COLLECTION DEVELOPMENT POLICIES, INSTITUTIONAL ENVIRONMENT, TECHNOLOGY USE AND INDIGENOUS KNOWLEDGE PRESERVATION AMONG CUSTODIANS OF CULTURAL HERITAGE IN SOUTHERN NIGERIA

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CERTIFICATION

I certify that this thesis titled **COLLECTION DEVELOPMENT POLICIES, INSTITUTIONAL ENVIRONMENT, TECHNOLOGY USE AND INDIGENOUS KNOWLEDGE PRESERVATION AMONG CUSTODIANS OF CULTURAL HERITAGE IN SOUTHERN NIGERIA** prepared and submitted by ADETOUN ADEBISI OYELUDE in partial fulfilment of the requirements for the award of the degree of Doctor of Philosophy (Library, Archival and Information Studies) is hereby accepted.

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DEDICATION

With Love

to

All the people striving to preserve indigenous knowledge the world over

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ABSTRACT

Indigenous Knowledge Preservation (IKP) ensures that documents at-risk are kept in good condition for posterity in Cultural Heritage Institutions (CHIs) such as libraries, archives and museums. Reports, however, indicate that IKP in CHIs were ineffective. Studies have addressed IKP from procedural, cultural and social perspectives, without adequate attention to the policies, institutional environment and technology use for IKP, especially across different CHIs in Nigeria. This study, therefore, investigated collection development policies, institutional environment, technology use and IKP in CHIs in southern Nigeria.

The Socio-technical and Cultural Historical Activity theories provided the framework, while the survey design of the correlational type was adopted. A two-stage sampling procedure was adopted to choose CHIs, specifically special libraries, federal university libraries, the National Library of Nigeria, the National Archives, and the National Museum branches across southern Nigeria (South-west, South-south and South-east). The CHIs in two states each were selected through balloting, thus, all 27 libraries, six archives and nine museums, made up of 289 librarians, 29 archivists and 36 museum curators were enumerated. The instruments used were Institutional Environment (r=0.94) and Technology Use for Preservation (r=0.93) scales, and observation checklist. Key informant interviews were conducted each with 18 Heads of libraries, three archivists and nine museum curators from the 42 institutions. Quantitative data were analysed using descriptive statistics, Pearson product moment correlation and Multiple regression at 0.05 level of significance, while qualitative data were content-analysed.

The respondents' age was 42.7±8.75, while years of work experience spanned 1-10 years (53.7%), 11-20 years (27.6%), 21-30 years (11.3%), and 31-40 years (7.4%). The regulatory ($\bar{X}$= 2.91), organisational ($\bar{X}$ = 2.80), sociological $\bar{X}$ =2.65) and physical environment ($\bar{X}$ =2.75) for the preservation of IK resources in CHIs was favourable as against the threshold of 2.50. There were positive significant relationships between collection development policies (r=.51), institutional environment (r=.58) and technology use (r=.75) and IKP. There were positive significant relationships between collection development policies and institutional environment (r=.45), and technology use (r=.43) and IKP. The collection development policies and institutional environment jointly predicted IKP ($F_{(2;325)}$ =112.96; Adj R^2=0.41), accounting for 41.0% of its variance. The collection development policies did not have guidelines for IKP in written, electronic or other formats in the CHIs. Periodic evaluation of policies was inadequate, the environment was not conducive for electronic preservation, and staff were not sufficiently trained. In addition, there was inadequate funding, poor infrastructure, and shortage of preservation staff.

Collection development policies, institutional environment and technology use influenced indigenous knowledge preservation among custodians of cultural heritage in southern Nigeria. There should be proper documentation of collection development policies for indigenous knowledge preservation, while technology use and institutional environment should be monitored. More creative and sustainable sources of funding should be vigorously pursued by different stakeholders.

Keywords: Collection development policies in libraries, Cultural heritage institutions in southern Nigeria, Indigenous knowledge preservation

Word count: 451 words

TABLE OF CONTENTS

CHAPTER FOUR: RESULTS AND DISCUSSION

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

ARL	-	Academic and Research Libraries
CCTV	-	Closed Circuit Television
CDP	-	Collection Development Policy
CHAT	-	Cultural Historical Activity Theory
CHI	-	Cultural Heritage Institution
ETF	-	Education Trust Fund
ICT	-	Information and Communication Technology
IE	-	Institutional Environment
IFLA	-	International Federation of Library Associations and Institutions
IK	-	Indigenous Knowledge
IKD	-	Indigenous Knowledge Database
IKS	-	Indigenous Knowledge System
NCF	-	National Conservation Fund
NCMM	-	National Commission for Museum and Monuments
OSTA	-	Optical Storage Technology Association
STT	-	Socio-Technical Theory
TK	-	Traditional Knowledge
TU	-	Technology Use
UNESCO	-	The United Nations Educational, Scientific and Cultural Organisation

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Indigenous Knowledge (IK) is a body of information that has been in existence and made reference to for ages. This knowledge is not codified, but is usually developed based on experience, culture, action, and feeling and is mostly shared orally through direct interactions between human communities. IK is stored in the memories of elders and custodians of cultural heritage. This memory dies with the elder who has not passed on this knowledge to younger ones, thus, in the African society, when an elder dies, a whole library is said to have been lost. The Yoruba adage that "*bi omode o ba itan, a ba aroba, aroba ni baba itan*" (If a child does not hear stories, he will hear folklores; folklores are more than stories) is an acceptance of the fact that much history is lost leaving only traces and preserved links, which in itself is the father of history. Such is the state of indigenous knowledge in most communities.

IK is used for decision-making to help elders in communities' deal with day to day problems. It is embedded in culture and includes cultural heritage such as traditional stories, songs, dances and ceremonies that reflect the beliefs of the people. Broadly, it is the knowledge used by local people to make a living in their environment. IK has gained momentum because of its significance as a strategic resource for socio-economic development. But in most countries, materials and sources with historical value are difficult to locate as they are dispersed over a large area and not forming part of the conventional book and journal literature. The bulk of the world's 20th Century audio-visual heritage has been lost and some cannot be recovered, hence in post-colonised Africa, the traditional roles of cultural heritage institutions have been challenged in terms of the relevance of their content in line with the trend.

Knowledge generally can be tacit or explicit. Tacit knowledge, on the one hand, refers to personal knowledge in one's head, knowing how to do something based on experience; while explicit knowledge on the other hand includes information that has been documented or can be shared with someone and can easily be transferred from person to

person. IK is that tacit knowledge that resides in individuals, associations, guilds, and groups in a community. They are exemplified in the praise names (*oriki*), the chants at association meetings, dance and poetic renditions and folktales of the community. The transmission of this knowledge is basically oral and restricted to membership of the community or groups within it. When it is said that "*ogbon inu ni ejo fi nrin*" (the innate wisdom of the snake is what it moves with), it is obvious that the tacit knowledge by which the proverbial snake moves around is only known to the snake; it is not explicit.

IK has a distinct native quality unique to one who possesses the knowledge. Its tacit nature creates problems in documenting it as a result of which society is often deprived of accurate rendition or recalling of indigenous knowledge in oral forms. The fluidity of the oral IK for instance, may be lost especially where it is not documented in written, audiovisual or any other appropriate format (Cochran, 2021). Implicit information, used to make decisions, choices, or understandings, is hard to report in light of the fact that, for instance, it may not be promptly perceived as information; or the idea that one might want to archive is hard to portray. Reasonably, inferred information is treated as native information because of its absence of documentation and articulacy. This dearth of proper documentation leads to loss of valuable IK and consequently, preservation of indigenous knowledge poses a challenge (Lekhi, 2019; Kiconco and Okello-Obura, 2020). Preservation of the knowledge being lost daily is thus of utmost concern.

Evidently, existing knowledge cannot be ignored, as doing so amounts to ignoring a major development resource as well as ignoring the local people themselves. The local knowledge needs proper preservation. A lot of the local knowledge however remains either locked undocumented in the heads of the elders of the communities or that which is documented is unrecognised and ignored in obscure locations in drawers, on shelves and attics inaccessible to those who may need it. Therefore, institutions that keep knowledge, endeavour to perform such tasks that can preserve IK.

Libraries, archives and museums are centres of knowledge that support research and learning, and they document and preserve cultural heritage. Cultural heritage is made up of the customs, practices, places, objects, artistic expressions and values expressed, of the ways of living developed by a community and is passed on from generation to generation. These consist mainly of the unique ways and manners in which the people have lived their lives

and expressed themselves as a people. The cultural heritage of a people, the memory of their living culture, is expressed in many different forms, both tangible (monuments, landscapes, objects) and intangible for example, languages, knowhow, the performing arts, music, and manifested in practices at times through copying, illustration and other artifacts. These are expressed in the proverbs used, the cultural dances or ceremonial dances for local hunters (*ijala*), the ceremonies performed to indicate the change of one season to another, and the masquerade festivities to mention a few. The tangible expressions like the sculptures, shrines, sacred groves, monumental arts and so on are not only a sight to see, but tell ancient stories. These ancient stories told in various expressions of the culture have to be preserved, and who to do so than cultural heritage institutions (CHI), and the custodians of cultural heritage who work in the institutions.

Cultural Heritage Institutions (CHI) have been set up in many countries to address issues related to cultural heritage and to systematically collect, document, conserve and preserve cultural heritage within the framework of their mandate as institutions that perform roles of collection, organisation and dissemination of information. These CHI (libraries, museums, and archives) have amassed physical artifacts and information recorded on physical media for the purpose of providing long-term access to indigenous and other cultural knowledge. They preserve information for future use, keeping items that range from a unique rare manuscript to samples of mass documents such as census forms and tax reports.

Indigenous artifacts in various forms, which are kept in CHI have a processing cycle. This starts from when they are acquired, continues through the lifespan of the material, till when they eventually have to be discarded from the collection, or stored in a different format from that in which they were acquired. Thus, it is common to hear the people say, "*Igba kii lo bi oreere, aye kii gun lo bi opa ibon*" (Time does not extend endlessly, the world is not as long as a gun rod), in that everything has its time and the methods applied does not prolong till infinity. IK resources are thus found in forms such as books, theses, compact discs (CD), videos, cassette tapes, microfilms, web pages, databanks, slides, charts, maps, and digital archives. Various methods have been used to collect or document the IK before they come out in these various formats in which they exist. These forms are created or maintained using preservation methods such as digitisation, audio and video recording,

migration, emulation, photocopying and other methods which have effectively been used worldwide. Thus, processing of indigenous knowledge involves using technology which can capture the essence of the knowledge to be stored.

Preservation forms the backbone of activities that keep documents, and artifacts in the state in which they are originally and can be useful in future. It is the act of keeping cultural heritage from the past and the present, for the future and refers to the maintenance of collections and individual objects as close as possible to original condition (ICOM-CC, 2008). This is achieved through appropriate housing, handling, repairs and conservation treatment when appropriate. Preservation is the core duty of curators, librarians and archivists who are responsible for museums, libraries and archives collections respectively, to ensure that the collections are stored under the best possible environmental conditions. Preservation includes a wide assortment of interrelated exercises intended to draw out the usable existence of books, files, original copies, and antiquities.

Preservation of cultural heritage is to ensure that the materials do not deteriorate, and to protect fragile or specially stored resources such as tapes and vinyl materials from cracking, melting, folding up or even catching fire. Cellulose nitrate film for instance needs to be stored separately from others due to its susceptibility to fire destruction. Also, gases affect the colour of cellulose nitrate films; therefore, polyester films may be preferable. Human handling of the resources has to be monitored by librarians, archivists, curators and others to ensure preservation. The storage system, transportation or moving of the resources for exhibition purposes, or photocopying are closely executed by them. For the preservation of digital resources, their fragility has to be considered as well as their shelf life hence transferring from one medium to another to preserve them is also desirable. For artifacts that are non-paper based like metal, bronze or made of iron, chemicals have to be sparingly used and carefully applied in preserving them.

Preservation activities include: the preservation arranging and strategy making capacities; the turn of events and utilisation of preventive measures to limit the impacts of those elements that result in the deterioration of library and document materials. The deterioration can come in many forms and through various agents. Through biological deterioration when the lifespan of the format in which the resource exists is about to expire; physical deterioration due to careless handling by human beings (soiling with food, water

and other substances); and deterioration through the activity of rodents, insects, bookworms and booklice to mention a few. All these have to be prevented in the preservation processes (Isibor and Mamudu, 2017).

For the materials acquired in libraries, archives and museums especially those with cultural heritage bias therefore, the institution has to create an environment conducive for their preservation. The nature of collection determines the environment that has to be created to house them. Museums, for example, will mainly collect objects not documents, as different from libraries and archives that collect documents, books and other materials. The environment in which each type of material is kept will of necessity be different according to the nature of the material. To keep the materials properly, and depending on the nature, technology is used to a greater or lesser degree for preservation.

Documents of archival nature are kept in dust-free environments, where the temperature and humidity are monitored. Air-conditioning is mostly applied to keep the dust out, and the space enclosed. De-humidifiers are used as well in some institutions. Museums have to use lighting sparingly and in a calculated manner, so as not to spoil or expose the artifacts in them unduly to ultra-violet rays. The objects have to be cleaned in special ways and handled sparingly so as not to damage them any further. Special techniques are usually employed and sometimes unusual technologies are used, thus leather materials are kept supple by rubbing fats and oils such as shea butter, tallow or cod-liver oil. The leaves of the neem (dogonyaro) tree are spread around wooden objects in museums to keep insects, woodlice and so on away (Singh, 2010; Salmon, 2021). They are also preserved or restored using chemicals such as aluminum alkoxide, French powder or talc and gelatin. For CD-ROM and DVDs, CD/DVD-cleaning detergent, isopropyl alcohol, or methanol is used to remove stubborn dirt or material from them. The CD-ROM and other vinyl-based materials and audiovisual materials need to be kept at certain temperature to ensure the materials do not get damaged (Note, 2023). Books also, in cases of flooding and water damage, can be freezer dried for some time, in order to make the wet pages stay stiff before another procedure such as air drying is taken up to dry them, all in a bid to restore the items and preserve them (Angelova, Nawaz, Kafadaroğlu, Paz, Moreta, Woollaston, Vermeulen, and Vervooet, 2023).

The programme developed for the preservation of information and knowledge resources in cultural heritage institutions are often articulated against a well-tested policy framework. In the policy framework, all necessary steps and procedures are clearly spelt out for systematic accomplishment. Therefore, a policy is a vital requirement for cultural heritage institutions and custodians of cultural heritage. The collection development policy (CDP) of a cultural heritage institution confers authority on the institution developing it, and creates an enabling framework and general direction for the documentation and dissemination of IK. Since policies generally provide the ethical, technical and legal frame of reference for developing the institutional determinants for the enormously important activities of institutions, collection development policy must be given serious attention.

The absence of a CDP document for custodians to work could make it difficult to distinguish the long- and short-term goals of the library and clients' needs for the distribution of assets to address the issues. It could be difficult to decide whether to acquire a new set of encylopaedia in print for the science collection as against paying subscription for an online database instead, if there is no policy guiding when to acquire particular items, for what purposes and in what circumstances. It could also be difficult to determine the cost benefit of increasing allocation of funds to different aspects of the collection in the absence of collection development policies. Ideally, a collection development policy should define the format of the collection, that is, if it should be print, electronic or both. It should also define the level of material preferred (scholarly, specialised, popular, and so on), who will select; and who will decide the budget distribution for each discipline.

CDP can be in written form, partially written, or could be unwritten and only exist in the norms that have been imbibed by those using the policy. CDP are designed by libraries, archives and museums to guide the appropriate development of their collections. They are usually purposely written and put formally in monograph form (or sometimes not), but they may also exist in the loose documents, memos and circulars kept in the cabinets of the institutions, or on the library webpages online. Sometimes the policy itself is something the staff in the organisation follow without it being formally written down anywhere. It is a culture imbibed by workers over time because as they would often say when asked about the policy behind their actions: "that is how it has been done before now."

Written collection development policies are much more desirable than unwritten ones (Kenya National Exams Council, 2022). Owing to their directionary nature, written policies point at what should be done, and set limits to each activity in the collection development process. Nevertheless, collection development policies generally specify the type of knowledge materials to be acquired, in what forms and how they should be handled, and are determining factors in how rich (or poor) a collection can be, paying concrete attention also to methods of conservation and preservation of information resources. CDP that particularly concern indigenous knowledge materials seem not to be very visible both within the institution, and even to users. In addition, the subject of indigenous knowledge is not receiving much attention in the area of knowledge management and the traditional practices have been understudied and largely undocumented, making it difficult to combine them with modern knowledge management practices (Agyemang, Ngulube, and Dube, 2019). This is in spite of the fact that IK is a growing part of collections.

The acquisition and collection of IK materials have been described as a process that involves getting the information from the custodians of knowledge, the elders, and representatives of the community. The acquired materials are either in print, audio, audiovisual or digital formats depending on the preferred mode by the collectors of the materials. These collection development activities take place within the context of the environment in which the institution exists and functions. In other words, there is an institutional environment that forms the background for the provision of information.

Institutional environment (IE) in cultural heritage institutions are conditions that must exist to ensure that cultural heritage materials are properly housed and stored. The institutional environment provides the essential structures where human actions and or exchanges take place for the handling of cultural heritage materials (Ahmed and Unlu, 2017). Institutional environment is the willingness of the institution to follow rules, implement policies and manage resources (Bogota, 2015). Extensively, institutional climate alludes to the arrangement of formal laws, guidelines and methods, and casual shows, customs and standards that expand, shape, and limit social-monetary movement and conduct. This applies to activities that take place in cultural heritage institutions as well. The rules, regulations and procedures (regulatory), the implementation of policies concerning the infrastructure, funding and training of staff (organisational), and the

management of the physical resources (physical) form the environment of the institutions. Sociological environments such as community connections and cultural practices in the cultural heritage institution also form part of the internal institutional environment (Practical Management, 2010).

Environmental factors are every one of the substances that exist inside and outside the limit of an organisation that impacts its development and endurance. An organisation which has next to zero authority over its current circumstance however needs to continually screen and adjust to changes (Practical Management, 2010; Banwo, Onokala, and Momoh, 2022). In the case of cultural heritage institutions, the physical environment of the building itself or location, temperature, the noise level, the heating, lighting, cleanliness, ventilation and security conditions are part of environmental factors. The credibility that officials or staff in the institution have in the formal rules of the institution, relationships between staff, respect for decisions, and attitude of managers in the institution have their effect. These conditions impact on or broaden, mould, and restrain activities that take place in the cultural heritage institutions.

The credibility that staff have in the policies of the institution, and the perception they have with respect to the relevance and impartiality in the implementation of policies and guidelines in the institution, both internal and external are a relevant part of the institutional environment. These directly or indirectly influence the environment. Adequacy of the resources in the institution, with respect to the planning of human, physical and budgetary resources of the institution also is germane (Bogota, 2015). How clean, hot, cold or ventilated the physical environment of the institution is, has effect on the collection and the people (human resources) in the institution. Security of the building (physical security), the electronic resources (electronic security) the various collections (special, on closed access, etc.) and the lighting situation whether by natural or artificial means has its implications. How much funds are allocated to providing and maintaining the resources and the implementation of the budget are issues affecting the environment. All these factors collectively have direct or indirect impact on preservation of the whole collections in institutions, indigenous knowledge resources inclusive.

In the same way, Information and Communication Technology (ICT) is a factor that also has its impact in cultural heritage institutions. As a tool, ICT has broken down the

barriers separating the different methods of information processing in cultural heritage institutions. Computers are used for administrative purposes, and electronic networks have become more extensive, such that museums are performing similar activities as those of libraries and archives. This seems to have led to specialists in libraries and archives being replaced by technology specialists who can perform their functions in some instances, or has led to changing job descriptions and training in the use of the new technologies. This has affected use of technology in CHI, and especially use of technology for preservation of the collections. Technology (manual and digital, in various formats) is used to preserve IK. Computers, internet facilities, digitisation, photocopying, recording on video and audio tape and manually applied technologies like using acid-free containers for storage, cleaning with soft cloth, lamination, and even using local pest control remedies are employed in cultural heritage institutions in preserving IK.

Computer-based technologies, that is technologies that rely on the use of specific hardware, software, and micro processing features available on a computer or mobile device to function, are the most commonly used technologies for IK preservation. These technologies are transforming the way in which users gain access to libraries, archives, and museums. This does not however rule out the importance of the non-computer-based technologies. Simple procedures like maintaining appropriate heat, humidity and ventilation levels, as well as ensuring the physical safety of the knowledge stored, by providing anti-fire or anti-flood conditions cannot be overlooked. Equipment like dust-blowers, fans, air conditioners, dehumidifiers and other related technology are generally used, as well as more specialised though simple technologies such as the use of tape recorders, camcorders, video machines, laminators and so on. The techniques used depend on the institutional environment in which the resources are housed. The more technology-based the resources are, the more specialised the infrastructure needed, the skills of the staff and ultimately the funding for the preservation of IK resources.

In this regard, information and communication technologies are being used to preserve the knowledge. Yet, access to this body of knowledge has been limited because only a few are given access, or it is preserved and kept in closed domains that are not easily accessed. In extreme cases, the IK is locked away, ignored and not even processed for use and access. This state of affairs, undesirable as it is, may not be unconnected to a number

of factors namely: the quantum of knowledge accessed; the quantum preserved; and ICT-related challenges such as inadequacy of available equipment that may affect the content and context of the knowledge.

Other factors affecting getting access to indigenous knowledge are existing preservation policies which may not be able to address the management of IK in relation to their harvesting, processing, storage and use. Collection development policies not visible, written and implemented, as well as environmental factors such as physical location, conditions of storage (humidity, temperature, ventilation and so on) and human resources involved could also be militating factors. Technology use in the preservation of indigenous knowledge as well could be a factor affecting preservation of indigenous knowledge in cultural heritage institutions. These are the issues the study set out to investigate.

1.2 Statement of the problem

In Nigeria, it is observed that IK is not systematically organised to put it in written and readable forms in most cultural heritage institutions (Azubuike and Aji, 2021). The oral forms in which it mostly exists, makes it at risk of disappearing altogether since once the carriers die, the knowledge is lost. Preliminary investigation by the researcher into libraries, archives and museums further has shown that much of what is gathered is often stored away unnoticed, unused, unpreserved and often, inaccessible in the institutions. As a result, dissertations and theses on indigenous knowledge for example, are hardly published, while much indigenous information is hidden, and many artifacts are buried away, unpreserved, in closets and cupboards. Library personnel, archivists and museum curators (who are custodians of cultural heritage), are having a hard time keeping their collections in good condition for users to consult or use. IK is an "at-risk" resource in cultural heritage institutions more so, library and archival studies schools hardly have preservation laboratories or units where library and archival students in training are taught how to preserve heritage resources. In the larger community, if the memory of elders of the community and other holders of IK are not documented and preserved, development could be stagnated as the users of IK will not have a solid IK base on which to make informed decisions for their community.

Extant literature has shown that collection development policies of cultural heritage institutions are not so visible and are often not implemented. The institutional environment

of the CHI is not often suitable and conducive for preservation activities to take place, more so on IK resources. Technology has come to stay and is being used in the preservation of resources in cultural heritage institutions; however, its sustained use has to be determined in the preservation of IK resources especially with the emergence of new technologies. Collection development policies, institutional environment and technology use have roles to play in preservation of IK Yet, it does not appear that much has been done to determine the nexus between collection development policies, institutional environment and technology use on the preservation of IK among custodians of cultural heritage in Nigeria.

In addition, the possibility of collection development policies, institutional environment and the use of technology affecting preservation of cultural heritage tends to indicate a need for professionals to conduct research in this important cultural and professional phenomenon. This study investigated the extent to which collection development policies, institutional environment and use of technology determine the IK preservation among custodians of cultural heritage in southern Nigeria.

