

Impact of Climate Change on Information Service Delivery in Selected Libraries in Kwara State

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Abstract

The study examined the impact of climate change on service delivery in the National Library of Nigeria, Ilorin; University of Ilorin Library; and National Stored Products Research Institute Library, Ilorin. The study was guided by five (5) research objectives and questions that sought to identify the level of awareness of library staff on climate change, the impact of climate change on information resources and library building, available plans and preventive measures against the impact of climate change on the libraries, and challenges faced by libraries in combating the effect of climate change. The population of the study was eighty-seven (87), hence, total enumeration was used for the study. Seventy-four (74) copies of questionnaire were filled, returned and used for the analysis. Questionnaire and observation checklists were used as instruments for data gathering. Simple percentages and tables were used for data analysis and presentation of findings. Findings revealed that the majority of the respondents are aware of environmental factors such as temperature, relative humidity, light, air pollution, greenhouse gases and global warming that affects library buildings and information resources. However, climate change has the highest negative impact on books in the libraries studied. Climate change also affects the wall of library buildings, roofs, lighting, ventilation and temperature. The following recommendations were made among others: training and workshops should be organized for library staff on climate change and its effects on libraries. Continual rehabilitation of dilapidated library buildings to control the impact of climate change and finally, procurement of modern technological gadgets to curtail changes in climate.

Keywords: Climate change, Impact, Libraries, Kwara State, Nigeria.

Introduction

No institution of learning can exist without a library and this is why it is considered an integral part of a school. A library is a system comprising a collection of recorded knowledge, retrieval devices, users and library personnel, all associated in such a way as to maximise the knowledge transfer process (Oyedum, 2006). Library buildings are the structures that make up the library and can be physically viewed and used. It results from the work of various stakeholders that make up a team. The team usually consists of varying combinations of professionals and specialists such as librarians, architects, surveyors, planners, library equipment suppliers and the consultant whose input is experience and advice. A library is one of the few places in the world that provide people with an opportunity to improve themselves. There are a lot of activities that can be done; people can learn about how to find a job, manage personal finances, explore different journals, magazines and newspapers. Library offers a door for one and all of every age group. It does not matter what the economic status is, there is free access to books that can

inform and transform. The library assists in the development of its users by widening their intellectual horizons and inculcating in humans a long-lasting desire to read and learn. However, all these could be possible if the necessary information resources are present in the library. Oluwaniyi (2015) opined that information resources are those collections that enable the library to function effectively. Library information resources comprise print resources, non-print resources and electronic resources. Print information resources are encyclopaedia, dictionaries, almanacs and atlases, magazines, periodicals, newspapers and fiction books while non-print information resources are resources that rely on senses which include sight, hearing and touch to communicate meaning such as tapes and audio recordings, photographs, charts, posters, television, home videos and films etc. these materials when adequately preserved will serve the purpose for which the library was established for.

Climate change threatens to destroy human freedom gradually and restrict choices. Climate change in terms of high temperature, humidity, and rainfall can interfere in the use of libraries negatively if not rightly managed. An increase in temperature (sunlight) falling directly on papers would lead to loss of text of information resources, invariably leading to low use of library due to lack of quality information resources. Air conditioning of the top area is a perfect standard instance of keeping up the best humidity and temperatures for the storage of collections. Nevertheless, it is practically impossible for all libraries to afford air conditioning of collections for 24 hours and some libraries do not have an alternative for topical control measures. For instance, application of humidifiers in dry climate to improve requested level of dehumidifiers and moisture content, or application of de-hydrating agents such as silica gel to remove moisture in wet seasons are beyond the reach of most libraries. Some libraries also lack the knowledge of keeping the windows closed or keep wet curtain with the windows open during the dry season when the temperature is very high, thus leading to low use of the library due to rapid destruction of library materials. From the foregoing, it is evident that the impact of climate change on information resources, library buildings and the use of the library can greatly affect effective service delivery in the library.

