors of the global economy. Most importantly, agriculture which is the basis for the survival of mankind in the modern world is the worst effected sector. However, with the rising need to combat climate change many organizations have set out strategies for environmental restoration. The emergency of the Sustainable Development Goals (SDGs) that followed the end of the Millennium Development Goals (MDGs) gave rise to the 2030 United Nations Agenda, in which the issues about climate change take centre stage. The LIS professionals, who are predominantly male unlike in previous scenarios with female dominance in the LIS profession, are primarily tasked with dissemination of information, among which is the environment related information. However these professionals also ought to actively participate in environmental conservation. The LIS professionals, despite working largely (81.7%) as Librarians, others serve in different capacities, performing a variety of roles, and working in different types of organizations. The study established that LIS professionals are aware of the activities and practices that lead to environmental degradation, however, with the awareness of the global strategies, it was established that only 55% were aware of the 2030 UN Agenda, and this call for more awareness campaigns. Deforestation and air pollution are observed as the most prominent causes of climate change, though the study realised no significant association between environmental degradation and the third world debt crisis.

It is observed from the study that LIS institutions and organizations, as well as the individual professionals, among many other activities, largely participate in the greening campaigns, in which they plant trees, grass, and flowers around their institutions and organizations, in the libraries, in the community and in their homes. The environmental conservation activities are, to a larger extent, constrained by lack of sufficient resources but there are many strategies, such as developing, implementing and promoting environmental awareness campaigns, among others, which can help to effectively enhance environmental conservation and restoration. It is therefore recommended that LIS professionals collaborate with all other stakeholders and engage in all possible activities that enhance environmental sustainability.

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