1.3 Objectives of the study

The main objective of this study was to investigate the extent to which collection development policies, institutional environment and technology use determine the preservation of indigenous knowledge among custodians of cultural heritage in southern Nigeria. The specific objectives were to:

1. determine the types of IK resources available for custodians of cultural heritage in southern Nigeria;
2. find out the level of availability of IK resources for custodians of cultural heritage in southern Nigeria;
3. ascertain the institutional environments for the IK preservation resources among custodians of cultural heritage in southern Nigeria;
4. determine the extent of use of digital and manual techniques for IK preservation resources among custodians of cultural heritage in southern Nigeria;
5. determine the extent of technology use for IK preservation resources among custodians of cultural heritage in southern Nigeria;

6. find out the challenges of IK preservation resources among custodians of cultural heritage in southern Nigeria;
7. ascertain the relationship between collection development policies and IK preservation among custodians of cultural heritage in southern Nigeria;
8. determine the relationship between institutional environment and IK preservation among custodians of cultural heritage in southern Nigeria;
9. ascertain the relationship between technology use and IK preservation among custodians of cultural heritage in southern Nigeria;
10. find out the relationship between collection development policies and institutional environment among custodians of cultural heritage in southern Nigeria;
11. determine the relationship between institutional environment (regulatory environment, organisational environment, sociological environment and physical environment) and technology use among custodians of cultural heritage in southern Nigeria; and
12. ascertain the composite influence of collection development policies, institutional environment and technology use on IK preservation resources among custodians of cultural heritage in southern Nigeria.

1.4 Research questions

The study sought to answer the following research questions:

1. What are the types of indigenous knowledge resources available for custodians of cultural heritage in southern Nigeria?
2. What is the level of availability of indigenous knowledge resources for custodians of cultural heritage in southern Nigeria?
3. What are the institutional environments for the IK preservation resources among custodians of cultural heritage in southern Nigeria?
4. What is the extent of use of manual and digital techniques for IK preservation resources among custodians of cultural heritage in southern Nigeria?
5. What is the extent of technology use for IK preservation resources among custodians of cultural heritage in southern Nigeria?
6. What are the challenges of IK preservation resources among custodians of cultural heritage in southern Nigeria?

1.5 Hypotheses

The following null hypotheses were tested in the study at 0.05 level of significance:

1. There is no significant relationship between collection development policies and IK preservation among custodians of cultural heritage in southern Nigeria.
2. There is no significant relationship between institutional environment and IK preservation among custodians of cultural heritage in southern Nigeria.
3. There is no significant relationship between technology use and IK preservation among custodians of cultural heritage in southern Nigeria.
4. There is no significant relationship between collection development policies and institutional environment among custodians of cultural heritage in southern Nigeria.
5. There is no significant relationship between institutional environment (regulatory environment, organisational environment, sociological environment and physical environment) and technology use among custodians of cultural heritage in southern Nigeria.
6. There is no composite influence of collection development policies, institutional environment and technology use on IK preservation resources among custodians of cultural heritage in Southern Nigeria.

1.6 Scope of the study

This study sought to assess preservation of IK and determine if collection development policies (existence, visibility and content), institutional environment (regulatory, organisational, sociological and physical), and technology use (types and frequency) affect its preservation among custodians of cultural heritage institutions in southern Nigeria. The study addressed preservation issues such as techniques of preserving IK and frequency of preservation activities among the various preservation concerns among the custodians of cultural heritage. The study covered all the custodians in federal university libraries, special libraries, National Library branches, National Archives branches, and National Museums in the South-west, South-east and South-south of Nigeria. This consisted of 17 federal universities, 17 Special libraries, 10 National library branches, 9 National archives branches, and 17 National Museum branches in the southern zones.

Librarians, library officers, archivists, museum curators and their assistants working on preservation schedules (referred to as custodians of cultural heritage) in government and special libraries, archives and museums that preserve the indigenous knowledge of Nigerians, and the heads of the institutions in Southern Nigeria, were the respondents of this study. They were studied because they contribute to ensuring that indigenous knowledge is preserved across the different types of cultural heritage institutions. They ensure that the mandate of the institutions to preserve cultural heritage is fulfilled. Studying the respondents will give room for empirically gathering evidence on their attitude to collection development policies, the institutional environment they work in, and technology use as it affects preservation of indigenous knowledge.

1.7 Significance of the study

It is anticipated that the study would be useful to custodians of cultural heritage (librarians, archivists, curators), library and archival studies educators and researchers and government, national and international agencies with indigenous knowledge mandates. The study would provide insight into the preservation practices across different cultural heritage institutions in southern Nigeria. It is expected to engender policies that would factor in collection development policies, institutional environment and technology use in the preservation procedures. This is particularly relevant as indigenous knowledge has to be preserved and the formats in which it is preserved, kept properly for posterity.

In addition, it is anticipated that the result of the study would help custodians of cultural heritage to improve on collection development policies (CDP), the institutional environment (IE), technology use (TU) and preservation methods by taking appropriate steps that could enable the growth and sustenance of the IK content of their collections. The findings from the study are expected to provide empirical basis for assessing the relevance of CDP, IE and TU to the preservation issues especially as it concerns professionals in charge of these duties in the CHI. It also will help in planning for user education in assisting preservation procedures.

The relevance of custodians of cultural heritage to IK building in society is brought to the fore by this study since the results from the study are expected to reveal methods and ways of improving current practices. Library and archival studies educators are anticipated

to get ideas on how better to assist students they train, on effective handling of indigenous knowledge resources for their future professional practice. The importance of creating Indigenous Knowledge Databases (IKD) and preserving the IK cannot be underrated hence the government, national and international agencies with indigenous knowledge mandates would be provided with empirical evidence to recognise the critical nature of IK preservation and so provide interventions and lasting solutions to bridge the gap.

This study aimed to fill the gap in literature because majority of studies hitherto conducted are not cross-institutional studies. It is also hoped that the study would encourage custodians for cultural heritage to be more proactive at effectively preserving IK for future use in Nigeria. The study would add to the literature on librarianship in the area of indigenous knowledge preservation studies.

1.8 Operational definition of terms

The following terms used in this study are operationally defined as follows:

Collection Development Policies: are written documents that contain formal statements, or unwritten protocols observed that guide the library, archives or centers of cultural heritage's selection of materials to be added to its collection, and the procedures for maintaining such within the cultural heritage institutions.

Cultural Heritage: are the customs, practices, places, objects, artistic expressions and values expressed, and sometimes documented, on the ways of living developed by a community and passed on from generation to generation.

Cultural Heritage Institutions: are institutions that keep evidence of the culture and heritage of Nigerians which include the customs, practices, places, objects, artistic expressions and values expressed of the ways of living developed by a community. These institutions are government and special libraries, archives and museums that preserve the indigenous knowledge of Nigerians.

Custodians of Cultural Heritage: refers to library personnel, archivists and curators who document, keep, and manage evidence of the culture and heritage of Nigerians which include the customs, practices, places, objects, artistic expressions and values expressed of the ways of living developed by a community.

Indigenous Knowledge: is local or traditional knowledge (TK) that is unique to a society, which influences planning and decision-making in local communities.

Institutional environment: are conditions that must exist to ensure that cultural heritage materials are properly housed and stored, which include the rules, regulations and procedures (regulatory), the implementation of policies concerning the infrastructure, funding and training of staff (organisational), the collaboration, community connections and cultural practices (sociological) and the conditions of the building like temperature, lighting and security (physical) conditions of the cultural heritage institutions.

Preservation of Indigenous Knowledge: are processes involved in the keeping of indigenous knowledge materials recording them for posterity, to ensure that they are in useable condition always through procedures such as recording, emulation, reformatting, digitisation, use of chemicals and so on in the cultural heritage institutions.

Technology use: is the application of information and communication technology and technical facilities freely by library personnel, archivists, curators and custodians of IK to preserve the materials in the cultural heritage institutions' collections.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the review of relevant literature in order to have explicit understanding of the subject matter. The review was conducted under the following subheadings:

2.2 Indigenous knowledge and preservation of cultural heritage

2.3 Preservation of indigenous knowledge resources in cultural heritage institutions

2.4 Collection development policies and preservation of indigenous knowledge among custodians of cultural heritage

2.5 Institutional environment and preservation of indigenous knowledge resources in cultural heritage institutions

2.6 Technology use and preservation of indigenous knowledge resources

2.7 Collection development policies and institutional environment

2.8 Institutional environment and technology use

2.9 Challenges of preservation of indigenous knowledge

2.10 Theoretical Framework

2.11 Conceptual model

2.12 Appraisal of the literature reviewed

2.2 Indigenous knowledge and preservation of cultural heritage

Preservation forms the backbone of activities that keep documents, and artifacts in the state in which they are originally and can be useful in future. It is the act of keeping cultural heritage from the past and the present, for the future and refers to the maintenance of collections and individual objects as close as possible to original condition. Preservation incorporates a wide assortment of interrelated exercises intended to draw out the usable existence of books, files, original copies, and antiquities. Preservation activities include: the preservation arranging and strategy making capacities; the turn of events and utilisation of

preventive measures to limit the impacts of those elements that result in the weakening of library and document materials (Tondo, Jembe, and Yankyar, 2022).

Since preservation includes the treatment of reports and different types of data through reclamation, protection and replacement or move to another medium (Alegbeleye, 2008), the formats in which the documents exist have to be changed when it is observed that they are deteriorating and the knowledge could be lost irretrievably. According to Alegbeleye (2008), the purposes of conservation and preservation of indigenous knowledge materials is one that needs urgent attention especially in Africa because a lot is being lost with the demise of elders, and other holders of IK. When the grey hair adult dies the communities are crying, not because he has passed away, but because the library is gone Zwane and Masipa (2021). It is important to preserve the knowledge carried by the custodians of the knowledge.

The idea of "local or indigenous knowledge" (IK) alludes to the information, expertise, and practices created and kept up with by individuals with long chronicles of close association with their common habitat. IK might be characterised as the information that has been created over the long haul locally primarily through the gathering of encounters and personal comprehension of the climate in a given culture (Kumar, 2014). Some have characterised it essentially as "neighborhood information", while others have communicated it as "people information", "database for a general public", "conventional insight" or, when it applies to the actual climate, as "customary biological information" (Jaiswal, 2019). Hart (2010) quoting Castellano (2000) and Bruchac (2014) described the characteristics of IK as personal, oral, experiential, holistic, and conveyed in narrative or metaphorical language. Makinde and Shorunke (2013) on their part characterised IK as the information frameworks held by a customary local area that depends on their experience and transformation to nearby culture and whose climate is significant for advancement particularly in resources management and theatre. They see IK as being marginalised because it is tacit in nature. This view is aligned to by Ocholla (2007) as that Western knowledge or education is believed to have removed the value of IK which Westerners encouraged the educated to abandon. Marginalised or not, indigenous knowledge is defined by Mole, Ekwelem, and Din (2018) as “an orderly group of information procured by nearby

individuals through the gathering of involvement, casual experience, and private comprehension of the climate in a given culture."

Notwithstanding the definition, there is an agreement that different networks, societies and social orders have native information frameworks. The United Nations Development Project in its DLIST BCLME program viewed IK as the "information procured over ages by networks as they collaborate with their current circumstance" and thought about that it mostly alludes to an arrangement of understanding one's current circumstance in the broadest sense. Native information is the reason for neighborhood level dynamic in many day to day activities in different human endeavour, endeavours such as health care, food preparation, agriculture, education, natural-resource management, and a host of other activities in communities. It is actually a most important aspect of the community set up, a ‘cannot do without’ asset.

Indigenous knowledge is the collective body of knowledge of the ways in which people respond to reality according to Jaiswal (2019). Other definitions of IK have emphasised its holistic nature and its orality as well, with IK often apparently existing in a neighborhood setting, moored to a specific gathering of people in a specific setting at a specific time (Jaiswal, 2019), and most native networks have customary melodies, stories, legends, dreams, strategies and practices as the different methods of native information transmission.

Indigenous knowledge usually regarded as belonging to the community where it emanates, brings up issues regarding who owns it and who should manage it. Is it the researchers striving to document the IK residing in the memories of the elders, or is it the elders themselves who own the IK documented? Thakaran (2017) observed that the oral nature of IK is often its bane as it is claimed that IK is *terra nullius* - that is, empty and free for the taking - and ownership of the IK is conferred only when modern science has studied it and isolated its active ingredients in research and presented it as IK. The compensation for the knowledge by the informal and unwritten nature of IK is used to justify such views (Timoti, O'B Lyver, Matamua, Jones, and Tahi, 2017). Holders of IK, that is, the elders, or the community from where the documented IK ensues, expect to be paid for their intellectual property. This, however, is not often the case as the indigenous community is mostly left with nothing after parting with their knowledge. Many Africans who have

knowledge of herbs and other indigenous community benefits are therefore not encouraged to share with the rest of the world due to this threat, and disrespect in not putting proper value on their knowledge (Zwane and Masipa, 2021).

Indigenous or traditional networks in numerous pieces of the world are known for their native and confident techniques in food creation, arrangement of utilitarian and fitting safe house, proficient arranging and the board of settlements, mitigation of medical affliction, and security of the backwoods and its delicate biological system (Wahab, 2020).

The information frameworks locally give an important asset to seeing how the local area responds to changing arrangements of issues and difficulties in a bid to keep up with fitting degrees of personal satisfaction. In indigenous communities, elders are consulted to know how to tackle knotty problems. Climate change for example, could affect agricultural output and often traditional or indigenous ways of making rain are sought which often yield positive results. During the Pandemic of Flu in 1920 for example, IK was used to combat the spread in Yorubaland as it was reported, that people sought native medicine and other unorthodox means to cure these illnesses (Adebowale, 2020). The prescription used is still applied today by the traditional undertakers, the Osorun group - a section of the Osugbo Conclave (the governing body prior to the incoming of Europeans) of the Yoruba communities. Anecdotes and oral reports state that despite the absence of the scourge, they still use all the remedies prescribed then today, to prevent any resurgence. In addition, modern day technology is being used by a Royal Father, the Ooni of Ife, Oba Enitan Ogunwusi to fumigate built environment in his kingdom of Ile-Ife, Osun State, Nigeria (Wahab, 2020). The local fumigant is applied, using drones. The surveillance, monitoring, and managing prospects of the drone in the management of COVID-19 has been duly documented.

Indigenous knowledge transmitted is the bedrock of indigenous learning which is an education for living that is meant to train the youth for adulthood. Therefore, indigenous knowledge is used in and enhances the development process. It actually helps in decision making and problem-solving in many communities (Honwad, 2018, Cochran, 2021). Rural communities of the middle Himalayas for example, use traditional knowledge to support environmental decisions. Honwad (2018) discussed how youth in the Himalayas negotiate a balance between traditional and Western/outside knowledge; and addresses how youth

apply knowledge from the "Our Land Our Life" (OLOL) curriculum in their school system, in decision-making processes.

As asserted by Nakashima, McLean, Thulstrup, Castillo and Rubis (2012) indigenous knowledge supplies a large part of the total populace with the chief way to satisfy their essential necessities, and structures the reason for choices and methodologies in numerous functional viewpoints. This incorporates exercises like translation of meteorological marvels, clinical treatment, water the executives, creation of dress, route, horticulture and cultivation, chasing and fishing, and biological grouping frameworks to mention but a few. Though important functions of indigenous knowledge are indicated in its definitions, Khumalo and Baloyi (2017) described IK as being marginalised (excluded) and suggested agenda for developing and interpreting it with other forms of knowledge. They expanded on the fact that indigenous knowledge resides in peoples' recollections and is to a great extent sent through verbal exchange and is in numerous faculties imperiled as its overseers (who are generally old) bite the dust and those that remain do not have the entire story or peer downward on IK as in reverse. This state of marginalisation is one that should be addressed.

Owusu-Ansah and Mji (2013) however reiterated that IK is viewed as a critical thinking component to country networks. It is perceived as having importance to the day by day life of most people, monetary turn of events, culture safeguarding and political change, which prompts neediness decrease. The problem-solving nature of IK and its developmental value are the focus of the Owusu-Ansah and Mji (2013); Honwad (2018) and Masango and Mbarika (2022) discourses which seek to heighten awareness of and stimulate new thoughts and generate discussion on the wealth of indigenous knowledge. Thus indigenous knowledge stands out as a problem solver in decision making circles so to say.

IK has many characteristics. Some of them are that: "IK is local and unique to given communities or cultures; It is mostly tacit knowledge and, therefore, not easily codifiable; It is transmitted orally or through imitation and demonstration; It is experiential rather than theoretical; It is learnt through repetition; It is holistic; It is embedded in practices or institutions; It is a key asset of the poor; It is constantly changing, being produced as well as reproduced, discovered as well as lost; though it is often perceived by external observers as being somewhat static" (Jaiswal, 2019). These characteristics led Owusu-Ansah and Mji

(2013) to conclude that indigenous knowledge is scientific in the sense that it is obtained through many years of practicing and practicing, and therefore provides scientific solution to problems. This further buttresses the problem-solving nature of indigenous knowledge.

Ajayi (2009) viewed the term immaterial social legacy as characterised rather extensively and including the practices, portrayals, articulations, information, abilities just as the instruments, articles and antiquities related therewith that networks, gatherings and at times people perceive as a component of their legacy. This view was in consonance with the possibility that the safeguarding of the social legacy of a country has a motivation towards its turn of events. The formative characteristic of IK is perceived in this specific circumstance. Mazasaki (2009) set that in the current data society, each country needs to guarantee the conservation, advancement and dispersal of its specialties, culture and the general legacy utilising the instruments in the current age. This he asserts is a wellspring of solidarity and certainty that places the progressions of the general public into points of view and subsequently empowers the general public to construct a superior future. Advancement is once more, the objective and an important trait of IK.

Idrisa (2009) detailed that the Islamic University in Uganda has attempted to tap, outfit and catch information that heretofore has been overlooked, disregarded or underestimated in the area. This they have done through digitisation activities to catch and archive significant data of native substance to record and safeguard it and offer it with others for advancement viability on a feasible premise. Additionally, their "Wednesday Colloquium" drive is an undertaking that was explicitly started to catch and record what significant figures in the public eye know or have encountered over the long haul. These significant characters cut across all fields, for instance, the business area, the scholarly community, government officials, financial backers and ranchers, among others. Endeavors to digitise these drives to have them available by the global local area for advancement are being campaigned through the "Makkah Summit Initiative 2007" (Idrisa, 2009).

The native information on the nearby local area isn't forgotten about as significant native social legacy that for days of yore has been underestimated and ignored, is gathered. This drive was because of an examination completed by the Islamic University of Uganda wherein it was found that the vast majority of native information sources were being lost through the passing of elderly folks, cultivators and skilled workers and furthermore that

African astuteness were gradually yet efficiently moving and moving to South Africa, Europe and America where their administrations appear to acquire acknowledgment, regard and energy. This undertaking, spearheaded by the library, archived information in type of conventional social medication of nearby networks around, for instance on the treatment of intestinal sickness, measles, skin issues, ulcers and different issues; information about post-gather food stockpiling; and native information and abilities in local area harmony building drives called 'Kachoke Madit'.

Okore, Ekere and Eke (2009) averred that not all aspects of indigenous knowledge are capturable and that loss of information in the event of a custodian of the knowledge passing away, and oral traditions being lost are some of the constraints of indigenous knowledge preservation. Bruchac (2014) observed that in predominantly oral societies, the preservation of oral traditions is through human memory, supernatural agencies and the relevance of the tradition. This fact is also expressed by Vicki-Anne Heikell, a field conservator at the Department of Internal Affairs in New Zealand. The concern as reported by Chimko (2021), is about the lack of a succession programme for irreplaceable Māori conservation knowledge. There is the fear that much cultural heritage or knowledge will be lost if not preserved, before those who hold it pass away. The probable loss of the knowledge holder has made indigenous knowledge an "at-risk item" hence the dire need for documentation and preservation.

Sarkhel (2016) observed that provision of access to indigenous knowledge is one that cannot be done without libraries and that indigenous knowledge should be integrated into library activities for them to serve the information requirements of the local populations. These libraries should be required to train community members in recording their oral histories. For Sarkhel, "Elderly members of the community should be invited to the library to tell their stories. With the necessary training in oral history, librarians would be able to record the stories to preserve them as oral histories" (Sarkhel, 2016; 431). Azubuike and Aji (2021) made a similar call in their study of the role of information and communication technologies (ICTs) in repackaging IK. With these kinds of activities libraries can efficiently and effectively plan, collect, codify, organise, preserve, use, control, and disseminate indigenous knowledge. Libraries in this sense definitely feature as rescue centres so to say, for indigenous knowledge.

The developmental nature of indigenous knowledge is what puts it in the category of what has to be carefully preserved. An example of indigenous knowledge that needs to be preserved can be seen in the work of Mutema (2013) who investigated the existence and performance of traditional children's songs and games among children in Zimbabwe. Qualitative and quantitative methods of data gathering for research were used to investigate about ten traditional children's songs and the reactions of the respondents to it. It was discovered that the customary kids' tunes and games are no longer as famous as they used to be, and potentially was confronting eradication. The investigation set up that this the state of affairs is because of a lot of components like proper instruction and innovative progression among a few others. Formal education and use of technology are developments that have come up in Africa, which seemingly erode the traditional or indigenous knowledge that could be garnered from songs and games that children learn from when young. Knowledge that is useful for upbuilding in society is overlooked from these "simple" activities. The simple activities nonetheless are part of the cultural heritage worth preservation.

It is in the light of making efforts at preservation, that Dipholo and Biao (2013) put forth a solid defense for a revalorisation of all native information overall and African native information specifically. They examined an assortment of instructive hypotheses, including the functionalist, the contention, the basic, the realistic, and the Afrocentric instructive speculations and supported African approach producers and savvy people to do somewhat more to bring native information inside African instructive stream with the view to expanding the possibilities of improvement in Africa. Native information was seen by them as a method for fostering the instructive framework, and it was educated that the appropriation regarding the practical and Afrocentric instructive speculations would incorporate African native information and current instructive frameworks, in this way advancing the advancement of a comprehensive African instructive framework. The suggestions proffered to improve the turn of events and combination of native information was that:

> More explores ought to be dispatched that will uncover more noteworthy upsides of native information frameworks; the securing of native information ought to be advanced among both rustic and metropolitan occupants and among the youthful and the old inside Africa and it is joining into the conventional educational program, and;

> African native information being a part of African corpus, and the obtaining of African corpus being typically advanced inside the non-formal instruction climate, and; foundation ought to be set up for the advancement of native information to be brought out through the non-formal training measure more often than not (Dipholo and Biao, 2013: 34).

Social legacy is broadly perceived as the main contribution to characterising the public and ethnic societies in Nigeria. Nigeria acquires incredible societies of the Benin level, just as an amazing group of plastic, music, and artistic expressions. The National Archives, the National Museum, the National Library, numerous uncommon libraries, and every one of the current colleges have assumed control over the undertaking to chip away at exploration, reclamation, and safeguarding of the social legacy. Albeit a great deal of work has been done in exploration, systematization, and protection of social legacy, there is a requirement for grounded documentation on social legacy, just as a requirement for an efficient assistance for its reclamation and safeguarding (Anasi, Ibegwam and Oyediran-Tidings, 2013). Cultural heritage certainly cannot be overlooked and its preservation by any means or methods ought to be of national priority.

Documentation of traditional knowledge is described by some scholars (Adebayo and Adeyemo, 2017). The techniques described are the first step in the preservation process for indigenous knowledge. Documentation of indigenous knowledge and in essence preservation of it is done through many means apart from direct writing, or compiling of printed works. It can be done by recording on tape (audio or video), cassette tape, or cellulite (CD-ROM). The knowledge holders are interviewed and their narrations recorded on audio and video machines. Where permissible, photographs are taken also. In the case of artifacts found, depending on the nature of the material (wood, metal, stone or iron), steps are taken to record the size, length breadth, shape and accurate description of the artifact. Carbon dating techniques are used to determine the age of the artifact and its usefulness in historical perspective can be determined in keeping it in the museum. The documentation forms the basis of the indigenous knowledge database of the community and the preservation of cultural heritage.