Climate change has a higher impact on the library collections and users if the building is not properly structured. Control of climatic change begins from the selection of site to the planning and the construction of the library building and also the soil on which it will be constructed because all these elements have a greater impact on the environmental control inside the library building. It is very important to choose the best architectural design for the library having cross ventilation facilities for free air circulation within the building as lack of this will greatly affect the survival of most library buildings. The consequence of climate change on library buildings include loss of collections due to high humidity or water spillage, which in turn lead to user dissatisfaction in using the library. Furthermore, the wood selected for the library building should be well seasoned and must be treated chemically to avoid insects during low temperatures and high humidity. Put differently, some libraries have trees near the building in a quest to facilitate windbreak and aeration, however, the roots of the same plants are dangerous to the library building foundation and dilapidation of the building. In the same vein, some libraries are not centralized but situated close to traffic where dust and dirt is easily generated. The inadequate number of electric fans and exhaust fans to facilitate air circulation inside the library which in turn makes the library uncondusive for the library users also leads to low use of the library. It therefore becomes pertinent to conduct a study on libraries in Nigeria to determine their awareness of climate change, how it affects their service delivery and plans and preparedness of libraries in managing emerging climate issues.

Statement of the Problem

The library is established to cater for the information needs of students, faculty members, researchers and the host community. In the same vein, the library building should be structured in a way that it can adapt to climatic change at any time and any day to promote the life span of the library collections and enhance the library user's patronage and satisfaction. Climate change has hastened the quick deterioration of library collections and equipment and invariably affected the use of the library as most library users tend to be discouraged in using the library due to lack of information resources and unconducive studying environment which may be due to the impact of climate change (Oluwaniyi, 2015). As a result of these observations, this research seeks to find out the impact of climate change on the use of selected libraries in Kwara State, Nigeria.

Objectives of the Study

The study aims to investigate the impact of climate change on the use of selected libraries in Kwara State of Nigeria. To achieve this, the following objectives were set to:

1. Determine the level of awareness of library staff on climate change;
2. Evaluate the impact of climate change on information resources in the library;
3. Examine the impact of climate change on library buildings; and
4. Determine available plans and preventive measures against the impact of climate change on the library.

Literature Review

Climate change on a global level

Climate change has already impacted ecosystems and humans. In combination with climate variability, it makes food insecurity worse in many places and puts pressure on freshwater supply (Peter *et al*, 2019). This, in combination with extreme weather events, leads to negative effects on human health. Climate change has also contributed to desertification and land degradation in many regions of the world. This has implications for livelihoods as many people are dependent on the land for food, feed, fibre, timber and energy. Rising temperatures, changing precipitation patterns and the increase in extreme events threaten development because of negative effects on economic growth in developing countries. Climate change already contributes to migration in parts of the world.

Global warming has led to an increase in extreme weather events such as heatwaves, droughts, cyclones, blizzards and rainstorms. Such events will continue to occur more often and with greater intensity. Scientists have not only determined that climate change is responsible for trends in weather patterns, and some individual extreme weather events have also directly been attributed to climate change.

Climate change on information resources

Climate change has brought about unstable climatic conditions and a massive increase in temperature causing damage to library materials. The effects of climate change on information materials can be seen in the change in colour of the materials, brittleness, decay, fading of the ink and colour due to light, increased moisture absorption due to high humidity causing the growth of insects, and the speeding up of information resources' natural ageing process.

Oluwaniyi (2015) stated that ultraviolet radiation and visible light cause discolouration and fading to library information resources. Incandescent light is the least destructive, while artificial light takes a little while longer to deteriorate paper materials. Also, the damage of sunlight on these materials can be minimized by reducing the quality of light falling on any of these

information resources and the qualities of light transmitted by windows can be controllable using curtains, louvres, shades and tinted glass. Mitali (2018) is also of the opinion that too much light may destroy the strength of organic material of information resources and can fade up the ink and colours. It can be seen that with climate change and global warming, the intensity of sunlight penetrating the atmosphere and the library buildings have increased and poses a threat to the posterity of library materials. In the same breathe, Mitali (2018) further highlighted that heat adversely affects the fibres of the cloth, paper and other allied materials that are organic, and high humidity causes the growth of insects whereas, low humidity cause materials to lose their flexibility.

Climate change on library buildings

Boyden (2021) asserted that climate change will affect every aspect of our lives including the buildings we live and work in. Climate change is fundamentally altering the environmental conditions in which these buildings are designed to function.

To some extent, these impacts will be localised and containable, with fairly simple remedies. For example, overheating can be reduced by shading windows with awnings or blinds, good insulation, and ample ventilation. Perhaps more worrying are the insidious effects of climate change which gradually undermine the core functions of a building in less obvious ways. Studies on library building are an area of librarianship with low research literature by librarians and information professionals. Notwithstanding the oversight, the library building remains the edifice that covers both material and human resources and also the engine that facilitates the movement of educational and research goals of any higher institution, Ugwuanyiet al (2011).