Mabawonku (2005) described the procedures for collecting traditional and historical facts by the students of the Library Archival and Information Studies Department of the University of Ibadan. The analysis of the two decades of collected materials indicated that

the major areas covered were history, festivals, ceremonies, and rites, religion and worshipped deities and the arts and crafts, traditional medicine and agriculture. Audio recording was the most important means of documenting oral information. Videotape recording proved to be a more versatile method of documentation, though other means used were pictures, slides, drawings, charts and maps. Tape recording was most used for recording testimonies, folklore, legends, songs and poetry. Mabawonku (2005) found it tragic that Nigerians do not treasure recordkeeping, and that institutions and public establishments hardly keep records, and recommended that indigenous knowledge databases be created in Nigeria. Unfortunately, not much improvement has occurred since then and IK databases are still very few considering the vast IK diversity that Nigeria possesses. Preservation of indigenous knowledge through documenting oral histories, folklores and others is seriously neglected. This is a neglect that needs to be remedied.

In Tanzania, Lwoga, and Ngulube, Stilwell (2010) studied 181 smallholder farmers to determine if the knowledge creation hypothesis can be utilised to oversee IK in the neighborhood networks. They discovered that the ranchers made new information through singular connections, bunch gatherings, (for example, get-togethers and rancher bunches gatherings) and perception. Horticultural native information (AIK) was basically procured and shared inside nearby and interpersonal organisations, which included guardians or family (93.9%; 170), neighbors and companions (86.2%; 156), individual experience (85.1%; 154) and other neighborhood sources. Furthermore, the ranchers utilised print media and formal wellsprings of information, like Non-Governmental Organisations (NGO), augmentation officials, scientists and agreeable associations. The consequences of this Lwoga, and Ngulube, Stilwell study exhibited that IK can be reported by the nearby individuals and spread through telecentres and online information bases. It is in this way feasible for limited scope ranchers in the overviewed networks to record and share their insight in the event that they are directed and enabled. Be that as it may, satisfactory and fitting assets should be designated for catching and safeguarding IK before it vanishes by and large. The study brought to the fore the importance of devising systematic plans for preserving indigenous knowledge.

Much as devising systematic plans for preserving indigenous knowledge is desirable, Lwoga, and Ngulube, Stilwell (2010) noticed, nonetheless, that examination

libraries have not been especially dynamic in recording farming native information (AIK) for instance. Adams (2007) apparently in arrangement, commented that in the most well-off countries, the adequacy of individual safeguarding projects and strategies is once in a while subject to solid assurance, because of a shortfall of set up execution principles and longitudinal, results situated exploration. There is an absence of the capacity to extensively depict, taxonomise and fundamentally assess elective public safeguarding systems in more than regulating terms. This lack of activity on the part of the research libraries and wealthy nations is creating a gap in the field of preservation especially of agricultural indigenous knowledge, a gap begging to be filled.

Malhan and Gulati (2003) appeared to have an alternate view from this. To them, the issue of the advanced gap upsets the compelling utilisation of ICTs in the administration of AIK. They noticed that the advanced gap keeps on developing so wide that numerous ranchers don't have the chance to change into information-driven networks in the Sub-Saharan African nations. The innovative, monetary, and instructive ramifications of differences in the dispersion of computerised innovation add to the present circumstance. Malhan and Gulati (2003) further contended that archiving and scattering IK through ICTs adds to the corruption of native societies and native people groups' deficiency of licensed innovation rights. They suggested that African governments should further develop ICT foundations, and plan fitting Intellectual Property Rights (IPR) and strategies that will ensure IK for its compelling administration through Knowledge Management (KM) practices. Their recommendation seemingly is what Lwoga, and Ngulube, Stilwell (2010) reiterated many years later about having systematic plans for IK preservation.

Abioye, Zaid and Egberongbe (2014) years later differed from Mulhan and Gulati (2003) stance about the use of ICTs eroding IK, and argued that native information has a lot to bring to the table and show the world everywhere and simply by examination and documentation would it be able to be protected and made accessible to advancement laborers around the world, and its uses misused. In their investigation of horticultural examination libraries in Nigeria, they recognised the way that AIK specifically is of monstrous worth in further developing food creation, and that its documentation and scattering stay a major test defying curators and other data experts, especially in Africa where social practices are pervasive.

Ethiopian ranchers for instance have been participating in beekeeping as a sideline movement since 3500 to 3000 BC over hundreds of years and have created native information through their amassed encounters, which is a significant asset for advancement (Abebe, 2011). Abebe (2011) contemplated beekeepers to recognise records and archive the native information concerning beekeeping in nine locales of Central Ethiopia. It was found that some native specialised information on rancher beekeepers are: sort of hives and development materials utilised, diverse bumblebee the executives strategies like customary nectar season recognisable proof, conventional multitude getting and attractant techniques, swarm control strategies, customary bumble bee foes security techniques, customary strategies for stinging insurance and decrease of agony and others. These indigenous technical knowledges were identified, documented, and preserved for future use. This is one of various efforts identified, which aim at preservation of indigenous knowledge.

Aluma (2010) however, proffered a totally extraordinary perspective on farming native information (AIK) documentation, and contended that documentation of IK identified with restorative plants, homegrown blends, and the illnesses treated (human and animals), crop insurance, and flood protection has been progressing yet in impromptu manners. He noticed that enormous fundamental information has been gathered, "with no guarantees" from the specialists' perspective with witness verifications of IK that has worked. Nonetheless, no assets have been gotten to distribute these for imparting to other people (Aluma, 2010). This tosses the discussion on AIK documentation in the outdoors as various essayists have unique perceptions on what to document and how to do the documentation. As Aluma pointed out, the issues are further compounded by lack of funds to publish the large quantum of data that is collected as agricultural indigenous knowledge. This has implications for IK preservation in Africa.

Andarge, Shonga, Agize and Tora (2015) noted that there was a wide hole in information about ethnobotanical information in Ethiopia and archived native information on use and preservation of restorative plants by individuals of Dawuno and furthermore surveyed the current dangers to therapeutic plants in Dawuno. They found that traditional healers deliberately preserved some native trees, shrubs and herbs by planting them in their home gardens and farm area. This simple method of preserving and documenting traditional knowledge of plants has been very useful. Indeed a laudable effort, because the environment

is protected and the ecology also enhanced, while conserving medicinal plants to ensure they do not die off. In addition, the cultural heritage of the Ethiopians on traditional healing is preserved and there is a basis for which other cultures can compare their practices.

Chanza and De Wit (2016) by drawing intensely from a reasonable and insightful survey of grants on the utility of native information (IK) in environment science contended that IK can be conveyed in the act of environment administration. They uncovered that the benefits of such an organisation lie in the arrangement that the principles of IK and environment administration cover and are correlative. They further contended that the fundamental components of environment administration, where activities are educated by the standards of decentralisation and self-sufficiency; responsibility and straightforwardness; responsiveness and adaptability; and investment and consideration, can be logical especially to networks who have been strictly noticing changes in their current circumstance. It was inferred that the target of environment administration can be accomplished by empowering the support of networks, with their IK, in planning environmental change mediations. This stance is supported by this researcher because indigenous knowledge is being used in a unique way to assist in tackling social and global issues such as climate change, global warming and the like. Preserving the knowledge helps the community in decision making.

In tackling other indigenous preservation concerns, from literature it was revealed that preserving indigenous languages, efforts have been made by some researchers. Mabawonku (2005) posited that recording and distributing native information in the vernacular is ideal since it makes for genuineness and giving information in the regular language, albeit this can later be converted into English language, French, and some other conspicuous unknown dialect. For Mabawonku (2005), documentation of indigenous knowledge is carried out by individual researchers who record and keep it for future use with the aim of contributing to development. In this instance, the preservation of indigenous languages is of concern. The indigenous languages are quite important and must be preserved. Since storage of indigenous knowledge is not limited to text documents or electronic formats, various media such as cassette tapes, films, storytelling, songs, gene banks, and so on are used to preserve IK depending on the type of indigenous information

it is (Sarkhel, 2016). On this premise, indigenous languages can be preserved in these media especially as they can be useful for communication and research.

Obiyan (2010) examined the issue of creating native Nigerian dialects especially Esan for viable correspondence and expert use. The investigation received the review research technique, gathering information through survey and casual meetings. 1,000 500 respondents were purposively chosen from Esan individuals' occupant in their country. The discoveries uncovered that 95.0% individuals could communicate in the language easily without comparable capability in perusing and composing while just 15.0% could peruse and compose scripts in Esan with a significant degree of capability. The terrible circumstance was cited to attitudinal issue since individuals think that it is more lofty and worthy to talk and study the English language since they trust it is the language of the elites. The suggestion of the examination was for the educating and learning of Esan in foundations of higher picking up, preparing of instructors and documentation of the Esan language among others. Preservation of indigenous languages is an aspect of IK that requires serious attention in Africa and with it, the opportunity of providing access to the knowledge when it is needed.

Cultural heritage preserved has to be accessed to use it. For archives where cultural heritage materials are collected and deposited, however, there are some issues that arise. Abioye (2009) found out that access is a fundamental issue in archives administration and information management. The study revealed that users of archives have problems with the many rules and regulations encountered in the use of the archival materials in the National archives of Nigeria branches. The obstacles to accessing information in the archives engendered recommendations for a review of policies governing access to archival materials. The issue of policy in this wise did not only relate to access, but fundamentally to acquisition as well. There should be policies governing acquisition of IK and even access to it. This for instance needs to be addressed in cultural heritage institutions.

To this end, Morris (2009) advocated that archives should operate with adequate policies and procedures in place. Details for achieving this were outlined as: "Mission Statements that support and reflect the mission of the overseeing association; Access and Use Policy for staff and analysts; Collecting Policy that diagrams what kinds of materials will be gathered by the documents and what won't; Staff Records Policy that traces how to

manage staff individuals' very own papers versus the authority records of the foundation or association; Acquisitions Procedures that give direction to staff in what steps to take in building up physical and scholarly power over recently obtained materials". These ought to be obviously spelt out.

Other strategy matters considered by Morris (2009) were: "Records Transfer Procedures that guide staff in how to move materials to the files; Processing and Description Procedures for preparing staff in how to coordinate the materials, safeguard them, and make discovering help or inventories to the assortments; and Policies and Procedures for Destruction of Non-Archival Records that address how to appropriately discard non-perpetual records, including treatment of delicate materials that require destroying". What's more, for chronicles, a deed of blessing structure ought to be made and used to report all endowments and the date it was donated and the donor as well. These are policy issues that ideally should be of concern to cultural heritage institutions that document IK.

Morris (2009) presented a simple policy plan; however, Adeniyi and Subair (2013) studied the access to indigenous knowledge provision activities of 5 libraries in Oyo State and the problems encountered in this access provision. Some of the issues pertinent to this study were issues of proper cataloguing and shelving of IK materials in the collections, indexing and abstracting of the IK materials and public access databases of the IK materials provided. They found that IK assets were not enough addressed in libraries in Oyo State. They likewise found that exceptional, scholarly, and public libraries have varying methods by which they give admittance to IK assets. While uncommon and scholastic libraries index and sort out their assets, and have a different area made for IK inside the library, public libraries don't. None of the libraries they examined gave admittance to IK utilising community data set nor claimed a computerised library for borderless admittance to IK assets. Their documentation of IK was largely through manual means as electronic databases for IK were not yet existent in the libraries surveyed. Documentation of indigenous knowledge through manual means was recognised and finding addition means albeit electronic, was a possibility that could be explored.

Masizana, Oscar, Okatch, Ngwenya, Monyatsi, Muzila and Andrae-Marobela (2014) reported the efforts of Botswana Centre for Scientific Research Indigenous Knowledge and Innovation (CESRIKI) to document medicinal plants in Botswana. They

used Apriori Algorithm method to ethno-survey data of medicinal plants from six administrative districts in Botswana. The Dingaka Database set out to collect data on plants, medicinal uses, symptoms, researcher, ngaka/traditional doctors, sample dosage, symptom preparatory methods, and side effects and so on. The data was run through Weka, an open-source data mining software. Manual data mining using manual searches, made many trends in use of ethnomedical plants obvious, and data mining through Apriori helped to manage the large amount of data within the database. The Dingaka database served as documentation of the ethno medical data while data mining techniques sought to thoroughly analyse patterns emerging from the data. All these resulted in preservation of indigenous ethno medical knowledge in electronic format.

In a similar manner, Aniama, Usman and Ayodele (2016) documented the ethnomedicinal and social usage of certain plants by the occupants of Dekina neighborhood government space of Kogi State, Nigeria. Fieldtrips were made to towns in the examination region, with arranged agendas utilised for information assortment. 200 willing respondents were met on data about the normal employments of some plant species for different ethnomedicinal and social purposes. Vernacular names of the depicted species were archived and standard writing and vegetation were counseled for their appropriate ID. The information acquired was examined and classified appearance natural names, normal names, vernacular or ancestral names, families, use, and parts utilised. It was found from the investigation that documentation is important to secure our future planet and age. There is likewise a need to make mindfulness or edification for the preservation and legitimate utilisation of this biodiversity-rich space of study.

Usman, Bzugu, Pur, and Abdullahi (2017) in their investigation examined the native control strategies for domesticated animals' parasites by pastoralists' networks in Adamawa State, Nigeria. Utilising a poll regulated to 363 haphazardly chose respondents for information assortment, it was uncovered that the most widely recognised parasites influencing the cows in the examination region were helminthiasis, gnawing flies, and ticks. These parasites could be dispensed with utilising eleven native control techniques like keeping up with great cleanliness, development away from a tainted region, hedge consuming, utilisation of Holy books spells (Spiritual), group sharing, detaching influenced creatures, manual evacuation of ticks, utilisation of smoke and dietary supplementation to

wiped out creatures. The relapse result showed that coefficient old enough, number of dairy cattle possessed and number of cows influenced by parasites were positive and huge at 5% level. Tree felling and shrubbery consumption were limitations to the use of the control techniques, and native control strategies were grounded and used by the respondents. The scientists suggested that laws restricting bramble copying and unpredictable tree felling be re-authorised to save native spices and turn away the conceivable elimination of the spices. It was additionally upheld that native information frameworks ought to be fused in the cutting edge instructing of veterinary medication since the information is very much acknowledged by pastoralists.

Furthermore, Ebijuwa and Mabawonku (2015) addressed the issue of documentation and use of indigenous knowledge by alternative healthcare practitioners in Oyo State, Nigeria. They studied 400 practitioners in 20 Local government areas to find out their use of indigenous knowledge for primary healthcare the practitioners had and the major constraints to documentation and use of indigenous knowledge in primary healthcare of the Alternative Healthcare Practitioners. The results of the survey showed that the traditional healthcare practitioners use indigenous knowledge in treating various health challenges. The healthcare professionals were not too highly educated. The more educated ones did not hold on to the profession and thus the indigenous knowledge for the profession remained to a large extent undocumented. Forms of documentation used by the practitioners were writing, storytelling, and digitisation (to a little degree). IK was still largely passed on orally and in fact was being lost as it died with the demise of the old practitioners. This is not a good development as all the indigenous knowledge lost is a great disadvantage to the society. Preservation of indigenous knowledge in healthcare in this instance is lacking or leaving much to be desired.

Ebijuwa and Mabawonku (2015) therefore concluded that documentation of IK by indigenous healthcare professionals was poor and fraught with challenges of preservation of the knowledge in various formats. This corroborated Owiny, Mehta and Maretzki (2014), who stated that indigenous knowledge was usually safeguarded through oral methods and exhibit as opposed to documentation, in East Africa. They proposed the utilisation of online media and portable advancements (phones) in the creation, protection, and spread of native information. Their conversation fixated on the part of libraries in the coordination of online

media innovations with more established media that utilised sound and varying media hardware to contact a more extensive crowd. The documentation, preservation and ultimate dissemination of IK was dependent on new technology especially social media channels like Facebook, Twitter, and other such.

Mafimisebi, Famoofo, and Mafimisebi (2016) recognised and inspected the degree of mindfulness and use of Indigenous Knowledge frameworks (IKS) in fishing in Southwest, Nigeria. Information got from 171 fisher-people, eight key witnesses, and eight focus group discussions (FGDs) were investigated utilising expressive and inferential insights and the calculated relapse model. The examination uncovered that 26 IKS practices were being used in the investigation region. A categorisation of IKS practices dependent on IKS Use Index (IKSUI) uncovered that some percentage of IKS practices were inadequately utilised, tolerably utilised and profoundly utilised, individually. Moreover, three categories of fisher-people were classified as low-clients, moderate-clients and high-clients of IKS practices, separately. Majority of the fisher-people accepted that fishing is not beneficial without use or perception of IKS, a greater majority accepted that IKS is preferred and more powerful over Western Knowledge Systems (WKS), and also accepted that IKS decreases creation cost while majority avowed that it builds successful fish catch. Almost all of the fisher-people admitted that IKS was their lone methods for expanding their catch, supporting fishing and fishing pay. Time of family head, fishing experience and number of old individuals in the family were altogether decidedly identified with IKS use while family's fishing pay, family head's schooling and number of fishing boats/kayaks showed negative associations with IKS use. It was reasoned that IKS is vital in fisheries in the region and that a documentation of fishing IKS be done in all significant fishing networks in Nigeria. Conservation of IK stays a significant factor which social legacy establishments (CHI) should factor on.

The World Bank directed examination on social legacy being developed work, for the most part zeroing in on the monetary advantages to society. A few speculations were communicated in distributions by the World Bank (The World Bank, 2019). The United Nations Educational, Scientific and Cultural Organisation (UNESCO) worked widely with research on how culture can be a positive power in the endeavors to accomplish the Millennium Development Goals, for example the work on Culture and Development

Indicators. 2020 UNESCO, Culture and Development Indicators UNESCO, pioneers' development work and has recognised that indigenous knowledge plays a role in societal development. This developmental work is still on-going and progressing especially on the economic aspects concerning where the IK can be harnessed positively. As a result of the perception of indigenous knowledge being germane in the development of society, its preservation becomes of major importance.

In predominantly oral societies, the preservation of oral traditions is through human memory, supernatural agencies and the relevance of the tradition. These have made indigenous knowledge an "at-risk item" hence the need for preservation. Onyima (2016) did a historical, anthropological and archaeological account of the Nigerian cultural heritages, discussing the efforts made at preservation and the challenges such as human interference like trafficking and exportation of Nigerian arts, thefts and looting of museums and other counterpart activities. A clarion call to consciously preserve Nigerian heritages in spite of the daunting challenges facing its preservation because of the avalanche of benefits that could be derived from Nigerian cultural heritages was made.

The Congo Basin Institute (2022) described the initiative to solve the serious problem of the loss of vital Baka traditional ecological knowledge about the forests of the Congo Basin. The School for Indigenous and Local Knowledge (SILK) is one in which the new generation of Baka retain the indigenous knowledge they possess as elders, and are gainfully employed as researchers on a growing number of projects in the school. The realisation by both the Baka community and a researcher, Smith, led to the collaborative effort to form the School for Indigenous and Local Knowledge (SILK) to keep Baka TEK alive, and ensure it is transmitted to future generations. The School employs a variety of approaches to facilitate the documentation, transmission, and valuing of TEK, creating a rich and robust learning environment for Baka youths. Baka-led documentation, Curriculum development, Formal education, Employment, and Informal education are components of the curriculum taught. Traditional ecological knowledge are documented on topics related to food gathering and preparation, cultural practices, and plant and animal identification. All these are embedded in the curriculum that is used across Baka communities in the region. It is also a stepping stone for broader conservation and indigenous management objectives. (Congo Basin Institute, 2022).

Preservation of various aspects of indigenous knowledge in Africa by all stakeholders in the cultural heritage field of endeavour is seen to be imperative. Even though not all aspects of indigenous knowledge are capturable; and the loss of information in the event of a custodian of the knowledge passing away, and oral traditions being lost are some of the constraints of indigenous knowledge preservation, the onus is still on cultural heritage institutions specially to ensure that all efforts are made for the preservation of indigenous knowledge, and to take it off the "at-risk-item" list.

2.2 Preservation of indigenous knowledge in cultural heritage institutions

Indigenous knowledge has many characteristics. These characteristics are what defines it and make it an indispensable part of the development process. Some of the characteristics have been summed up thus: IK is local and unique to given communities or cultures (Kumar, 2014); It is generally inferred information and, in this manner, not effectively codifiable; It is communicated orally or through impersonation and show (Mistry, 2009); It is experiential rather than theoretical; It is learnt through repetition; It is holistic; It is inserted in practices or foundations; It is a vital resource of poor people; It is continually changing, being created just as replicated, found just as lost; however it is normal seen by outside spectators as being fairly static.

Adam (2007) adapted von Liebenstein's (2000) summary of characteristics of IK and ICT considerations for it. The summary provided a rundown of significant attributes of IK and demonstrated how data and specialised instruments should react to the qualities. Native information is produced inside networks, it works; it is approved and bountiful; it is area and culture-explicit; it covers fundamental requirements of people and creatures; it is practical, reasonable, and locally sensible, and organisation and assembly are not costly. The ICT contemplations necessitate that local area based asset places that can improve the progression of IK should be embraced; conventional and present-day advancements ought to react to neighborhood culture; administrations and frameworks that upgrade occupations ought to be thought of and ICT administrations ought not to add trouble however make IK more economical and sensible.

Adam (2007) further acknowledged the way that IK is dynamic, imaginative, versatile, and open to experimentation. It is oral and provincial in nature; isn't deliberately

recorded and not coordinated into present-day logical and specialised information. The contemplations for ICT that identify with these qualities are that ICTs need to help them move past documentation and further develop variation, appropriation, and experimentation; Focus ought to be made on instruments that advance oral association, for example, general media advances, text to discourse, and other such. Furthermore, Adam (2007) affirmed that documentation of IK without endangering nearby culture, licensed innovation rights, and different contemplations ought to be done through ICT just as ICT administrations ought to be intended to improve the orderly combination of current and customary information.

Idrisa (2010) announced that the Islamic University in Uganda has attempted to tap, outfit, and catch information that heretofore has been disregarded, ignored, or underestimated in the locale. This they have done through digitisation activities to catch and record applicable data of native substance to report and save it and offer it with others for advancement viability on a maintainable premise. Their "Wednesday Colloquium" drive is likewise a venture that was explicitly started to record forever what significant figures in the public eye know or have encountered over the long haul. These significant characters cut across all fields, for instance, the business area, the scholarly world, government officials, financial backers, and ranchers, among others. Endeavors to digitise these drives to have them open by the global-local area for advancement were allegedly being campaigned through the “Makkah Summit Initiative 2007” (Idrisa, 2010). These efforts were aimed at bringing about development in society since a lot can be learned from the past to bring about progress in the present and help in improving the future. The indigenous knowledge of the local community in Uganda was not left out as valuable indigenous cultural heritage that for time immemorial had been taken for granted and neglected, was collected.

The Makkah Summit Initiative was as a result of a study carried out by the Islamic University in Uganda in which it was discovered that most of indigenous knowledge sources were being lost through the demise of seniors, cultivators, and experts and furthermore that African astuteness was gradually however deliberately moving and moving to South Africa, Europe, and America where their administrations appeared to acquire acknowledgment, regard, and force (Idrisa, 2010). This venture, spearheaded by the college library, reported

information in type of conventional social medication of neighborhood networks around, for instance on the treatment of jungle fever, measles, skin issues, ulcers, and different issues; information about post-collect food stockpiling; and native information and abilities in local area peacebuilding drives called 'KachokeMadit'. The documented knowledge helps members of the community to better their lives and solve their problems. Indigenous knowledge, in this context is documented for developmental reasons in the university library.

Outside the academic environment, simple preservation procedures such as dusting, keeping away from water and so on, go a very long way in preservation of indigenous knowledge materials. Preservation of dead ancestors in Yorubaland for example, was done by keeping them in the ceiled top of the house, "*oke aja*". This preservation activity has actually led to the phrase saying - "*Oba ti w'aja*" (The king has entered the ceiled top). This is similar to some society in Asia where their dead ancestors are kept in the ceiling to continue receiving the heat and smoke from the hearth fire and are dried up, preserved for decades intact. These form anthropological artifacts of the people's history. At every palace in Yorubaland, the remains of the Oba is well preserved in special groves and is referred to when necessary. In like manner, preservation includes documentation, an activity that encompasses taking special care to put down in concrete form or format, mostly in writing or in print, certain knowledge for record purposes. It is the process or specialty of accumulating and classifying documents and making them available to others (Joseph, 2013).

Within the ambit of preservation activities is documentation. Documentation of indigenous knowledge, culture and traditions is a means of preservation of indigenous knowledge. Lindh and Haider (2010) noted that conversations on the value and appropriateness of native information being developed appear to be propelling electronic documentation and the formation of data sets. Their work pointed toward causing to notice the manners by which global associations characterise and talk about native information corresponding to improvement. Their basic, close perusing of six distributions gave somewhere in the range of 1998 and 2008 by World Intellectual Property Organisation (WIPO), The United Nations Educational, Scientific and Cultural Organisation (UNESCO), the International Council for Science (ICSU), United Nations Development Project

(UNDP), the World Bank, and the International Federation of Library Associations and Institutions (IFLA) shed light on how documentation practices can be perceived as augmentations of force. They drew on Foucauldian ideas of force and talk just as on post-advancement and postcolonial viewpoints. In the wake of relating native information to post-frontier and post-advancement contemplates, they uncovered how native information is made and kept underestimated inside the rambling construction of improvement. Their examination closed by showing how native information is caught and made in a roundabout stream which legitimises global guide associations, advancement talk and the licensed innovation rights situation. They demanded greater awareness among LIS researchers and practitioners in questioning the cultural and social practices in which objects of knowledge are embedded, and of the power of classifying and defining indigenous knowledge.

Chhetry and Mangang (2012) in Manipur, India, conducted a study to document indigenous procedures, practices and techniques used in organic agriculture practices. They used field visits, observations and discussion with elder farmers in the Manipur rural areas and also tried to assign scientific rationale to the practices the traditional farmers followed as well. They got a lot of indigenous practices described and tabled them with the appropriate scientific rationale for each practice, concluding that documentation of agricultural indigenous knowledge is imperative in order to safeguard the heritage of local people. There have been rich ethnobotanical information across the globe, however, this is blurring because of movement to metropolitan regions, loss of premium among the young, reliance on current medication, and termination of certain clans (weak clans like Jarawa in the Andaman Islands; http://www.survivalinternational.org/thereyougo). Consequently, there is a pressing requirement for documentation and conservation of Fourth World natural science that eventually would have an incredible potential for exploration and revelation of new medications to treat illnesses.

Doyle, Lawson, and Dupont (2015) inspected the Indigenisation of information association inside library and data concentrates through theoretical examination and an elucidating contextual analysis of an Aboriginal scholastic library, the Xwi7xwa Library at the University of British Columbia, Canada. They found the library set up and time investigated its chronicled improvement with regards to Indigenous instruction in Canada and depicted the advancement of its one-of-a-kind Indigenous arrangement conspire and

related Indigenous subject headings. This spot-based examination prompted a specific verbalisation of Indigenisation and a theoretical system for Indigenisation of information association at the Xwi7xwa Library, which directed the activities of information association plan and methods of assembly at this specific Aboriginal library. They expected right off the bat, that assortment advancement is curatorial in nature and is the fundamental advance in library information association, and, besides, that the Indigenised information association framework is basic to successful Indigenous data and educational administrations, programming, and exploration at the library. They then, at that point presumed that in the future there could be the indigenisation of information association through assemblies and coordinated efforts with combining organisations of native researchers and native networks of information inside the setting of new advances. Cultural heritage institutions should collaborate and network in their bid to collect and preserve indigenous knowledge; moreover, library and information resources are very expensive, thus, there is need to ensure that they are always in good condition and well preserved (Akor, 2013).

Winget and Sampson (2011) presented discoveries from an award subsidised venture zeroed in on looking at the documentation of the innovative interaction in-game turn of events. Information gathered included twelve subjective meetings led with people engaged with the game advancement measure, traversing various jobs and organisation types. The discoveries were identified with the idea of documentation in the computer game industry. Results from the meetings demonstrated that the game improvement measure produces huge and significant documentation that is generally brought about by gathering foundations, going from game plan archives to email correspondence and business reports. In any case, while this documentation exists, conventional documentation doesn't satisfactorily, or even, on occasion, honestly address the undertaking or the game creation measure in general. It was reasoned that to satisfactorily address the improvement interaction, gathering foundations need to search out and secure various variants of games and game resources just as those game resources that are normal results of the planning cycle like gamma and beta adaptations of the game, for instance, vertical cuts, or various renderings of graphical components.

Jonsson (2011) gave rules to the documentation of customary information on the Sami (the indigenous people of Lapland) without exploiting the culture. The contention was

that documentation was necessary and should be carried out with the aim of benefitting those whose heritage was being documented. It was adduced that before documentation work initiates in the field, any analyst ought to pose the inquiry: For whom is this work being finished? The appropriate response will decide the whole documentation measure, from the technique utilised to the eventual outcome in the documentation project and the values of the traditional knowledge holders among others. In the event that the specific upsides of a culture are not considered, the pith of the information can be lost in the documentation cycle (Jonsson, 2011). The documentation process in itself becomes a means of preservation with all the guidelines being followed.

Ormond-Parker, Langton, Huebner, Coleman, Pearson, Sloggett, Nordlinger, Smith and Clarke (2015) noted that specialised outdated nature of simple materials, cruel ecological conditions and restricted admittance to innovative and monetary assets in any distant networks introduced genuine danger of data and information being lost everlastingly in social legacy establishments in Australia. In their report, they depicted a shared task attempted by the Melbourne Networked Society Institute and analysts from the University of Melbourne's Australian Indigenous Studies Unit, Research Unit for Indigenous Languages and the Grimwade Center for Cultural Materials Conservation. The specialists examined how socially critical and jeopardised native varying media documents could be adequately protected and communicated to current and people in the future utilising inventive computerised innovations. This investigation they completed in association with the Kanamkek-Yile Ngala Museum, Wadeye, NT, and the Australian Institute for Aboriginal and Torres Strait Islander Studies. The organisations by various kinds of legacy are huge in attempting to overcome any issues in conservation of varying media native information in their foundations.

In like manner, Child (2022) explained the use of Artificial intelligence (AI) to preserve the language of indigenous people of British Columbia, Canada, from elders of the community. The Sanyakola Foundation set up for this purpose, strive to provide opportunities for language learning. By building the speech recognition technology tool, the researchers made effort to recapture and reclaim language that is trapped in archives. Child (2022) viewed revitalising language as a path for healing, indicating tht once the technology

was developed, it would be a tool for any indigenous language revitalization project, anywhere in the world.

Along these lines, Bennet (2015) directed an examination to discover and dissect the difficulties the Museum of Samoa faces in its endeavors to safeguard and decipher parts of Samoan history and culture. The Museum endeavors to decipher and protect Samoan culture. Samoan culture is as yet drilled today, however is affected by globalisation, environmental change, and loss of abilities like speech and information on lineages. Member perception technique and meetings with significant faculty was utilised to accumulate information. The difficulties the Museum faces come from Samoa's status as an agricultural country where training, medical care, and foundation get need financing. The need to utilise the historical center as an establishment for the conservation and translation of Samoan culture is addressed by individuals. This is regardless of the historical center having the capacity to turn into a more pertinent space for the coherence, conversations, and educating of Samoa's substantial and theoretical culture. For the Samoans, the importance of saving social legacy appears to be not to be focused on. The "in danger" status of IK is glaring in the establishment.

Khan (2016) archived what happened when notable, develop craftsmen were approached to "think back" to when the workmanship development in Papunya was in its outset, attempting to endure. The Papunya Permanent Collection of 94 early western desert canvases was offered to the Australian Museum by Papunya Tula Artists Pty Ltd in 1983 on condition that it stay together for people in the future of Aboriginal individuals to visit and view the assortment. Keeping this collection together for posterity to view, even though it was not properly documented, gave opportunity for the indigenous knowledge of the Papunya to be preserved. This documentation of invaluable information has enriched an already historically important collection of early Western Desert art. It has also preserved the cultural heritage of the people in many ways and unlike the situation in Samoa reported by Bennet (2015), exemplifies preservation of indigenous knowledge by a researcher interested in indigenous art and art forms.

The International Organisation for Migration (IOM) (2015) in a bid to contribute to disaster prevention in Papua New Guinea, researched and presented an assortment of native practices that were created over the long run by networks, because of an assortment of perils

including tremors, volcanic emissions, twisters, floods, dry seasons, avalanches and tidal waves. The investigation depended on broad perceptions, information assortment, writing audits and participatory overviews. Essential information was gathered from neighborhood networks and partners in three Provinces in Papua New Guinea. The IOM analysts utilised organised and unstructured meetings, for the most part made out of open-finished inquiries and conversation situated, from members of three workshops which were held in Kimbe, West New Britain WNB (20 July 2015), Bulolo Village, Morobe (21 and 22 July 2015) and Oro (24 July 2015). The occasions were gone to by calamity officials and government workers, delegates of NGOs and local area individuals and the meetings directed in English or in a neighborhood language, contingent upon the inclination of the interviewees with nearby translators making a difference. Photos were likewise used to record noticeable works on existing in the networks.

Another example of documentation effort is that of Rajwade (2015) in a study undertaken for identification, documentation and validation of indigenous KKK (that is, Khuskhus (popyseeds) Khurdai. The recipe got from 50 Latyayan and 50 non-Latyayan women using interview method was validated after having tested the product for appearance, taste, crispness, flavor and convenience of serving. Documentation of this IK was seen to be of benefit to a larger section of the population who could reap the benefits of getting nutritional quality by supplementing vital micronutrients without cholesterol and sodium. With documentation of indigenous culture, indigenous knowledge is being preserved.

Indigenous knowledge is predominantly tacit and shared mainly through oral tradition and among members of a community. Oral tradition has its strengths and weaknesses. These strengths and weaknesses were summarised by Carraway (2011) thus:

> In the far off past all information was retained and passed starting with one age then onto the next inside an oral custom. The congruity of information could be broken by the basic demise of the memory guardian before the data was gone to the future. By its actual nature, information inside the oral custom would be of restricted geographic scope (Carraway, 2011: 9).

Oral tradition as such needs to be greatly backed up by preserving the memory that has been recorded or stored in written, audio, video or audiovisual media. Indeed Basu (2022) reported the effort of youths in interviewing and videoing folk beliefs that had been

passed on as oral traditions among Indian villagers for generations. These traditions were useful in predicting climate conditions with a great measure of accuracy and helping communities to prepare themselves in advance for approaching weather disturbances (Basu, 2022).

Preservation is an umbrella term under which most custodians and annalists group every one of the strategies and alternatives for activity, including preservation medicines of various arrangements of data materials (Cappitelli, Cattò and Villa, 2020). All the managerial and financial processes which include storage and accommodation, provisions, levels of staffing, policies, techniques and methods that are deployed in preserving library and archival materials together with the information therein, are included in preservation.

IFLA (2010) refers to preservation as the arrangement of a proper degree of safety, ecological control, stockpiling care, and dealing with, which will impede further compound decay and shield library material from actual harm. "Protection is fundamental on account of its ability to advance the previous lifestyles that are helpful to contemporary social orders. Apparently, the past is basically the way in to the present and stage into the future" (Onyima, 2016; 278), and is portrayed as a method that includes the distinguishing proof, documentation (fitting enlistment), and legitimate stockpiling of social articles whether in private hands or in galleries.

Preservation is a bid to fight various agents of deterioration or destruction. Physical, chemical, and biological agents of destruction have to be gotten rid of to preserve the resources. These processes involve procedures that range from monitoring temperature, relative humidity, sound and magnetism in the institution, to keeping resources away from dust and dirt, harmful gases and air pollution. It also entails using chemicals like pesticides (crude creosote in kerosene or Diddrex in water) to prevent termites, creosote oil and solignum (to protect wood), fungicides like mercuric chloride, ethylene oxide, thymol, or formaldehyde (to treat fungus, mildew and mold) to mention but a few.

Kademani, Kalyane, and Kumar (2003) discussed the importance and need of preservation of information resources in libraries, and the factors that affect degradation and deterioration of library materials. Methods of restoring them were described as well as the preservation problems of digital information, and challenges of preserving intellectual content of digital media. Similarly, for preservation in galleries and museums, Strang and

Kigawa (2022) expatiated on pests as agents of deterioration. They cited four case studies on: rodents in a large city gallerry; mould outbreak in a rural museum; insects infestation in a civic museum; and wood borers in a rural agricultural museum in Canada. Various chemical and non-chemical methods of de-infesting the physical collections in galleries and museums were proferred for keeping out pests and rodents, in order to preserve the collection.

Preservation by the documentation process makes it possible for a document to be acquired and kept, and preserved so that it does not deteriorate, or get missing. The documentation procedure for the indigenous knowledge documented becomes a means of preservation in this instance. The aim is to make sure the IK documented can be used over and over again. The IK preservation, therefore, should be the concern of all indigenous communities. How can it be possible to ensure that what is tacit by nature becomes explicit and available for wider use? Indeed, African indigenous knowledge is vulnerable because many of the carriers of the knowledge are dying without its documentation (Owusu-Ansah and Mji, 2013). Its documentation can be done by recording on tape (audio or video), or cellulite (CD-ROM). These recorded materials can further be digitised to ensure that they are kept in a more durable form for posterity. Measures for preservation thus have to be seriously applied.

Preservation procedures are quite important and as such, the facilities for preservation have to be established in cultural heritage institutions because keeping the documents and artifacts intact is crucial for cultural development. Preservation of library or archival materials starts from the point of assigning accession numbers to the materials in the acquisitions department. It continues when the length of time that the materials will remain in the collection is determined, till the time when the materials that are obsolete and too fragile to be used are discarded. It is equally essential that the officers respectively determine which materials are in need of repair or more extensive physical treatment.

Preservation of recorded knowledge is mainly through digitisation. Digitisation of cultural heritage materials however was pioneered by organisations, mainly the European Union with their policy action. Fabunmi, Paris and Fabunmi, (2006) described digitisation as a time consuming and also a very expensive endeavour; and posited that creating a digital library is equally expensive and needs lots of planning and monitoring. To them, there are

three significant purposes behind digitisation tries: the need to protect imperiled library assets; the requirement for development of the effectiveness of data search systems, and; the realisation that digitisation improves access to library resources.

In all, Fabunmi, Paris and Fabunmi (2006) viewed preservation as a secondary benefit of digital projects and advocated for care of original documents after digitisation since the digital version cannot replace the original. This stance is debatable because the essence of preservation is to make the resource available in good condition for a very long time. Being a primary or secondary benefit is not the crux of the matter, but rather, preserving the knowledge notwithstanding the digital version not replacing the original. This does not exclude the precise care of the original documents since as Karvonen (2012) stated, "the reason for the digitisation of library, exhibition hall and document materials, is to make them all the more effectively usable and available" (Karvonen. 2012: 16).

Skavstein (2012: 3) asserted that "digitisation obscures the limits between various kinds of media, since the finished result is not, at this point a printed book, a paper, a photograph, simple telecom or film or music on CD… The idea of a library assortment is additionally tested when social legacy is put away in computerised files on the internet or on the web, instead of on the libraries' racks". Skavstein's stance may not necessarily hold water as virtual library collections are increasingly being created, and the library services are more user centred. Karvonen (2012) conceded the fact that use of digitised materials carries critical advantages to the local area, and furthermore reinforces the overall social establishment, while working with the insurgency of culture and research, and advancing development.

Kalusopa (2008) guaranteed that just 28.6% of associations in Botswana have a program for the digitisation of varying media materials. This seemed to be confirmed by Mnjama (2010) who subsequently discussed the problems with maintaining audiovisual archives in Botswana. Some of these problems are derived from the use of the technology in preserving the information. They include problems of frail authoritative system, absence of prepared faculty in the administration of varying media materials, mechanical difficulties, insufficient storage spaces and the insight by clients that varying media materials are not as important as records in different organisations.

Digitisation is however not the only means of preservation of indigenous knowledge. Other preservation methods exist which require little or more degrees of technical knowhow depending on the type of material being preserved. Akussah (2006) using a stratified proportionate sampling technique selected 600 archives from five vaults for assessment. The after effects of the review showed that much of the archives had pH upsides of under 5, about one third were weak, majority had blurring writings, almost all had become earthy and had signs of organism pervasion. Taking all things together, more than half of the archives needed pressing treatment. The survey revealed that the circumstance came about because of a blend of variables, principal being the horrible stockpiling conditions. The ramifications of the discoveries of the investigation for Ghana were featured. Suggestions set forward by Akussah included among others, mass deacidification of records, supported program of fumigation, reason fabricated chronicles for the locales, natural observing and control measures, staff enlistment systems and the foundation of a complete safeguarding and protection strategy. These are preservation measures that CHI use to keep their indigenous knowledge collections well preserved.

Hunter (2006) elaborated on the fact that deciding the ideal and most socially suitable way to deal with choosing, inspiring, recording, depicting and scattering IK without cold-heartedness, interruption, requirements, debasement or distortion of the substance, is a test that is frequently disparaged. Suitable consultative cycles should be set up to recognise and focus on the material to be caught. Elective computerised innovations and conditions for recording and putting away the information should be thought about and assessed. For Hunter, digitisation might be a definitive arrangement.

In view of the oral custom of native information, varying media computerised recording gadgets like advanced camcorders and sound recorders are an essential device for catching procedures, rehearses, stories, language, tunes and moves. Scanners are being utilised to digitise photos, original copies, maps and memorable reports, and progressively 3D scanners are utilised to produce 3D computerised substitutes of actual antiquities like instruments, safeguards, carvings, apparel and crates, in historical centers and social organisations. As per the National Museum of the American Indian (NMAI) (2004) in applying inventive advances to recording, sharing and using native information, three strategies have been utilised for safeguarding in this way: Virtual bringing home at the

Smithsonian National Museum of the American Indian (NMAI); Community planning, and; Digital libraries of customary medication. These techniques have been utilised in conservation of gallery assortments.

Digitisation expands the catch capacity for some kinds of paper-based material, for example, oversize and shading things, for which there has been no compelling reformatting procedure to date. Usefulness, like zooming capacities, permits clients to analyse all the more intently fine subtleties and produce an assortment of yields to suit various requirements. Advanced copied imitate better, the navigational experience of a book than does the straight configuration of microfilm, and recommends that microfilming as a methods for safeguarding of paper-based materials is one that has been investigated, yet that digitisation could be a superior choice.

Alegbeleye (2009) contended that there ought to be expanded accentuation on instruction and preparing of library and files labor force in the field of making, keeping up with, giving and saving advanced legacy. This argument applies to the whole of documentary cultural heritage in the sense that the training of the staff working on cultural heritage has to be thorough to ensure that much is not lost that should ideally be preserved. Olatokun (2008) in his study of overview of protection and preservation practices and procedures in Nigerian college libraries saw that digitisation is "once in a while utilised by college libraries". This observation is gradually becoming a thing of the past as academic libraries have increasingly been using digitisation as means of preserving their collections (indigenous knowledge collections inclusive). This is evidenced by Ezeani and Ezema (2009) for instance, who reported the digital preservation efforts of the University of Nigeria, Nsukka of cultural heritage, highlighting the efforts and the challenges some of which are lack of skills needed for marking, characterisation of scanned documents and troubleshooting the equipment for the project. Over the years, many more digitisation projects have sprung up in cultural heritage institutions.

Koiki- Owoyele, Alabi, and Egbunu (2020) studied ways of safeguarding cultural heritage in some institutions in Nigeria. They found that digital preservation of artwork, artefacts and traditional cuisine are yet to be carried out even though some work had been done on the collections on art, craft and culture. Digital preservation of the Festival of Arts and Culture (FESTAC) collection was observed to be ongoing at one of the institutions and

effort was ongoing on digital preservation of artefacts, gazettes, newspapers and historical materials in another, while digitisation of documents was also progressing in yet a third institution. Selection criteria of what to digitise depended on the necessity to reduce damage, the subject area of the materials and historical value of it. The research again found that majority of the respondents claimed not having policy that guided the digitisation processes. And majority of the staff doing the digitisation were not aware about any policy on digital preservation on cultural heritage in their institution.

IK preservation through digitisation of necessity involves management of digital-files to make them accessible on the long-term. Strategies for digital file management incorporate invigorating (moving records to new capacity media without changing organisation or content); occasional checks for the trustworthiness of the advanced article; repetition (keeping numerous duplicates of computerised documents and contrasting them and one another); LOCKS (Lots of Copies Keep Stuff Safe) program to assemble devices and offer help to libraries so they can make, safeguard and chronicle nearby electronic assortments; relocation (intermittent exchange of records to new computerised arrangements to guarantee proceeded with similarity of record configurations and applications); and imitating (empowering old frameworks to be run on future obscure frameworks, to make it usable with their unique programming). These are methodologies received and suggested by researchers on the actual center of a protection framework, that is, the way to guarantee that computerised data can get by for an extensive stretch and the current procedures are practical.

Aside from conservation of native information through digitisation, other creative strategies are being created. Since the information is frequently implicit and subsequently hard to move to someone else recorded as a hard copy, inventive instruments are being utilised to work with the correspondence cycle for IK. The Ogiek Peoples Ancestral Territories (OPAT) project in Eastern Africa meant to plan the hereditary domains and record the chronicles of 25 Ogiek factions in the Eastern Mau timberland of Kenya, to assist them with arranging their family asserts with the Kenyan Government. The strategy utilised was to have associations with local area older folks more than a while and joined with a Geographic Information System (GIS) utilising participatory learning draws near; the subsequent guides and stories were bound together as a map book (Muchemi, Ehrensperger

and Kiteme, 2015). The outcomes were distributed after local area wide conferences, and the OPAT Atlas is an instrument for the Ogiek people group to make its regional cases noticeable during suit measures with the public government and during arrangement measures with different partners and improvement accomplices. The chart book, found on the web (http://issuu.com/cde.unibe.ch/docs/fullversion_atlas_opat_ 2011_cde) is a creative method of safeguarding native information particularly as it included consolidating progressed spatial innovations like elevated photography, GPS overview, and GIS with a concentrated cycle of local area contribution just as tolerant ethnographic account and reviewing of faction stories. Implied native information and cutting-edge data innovation were consolidated inside one item, making native real factors and claims more noticeable and unequivocal (Muchemi, Ehrensperger, and Kiteme (2015).

Dangers to computerised assets proliferate and these potential dangers incorporate media disappointment, equipment disappointment, programming disappointment, correspondence blunders, disappointment of organisation administrations, media and equipment oldness, programming out of date quality, administrator mistake, cataclysmic event, outer assault, interior assault, financial disappointment, and authoritative disappointment. All these are bound to affect technology use in libraries, archives and museums where they are deployed. Obioha (2011) detailed the establishment of a record and archive centre at Family Health International (FHI) Nigeria, an international, non-governmental organisation, explored some of the challenges and lessons learnt, and looked at the processes established to manage the centre.