The effects of climate change can be seen on library buildings in Nigeria, with the rapid change of colour of rooftops due to atmospheric pollution and powerful ultraviolet rays mixed with air moisture, and cracks on the walls of the library due to contraction and expansion of the soil or changes in the water table below the library buildings. Thoughtful planning by architects and staff of the library can help avoid hazards posed by water. Placing bookshelves directly below air-conditioning equipment can pose a water hazard when the mechanical system fails. A rare books room that is supposed to contain the most precious should never be located underneath lavatories, air conditioning equipment or water pipes. High levels of humidity can cause mould which destroys information materials of the library in both high and low-temperature range, therefore have to be kept under control. In a hot and dry climate, desiccation can cause significant distortion in certain materials (Ebunuwele, 2015). Higher temperatures caused by climate change has resulted in the expansion and of regions where insects can live. Insects such as timber-eating termites can cause major structural damage to library facilities and information resources. Intense wind and rain caused by climate change can also result in the rapid deterioration of external wall cladding of library buildings and cause them to leak more often (Boydell, 2021).

Research Methodology

A descriptive survey research design was adopted for the study. The descriptive survey research design was considered appropriate and suitable for the study since the study solicited information from the National Library of Nigeria, Ilorin; the University of Ilorin Library and Nigerian Stored Products Research Institute Library, Ilorin, Kwara state, on how climate change affects the library building, information resources and use of library. The population of the study was 87 Library staff from the selected libraries in Kwara State. Total enumeration was used since the population was manageable. Eighty-seven (87) copies of questionnaire were distributed while 74

was retrieved and used for analysis. Questionnaire and observation checklist were the instruments used for data collection. An observation checklist was used to examine the impact of climate on library buildings and their use and also to evaluate the impact of climate change on information resources in the library. Data were analysed using simple percentages, tables, and frequency count. The overall treatment of the data, therefore, is intended to provide answers to each research question.

Results and Discussion

Research Question 1: What is the level of awareness of library staff on climate change?

Table 1: Level of awareness of library staff on climate change

Library	Are you aware of the environmental factors that affect library information resources?		
	Yes	No	Somehow
NL	7	0	2
UL	48	1	1
NSPRI	13	2	0
Total	68(91.8%)	3(4.1%)	3(4.1%)

Table 1 describes respondents' responses on awareness of environmental factors that affect the library information resources. The result shows that 68(91.8%) of the respondents are aware of the environmental factors that affect information resources, 3(4.1%) of the respondents are not aware of the environmental factors that affect the library information resources while 3(4.1%) of the respondents are indifferent on the factors that affect library information resources.

Table 2: If yes, which of the environmental factors are you aware of?

Environmental factors	NL	UL	NSPRI
Temperature	9	45	15
Relative humidity	5	25	7
Light	8	47	3
Air pollution	9	35	0
Greenhouse gases and global warming	3	23	0
None	0	5	6

Table 2 describes the environmental factors the library staff are aware of. The result shows that 69(93%) of the respondents were aware of temperature as an environmental factor that affects library information resources, 37(39%) of the respondents are aware of relative humidity as an environmental factor that affects library information resources, 58(78%) of the respondents are aware of light as an environmental factor that affects library information resources, 44(56%) of the respondents are aware of air pollution as an environmental factor that affects library information resources, 26(35%) of the respondents are aware of greenhouses gases and global warming as an environmental factor that affect library information resources, while 11(15%) of the respondents selected none of the environmental factors.

Analyses of Observation Checklist

The observation checklist was used to analyse the state of the information resources of the libraries and to check how much the materials, the library building, and its facilities have been affected due to change in climate such as global warming (i.e increased heat level), rise in sea level, changing rainfall patterns, wilder weather, etc.

Research Question 2: What are the impacts of climate change on information resources in the library?

Table 3: Impact of climate change on information resources available in National Library

Information resources	Very High	High	Low	Very Low	None
Books	X	X	√	X	X
Dictionaries	X	X	√	X	X
Government documents	X	X	√	X	X
Handbooks and manuals	X	X	√	X	X
Almanacs and yearbook	X	X	√	X	X
Serials and periodicals	X	X	√	X	X
Maps and atlases	X	X	√	X	X
Manuscript	X	X	√	X	X
Printers	X	X	x	X	X
CD-ROMs	X	X	x	X	X
Projectors	X	X	x	X	X
Computer systems	X	X	x	X	X
Directories	X	√	x	X	X
Pamphlets and clippings	X	√	x	X	X

Table 3 describes the result of climate change on the available information resources in the National Library. The result shows that the impact of climate change is high on directories, and pamphlets and clippings respectively, while the impact of climate change on books, dictionaries, government publications, handbooks, almanacs and yearbooks, serials and periodicals, maps and atlases is low, however, there is no traceable impact of climate change on the available printers, CD-ROMs, projectors and computer systems.