Sawant (2014) surveyed 80 libraries in Mumderau district of Maharashtra State, India to find out causes and nature of deterioration of print materials, whether there were dedicated staff in managing library preservation programmes, to identify the preservation and conservation techniques of print and electronic materials, to find out if the libraries have written disaster preparedness and recovery plans, whether fire detection and suppression systems exist, and which are the hindrances to effective preservation and conservation of library materials, using structured questionnaire, of which 41 responded. More than half of the libraries surveyed (majority government funded) experienced deterioration due to books being torn, about half reported spines being broken, while a third, indicated books being brittle, mutilated, and vandalised. Majority indicated that dust and particle materials were

found to be the main causes of deterioration to print materials, biological agents (termites, spiders, cockroaches) etc. and wear and tear due to excessive photocopying.

Of the libraries surveyed by Sawant (2014) only four had written policy statements on preservation and they mainly focused on use of library materials. Almost half of the respondents in the libraries surveyed indicated that they did not have dedicated staff while the rest indicated that they did though the existing library staff was managing the preservation activities. Majority of the librarians however felt that outsourcing of preservation activities was possible. Sawant (2014) further found that cleaning and dusting of library materials and shelving library materials to allow for free flow of air was mostly effected in the libraries as preservation strategies. Refreshing was the most common digital preservation technique, while some of the libraries used migration and technology preservation. Majority of the libraries never did microfilming and a few never followed any digital preservation procedures. Some back-up on CD-ROM daily was done according to two of the respondents. Most of the libraries did not have disaster preparedness and recovery plans, however most had fire extinguishers. Preservation of the resources was not prioritised and indigenous knowledge in this institution would necessarily not be adequate. This is quite regrettable.

Preservation of paper-based indigenous knowledge resources is challenging and so also is preservation of non-book indigenous knowledge resources. Anyaogu (2015) assessed the preservation of non-book materials in four broadcasting station libraries in Lagos and Oyo States. Using interview method, 20 members of staff of the stations were questioned and the library routines observed. It was found that in the broadcasting stations, the resources were adequately preserved in majority of the libraries and they had preservation policies in place which were often utilised. The libraries were also insured against disaster; however, the libraries lacked trained librarians. These media libraries surveyed are examples of libraries that had preservation policies in place for their indigenous knowledge materials and made efforts to adhere to the policies. The content of the preservation policies in the libraries were such as specified the following:

> The library should maintain a clean environment; the library should not be littered with oily things; the library should be fully air conditioned; materials should be kept in a place with appropriate degree of relative humidity; dusting of the library materials should be done regularly; the library should guard against the enemies of preservation; librarians should endeavour to do

> regular shelf-reading so as to keep off insects and termites; fumigation of the library should be done from time to time so as to keep off insects and termites; and all archival materials must be stored separated in the archival section of the library and should maintain a closed access to users (Anyaogu, 2015: 30-31).

Similarly, another non-book format of preserving indigenous knowledge was analysed by Jewell (2016) in his thesis. Jewell provided an investigation of the paper kid's shows delivered by Victor Ekpuk for The Daily Times paper of Nigeria from 1989 to 1998 and the craftsman's utilisation of old nsibidi content to "hide by not really trying to hide" his social editorials on sociopolitical and monetary issues in Nigeria. Victor Ekpuk's unique kid's shows inside the perpetual assortment of the Smithsonian Institution's National Museum of African Art were analysed with regards to native concealing practices and other roundabout techniques utilised by native jokesters to secure themselves. The kid's shows' utilisation of personification and their nsibidi scripts inside were contended to give an indicative and denotative division which permitted the craftsman to work all the more unreservedly during a time of persecution. This is an example of documentation for preservation purposes, albeit in an unusual format - cartoons.

The techniques for IK preservation in CHI is mainly through manual methods like keeping the resources at the correct temperature, humidity and lighting conditions, and also keeping the area of storage free of dust, rodents and other such agents of deterioration. In addition, digitisation is also a major means of preserving IK, with preservation policies being important in actualising the preservation plan. The preservation of the indigenous knowledge can be affected by the conditions existing in the institution where it is being preserved.

2.3 Collection development policies and the preservation of indigenous knowledge among custodians of cultural heritage

Preservation policies are essential apparatuses for associations that are focused on working with the endurance of materials in their authority. Karvonen (2012) repeated the way that strategies are significant in light of the fact that they put forward objectives to be accomplished just as rules for carrying out them. He further affirmed that the most ideal approach to get ready for the difficulties presented by digitising materials and the administration, appropriation, and show of computerised content is to guarantee that

assortment arrangements and digitising methodologies are cutting-edge and to divide data and encounters among libraries, galleries, documents and clients. Burtis (2009) suggested that the library should diffuse its customary job of gathering, protecting and giving access not exclusively to materials of logical beginning however to native information assets to make all data accessible.

Assortment improvement approaches are archives which characterise proceeding with advancement of assets, recognise aggregate general determination standards and scholarly opportunity. Assortment advancement approaches guide libraries on issues and cycles of choosing data assets to fulfill client needs. An assortment advancement measure is what allows the library to foster assortment of materials according to data needs and administrations prerequisite of the clients (Chan, 2010). It is "the insightful interaction of creating or building library assortments in light of institutional needs and local area or client needs and interests" (Johnson, 2014:1).

The job of assortment improvement isn't just to design a stock obtaining program yet to make it pertinent to prompt and future requirements of the clients. Schmidt (2016) saw that a nearer co-activity has created between offices as custodians survey and assess library assortments to guarantee the current and future necessities of understudies and researchers are met, and pertinent to evolving setting. Most college library assortments in non-industrial nations are immature because of the absence of unmistakably expressed procurement and assortment advancement arrangements. The opposite is valid for most college libraries in created nations where regularly, co-activity and asset partaking in assortment improvement are two positive strides even with declining financial plans.

Obtaining of materials in libraries is the execution of determination choices: requesting, receipt, and installment which should be finished by a strategy that is directed by the assortment advancement strategy (Uganneya, Anunobi and Ape, 2019). Assortment advancement arrangements should of need incorporate determination standards and assortment rules concerning the new media W approaches. The requirement for assortment advancement becomes fundamental whenever gained materials ought to be wanted to be applicable to necessities and practical according to restricted monetary assets accessible for the book business in agricultural nations. This affects indigenous knowledge collections as most often there is no policy guiding or specially cut out for its acquisition. Therefore

collection development policies should not be overlooked in institutions. The policies will guide the process of building the collection to slant or guide its richness to suit the institutions' purpose, as well as give directions on what to do with the collection at any point in its life cycle, and even how to organise the collection and dispose of it in the event of the necessity for disposal.

Findings of Kalusopa (2009) revealed many policy-related issues with digital heritage management in Botswana. Some of them were feeble strategy definition on digitisation both at the institutional and public levels and frail administrative structure for advanced conservation. Others were not well characterised public digitisation co-appointment for digitisation exercises at institutional, public and local levels and absence of mindfulness about the capability of computerised conservation by public legacy organisations; Kalusopa likewise found that there was a shortage of HR for digitisation and absence of normal guidelines on advanced legacy materials protection in Botswana. Albeit the examination was restricted to foundations managing advanced legacy materials protection, the result of the investigation shed all the more light on the difficulties of safeguarding of computerised materials in the majority of the establishments in Botswana, and introduced helpful key approach choices for the administration and conservation of computerised materials in Botswana and different nations of Africa confronting a comparative climate. Numerous African nations don't have a National Information Policy (NIP) which directs the plan of protection arrangements in library and data focuses. This is an appalling situation considering that attention has to be paid to keeping the collections in heritage institutions in good condition, and preservation policies are necessary to help in guiding the process.

In similar vein, Khan and Bhatti (2021) investigated the collection development practices in University libraries in Khyber Pakhtunkhwa province, Pakistan and found that most of the libraries did not have formal written CDP. In the absence of the formal CDP document, most of the university libraries had some type of documents containing independent random procedures for selection, acquisition, and other library activities. The policy for weeding the collections were also not written. No particular mention was made of IK collections however.

Chukwusa (2012) recommended written collection development policies for university libraries in Nigeria. This was one of the outcomes of the study on university libraries in the Niger Delta area of Nigeria. The collection development policy should be document widely available and may include a guide to information on all relevant sources of knowledge including library catalogues and the internet itself. The implication of this is that specific subjects in the collection need to have written statements pointing to them in particular, and describing how they should be handled. Statements in the policy for instance referring to how the indigenous knowledge collection should be treated will be invaluable to staff who have to organise the resources, and will also make it easier for the collection to be visible to users.

Oluwaniyi (2015) led an investigation of online recorded assortment improvement arrangements to figure out what these reports contained and regardless of whether coordinated effort and rivalry were examined in them. The sites of 334 archives were looked to distinguish online assortment improvement approaches. Accessible strategies were then coded utilising the 26 components characterised in Faye Phillips' 1984 rules for authentic assortment improvement approaches, and accessible conversations of cooperation inside the arrangements were likewise coded. The outcomes recommended that vaults were utilising an assortment of materials when composing strategies and collective arrangements in approaches were the exemption as opposed to the standard. This has implications for policy development since in the first instance the policies are written (which is a good thing), and the issue of collaboration in the policies ought to be taken seriously. In the same vein, Oluwaniyi (2015) argued that preservation programmes without a policy, cannot be expected to be taken seriously. The policies actually help in the effort at solving identified preservation problems.

On collaborative collection development, Demas and Miller (2012) described the advantages of collaborative collective development noting that in earlier many years, assortment the executives' plans were utilised to convey a foundation's methodologies for overseeing nearby assortments. They battled that as libraries get ready to take part in helpful arrangements, formal assortment the executives' plans and strategies can and ought to be utilised by and by as a viable structure for dynamic, and offered reasonable exhortation on fostering an assortment the board plan in a community-oriented setting. They utilised the

term assortment the board all the more barely to allude to "the arrangement of choices and exercises made after things are now essential for library assortments, including assortment solidification, move to capacity, weeding, safeguarding, design relocation, deduplication, and a scope of different exercises intended to keep up with the general convenience and respectability of an assortment or a bunch of print assortments" (Demas and Miller, 2012). They further contended that libraries should require some investment to compose formal assortment the executives' plans in anticipation of partaking in shared print documenting programs. These plans were intended to fill in as a reasonable system for dynamic locally and would give a solid establishment on which to work as libraries deal with their assortments all in all. This position is herewith upheld by this scientist.

The National Library of Korea (2010) on certain pages of its site exhibited itself as a gathering focus, all things considered, and writing in Korea that gathers public writing, contemporary information items and social legacy, in a comprehensive and deliberate way. It is obvious that the National Library of Korea collects indigenous knowledge; however, from the website it was not made clear if the descriptions posted on the website was the National Library's written collection development policy or not. The information available is quite visible and provides a guide to the National Library collection. When collection development policies are visible, the likelihood of the policies being ignored or unused is remote. Visibility of collection development policies is thus an important factor in institutions.

Similarly, the Imperial Library and the State and University Library (2014) in their online archive expressed the conservation strategy for material gathered for the Netarchive by the Royal Library and the State and University Library. The Royal Library and the State and University Library each have their own advanced assortments which are covered by the individual approaches and systems for protection of computerised assortment materials at the two organisations. Nonetheless, they share obligation regarding the materials gathered for the Netarchive, a typical assortment of web materials that is gathered as per the "Follow up on Legal Deposit of Published Material", [translation of] Act No. 1439 of 22. December 2004 (Legal Deposit Law), part 3. Set up in 2005, the Netarchive depends on the Legal Deposit law of 2004 and is overseen as a virtual focus.

The record depicts the objectives of the conservation strategy and the exercises it covers, and afterward clarifies the foundation for the improvement of the approach, including the substance of the file. A progression of political execution standards follows, and the record closes with a concise writing list and a supplement that portrays a portion of the particular library and specialised difficulties that structure the reason for the improvement of the arrangement. The record is public and is distributed on the site of the Netarchive (www.netarkivet.dk) in Danish and an English adaptation all together that it is remembered for the overall global assessment of arrangements in this exceptional region.

The Science Museum Group (SMG) of Durham, United Kingdom, is a cultural heritage institution that also has a well articulated CDP which stipulates in detail what the museum collects, how the collection is preserved, and when the policy will be reviewed. The SMG collection development policy defines the development and review of the SMG's collection in order to:

> "Support the growth of the collection to reflect contemporary science and innovation, its people and practices; Review the collection to create a coherent, unified whole, that is utilised, valued and sustainable, and; Ensure the collection becomes a central part of the UK's research infrastructure, reflecting UK research and innovation priorities as well as being actively employed in new research" (Science Museum Group, 2021: 6).

This comprehensive policy document is very visible online and also dynamic because it will be published and reviewed at least once every five years, or sooner if significant changes need to be made in it. This is another example of a visible policy, as opposed to some library polices that are unwritten or written, yet not made visible in the institutions.

Visibility of policy is an issue where policies exist but again, the user of any collection is usually the focal point in the development of collections. What they need is what the institution aims at providing. It is, therefore, essential that all parameters of collection development be taken into consideration in the collection development policy. Khan (2010) investigated the policy aspects and dimensions of collection development from the librarian's viewpoint as opposed to the normal user-centred viewpoint in 4 libraries in which he tested two hypotheses. Khan's hypothesis tested proved that the old Central universities are better placed in terms of all the parameters of collection development than the newer ones. The implication of this is that no aspect of a collection development policy

should be ignored or overlooked. Every detail is necessary to ensure proper development of the collection. This affects indigenous knowledge collections as well.

Of particular interest is the usefulness of collection development policies which are functional and visible. A study by Nwokike, Madukoma and Bamidele (2020) which investigated the level of awareness of electronic collection development activities revealed that the electronic collection development activities of the Laz Otti Memorial Library, Babcock University, Nigeria was not very visible to the staff of the library. The study, from data collected using questionnaire and semi-structured interview methods showed that the library did not have definitive policies concerning selection criteria for the electronic collection, neither was there an evaluation committee. The resultant non-awareness of the collection development activities by majority of library staff is therefore not surprising. The recommendation was that collection development policy is needed to acquaint library staff on electronic collection development activities and that awareness of electronic collection development activities among their staff could be created using workshops, seminars and in-house trainings. This stance is agreeable because of the importance of collection development policies, and the realisation that policy issues and visibility need not necessarily be a top library management concern.

The content of the policy is another factor that is germane. The policy should not only detail the principles guiding what should be acquired, but should also map out the means by which the collection should be treated in terms of what should be collected (or documented) or what should not. How each type of material or resource is handled should also be spelt out. Preservation aspects should be delineated in the policy as well. Having well documented or written collection development policies is a *sine qua non* for ensuring that new librarians particularly understand their jobs in cultural heritage institutions. For indigenous knowledge collections, it is more necessary since the indigenous knowledge collection has to be preserved properly due to its uniqueness and importance to cultural heritage development. The policy is useful, not only for orientating new librarians, but to guide all and sundry.

In the same vein, Altman (2013) described and discussed the importance of documentation in collection development and management policies for access to research materials in archives and special collections (of which indigenous knowledge collections

are a part). The concerns of these writers were in demonstrating that the writing of the policies enhanced the provision of access to the research materials or the special collection as the case may be. The total lack of a collection development policy is an issue. Mwilongo (2020) carried out an assessment of the application of guiding tools in collection development practices of academic libraries in Tanzania. Using standardised questionnaires and face-to-face interview, data was collected. The study revealed that in the surveyed libraries, 70 percent of the collection development processes were performed without a comprehensive collection development policy. Little or no guidance was effected in implementing collection development for the libraries. This situation being undesirable, recommendations were made for more effort to be put into developing an extensive assortment advancement strategy to guarantee successful practices.

Absence of CDP makes it practically difficult to distinguish the long and short reach needs of the customers and to set up needs for the portion of assets to address the issues. For the most part, an assortment improvement strategy should be one that will define the format of the collection (whether print, electronic or both); the level of material preferred (scholarly, specialised or popular); who will select the material; and who will decide the budget distribution for the different disciples in the collection. For indigenous knowledge collections, it is more important for the reason that the collection is usually specialised and the care of it should be clearly mapped out to ensure that it is adequately preserved for future use.

Abioye, Zaid and Egberongbe (2014) in their study of six agricultural research institutes, tracked down that separated from the empowering enactments setting up them, a large portion of the organisations examined professing to have an assortment strategy came up short on a thorough and very much expressed arrangement that could deal with all parts of the native information documentation and scattering measure. These institutions' lack of well-articulated policies resulted in their collections being mainly left to deteriorate. They recommended collaboration and networking among agricultural research libraries which they posited could help in the preservation and dissemination of indigenous agricultural knowledge.

Preservation policies should be written out and adhered to, though it has been observed that in some institutions collection development policies (where they were written)

suffer the plight of not being adhered to or used. Ovowoh and Iwhiwhu (2012) assessed the preservation and conservation programmes in libraries in Nigeria and found that preservation policies did not exist in the two institutions studied. The responsibility of preservation of materials was perceived by respondents of the study to be the responsibility of all levels of staff in the institution. Written preservation policies were also deemed to be important in the libraries. This finding has implication not only for librarians, but for archives and other cultural heritage institutions as well.

Doyle, Lawson and Dupont's (2015) paper examined the Indigenisation of information association inside library and data concentrates through calculated examination and an engaging contextual analysis of an Aboriginal scholastic library, the Xwi7xwa Library at the University of British Columbia, Canada. The calculated structure for the examination laid on two essential suppositions: initially, that assortment improvement is curatorial in nature and is the original advance in library information association, and, besides, that the indigenised information association framework is basic to viable native data and educational administrations, programming and exploration at the library. The historical backdrop of the library was looked into with regards to native training in Canada and the development of its novel Indigenous characterisation conspire and related Indigenous subject headings were portrayed. Signs were given of future opportunities for the Indigenisation of information association through assemblies and coordinated efforts with arising organisations of native researchers and native networks of information inside the setting of new innovations.

Kalusopa and Zulu (2009), in a three-country United Nations Educational, Scientific and Cultural Organisation (UNESCO) Digital Heritage Preservation Project on the condition of computerised material conservation in Africa including Botswana, Ethiopia and South Africa. The investigation utilised the review strategy comprising of different information assortment procedures including field work, record examination, perceptions and the holding of a public consultative class as an extra information input apparatus. The field study included visiting 26 establishments that were distinguished as having the real or capability of overseeing legacy materials in the country. Two different classifications of foundations that were studied incorporated the specialist co-ops of digitisation frameworks in the country.

The objective of protection is to guarantee that the data or the object of social significance endures and is made accessible in an available and usable structure however long it is needed. Protection, then again, is a movement subsumed under safeguarding. It infers the dynamic utilisation of preventive measures or cycles of fix of harmed materials to guarantee the proceeded with presence of individual things (Alegbeleye, 2009). All the items in libraries, archives and museums have to be protected from deterioration and fragmentation, from biological degradation and attack by rodents and insects, or even simply from the environment itself – dust, humidity, flooding and so on. Popoola (2003) expressed concerns about the situation in African countries, especially Nigeria where an incredible number of paper-based data materials are probably going to be lost because of the interchange of a few factors like temperature, stickiness, corrosiveness, air contaminations and microscopic organisms. If a collection is to be protected from insect infestation for example, the recommendation is that the collection should be placed in an anoxic environment that is an environment the insects cannot survive in or find conducive.

Horava (2009) stated that the changing face of collections make it important not only to measure the level of content, but also the ability to disseminate the information, while less time should be spent perusing new books and more time devoted to develop new types of collection policies and other collection-guiding efforts. These arguments are quite valid and reasonable in the face of making collections more relevant and well preserved as well as accessible. Potter and Holley (2010) provided a summary of thought on the status of rare materials in academic libraries (for libraries that embed such in their collections and those desirous of increasing their holdings of rare materials). A review of literature on rare materials, coupled with experience in collection development, revealed that collecting rare materials is important for scholarly research, but this collection is harder to justify in times of budget stringency. Indigenous knowledge falls into the category of rare materials that require special expertise in its collection, processing, preservation and use. Their summation reiterates the importance of special collections and the fact that they need policies that stipulate how to properly preserve and use them.

Alhassan and Abdulsalam (2013) described securing and the board of government reports in the National Library of Nigeria, Abuja. A few pieces of the public authority reports have native information content. Their investigation of staff of the Government

Document Unit of the library uncovered that the vast majority of the public authority records obtained were booklets, indexes, periodicals, bulletins, reports and records, and rules and guidelines gathered through legitimate store and that via cooling, restricting, fumigation and successful security gadgets. This depiction associates with the entries by some different creators and is an ideal situation for social legacy foundations. Folorunso and Folorunso (2012) analysed the beginning of Yoruba race and chronicled the set of experiences and development of libraries and their forerunners - composing and printing. They took a gander at the protection and preservation and the risks inborn in the uncertainty of the conventional relics and suggested that the circumstance could be improved by resolving the issues of gross under-use of chances given by libraries and documents in the safeguarding and preservation of Yoruba antiques and oral data. As they underlined:

> The rise of libraries likewise achieved a definitive technique for protection and preservation of the compositions and printings for the following ages. It was directly at the time that the works were being put away in the lords' castles and sanctuaries that endeavors were too being all the while made and outfitted towards guaranteeing that they were very much protected and saved by the accessible methods for the period. It is a great idea to have an extremely strong approach of assortment improvement on the best way to secure valuable data and recorded materials (pg. 259).

This view is supported as opportunities not used are lost and difficult to regain. The setback in preservation and conservation of artifact and oral information puts the institutions in a bad situation when deterioration of collections that are assumed to be safe, sets in. Policies that underpin preservation should not be ignored or neglected.

Ovowoh and Iwhiwhu (2012) studied materials in Delta State University, Abraka (DELSU) and Petroleum Training Institute Library, Effurun (PTI) to survey their safeguarding and preservation projects and exercises. The outcome showed that there are no prepared work force in preservation, however every one of the individuals from staff acknowledge the idea that protection is fundamental. For the most part, absence of strategy, insufficiently prepared staff in safeguarding and protection, helpless staff mentality towards safeguarding and protection, and absence of assets are the issues of conservation of data bearing materials in Nigerian libraries, stressing that the beginning stage of a preservation program is the making of an approach report. Stephen (2015) in an exploration directed, presumed that assortment advancement and the board isn't an adhoc action, rather it is an

arranged, constant, and financially savvy securing of value, pertinent materials to meet the data needs of clients and the corporate goals of libraries and their parent foundations. Assortment advancement is really development in the nature of gained materials in upgrading powerful data conveyance in the foundations of higher learning. It is just according to this viewpoint that the word 'improvement' could be significant comparable to assortment advancement (Stephen, 2015:216).

Zaid and Abioye (2010) in an investigation of the National Library, the National Archives and the National Museum noticed that joint effort for conservation among legacy foundations has not been supported by enactment or strategy, albeit the National Archives appreciates close connections with the National Museums because of accentuation on legacy and recreation elements of documents and galleries. Their survey of 48 respondents from three heritage institutions focused on finding out the nature of the heritage institutions, if they had preservation programmes and policy, if they collaborated with other institutions and in what areas, preservation research efforts and which institutions were being collaborated with.

Results of the Zaid and Abioye (2010) study showed that there were preservation programmes in the heritage institutions, but lacked well-articulated preservation policy that could take care of all aspects of heritage preservation. The National Library was found to be the most popular heritage institution in Nigeria, followed by the National Museums, while the National Archives was the least popular. There was minimal collaboration among the institutions with other institutions, though respondents felt that training in preservation was an area in which collaboration could be forged. They concluded that lots of opportunity for collaboration exists but the potential of cooperation among Nigerian heritage institutions in tackling common problems does not seem to be fully exploited in practical terms, despite the possible benefits. This position is an important one and should be positively considered because collaboration strengthens institutions.

In spite of new concerns such as those raised by Zaid and Abioye (2010) and Ovowoh and Iwhiwhu (2012), on collaboration among institutions and the importance of written policies, Torrence, Powers and Sheffiel (2011: 133) in their report of proceedings of the Charleston Library Conference averred that collection development policies ‘must embrace any and all input while simultaneously continuing to build collections that meet

the goals and initiatives of the faculty and university as a whole'. They argued that collection development policies will continue to have value as libraries budget with increasing care and forward planning, though they may need to be altered to adapt to new fiscal and environmental realities. The shifting of budget priorities to more of electronic resources' procurement and the need to provide new means of security or retrain staff and digitise collections for example could be ways of adaptation. This is yet another positive angle to the issue of collection development policies, a very valuable tool to be exploited by institutions that house indigenous knowledge resources.

Chisita and Kaddu (2014) in studying the role of libraries in the dissemination and documentation of indigenous knowledge in agriculture explored the strategies used and the extent to which local farmers are involved in collection development of indigenous knowledge in agriculture through community publishing and oral traditions initiatives. It was discovered that agricultural knowledge is repackaged into drama, song and dance. Agricultural extension officers and agricultural extension services are tailored to make the urban and traditional agricultural methods accessible to the general public. Suggestions on how best to use native information in horticulture to further develop cultivating in Zimbabwe were made, for example, "give space to coordinate customary and formal logical information, utilising public libraries to elevate intergenerational discourse identifying with information, and; joining native information as key part of the instructive educational program, for instance consideration of native information in training for supportable turn of events" among others. The effort of the farmers in Zimbabwe and the libraries in the documentation of this knowledge and the bid to improve the library collection is commendable. It is an example of making research practical and preserving the knowledge at the same time.

The study of Abioye and Oluwaniyi (2017) on the assortment improvement and safeguarding methodologies of chose government college libraries in Southwest Nigeria found that greater part of the libraries had a strategy for native information assortment advancement and protection as 94.4% of the 72 respondents affirmed the presence of an arrangement while 5.6% kept the presence from getting such an approach in their organisation. The examination which received a spellbinding review plan that utilised unstructured poll, unstructured meetings and perception as instruments for information

assortment likewise uncovered that the IK assets were in composed structure (records) like reading material, diary articles, projects, papers, field perception, joint translation, and contextual analyses. Different assets accessible were in oral structure (recording tape) like oral history, fables, classic stories, and in melody designs too - tunes, talk with plans, and customary occasions like dance, dramatisation, crowning ordinance, conventional marriage, naming service, and house warming. Configurations in sound, visual and varying media designs were slides, transparencies, sound tapes, films, recordings, conservative circle just as stream outlines, maps, pictures, schedules, frameworks, plates, and mud.

The description the information materials according to Abioye and Oluwaniyi (2017), information materials are in form of text books, newspapers, projects, index and abstracts, magazines, encyclopedias, CD-ROM databases, e-resources, video cassettes and microfilms among others. Preservation of all these were routinely done. Challenges faced were with lack of funds for IK collections and preservation, as well as linguistic problem or language barrier in IK collections. These factors ranked high in the list of challenges faced in IK preservation. Other challenges of IK preservation experienced in the libraries were "little or no efforts of university libraries in IK collection, poor infrastructure and dearth of human resources". Such concerns in libraries have policy implications for university libraries as well as for other heritage institutions such as special libraries, archives and museums.

Collection development policies is one issue, so also is preservation from damage or theft of indigenous knowledge resources. It is not surprising that Okuyeme (2017) commented on the fact that artifacts from Nigeria for example have been vandalised, stolen, carted away and that certain things that are not in place are the salvaging policies, methods and means of preserving and conserving the artifacts. Apart from colonialists, missionaries and explorers brought some negative experience which included the looting of artifact and heritage materials belonging to the continent by those who came to colonise the continent. Okuyeme (2017) recommended dialogue, collaboration and cooperation as the main means to ensure the repatriation of stolen artifacts from the foreign environments in which they have been domiciled. Governments of the countries where the artifacts have been taken to, have to agree on terms of return and follow the conventions that have been established on the issue. In other words, the policies developed by government on the heritage resources

recovery need to be implemented and adhered to in a bid to ensure that the history of the people as represented by their artifacts, are not forever lost. Buying back the stolen artifacts if necessary is a means of preserving the indigenous knowledge of the people. This has implications in cultural heritage institutions because funds have to be earmarked for purchase and repossession which is part of preservation.

Ahmadian, Chandrashekara and Marjaei (2019) studied the library policies in 20 universities in the United States with a focus on extracting the elements of policies and classification of policies into main components. The study identified 70 elements which were categorised into 12 different components. The main components of the library policies which they extracted through web analytics were found not to be used in less than half of the universities studied. Also, their analysis resulted in ranking of the main components thus: "Access to collections/Borrowing, Use of library spaces, Collection development, Using the library, Conduct, Library fees, Services to the community, Other special policies, User responsibility, Library users, and Emergency". Collection Development which is one of the components identified, in the full listing was observed not to have been broken down further unlike other components like Use of Library Spaces, Access to Collections and Library Fees for example which had sub divisions. Though the study did not focus on collection development, it highlighted the fact that the arrangements in the library ought to be looked into routinely and altered if necessary. The arrangement of the library ought to be obvious to library clients, being not difficult to access for library staff and clients. It ought to likewise be refreshed, distinguished and spread adequately. This point is quite germane in the preservation policy discourse. Clear and easy to access policies have to be provided.

For the study by Ahmadian et al (2019), according to North-Western University Library, the assortment improvement incorporates general library assortment advancement arrangements like electronic monographs strategy, helpful assortment advancement, and approaches on the record structure: scholarly projects (The Free Library, 2014). This policy is one of the main policies in which all the library managers should select materials that support the teaching and research mission of their library. Looked at critically, this is a limiting description of collection development as it does not expand on what is to be done with the collection in terms of preserving it. As averred by Akande (2010) in a study of government college libraries in Nigeria, there can be no genuine obligation to safeguarding

program without an approach. The examination uncovered that numerous government college libraries in Nigeria have no safeguarding strategy at all. This is an undesirable situation because the lack creates problems in collection development or management. Delineating preservation policy within the collection development policy is the best practice.

More recently, Nworie and Nwosu (2019) conducted a survey on Adoption of UNESCO Digital Preservation Guidelines for measuring Preservation Policies of Digital Materials in University Libraries in South East, Nigeria. The study surveyed 160 librarians in university libraries in South East, Nigeria using a questionnaire adapted from the UNESCO Digital Preservation Guidelines. Findings of the study were that majority (83.2%) of the custodians in the college libraries in South-East, Nigeria concurred that they don't have safeguarding arrangements at this point for their advanced materials dependent on the UNESCO Digital Preservation Guidelines. The current conservation policies in use did not across the libraries surveyed, and they did not cater for digital materials. The UNESCO Digital Preservation Guidelines was recommended for use as a working guide in preserving the digital materials.

From the foregoing, it is apparent that collection development in cultural heritage institutions has been handled in different ways depending on the type of the collection and the focus of the founding institution. The policies backing the collection up are very important and the planned set of activities detailed in the policies concerning how the collection should be acquired, organised and preserved must not be overlooked. The different subjects within the collections (which include indigenous knowledge) also need to be given attention and the implementation of the policies written made a priority.

2.4 Institutional environment and the preservation of indigenous knowledge in cultural heritage institutions

The institutional environment of libraries, archives, museums and other cultural heritage institutions is a very important factor. For the materials acquired in libraries, archives and museums especially those with cultural heritage bias, the institution has to create an environment conducive for their preservation. The nature of collection determines the environment that has to be created to house them. Museums, will mainly collect objects

not documents, as different from libraries and archives that collect documents, books and other materials. The environment in which each type of material is kept will of necessity be different according to the nature of the material.

The institutional environment consists broadly of internal and external environmental factors. These factors also have physical and human resources factors as parts subsumed under them. Physical environmental factors are essential to the services provided. Examples are ventilation, humidity, and physical facilities such as furniture, lighting, security conditions and so on. Sufar, Talibb and Hambali (2012) noted that the field of natural brain research has tended to the connection between people and their assembled climate. They expected that elements of the association's actual environmental factors impact significant client and representative practices. They did an all-inclusive survey of public libraries in Malaysia and tracked down that actual inside conditions had impact on clients' assumptions, requirements and practices.

Institutions represent constraints on human interactions, which are formal (such as rules, laws, constitutions, et cetera) and informal (e.g. norms of behavior, conventions, codes of conducts self-imposed and other such), and their enforcement characteristics. Thus, the institutional environment provides the essential structure where human actions and or exchanges take place. This therefore means that the human resources in organisations have an effect on the governance of the institution through their interactions with each other based on the rules, regulations, code of conduct set out, which affect the institution as a whole.

Kulkami and Deshpande (2012) studied the assumptions regarding library administration nature of library clients from 29 State Administrative Training Institutes (ATI) from India. They tracked down that the respondents were glad to share their assumptions on different parts of actual climate, direction, staff, assets and administrations. Larger part of the respondents communicated the way that they gave main goal to the actual climate part of the library administration quality. The 'climate' for them, included substantial components of administration quality like accessibility of PCs, OPAC terminals, neatness, sufficient light, appropriate ventilation, useful furnishings, reasonable library hours, library programming and spot for perusing. For respondents of the examination, the actual climate where the assistance is conveyed in the library is the most significant and assumes a crucial part in the whole Administrative Training Institutes. The physical environment and the

facilities available for use were the tangible elements considered of importance. These form part of the institutional environment of CHI.

Amusa, Iyoro and Adebisi (2013) carried out research on workplace and occupation execution of bookkeepers in state funded colleges in Nigeria and reported on environmental indicators such as physical facilities, open communication, motivation, and participatory management, viewing participatory management as participation in decision making, and staff development and personal emolument. The respondents in the study indicated that the physical facilities aspect of librarians' work environment is fairly favourable as was indicated by majority of them. They further reported that favourable work environment correlates with high productivity in any organisation and that the workplace of the custodians in South–west Nigeria is genuinely positive. Different pointers of workplaces like actual offices, open correspondence, inspiration, participatory administration and staff advancement were all genuinely positive as indicated by the respondents except for faculty remittance which about half of the respondents considered negative.

Unlike Kulkami and Deshpande's (2012) study which devolved on expectations of the library services, Amusa et al (2013) went further to investigate the work performance of the respondents. They not only identified the physical or tangible environment, but others such as open communication, motivation, participatory management, which affects their productivity. These elements form part of institutional environment. Babalola (2012) on his own part, described environmental factors as factors that can come in form of internal environmental factors such as enabling environment, good and comfortable desk, table, chair, toilet lighting, ventilation, tools office, incentives, seminars, workshops and conferences. Institutional environment is the factor that acts as catalyst to make librarians work better and one that would enhance the service they are going to provide to the users. It is the relationship between ICT skills and conducive environment that would enhance librarian's job performance according to Babalola (2012). This position is agreed with by the researcher.

Building capacity for staff is also one of the frameworks that create a laudable and stable institutional environment for cultural heritage institutions. Abioye, Zaid and Egberongbe (2014) advocated that there are numerous global associations with the orders to help praiseworthy tasks pointed toward reducing destitution and appetite to which awards

drawing in proposition can be put together by the libraries read for help for Agricultural Indigenous Knowledge (AIK) documentation and dispersal. Notwithstanding, the libraries required an extensive AIK strategy which would provide rules and guidance that could work with appropriate coordination of AIK documentation and spread program. In the establishments contemplated, it was essential for current hardware to be obtained, and staff limit building made priority. Funding is part of institutional environment and resources allocated to an institution are part of its environment. Implications of underfunding of universities are inability to develop, and adverse impact on the growth of quality and quantity of library collections. These impinge on healthy institutional environment.

Human resources are another factor to be taken into consideration in the institutional environment. Staffing in terms of quality and quantity is necessary in any establishment (cultural heritage institutions inclusive) and effective performance of the employed staff depends on working conditions or institutional environment. It is a necessity to train staff to manage archival collections properly. Human resources contribute to the institutional environment since machines (technology) cannot operate in isolation (Filson, 2016). Libraries have to provide adequate staff for each job in the organisation in the right proportion, qualification and seniority. When this is absent or warped, there are serious problems and low quality or ineffective service delivery. Documenting indigenous knowledge therefore could be problematic with inadequate numbers, or unqualified staff.

Igbinovia and Popoola (2016) studied the organisational culture and passionate insight of 181 library faculty in 15 scholastic libraries in Edo State, Nigeria as indicators of their work execution. Their discoveries uncovered that there was a significant degree of occupation execution, great hierarchical culture, and undeniable degree of enthusiastic knowledge among the faculty. Authoritative culture and passionate insight mutually and essentially foresee work execution of faculty and there is huge positive connection between hierarchical culture and occupation execution. The way activities are carried out in the organisation, rules and regulations, clearly marking out what personnel are to do, expect or collaborate with others in the workplace were some of the indices of this culture. These, as well as the emotional intelligence affected job performance. In the same manner, the organisational culture will have effect on preservation of indigenous knowledge in CHI.

Organisational environment being part of institutional environment, the likelihood of the impact of this factor is high.

Izuagbe and Popoola (2017) investigated the social impact and intellectual instrumental variables of saw helpfulness of electronic assets among library staff in Nigeria. Staff of private college libraries were the respondents in the study that used questionnaire as data collection instrument. They discovered that execution of electronic assets without finding out library work force convenience insight prompts asset underutilisation and wastage. The value view of library faculty before the execution of electronic assets for ideal usage was recommended. This finding reflects the important role that human resources play in the use of technology in cultural heritage institutions. Humans drive the use of technology and as a result, their perception of the technology in terms of perceiving the ease of using the technology, and actually using the technology cannot be overlooked.

The management teams in cultural heritage institutions have to strive to ensure financial stability therefore Anasi et al (2013) noted that unlike in the created nations where scholastic framework is hearty, monetary assets for the installment of administrations are broadly accessible, and specialised assets to build up, run, keep up with and overhaul foundation plentiful; full scale robotisation of college libraries in Nigeria are described by lacking human and capital assets, just as deficient infrastructure. These are factors that should contribute to good institutional environment.

Zaid and Abioye (2010) emphasised the advantage of collaboration among heritage institutions, advocating for strong government involvement in funding of the institutions. They noted that fiscal stability is a factor that determines the type of institutional environment that will dominate a cultural heritage institution. Other factors are physical environment which consists of elements which are important in the cultural heritage institution.

Security of indigenous knowledge collections is important and germane as part of institutional environment. The library, archive or museum has to be safe terms of keeping the collection intact, free from fire and water hazards for example. Walker (2013) inspected outside reasons for disintegration of assortments. They are: helpless taking care of or capacity, robbery or defacing, fire and flood, bugs, contamination, light and wrong temperature, and relative mugginess. These are physical environmental factors that need to

be met in cultural heritage institutions. Abioye (2009) emphasised the issue of maintaining security of archives and archival collections, while advising libraries to carry out periodic environmental surveys to ensure that there is always good air circulation around the library. These are institutional environmental factors that affect indigenous knowledge preservation.

The New World Encyclopedia (2009) stated that natural controls are important to work with the safeguarding of natural library materials and are particularly critical to screen in uncommon and unique assortments. Key ecological variables are temperature, relative moistness, nuisances, poisons and light openness. Three important environmental controls used in the Arizona State Library are humidity, temperature and light (Arizona State Library Archives and Public Records, 2013). Keeping up with great air course is likewise significant for the conservation of library and authentic materials. Pockets of silence ought to be dispensed with, as these make the guideline of relative stickiness and temperature levels troublesome and advances the development of organic specialists, shape, and bugs (Adebayo and Adeyemo, 2017). Preservation solutions for the cultural heritage institutions are: handling of materials carefully, binding of materials, and repairing materials.

Abioye (2009) identified some issues affecting archives. They are: the need for archives and library facilities to be climate verification, temperature and dampness controlled, and earth controlled from defiling vapor, synthetic compounds and bright light. Also, there is need for archives to have basic supplies and materials to preserve the collections; materials such as acid-free folders, boxes, photoshelves, white cotton gloves and over-sized object storage along with shelving appropriate for physical preservation. The implication of this is that physical conditions or environment of cultural heritage institutions has to be considered in preservation activities. It is of such importance, that Adeniyi and Subair (2013) recommended that government should establish a public protection and preservation program for libraries to deal with observing and controlling natural conditions in libraries, schooling of library staff, and mindfulness bringing about library safeguarding up in Nigeria and actual treatment or substitution of decaying materials. The environment of the institution therein needs to be taken cognisance of in the preservation of the resources.

Biddle (2012) lamented that the physical environment of the manuscript collection of the nine different institutions she surveyed in 2008 in Northern Nigeria suffered from

absence of neatness; temperature, dampness and light control; adequate upkeep of existing structures and offices; satisfactory storage spaces; complete information about actual qualities and state of the compositions; taking care of systems and access approaches, complete classifying, hypothetical protection and protection information, prepared work force in safeguarding, and staff with specialised abilities in preservation.

The compositions in Arabic content scattered all through institutional and private assortments in Nigeria were those that contained indigenous information worth more concerted efforts at conservation. A description of the efforts made in salvaging the collections, training personnel in conservation and preservation methods was done by Biddle (2012) and an appeal made for the government to invest in this activity as interest in protection improves and invigorates customary abilities and recovers local area. This stance is in tandem with the recommendation by Adeniyi and Subair (2013) for government intervention in preservation of such materials as could promote development and enhancement of society. The preservation process of necessity involves technology or technical procedures.

2.5 Technology use in the preservation of indigenous knowledge

Technology is used to provide access to indigenous knowledge collections. Some of the technologies are manually propelled while others are technology-driven. Various media such as computers, the internet, tape recorders, compact disks and other such are used in documenting indigenous knowledge. Variants of the technology used for documentation are cassettes, compact discs, slides, transparencies and more recently computers, internet technologies, databanks in physical and remote locations. Gene banks are used, as well as technologies such as story beads to document and preserve IK. These documents in the varied formats are accessed by those who need them. To keep the materials properly, and depending on the nature, technology is used to a greater or lesser degree for their preservation.

Indigenous peoples have various methods of overseeing admittance to, and utilisation of information which is separated at three general levels - public regions (open access), peri-limited regions (requiring exchange for access and use (terms), and exceptionally confined or shut regions (secret-hallowed information destinations, practices

and documentation). The indigenous knowledge thus could be restricted, partially restricted, or freely accessible. Whichever category it belongs to, the technology used for its preservation is important. Some of the technologies though, double as means of preserving indigenous knowledge. Little wonder that it is conceived that libraries should consider native information not just piece of an authentic file, however a contemporary collection of important information! Indeed, some aspects of this indigenous knowledge in cultural heritage institutions have been harvested by custodians of cultural heritage who are preserving the knowledge for ease of access and use (Chimko, 2021).

Procedures for protecting IK incorporate digitisation, copying, microfilming, and acquisition of native materials. Okore, Ekere and Eke (2009) portrayed conservation strategies and showed that they incorporate documentation, digitisation, video recording, and giving web access. The examination recognised methods of making IK available, including TV/radio telecom, shows and shows, film, portable library administrations, loaning of important native materials, and online access. They found the difficulties of IK the board, including deficient subsidising, copyright limitation, absence of fundamental hardware, disregard of IK, aggressiveness, language boundaries, and absence of staff. Every one of the respondents said that to safeguard IK, they record meetings of asset people, and make microfilm records. Virtually totally utilised cameras to catch native data, and almost 3/4 buy native materials to protect them.

Onyemaizu (2015) analysed the job of the library in native information stockpiling and access for social progression in Nigeria. Onyemaizu noticed that libraries can be of help with communicating native information by making inventories, registers and reference indices of native information; advancing mindfulness and enthusiasm for native information for networks, and through the arrangement of PCs, web, and computerised cameras, etc. to make native information open. Libraries were recognised as offices that could likewise assist networks with absence of social conveniences like power by liaising with proper experts for arrangement. Most importantly, portable library administrations, great human relationship and grown-up instruction were added modes which could help the effective assistance conveyance of the library as respects native information stockpiling and access. Innovation is a key to capacity of and admittance to native information in libraries.

Yokakul, Zawdie and Booth (2015) in their paper investigated the Triple Helix framework as a structure for the development of the Thai pastry industry, introducing Small Medium Enterprises (SME) as transporters of native information. They examined the job of native information in SME development comparable to SME endeavors to develop native information to in total yield what is conventionally known as troublesome mechanical advancement on the rear of their encounters in gradual developments. They likewise analysed the job of social capital and information trade in advancing SME advancement and seriousness. A poll study of innovation capacity improvement, information, and social capital was utilised to assemble information and data from 121 Thai pastry firms. Meetings with the proprietors or supervisors of 22 firms were additionally directed to check data got from the poll overview. Different relapse examination was utilised to dissect the connection between friendly capital components and mechanical capacity advancement. Yokakul et al's (2015) results brought up that information trade is a significant component that empowers firms to upgrade their advancement and mechanical ability. A higher record of social capital was additionally found to bring about a superior information move and trade among firms; and furthermore among firms and associations in the information circle.

Utilisation of innovation is important to have the option to accomplish protection of IK. In the meantime, logical conservation has been perceived as one of the earnest difficulties in our cutting-edge data society. It is the latest thing in every advanced library and is perceived as a crucial piece of overseeing data in the logical organisation (Akter, 2011). Digitisation is a technology used in preservation of indigenous knowledge, especially for IK in print form in cultural heritage institutions. In the New Zealand Museum (Te Papa), the strategy and convention system is far reaching and the gallery is a main backer for the digitisation and care of native information. Digitisation for better conservation was affirmed that libraries, exhibition halls and social establishments or services need to deal with their social legacy to such an extent that the foundations become passages to clients. To them "innovation has come to speed up our social legacy". Indeed, technology helps in accelerating cultural heritage though some schools of thought may disagree and see technology as a disruptor.

Through archiving of indigenous knowledge, we can preserve our knowledge base. It may also be done through the Greenstone Digital Library (GSDL) software. This is open-

source library software that gives the capacity to store materials one wants to archive. Mohanlal and Krishnaswami (2017) described the effort of digitally archiving medicinal plants of Kerala, in the University of Waikoto, India, using GSDL software. The product gives "tremendous ability to consolidate documentation on conventions on security, viability, normalization, ethno pharmacological information, bio pictures, sound, and so on, giving sufficient degree to additional exploration regarding the matter". They noted that UNESCO was the organisation that has been promoting the software and also arranging user support, organising training and workshops on Greenstone. Mohanlal and Krishnaswami (2017) concluded that GSDL is the most suitable open-source suit to build up and archive medicinal plants collection. They felt that institutions could "adopt a permanent policy in digital built-up of their subject knowledge by employing the expertise of qualified library professionals in knowledge organisation, management and dissemination." This study has brought to the fore the importance of digital technology in preserving indigenous knowledge.

Ethiopians use their IK to preserve natural resources and environment. In this case, the Konso Traditional Terracing, which was inscribed as one of the world's intangible heritages by UNESCO (The Federal Democratic Republic of Ethiopia (FDRE), 2009), is the best example. The conventional instructive framework that Ethiopians have been rehearsing has assumed a critical part in outfitting ages with information on science, medication, history and soothsaying. The training has been given through strict organisations of both the Christian and Muslim and has assisted the country with saving its way of life and IK for extremely prolonged stretch of time. Truth be told Ethiopia is among nearly couple of nations on the planet that have their own letters in order and schedule. What's more, this is the consequence of keeping and restoring IK.

Bedlu (2018) affirmed that saving and restoring the information and standards of the nation ought to be the significant job anticipated from individuals, foundations, government and different partners. Not only is that, using modern technologies to keep the language, proverbs and ancient inscriptions documented is desirable because it makes the process easier. In addition, it is a major test to write and decipher the adages cited by different nationality dialects of Ethiopia. Here, utilising the advanced advances may facilitate the issue identified with engraving and conveyance, and it is feasible to utilise ICT in such

manner in order to get to the information effectively paying little mind to time and location. Bedlu (2018) affirmed that deciphering the past Geez language that has contained the information on antiquated engravings should be the initial phase in bringing the information into training. This information is comprised inside different books expounded on medication, horticulture, food arrangement and custom execution of individuals. The contention by Bedlu (2018) is that coming generations need to be given the best of the indigenous knowledge in its original form as much as possible and that technology use in achieving this is imperative. This is a stand we align with as well. The society needs the knowledge and technology use can be a means to it.