Table 4: Impact of climate change on the available information resources in University of Ilorin Library

Information Resources	Very High	High	Low	Very Low	None
Books	X	√	x	x	X
Dictionaries	X	√	x	x	X
Government documents	X	√	x	x	X
Handbooks and manuals	X	√	x	x	X
Almanacs and yearbook	X	√	x	x	X
Serials and periodicals	X	√	x	x	X
Maps and atlases	X	X	√	x	X
Manuscript	X	X	√	x	X
Printers	X	X	x	√	X
CD-ROMs	X	X	x	√	X

Projectors	X	X	√	√	X
Computer systems	X	X	√	√	X
Directories	X	√	x	x	X
Pamphlets and clippings	X	√	x	x	X

Table 4 describes the impact of climate change on the information resources present in the University of Ilorin Library. The result shows that the impact of climate change on books, dictionaries, government publications, handbooks and manuals, serials and periodicals, directories, and pamphlets and clippings is high, while the effect on maps and atlases, and manuscripts is low. Similarly, the result shows that the impact of climate change on CD-ROMs, projectors, and computer system is very low.

Table 5: Impact of climate change on the available information resources in NSPRI library

Information Resources	Very High	High	Low	Very Low	None
Books	X	√	x	X	X
Dictionaries	X	X	√	X	X
Government documents	X	X	√	X	X
Handbooks and manuals	X	X	√	X	X
Almanacs and yearbook	X	X	√	X	X
Serials and periodicals	X	√	x	X	X
Maps and atlases	X	X	√	X	X
Manuscript	X	X	√	X	X
Printers	X	X	√	X	X
CD-ROMs	X	X	√	X	X
Projectors	X	X	√	X	X
Computer systems	X	X	√	X	X
Directories	X	X	√	X	X
Pamphlets and clippings	X	√	x	X	X

Table 5 describes the result of the impact of climate change on the available information resources in the NSPRI library. The result shows that the impact of climate change on books, serials and periodicals, as well as pamphlets and clippings is high, while the impact of climate change on dictionaries, government publications, handbooks and manuals, almanacs and yearbooks, maps and atlases, manuscripts, printers, CD-ROMS, projectors, and computer systems is low

Research Question 3: What is the impact of climate change on library buildings?

Table 6: Impact of climate change on the National Library building

Library Building	Very High	High	Low	Very Low	None
Wall of the building	X	x	√	X	X
Roof	X	x	√	X	X
Lighting	X	√	X	X	X
Ventilation	X	√	X	X	X
Temperature	X	√	X	X	X

Table 6 describes the impact of climate change on the National Library building with emphasis on the wall of the building, roof of the building, lighting, ventilation and temperature in the building. The result shows that the impact of climate change on the wall of the building, and roof of the National Library is low, while the ventilation, lighting, and temperature in National Library due to climatic change is high.

Table 7: Impact of climate change on University of Ilorin Library building

Library Building	Very High	High	Low	Very Low	None
Wall of the building	X	X	X		
Roof	X	X	X	√	x
Lighting	X	X	X	√	x
Ventilation	X	√	X	√	x
Temperature	X	√	X	X	x

Table 7 describes the impact of climate change on the University of Ilorin Library building. The result shows that the impact of climate change on the wall of the building, roof, and lighting of the University of Ilorin Library is very low, while the impact of climate change on the ventilation and temperature in the University of Ilorin Library is high.

Table 8: Impact of climate change on the NSPRI Library building

Library Building	Very High	High	Low	Very Low	None
Wall of the building	X	√	X	X	X
Roof	X	X	√	X	X
Lighting	X	X	√	X	X
Ventilation	√	X	X	X	X
Temperature	X	√	√	X	X

Table 8 describes the impact of climate change on NSPRI library buildings. The result shows that the impact of climate change on the wall of the NSPRI library building is high, while poor ventilation in NSPRI Library due to climatic change is very high. In the same vein, the result shows that the impact of climate change on the roof, lighting, and temperature in the NSPRI library is low.