The role of libraries in helping native networks in the administration and protection of customary information was called attention to by Stevens (2008). This could be through giving assets and mastery in assortment association, stockpiling and recovery of the information. Since native information varies enormously from Western information, it should be overseen in special and touchy manners that may challenge ordinary information the board instruments and cycles, just as predominant suppositions about information and data. Three native information the executives' projects in Australia, Canada and the United States were analysed by Stevens (2008) to show the various techniques and apparatuses that can be utilised for overseeing native information to oblige oral practices, all-encompassing conviction frameworks, security and access concerns, and mechanical impediments.

The first was an association between the University of Queensland in Australia and the Smithsonian National Museum of the American Indian in the United States, in which the Smithsonian planned an open-source framework for overseeing virtual bringing home of social items to Native American people group. The second was a GIS information base created to plan information on the Inuit individuals of Nunavut on the transient examples of caribou. The final program was conveyed by the libraries of the Northern Territory in Australia to draw in native people groups in digitising their customary information. Every one of these undertakings outlined how information the board instruments could be executed and adjusted to oblige native information frameworks and local area needs. They likewise exhibited how associations between networks, foundations, governments and different associations could prompt inventive arrangements, sharing of assets, and tasks that benefit numerous partners.

Collaboration with community surely matters in preservation of indigenous knowledge and indigenous knowledge resources. As Mole, Ekwelem and Din (2018) are herewith corroborated, data experts should work with native networks to foster one-of-a-kind arrangements that address neighborhood issues. Repackaging of native information should be possible through different structures for instance, well known theater, dramatisation, narrating and the utilisation of melodies. Technologies that have emerged can be useful in this regard repackaging IK through the integration of graphics and texts. Oral forms can be recorded in unit projects in country regions to record oral history and tunes. Recording devices help with archiving a blurring memory from holders of the traditional information. This capture saves the total loss even though it is in a different format.

Kaya and Nkondo (2016) examined optional sources concerning the job of African native dialects in the achievement of the Millennium Development Goals (MDG) in Africa. They contended that the job of these native dialects had been underestimated in the execution of the MDG despite the fact that they are significant specialised devices which enhance social collaboration. They suggested among others that accentuation ought to be set on the job of ICT in preparing African native language apparatuses like sayings, aphorisms, maxims, clever articulations and metaphors for the actualisation of the MDG. Furthermore, there ought to be reinforced organisations among public and private areas to guarantee fair admittance to and importance and nature of ICT for all segments of society, and, there is the need to create and give materials and programming in neighborhood dialects to encourage interest and incorporation of minorities.

UNESCO (2019) revealed that María Fernanda Espinosa from Ecuador, General Assembly President, in remarks at the eighteenth Session of the Permanent Forum on Indigenous Issues held in April 2019, focused on that customary information involves an essential spot in the scope of activities expected to moderate environmental change and moving this data across ages is indispensable. So additionally, is bridling the capability of youth and ladies. The significance of protecting dialects was called attention to however information amassed more than millennia on medication, meteorology, farming and different regions is in danger of always vanishing. The test recognised was that of

cultivating a superior comprehension of customary information and discovering approaches to reinforce native people groups' voices inside the United Nations.

Ormond-Parker et al (2015) in a report, illustrated a community-oriented task embraced by the Melbourne Networked Society Institute and analysts from the University of Melbourne's Australian Indigenous Studies Unit, Research Unit for Indigenous Languages and the Grimwade Center for Cultural Materials Conservation. In association with the Kanamkek-Yile Ngala Museum, Wadeye, NT, and the Australian Institute for Aboriginal and Torres Strait Islander Studies, the scientists researched how socially huge and imperiled native varying media files could be viably safeguarded and communicated to ebb and flow and people in the future utilising creative advanced innovations. Digitisation, one of the advances utilised was "embraced nearby at the gallery to a concurred documented norm, bringing about a huge corpus of digitised material with fundamental metadata, including tape number, media design, title/mark, classification, creator, year of recording, content portrayal and notes on digitisation" (Ormond-Parker et al, 2015: 14). The report gave a full record of the review which discovered the assortment to contain more than 800 VHS tapes, 600 MiniDV tapes and around 100 SVH reduced tapes, including more than 2,000 hours of film. The social, social, verifiable and etymological data of gallery assortment was considered to be critical, with film of social destinations, stories, language and customs of Thamarrurr tribe bunches from the Australia area recorded over a time of many years.

Tramboo, Humma, Shafi and Gul (2012) proposed the need for a heritage preservation framework where digitised heritage collection (pictures, audio and video) would be archived digitally. They described a workflow which can help to bring back the past heritage and culture of any peoples in a platform that will be useful to future generations. DSpace, Greenstone and EPrints were open-source software applications for library and information management that they explored in this regard. A comparison of the features and advantages of each was done and choices left for institutions to determine which was suitable for their needs. This framework is yet to be adequately developed for use in cultural heritage institutions in a developing country like Nigeria however.

Biyela, Oyelude and Haumba (2016) conducted across-country survey of digitisation of indigenous knowledge in South Africa, Nigeria and Uganda. To acquire

understanding about the territory of IK digitisation undertakings of the nation's nine (9) cases were concentrated using semi-organised meetings, and in one instance of the nine, content investigation for the electronic entrance of a public legacy store. Optional information was additionally gotten through archive search of pertinent print and electronic assets. They found that there was dire need for intensifying digitisation projects for native information in provincial networks and a community approach was expected to accomplish this. Expanded financing for digitisation of IK and capacitating of data experts in the digitisation of legacy assets was recommended. Their study only looked at digitisation as a documentation and preservation strategy but did not look at collection development or policy issues involved.

Ramanan, Santharooban, and Ravikumar (2015) elaborated on works did to overview the proof for neighborhood social legacy, in the light of fostering an electronic vault at Eastern University, Sri Lanka, to report and save the locale's particular character as far as social legacy. The destinations of the review included revelation of assets having legacy esteems, expanding the attention to protecting native information and social substances in the area, and fostering an advanced archive to safeguard native information and social upsides of nearby networks. The objectives were achieved with the digitisation of intangible cultural heritage. Palm leaf manuscripts were digitised and transcribed and the records digitally kept for posterity. These sorts of efforts and more were sure to guarantee that the knowledge would be preserved via the digital repositories and web portals.

Optical storage is a preservation method used in cultural heritage institutions. Optical capacity is any capacity technique wherein information is composed and perused with a laser for recorded or reinforcement purposes. Optical media is more tough than tape and less helpless against natural conditions, however it will in general be more slow than regular hard drive speeds, and to offer lower stockpiling limits. As per Optical Storage Technology Association (OSTA) (2014), current optical rates are moving toward those of hard drives, and various new optical arrangements, for example, Blu-beam and UDO (ultra-thickness optical), utilise a blue laser to significantly expand limits. Schweikert (2018) further gave guidelines on the care of CDs and DVDs in New York University's Fales Library & Special Collections. The strategies are used to good effect in preserving the optical media collections of the library.

Looking at the massive collection of optical media resources (CDs, DVDs, Blu-rays, and even MiniDiscs and LaserDiscs representing 15% of all digital data, but 86% of all digital objects as at 2014), the report presented an overview of the diverse and unique difficulties posed by optical media, did an exploration of the tools considered by the library and recommended that the library take the following steps:

> "For DVDs: create a user data (logical) ISO disc image using IsoBuster Pro. For CDs: create a raw (physical) ISO disc image using FTK Imager. For any CDs that appear to comprise complex and mixed types of data (for example, a music CD that also holds a music video), consult with the archivist. For audio discs (CD-DA): create a single WAV file with WAV/CUE using Exact Audio Copy. For commercial discs: do not image unless deemed to be rare and integral to the collection." (pg. 19)

These were recommendations aimed at minimising training and imaging time by making the imaging take place within graphical user interfaces in a familiar and already-in-use Windows environment, and also to ensure that there is bit-level preservation for each type of optical disc. Other recommendations concerned the library should consider using Disc robots and a command line workflow for powerful automation and customisation that are inaccessible to Windows environments, to streamline the imaging process.

Mass deacidification is another technology that has been used to preserve cultural heritage materials. This is because acidity is one of the main causes of book or paper-based information materials. Deacidification is a preventive conservation technique so regarded since the adjustment and buffering of book papers while they are new and solid will build the existence of the paper by a few times, and typically limits future reclamation needs Baty, Maitland, Minter, Hubbe and Jordan-Mowery (2010) assessed measures that conservators and assortment chiefs have taken to lessen the causticity of books and other paper-based materials, accordingly diminishing the paces of corrosive catalyzed hydrolysis and different changes prompting embrittlement of assortments. Difficulties experienced in fact incorporated the determination of a soluble added substance, choosing and carrying out an approach to appropriate this basic substance consistently in the sheet and bound volumes, staying away from exorbitantly high pH conditions, limiting the pace of loss of actual properties like protection from collapsing, and issues with keeping away from any conditions that cause apparent harm to the reports one is attempting to safeguard.

Microfilming is also used in preservation of cultural heritage materials. It is a preservation approach that creates a surrogate copy of the original, and in many cases the microfilm copy is maintained as the stable copy for use. Baker (2009) described digital preservation using microfilming in IK documentation and preservation. Microfilms and microfiche are created from the first material having a place with the library as copy of that material. The microfilm and microfiche themselves should be protected well in libraries. The principal copy duplicate might be utilised to deliver appropriation duplicates, while the expert is put away in a different spot. All materials are kept securely in the appropriate spot and safeguarded for use in the library. This ensures preservation of the IK and protection of different types of IK materials is done through digital technologies such as storage media, migration, conversion and management tools.

Before modern digitisation strategies came into use, numerous foundations depended upon microfilm for a photographic duplicate of fragile paper archives (Baty, Maitland, Minter, Hubbe and Jordan-Mowery (2010). Microfilming is still used even today. As noted by Akter (2011), in Bangladesh there are no guidelines and guidelines in regards to the conservation of library materials. Different reports are in any case accessible in the National Archives and National Library of Bangladesh for which microfilming conservation technique has been adopted. Apart from these, other libraries that have adopted this technology are the Bangladesh National Scientific and Documentation Centre (BANSDOC) and the Dhaka University library. Microfilming preservation is a technology used by these cultural heritage institutions which have become recognised for microfilm preservation of rare and old documents emulated specific programs.

Bearman and Geber (2007) presented a structure for change and a scope of advancement situations offered by empowering advances. Their paper addressed freedoms dependent on innovations that are relied upon to be broadly utilised and investigated snags lying in the method of more prominent admittance to worldwide social legacy and how these could be survived. Their point was to plan a model that would be helpful to leaders at memory foundations liable for arranging their heading in a quickly changing innovative climate. It was intended to likewise to fill in as a stage for conversation of business changes with their staff. The quickly expanding utilisation of web-based media and versatile advancements sets out open doors to frame neighborhood and worldwide associations that

can work with the way toward making, overseeing, safeguarding, and sharing of information and abilities that are interesting to networks in Africa.

Owiny, Mehta, and Maretzki (2014) proposed the utilisation of web-based media and versatile advancements (mobile phones) in the creation, safeguarding, and spread of native information and examined the job of libraries in the coordination of web-based media advances with more established media that utilise sound and varying media gear to contact a more extensive crowd. They noticed the high pace of ignorance (print-situated) in country Africa and that the rejection of native information from Western schooling added to the data hole experienced in provincial Africa. Different difficulties confronting oral societies that they depicted are the vanishing of conventional information and abilities because of cognitive decline or demise of seniors and the conscious or incidental obliteration of native information.

Other technologies used for preservation in CHI are: encapsulation, lamination, photocopying, and binding. These activities are meant to be routine. A brief description of some of them is necessary. Imitating as an interaction which safeguards the bona fide report and gives the client an instrument that empowers 'old' programming and 'old' watcher, projects to deliver this unique record. The record and the application programming are unique, and the copying mirrors the working framework or the fundamental equipment, in other words the emulation process creates new software that mimics the operations of older hardware of software.

For non-print materials in cultural heritage institutions, technology for documentation and preservation vary. Recorded tapes (audio and video) are used. Archivists use video recordings for both documentation and preservation. In Australia for example, the indigenous peoples create their virtual cultural landscapes through storytelling in a 3D gaming environment called the Digital Songlines (DSL) project. The gaming engine toolkit described, “provides a way to record, preserve and re-present Australian aboriginal stories, records and other significant places, events or practices” (Wyeld, Leary, Caroll, Ledwich, Gibbons and Hills, 2007; 262). The community does its own recording using new technologies to advantage. More recently, GDOM (Geelong Digital Outdoor Museum) application is used to integrate intangible heritage stories into places of public significance through a 3D virtual immersive environment. Non-linear storytelling method

is used to contribute meaningfully to community-centered intangible heritage (Kocaturk, Mazza, McKinnon, and Kaljevic, 2023). These are examples of using technology for documentation and preservation of indigenous knowledge. The recordings are on digital media with the stories there for future reference in spite of them being regarded mostly as entertainment, relaxation or gaming.

In Nigeria, Ogunsola and Ikegune (2016) investigated the management and preservation of non-book materials at the University of Ibadan, Obafemi Awolowo University and Ladoke Akintola University. They used questionnaire and interview methods in eliciting data. They found that the three libraries needed sufficient protection strategy, safety officers, copy administrations and that they also were not adequately funded. It was also revealed that dust and particles depositing on the library collections, poor funding and inadequate storage facilities were the greatest problems to management and preservation of non-book materials identified by respondents of the study, in the libraries. Recommendations were made for arrangement of working protection strategy, arrangement of useful forced air systems to control the temperature and mugginess of the capacity regions, and furthermore an elective force supply to check the consistent force disappointment being capable. Different arrangements proffered were preparing and re-preparing of staff through classes, workshops or short courses in administration and safeguarding. Emphasis was laid on adequate provision of funds especially for preservation programmes.

Collaboration in preservation activities is another way of keeping IK by cultural heritage institutions, using technology. This is the aim to preserve ancient knowledge of rock paintings in West Texas as reported by KACU (2022). Professors and anthropologists are working to preserve knowledge through an interactive website, specifically focusing on rock art. The stretch of rocky cliff that holds over two-thousand years' worth of history in tribal paintings, tells stories of birth, life, and death, and are testimonies of sacred spiritual practices warriors engaged at the site. Though set on private property, efforts were made to provide access to the indigenous people in Texas. The outcome was the creation of a website featuring digital 3-D models of the paintings. These paintings are models for the future emergence of more historic rock art sites across the state.of Texas (KACU, 2022).

Temperature control in cultural heritage institutions is technology-driven. Simple technology like fans, air conditioners, dehumidifiers and other such are used. These are the most common and basic even in the simplest library, archive, museum or other cultural heritage institution. Scholars have discussed and canvassed for proper use of these technologies (Popoola, 2003). The use of technology for instance, in the control of temperature and relative stickiness is basic in the protection of library and documented assortments in light of the fact that unsatisfactory levels of these contribute altogether to the breakdown of materials.

Protection methods is portrayed as Desalination, BTA (benzotriazole) treatment, Resin impregnation (builds up delicate iron and bronze antiquities by impregnation with manufactured sap), rust removal, and bonding or patching among others were described. The application of some treatment chemicals such as a mixture of ethyl alcohol, xylene and ethyl acetate as cleaning solution; ethyl alcohol or an aqueous solution containing 0.1% lithium hydroxide for iron artifacts, as desalinating solution; and a naphtha suspension containing 30% Palaroid NAD10 acrylic resin as resin impregnating solution, were described. These technologies are used to preserve the items for posterity. All the technologies used or applied help to ensure that the cultural heritage of the people can be seen and referred to for development in the future to take place.

2.6 Collection development policies and institutional environment

Using the Conspectus model, the procedure of instructions to compose an assortment advancement strategy was made by the Standing Committee of the IFLA Acquisition and Collection Development Section (2001). Rundown implies an outline or synopsis of assortment strength and gathering forces – organised by subject, order plan, or mix of either, and containing normalised codes for assortment or gathering levels and dialects of materials gathered. Such an outline is a summary of a library's assortment or of a consortiums or organisation's planned assortment advancement outline or strategy. The principal summary was created by the Research Libraries Group (RLG) and was in this way adjusted by different gatherings like the WLN (Western Library Network). The data ought to be accommodated every synopsis division (24), class (500) and subject (4000) assessed by the library. The policy document gives guidelines but not implementation strategies.

There are also no specific or even perfunctory guidelines on indigenous knowledge in the Conspectus model.

IFLA (2018) reiterated that every open library framework ought to have a composed assortment advancement and the board strategy for the kids' administration, supported by the administering body of the library administration. The arrangement ought to guarantee a predictable way to deal with the turn of events and the board of the library assortments for youngsters. An arrangement articulation gives the premise to future arranging and will help with deciding needs, particularly while assigning monetary assets. Formal arrangement explanations can help in putting forth the defense for the library when managing the two its clients, executives and financing bodies. These assertions support the expressed targets of the association, exhibiting responsibility and obligation to concurred objectives (IFLA, 2018).

The importance by the same token is applicable to archives and museums. The fiscal planning is what the institution hinges on. In a situation where ‘what to be done’, and ‘how to do it’ is spelt out, the planning for financial implementation is usually easier. The funding aspect of the institutional environment of any organisation, affects it adversely or favourably and therefore when policies are written that specifically make statements concerning administration, preservation, funding and so on, it is to great advantage.

Miller (2000) enumerated the components of assortment improvement strategy which should be considered the archive as follows: Institutional destinations. Subtleties of branch of knowledge, Miscellaneous issues like blessing, get rid of, assessment, grumblings and oversight, and, Getting the arrangement supported in the wake of holding an open gathering for the individuals. Assortment improvement strategy is definitely not a one-stop task; all things considered, it needs to adjust and mirror the progressions in the climate. Mill operator (2000) focused on the requirement for the assortment advancement strategy to advance as innovation changes and client needs change. An audit of twenty years of writing showed that assortment approaches need to grow to think about the difference in innovation; equipment and programming similarity; the unendingness of materials, expenses, preparing, and backing; and restricted admittance.

In a comparative report did a lot later, Douglas (2011) inspected 10 years of assortment improvement rehearses, recognised distributing patterns, planning, and clients'

data needs as significant components that any alteration to assortment strategy needs to think about. Asides this, the assortment improvement policy ought to cater for special collections within the main collection, like the indigenous knowledge resources and spell out the preservation policies that would operate in keeping them, Neglecting the nitty gritty of making the collection development functional implementable and visible is doing the establishment a disservice.

Using technology for the enhancement of the visibility of the policy as well as in making its impact felt within the institutional environment is an activity that cannot be avoided in the digital era. Dempsey (2016) considered how the changing idea of exploration in advanced conditions is reshaping the idea of library assortments and administrations in scholastic and examination libraries. He portrayed two focal headings, each a reaction to the centrality of the client in an organisation climate. To start with, the library has an expanding part in dealing with the examination and different yields of the college (the back to front assortment). Second, the library is working with admittance to a more extensive scope of neighborhood, outer and community-oriented assets coordinated around client needs (the facilitated assortment).

Essentially Dempsey's study points out the difference in handling collections with the anticipated needs of the user in mind, and actually serving those needs in collaboration with other institutions in a networked environment. The digital environment provides access to all the user needs over the facilitated collection. By implication, the policy that guides the provision of the facilitated collection is different than in a different type of environment.

Physical environment factors identified by Odutola and Alegbeleye (2019) are people, information infrastructure and related resources. These factors include the assessment of the physical environment and sometimes socio-economic and cultural factors. Some of the environmental factors examined in the study were interpersonal relationship with staff (social), library structure / organisation, and artificial ventilation (air pollution). These are some of the factors this researcher is interested in and form part of the institutional environment being investigated.

In a similar manner, the study on physical, human, and environmental factors affecting the use of library and information services by students in Colleges of Education in Nigeria as carried out by Gojeh, Dutse and Daudu (2013) found that security of property,

adequate reading space, favourable rules and regulations, lecturer encouragement, adequate facilities and clean environment among others were significant factors in the Colleges. Another study by Alaniyi and Owokole (2018) in Ondo State, Nigeria found inadequate library personnel and noise as factors of importance for library use by students. These factors are those that have impact on preservation of indigenous knowledge in the short and long term. Adequate personnel to handle preservation matters especially is germane, though noise level may not be a factor with apparent effect on staff, it is a factor that could be investigated.

Technological factors like internet connectivity, adequate equipment and technical training also featured as factors in a study by Musa (2016) of undergraduate students' use of libraries in North Central Nigeria. Technological, social, professional, environmental, and factors personal were found to affect the patterns upon which they use their information. These are institutional environment factors that actually affect the preservation of indigenous knowledge in cultural institutions. Musa (2016) recommended how the changing idea of exploration in advanced conditions is reshaping the idea of library assortments and administrations in scholastic and examination libraries. He portrayed two focal headings, each a reaction to the centrality of the client in an organisation climate. To start with, the library has an expanding part in dealing with the examination and different yields of the college (the back to front assortment). Second, the library is working with admittance to a more extensive scope of neighborhood, outer and community-oriented assets coordinated around client needs (the worked with assortment) was made. This study on students captures the state in which indigenous knowledge resources ought to be in cultural heritage institutions. The environment appropriate for using technology in IK preservation is that needed for general collections as well.

Oyedum (2012) in a survey using questionnaire as instrument studied the relative impact of ecological elements, data proficiency, course of study, and assets accessibility to understudies' utilisation of college libraries in Nigeria. The examination uncovered that assets accessibility, course of study, data proficiency and commotion made critical commitment, while actual variables and ventilation didn't. For understudies to viably utilise college libraries there ought to be acceptable ventilation, favorable offices, furniture and lighting. Good ventilation is necessary, as well as a temperature, sound and noise-controlled

environment. For respondents in the study, noise, physical facilities and ventilation were not high-ranking factors to their use of the library. The point to note however is, that the libraries studied happened to be well ventilated and air-conditioned facilities, making this factor rank low. In other words, ventilation and physical facilities are usually significant factors in students' use of university libraries.

Obasuyi's (2020) study revealed that human, institutional, environmental and information literacy are the significant factors. Some of the indices of the sixteen factors revealed in the study were conducive environment, the facilities (lighting, air-conditioning), staff cooperation and friendliness, and access to e-resources. Another example of how the institutional environment can affect the collection development is observed with the pandemic of COVID-19 changing the face of libraries, archives and museums. Cox (2020) assessed the situation in a few institutions and predicted what is likely to happen in the future of collection development. Already this is happening - the Internet Archive, an organisation that dispatched the National Emergency Digital Library, and Hathi Trust opened Emergency Temporary Access to its individuals. While a few creators were unnerved at those activities, the outcome, is 'a victory of long haul arranging over the prioritization of quick necessities'. The dismayed authors did not like the access freely given to their work by the digitisation, and despite the fact that copyright issues should be settled, extra mass digitisation endeavors ought to be embraced.

Utilising community-oriented capacity arrangements which are as of now devoted to the safeguarding of print content, to make library print assortments more open is the best option in the circumstances. This is the stance of this researcher because library print collections will have to be more accessible. This will have to be reflected in the collection development policy of the institution. Institutions will have to spend more time and money developing their electronic collections according to Cox (2020) and it will be a test with reducing financial plans worldwide for libraries, files and exhibition halls. Libraries should foster new systems for haggling more ideal arrangements with distributers and hall for more prominent admittance to streaming media and digital books, which are more abundant and inexpensively open to people than they are to libraries. New access models will likewise should be created.