Research Question 4: What are the available library plans and preparedness for climate change control on the library?

Table 9: Library plans and preparedness for climate change control in the library

Library	Planting trees around the library helps control the impact of climate change on the building				
	SA	A	N	D	SD
NL	3	4	1	1	0
UL	27	23	0	0	0
NSPRI	2	3	4	2	4
Total	32(43.2%)	30(40.5%)	5(6.8%)	3(4.1%)	4(5.4%)
Library	Uses of sunscreens on windows and windbreak equipment help control the impact of climate change on the library building				
NL	7	2	0	0	0
UL	19	28	3	0	0
NSPRI	1	10	1	2	1

Total	27(36.4%)	40(54.1%)	4(5.4%)	2(2.7%)	1(1.4%)
Constructing drainages and clearing gutters around the library building helps prevent the impact of climate change on the library building					
NL	5	4	0	0	0
UL	31	19	0	0	0
NSPRI	3	4	2	4	2
Total	39(52.7%)	27(36.5%)	2(2.7%)	4(5.4%)	2(2.7%)
Controlling temperature within the library using air conditioning systems help limit the impact of climate change and enhances the use of the library by clientele					
NL	3	5	1	0	0
UL	26	22	0	0	2
NSPRI	7	8	0	0	0
Total	36(48.6%)	35(47.3%)	1(1.4%)	0(0)	2(2.7%)
Proper lighting using solar power systems helps ensure a controlled environment for both users and information resources in the library					
NL	7	2	0	0	0
UL	33	15	2	0	0
NSPRI	5	4	2	2	2
Total	45(60.8%)	21(28.4%)	4(5.4%)	2(2.7%)	2(2.7%)
Relative humidity should be controlled to reduce its impact on information resources using appropriate measures					
NL	5	2	0	0	2
UL	30	20	0	0	0
NSPRI	5	6	0	0	4
Total	40(54.1%)	28(37.8%)	0(0)	0(0)	6(8.1%)

Key: SA= strongly agree A= agree N= neutral D= disagree SD= strongly disagree.

Table 9 describes the available plans and preventives measures against the impact of climate change on libraries. The result shows that 32(43.2%) and 30(40.5%) of the respondents strongly agreed and agreed respectively that planting trees around the library help to control the impact of climate change on the building. However, 5(6.8%) of the respondents are neutral as to if planting trees around the library helps control the impact of climate change on the library, while 3(4.1%) and 4(5.4%) disagreed and strongly disagreed that planting of trees around the library helps control the impact of climate change on the building. In the same vein, the table shows that the majority of the respondents strongly agreed 27(36.4%) and agreed 40(54.1%) that using of sunscreens on windows and windbreak equipment helps control the impact of climate change on library buildings while 4(5.4%) of the respondents opted for neutral, however, 2(2.7%) and 1(1.4%) disagreed and strongly agreed respectively, that using of sunscreens on windows and windbreak equipment helps to control the impact of climate change on the library building. The result of the table also shows that 39(52.7%) of the respondents strongly agreed that constructing drainages and clearing gutters around the library building, 27(36.5%) of the respondents agreed that constructing drainages and clearing gutters around the library building, however, 2(2.7%) response are neutral, while 4(5.4%) and 2(2.7%) respondents disagreed and strongly disagreed respectively that constructing drainages and clearing gutters around the library building.

Similarly, the result shows that 36(48.6%) and 35(47.3%) strongly agreed and agreed that controlling temperature within the library using air conditioning systems help to limit the impact of climate change and enhance the use of the library clientele. The result also shows that 1(1.4%) of the respondents are neutral and 2(2.7%) of the respondents strongly disagreed that controlling temperature within the library using air conditioning systems help to limit the impact of climate change and enhance the use of the library clientele. The table also reveals that the majority of the respondents 45(60.8%) and 21(28.4%) strongly agreed and agreed respectively that proper lighting using solar power systems helps ensure a controlled environment for both users' and information resources in the library while 4(5.4%) of the respondents are neutral, and 2(2.7%) and 2(2.7%) respondents disagreed and strongly disagreed respectively that proper lighting using solar power systems helps ensure a controlled environment for both users' and information resources in the library.

Finally, the table revealed that 40(54.1%) and 28(37.8%) respondents strongly agreed and agreed respectively that relative humidity should be controlled to reduce its impact on information resources using appropriate measures while 6(8.1%) of the respondents disagreed that relative humidity should be controlled to reduce its impact on information resources using appropriate measures.

Discussion of Findings

Research Question 1: What is the level of awareness of library staff on climate change?

Table 1 shows that majority of the respondents are aware of the environmental factors that affect library building such environmental factors are temperature, relative humidity, light, air pollution, greenhouse gases and global warming. The impacts of climate change however do not prevent library staff from performing their duties. The comfort of users in the library is average but conducive to information resources. This is in line with the assertion that climate change is global and it is attributable directly or indirectly to human activities (Omotoso, 2007).

Research Question 2: What are the impacts of climate change on information resources in the library?

From the results of the responses in Table 3,4, and 5 it can be deduced that climate change had a negative impact on library information resources, the result is supported by the research finding by Human Development Report 2007/2008 UNDP, (2007) that some climate change threatens the human activities and physical infrastructure. Evidence could be observed from the decay in some of the information materials, brittleness of the paper, presence of moulds and the rapid ageing of information materials in the University of Ilorin library. The findings further revealed that books has the highest frequency of being affected by climate change among other information resources available in the library as more books were seen to be affected by heat dehydration of cellulose fibres causing the papers to become brittle. The findings also show that information resources (including Books, Dictionaries, Government documents, Handbooks and manuals, Almanacs and Yearbooks, Serials) present in the University of Ilorin Library are highly affected by climate change as presented in Table 4. Fading of the ink and colour due to excess light, increased moisture absorption due to high humidity causing the growth of insects were some of the symptoms observed. This, however, confirms the report of (UNDP, 2007) on the impact of climate change on biological and chemical material, in which library information resources are a type of.

Research Question 3: What are the impacts of climate change on library buildings?

The result of the findings as presented in Table 6, 7, and 8 shows that climate change affects the walls of library buildings, roofs, lighting, ventilation, and temperature. These findings are supported by Oluwaniyi (2015). The research shows that the building walls of the NSPRI Library are highly affected due to climate change as cracks caused by the expansion and contraction of the soil are visible on the wall. The research also shows that the roofs of the other two libraries were averagely affected with limited cracks and breakages.

Also, the result further shows that the lightning effect in National Library is very high, due to this, the roof has changed colour as a result of increased Ultra-Violet rays from the sun, alongside moisture and salty air caused by climate change. However, the temperature in the NSPRI library is on an average level while the National Library and University of Ilorin Library temperatures are high, this has caused the paints on the wall to peel off. The temperature levels of the two libraries negate the acceptable temperature in libraries (Oluwaniyi, 2015).

Research Question 4: What are the available library plans and preparedness for climate change control on the library?

The findings as presented in Table 9 shows that the University of Ilorin Library, National Library and NSPRI Library have plans and preparation for climate change as most of the libraries have trees planted around the library to help in controlling the impact of climate change on library building. There is also the use of sunscreens on windows and windbreak equipment in a quest to control the impact of climate change on the library. Air conditioning system to regulate the temperature and facilitate the use of the library by staff and users are also minimally present. Further, there is proper lighting in the library to help ensure a controlled environment for both users and information resources. The University of Ilorin Library, NSPRI Library and National Library have stated measures to help control relative humidity and to reduce its negative impact on information resources.

Conclusion

The study was geared towards finding out the impact of climate change on library buildings and information resources in selected libraries in Kwara State. Climate change has greatly affected the way information materials are stored and preserved, and consequently affects the way new library buildings are designed and built around the world. Climate change threatens to destroy human freedom gradually and restrict choices. Climate change in terms of high temperature, humidity and rainfall can interfere in the use of libraries negatively if not rightly managed. Its effect can be seen in the decay and brittleness of information resources in the library as well as the cracks, and paint peels on the walls of library buildings. Librarians need to maintain a stable environmental condition within and outside the library to help subside the effects and impact of climate change on the library materials and the building so as to ensure effective service delivery.

Recommendations

The following recommendations were made:

1. Library staff members should be given the opportunity to regularly attend workshops, seminars and conferences, especially on new trends as regards climate change and its effect on library materials and the physical building.
2. Continual rehabilitation of dilapidated parts of library buildings to control the negative impact of climate change.

3. Procurement of modern technological gadgets by the library to curtail changes in climate.
4. The library should intensify efforts in trying to maintain the environmental conditions, such as temperature, relative humidity etc. with proper air conditioning at a standard level to avoid deterioration of library materials. The library should also attempt to limit the amount of dust and direct sunlight that enters the library as this could eventually cause harm to books.

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