Cox (2020) noticed that filers have been tested to give research materials and administrations web based during the COVID-19 conclusion. Because of the terminations in CHI and the resultant changes in activities, he anticipated an increment in documents digitisation endeavors in the coming years, progressing digitised content from being a strategy for protection or see, to being the essential passage for the assortment. It was seen that libraries need to upgrade their sites since they address the essential way of collaboration for benefactors. Following convenience standards, it will currently be the standard for library sites to develop to be easier to understand, responsive and customisable. With this situation, the visibility of the collection development policy online will become mandatory because of increased use of online facilities. Though Cox's (2020) summations are personal opinions and not results of a research work per se, the viewpoint article points in the direction supported by this researcher concerning the probable influence of collection development policy on institutional environment. The policy affects the regulatory, organisational, sociological and physical environment of CHI in no small measure. This definitely will have implication for indigenous knowledge preservation as well.

Gardner, Williams and Beckett (2016) recognised that an assortment advancement strategy (notwithstanding a collection policy), is a significant instrument for assortments the executives and may be created by all Special Collections and chronicles. The examination inspected the gathering drivers for recorded assortments inside a cross part of different advanced education organisations with Unique and Distinctive Collections (UDCs), and how much these drivers line up with institutional missions, and contemporary exploration and learning conditions. Vigorous proof was found, of what SCAs gather, what drives them to do as such, what arrangements help their capacities and how they intend to create these. Gathering techniques and approaches by and large are typically dictated by their institutional setting. The institutional setting controlled by Gardner et al (2016) included: Collecting draws near: proactive, responsive, and communitarian; Conditions for tolerating material; Institutional procurement plans; Significance evaluations and de-accessioning; and, Co-activity, coordinated effort and rivalry. Generally, assortments must be worked inside winning physical, monetary and staff assets (the institutional climate), and it was perceived that a responsive or uninvolved methodology doesn't zero in adequately on the institutional mission and would not be suitable for computerised gathering.

Maiorana, Bogus, Miller, Nadal, Risseeuw and Teper (2019) investigated on what is important to use shared print foundation and expanded maintenance responsibilities, into a functioning arrangement of conservation. Safeguarding to them signified "an organised and feasible program of work to relieve against harm and rot, to participate in remedial medicines to keep materials usable, or to reformat materials when actual conservation isn't practicable." Their study of shared print programmes (SPP) came out with various factors that affect preservation of print materials. Among some of the factors was storage environment. According to them, storage environment, extensively affects book endurance in its ability to speed up or soothe rot.

A decent stockpiling climate is perhaps the most proficient protection apparatuses a library has available to it. Books and paper are affected by natural conditions in view of the compound cosmetics of the materials. The natural components in mechanical wood mash paper, creature items, for example, cowhide and shroud paste, or wood results found in composite board are generally vulnerable to the perils related with uncontrolled temperature and relative moistness (RH). Paper containing lignin gets acidic and fragile; calfskin covers dry out and disintegrate. Insecure ecological conditions can effectively affect materials, like the growing and contracting of paper strands or cements. Fitting temperature and relative stickiness levels helps whenever maintained, moderate the corruption interaction. The memoranda of comprehension (MOU) of just 4 of 14 studied SPP tended to natural stockpiling conditions, and the heating, ventilation, and air conditioning (HVAC) standards. The HVAC standards were generally vague and therefore it was recommended that more consideration for ensuring such suitable conditions must be a priority and this should be in written agreements. In particular, they noted that storage environment, one of the challenges of SPP, does not require research, but only focused implementation.

Iqbal (2021) described protection of native information as being basic for nearby transformation and adapting systems. Specifically, for climatic data in Pakistan, it was noted to be an extremely basic viewpoint for agribusiness-based economy in beach front region regions like Thatta, Badin, etc. Fostering a framework for offering environment data to cultivating networks in Pakistan was a preservation strategy that needed to be developed. Documenting the knowledge that could solve future problems in this instance is a

preservation strategy. This sort of initiative is a desired means in cultural heritage institutions.

Patel (2016) discussed the significance of assortment advancement in libraries taking note of that different elements must be contemplated while fostering a subjective assortment to assist the clients. These elements incorporate arrangements, standards, strategies and methodology, issues related with assortment improvement and getting rid of also. He repeated that assess the assortments to survey its utilisation and the value of assortment improvement in an electronic climate. As authenticated by Sanjay (2016), capacity, weeding, and conservation approaches likewise should be set up as a component of assortment the executives. Generally, assortment improvement infers developing assortment with quality material through appropriate securing and weeding arrangements.

While collection development and the policies that guide it are changing due to the change in technology, in the same way, modern technologies are being used to curb theft and mutilation in libraries, archives and museums. This development is very germane for IK resources. Electronic security systems (ESS) such as closed-circuit television (CCTV) cameras have been deployed in libraries. Kumar (2014) registered that success was achieved in Sikkim University Library, India in the reduction of loss of library materials through use of such technology. This was also discovered by Randall and Newel (2014) on ESS systems being present in cultural heritage institutions. The use of electronic security systems resulted in clientele and staff of the institutions becoming more conscious of their conduct within the establishment. This result would be the same in securing IK in cultural heritage institutions. Technology changes and so would the manner and means of providing physical and even electronic security for indigenous knowledge resources.

Kennedy (2006) had argued that a significant number of practicing librarians are less than fully committed to collection development policy. This was due largely to the fact that the libraries either did not have a collection development policy or had allowed a policy created long ago to remain unrevised and oblivious in the institution. This it was argued, was mostly again because the policy in the first place was badly written. Kennedy further proposed a more flexible approach to CDP suggesting that unwritten policy may be better since interpretation of the 'written policy' may be subjective - "any written document is open to differing interpretations (and to more or less deliberate misinterpretation)."

Subjectivity or lack of it is however not the contention here but rather that the content of the policy should be relevant, visible and also diligently implemented, especially for preservation of indigenous knowledge resources. Unfortunately, the literature is full with ideas that CDP are not necessary, not worth the effort, require extensive work to prepare, or quickly become outdated, antiquated, ineffectual documents.

Levenson (2019), over a decade later, identified and reviewed some of the currently relevant components of collection development that contribute to the need for having a written collection development policy. The result of the review produced the requisite elements for a pertinent and usable CDP taking cognisance of the need to customise these policies for each library's unique needs. The case study of the Nimble academic library was presented highlighting the processes necessary to create a CDP for a medium-sized academic library. This includes more current and relevant considerations for a modern CDP. Best practices were identified that could be replicated elsewhere.

However, it is somewhat ironical to note that Levenson (2019) after placing arguments about scholars on whether CDP was necessary in institutions or not, posited that all selectors in the Oakland University Library were aware that a written CDP could effectively and graciously back up any communication when turning down a request from clientele. Communication to students and faculty concerning collecting levels and criteria could be much more enhanced and facilitated with a written CDP. A contradiction that was unresolved in the Levenson write up. This is a rather unfortunate state of affairs. Policies are important documents which should be at the forefront of helping cultural heritage institutions get their mandates executed. The mandate to preserve indigenous knowledge is no less emphasised therefore the policy to help achieve this must be prioritised. Indeed, in institutions, a written CDP is an undeniable asset. What the library is truly proposing to do about a specific arrangement or subject may not be what those with an exceptional interest in the configuration or subject think it is promising to do by the phrasing of its approach (https://library.columbia.edu/content/dam/libraryweb/policies/collection/CDP120419.pdf). This might be an area to investigate.

Clement and Foy (2010) found that practically 50% of the study members in their examination either had no CDP or had CDP that were over ten years of age, and that only 33% of review respondents' arrangements had been refreshed inside the most recent three

years. In an overview of fifteen significant examination peer organisations, Pickett (2011) saw that practically half had no CDP posted on their sites. Another study of Academic and Research Libraries (ARL) distributed in 2013 tracked down that most of the overview members had CDP however just surveyed them about once like clockwork.

A significant part of advanced assortment improvement incorporates the entrance and the board of a differed assortment of electronic or computerised assets. Due to these quickly changing and often complex e-arranges which libraries are progressively gathering, a library's CDP should be adequately adaptable to oblige this developing assortment of configurations and the changing method for admittance to them. This requires tending to points of interest inside the CDP that more established arrangements needed since these particulars are frequently founded on fresher guidelines and necessities. The library CDP should address the availability of assets in all configurations. Availability needs consideration, yet the safeguarding of that which is gotten to, native information comprehensive.

In Africa, the circumstance is the same. Chaputula and Kanyundo (2014) attempted to decide what the shortfall of an assortment advancement strategy is meaning for assortment improvement rehearses at Mzuzu University Library. Making use of a sequential mixed design of questionnaire, document analysis, focus group discussion, and observation, they found out that the absence of a collection development policy has greatly affected collection development practices at the university library. Haphazard selection, acquisition, weeding and preservation practices bedeviled the institution and made implementation of collection development activities difficult. This is a clear case of lack of CDP creating problems which possession of it would solve. A CDP that contains a preservation policy section for the institution’s resources remains invaluable.

Stephen (2015) reviewed some essential ideas, goals and hypothetical structure of assortment improvement, featuring different techniques by which assortment advancement and the executives can be actualised and used. Difficulties to viable administration and usage of data administrations were thought of and suggestions made worried that materials assets ought to be requested for the library without hanging tight for accreditation practice prior to leaving on acquisitions; Education Trust Fund (ETF) for book mediation ought not be stripped and ought to be opportune gotten to; and curators in the foundations of higher

learning should demand having a composed and utilitarian approach to assortment improvement of data assets. This proposal was on the grounds that an absence of composed proper approach was found. Moreover, bookkeepers in the organisations of higher learning were to be urged to go to proficient courses, workshops, and meetings to expand their insight on assortment advancement and the executives towards data assets conveyance. A combination of the efforts of the librarians in increasing their knowledge, and the explicit setting out of the collection development policy is seen here as a step in the right direction, for getting any cultural heritage institution well grounded.

The rare books and manuscripts section of the ACRL (2019), delineated ethics and guidelines for special collection librarians. Indigenous knowledge comes under the scope of special collections in this instance. The preservers, conservators and curators of special collections are a part of the human resources environment of CHI. The ethics and guidelines for the collection have an impact and so institutional environment and collection development policy would likely have a significant relationship as it concerns preservation of indigenous knowledge.

The regulatory environment of any institution fundamentally affects plausibility and attractiveness, and besides both possibility and allure decidedly influence aims of people in the manner they act. This reality, Urban and Kujinga (2017) emphasized in their review of 1,200 understudies in the Faculties of Management and Commerce at three unique noticeable state funded colleges in South Africa. They affirmed that inspiration and simple entry in setting up a social undertaking is a significant initial phase in empowering social business visionaries. Motivation and ease of access in social entrepreneurship was the focus of the study, however the factors could be applied in the organisational and sociological aspects of the institutional environment of cultural heritage institutions. Motivation of staff in charge of IK preservation and ease of access to it by users of cultural heritage institutions could affect its preservation.

Munyenyembe, Chen and Chou (2020) also argued that administrative foundations force or recommend principles of satisfactory conduct and set the lawful punishments for non-recognition of the guidelines. They further battled that administrative institutional climate assumes a part in directing the connection between work commitment and representative non-attendance choices. Agreeing with Valdez and Richardson (2013) that

the administrative climate (formal and casual) is liable for setting rules and building up remunerations or disciplines, they tried to discover among medical services laborers in the low-pay nation of Malawi, which job administrative institutional climate played in truancy probability among the respondents. It was tracked down that the more noteworthy the passionate requests of a task are, the higher the non-appearance probability of the representatives will be. Regulatory institutional environment had an impact on absenteeism likelihood. Though Valdez and Richardson (2013) study did not focus on collection development policy nor cultural heritage institutions, it is obvious that institutional environment especially the regulatory aspect, impacts on workers in institutions generally. Preservators of indigenous knowledge are likely to face similar situations. Indeed, some scientists propose the advancement of a helpful administrative climate along with the improvement of a strong more extensive structure for social undertakings to thrive.

2.7 Institutional environment and technology use

Obasuyi (2020) investigated the factors that affect students' use of the University of Benin Library, Nigeria. Results from the study indicated that there is significant and high level of utilisation of the library among the undergraduates of the university. 16 major features influenced utilisation. Such factors include: information literacy skills, environmental institutional, and human factors among others.

Alziady and Enayah (2019) described the situation in which the last decade saw the development of green data innovation (GIT) which included authoritative drives to decrease the adverse consequence of data innovation (IT) on the climate. GIT has acquired significant interest among specialists due to a colossal adverse consequence on the climate and a broad utilisation of data innovation. An examination instrument was created to connect three segments: coercive pressing factor, regulating impact, and mimicry and study their impact on GIT embrace and continuation goals. The model was approved utilising information gathered from a field overview of 99 administrators of little undertakings (SEs) in Thi-Qar territory of Iraq. The examination uncovered that standardising pressures are the most compelling in the selection of green IT. The coercive pressing factors have the main impact on the duration utilisation of GIT rehearses. The examination outlined information in its field, with respect to the leader's expectation for the reception and proceeded with utilisation

of GIT through the advancement of a hypothetical system that recognised the critical variables of GIT selection and aim duration.

The strength of the institutional climate is an imperative factor for the development and improvement of associations. Aidoo (2020) zeroed in on the effect of institutional climate on little medium ventures (SME) securing and use of licensed technology from abroad. The factors of institutional environment considered in the use of licensed technology from abroad were: financial institutions, regulatory institutions, infrastructure, and security. Data from the manufacturing and the service sectors of the economies of Africa and the Middle East were collected from the database of the World Bank Enterprise Survey. Cross-sectional data collection method was used to administer questionnaires to firms from 2006 to 2018 and the results were analysed. The factors financial institutions, regulatory institutions, infrastructure, and security, were found to have statistically significant impact on the utilisation of authorised innovation from abroad. Institutional climate affects innovation use.

Ajibade (2018) posits that the impression of clients of the handiness of the innovation and the simplicity with which it very well may be utilised, are probably going to be shaped whenever clients have acquainted themselves with the frameworks dependent on their past IT ability and encounters in utilising the framework. He stated the viewpoint that a worker acknowledges the utilisation of innovation in accordance with the institutional IT strategy, regardless of whether the innovation is not difficult to utilise. The center contention is that, staff IT capability and encounters advance the usability of innovation, while their acknowledgment and goal is directed by the organisation's standards, strategy, and IT rules. The utilisation of innovation is thus guided by innate factors related to usage (for instance, proficiency, ease of use experiences) and acceptance of the technology depends on institutional factors like the rules, policy (regulatory) and IT guidelines (organisational). These are factors that are applicable in preservation of indigenous knowledge as well. Technology use and institutional environment could affect IK preservation.

Eze, Chinedu-Eze, Okike and Bello (2020) explored factors affecting the utilisation of e-learning by understudies in private advanced education foundations (HEI) in Nigeria utilising Technology Organisation-Environment (TOE) system. Semi-organised meetings were utilised to gather information from 15 understudies from L-University drawn

deliberately from the Landmark catalog and a cross breed topical investigation to examine the information. It was discovered that innovation related components (usability, speed openness and administration conveyance), association related variables (preparing backing and variety), climate related elements (mentalities of the clients) and effect related elements (learning experience, ability improvement, scholastic execution, and level of commitment) impact the understudies' appropriation of e-learning offices. From the discoveries, every one of the members uncovered that innovation related factors like usability, speed and availability and administration conveyance impact their use of the e-learning offices, while 93 % of the members showed that associations related factors, for example, preparing backing and variety shape their utilisation of e-learning offices. Then again perspectives of the clients were connected to the climate, guaranteed by 53% of the perspectives on the members, while 93% demonstrated effect related factors like learning experience, ability advancement, scholarly execution and level of commitment. The ramifications reasoned was that private HEIs ought to continually prepare both staff and understudies.

Likewise, in Italy, the story is all the more distinctly tended to. Guccio, Martorana, Mazza and Rizzo (2016) dissected the advanced ventures completed by the Ministry for Cultural Heritage and Activities and Tourism (MiBACT) for the protection and usage of social legacy that is overseen by open noteworthy documents to assess their effect on the admittance to social items. They tracked down that the presentation and dispersion of computerised advancements hugely affect the creation, safeguarding and use of social legacy. The task involved the assortment of metadata on social items saved in the nation and the arrangement of advanced social items. Digitisation strategies and web frameworks influenced most exercises did by the establishments, the creation of social merchandise, the utilisation and valorisation of social legacy, just as the expenses of protection.

The connection between institutional climate and mechanical advancement execution was additionally examined by Wang and Xiao (2017). They broke down the directing job of outer social capital and top supervisory crew heterogeneity in the connection between institutional climate and mechanical advancement execution. It was tracked down that great institutional climate can work on the presentation of mechanical development essentially; social capital as a casual, non-required framework can be utilised to control singular conduct and advance the organisation's innovative advancement execution; and,

that senior supervisory group heterogeneity and innovative development altogether achieve negative relationship.

In a connected report, Aidoo (2020) researched the effect of the institutional climate on the utilisation of authorised innovation. Since the vigor of the institutional climate is an imperative factor for the development and advancement of a firm, the investigation zeroed in on the effect of elements of institutional climate on little medium undertakings (SME) obtaining and utilisation of authorised innovation from abroad. Factors considered as the components of institutional climate were: monetary organisations, administrative foundations, framework, and security. Information from the assembling and the assistance areas of the economies of Africa and the Middle East were gathered from the data set of the World Bank Enterprise Survey, utilising arbitrary examining to choose firms in every country. The organisations were delineated dependent on the quantity of representatives and the topographical locale. Surveys were utilised for information collection. It was tracked down that the variables of institutional climate essentially affected the utilisation of authorised innovation from abroad. Monetary foundations, administrative organisations, framework, and security had effect on utilisation of authorised innovation.

Nikonova and Biryukova (2020) broke down the properties of virtual types of social legacy conservations with regards to collaboration between contemporary society and social custom. The benefits and disservices of computerised advances in the field of conservation of social legacy were thought of and it was discovered that techniques for making of virtual social stockpiles don't generally permit to protect the genuine impression of memory, history and custom the same way a genuine exhibition hall does and subsequently, the axiological importance of the term legacy is lost. Conversely, virtual galleries and advanced reproductions of social ancient rarities help to ensure and save data which in any case would be lost.

Giglitto, Ciolfi, Claisse and Lockley (2019) introduced and examined the consequences of a subjective report pointed toward recognising which job intuitive advanced advances could play in working with the investment of networks in danger of rejection (especially transients and displaced people) in social and legacy related exercises. Reviews and meetings with social legacy experts and local area facilitators were utilised to accumulate experiences about their viewpoints on how ICT apparatuses could uphold their

work with and for networks, just as the difficulties they face. Their examination shed light on the chances and boundaries to the utilisation of computerised innovations for investment in the social legacy area, and simultaneously added to the developing group of work on participatory ICT in orders like human-PC collaboration and local area informatics. The socio-technical aspect of work in cultural heritage institutions is exemplified here. Humans and technology interact, to produce work which is the desired result. The work (labour) is divided between the community and the cultural heritage professionals, and technology (digital) is used to achieve set goals.

Hess, Colson and Hindmarch (2018) reiterated that understanding the issues in social legacy protection and computerised legacy starts with information trade and the training of present and future partners in the area. Accordingly, they looked at that as an inventive combination of computerised innovations into gallery practice and expert improvement courses is vital. Three contextual investigations including information trade among colleges and social legacy foundations were depicted. The tasks included interdisciplinary skill and the utilisation of novel advanced advances which permitted the chronicle of profoundly exact 3D information for the reasons for filing, examination, safeguarding and public commitment. An achievability concentrate regarding the utilisation of 3D advances for the documentation of metal items, the improvement of a new minimal expense 3D imaging unit and effort exercises, and fostering a 3D securing convention for observing the Bremen Cog, a fourteenth century transport were the three undertakings. Suggestions for cultivating limit building and information trade, just as on the significance of acquainting historical center and legacy experts with the most recent improvements in computerised advances were made. Hess et al (2018) duly recognised how interdisciplinary work in museums using technology added value to the institutions. Developing human capital in institutions through provision of learning opportunities in workshops or academic curricula will make a difference in cultural heritage institutions.

Fasae, Larnyoh, Esew, Alanyo, and Holmner (2017) conducted a study that investigated how institutional vaults are making covered up or lost social advanced legacy available in scholarly libraries in chose nations inside Africa. Poll was utilised to gather information from scholarly staff in chosen scholastic libraries in Nigeria, Ghana and Uganda. The discoveries uncovered that majority demonstrated that they have just

theories/theses in their institutional storehouse, while many (68.8%) showed they have research articles and compositions in their institutional vault individually. The examination additionally found that about 85% advantage accrued from utilising digitised legacy materials. Deficient assets, shaky force supply, helpless web availability, and helpless promoting of an institutional storehouse among others are the significant difficulties looked in the execution and employments of IRs. It was suggested that the administration of the establishments ought to guarantee that enough assets are designated for the execution of institutional vaults. Likewise, it was suggested that there ought to be the foundation of viable backing estimates that will make mindfulness both inside and outside the scholastic climate on execution and employments of an institutional archive in scholarly organisations in Africa. To access hidden cultural heritage, institutional repositories are deployed. This is using technology to advantage to prevent loss of indigenous knowledge.

Conservation of existing social legacy relics keeps on representing a genuine test, as an assortment of elements, for example, ill-advised capacity conditions, environmental change or afflictions like flooding lead to crumbling or loss of social legacy overall influence the action. The International Atomic Energy Agency (IAEA) (2017) set that both synthetic and actual techniques have been produced for treatment and reclamation of social legacy ancient rarities, yet in any case, substance strategies may leave unwanted synthetic compounds, and actual techniques for the most part will utilise outrageous conditions which are not appropriate for certain kinds of material. Acknowledgment of radiation innovation for therapy of social legacy relics has in this manner been turned to by public and worldwide exploration programs.

The IAEA has in its book given cutting edge information on use of radiation innovation for sanitisation and solidification. It is addressed to the preservation local area (custodians, conservators/restorers, enlistment centers, workmanship history specialists, archeologists, protection researchers) dynamic in the different fields of social legacy (in galleries, libraries, chronicles, archeological establishments, recorded structures, protection workshops) and furthermore to the ionizing radiation local area (researchers, architects and professionals working in different trains like radiation innovation, radiation science, natural innovation and radiation science).

Technology use in libraries, archives and museums is essentially extremely useful in IK preservation while the environment in which the preservation takes place impacts on the technology used and the regulatory, organisational, sociological and physical environment itself. There are however challenges of preserving cultural heritage in the heritage institutions, to consider.

2.8 Challenges of preservation of indigenous knowledge

Scholars and researchers have examined various barriers and challenges to preservation of indigenous knowledge. Phiri (2002) studied the ways and means of exploiting indigenous knowledge in Malawi and after analysing the policy guidelines for this exploitation, recommended that a good documentalist was essential for the success of documenting indigenous knowledge activities. This is in tandem with the submissions of researchers such as Sithole (2007) who discussed the challenges of documenting indigenous knowledge. Sithole identified factors such as the lack of legal framework at the national and local level to support the efforts of the libraries and archives, financial, human capacity and technology; and fast developing information and communication technology as challenges militating against the documentation of indigenous knowledge in Africa.

Zaid and Abioye (2010) found that various requirements are militating against cooperation drives of the social legacy foundations: administration, proficient uniqueness, deficient financing, nonattendance of strategy, customary expert competition, seen danger of joint effort, absence of help from partners, low degree of ICT improvement and computerised content creation, project maintainability, and absence of mastery and framework for joint effort innovation. Popoola (2003) believed that data experts in Africa can't wave to the side the conspicuous truth that the mainland stands the impending peril of losing quite a bit of its important legacy materials in outcome of truly expanding weakening, absence of coordination in taking care of records, nonattendance of lawful arrangements and so on He suggested formulation of and implementation of sound preservation policies and programmes as solution.

Unfavourable tropical climate is a challenge to preservation in Africa especially. The temperature and relative humidity (RH) are not stable and since they fluctuate, it becomes difficult maintaining materials and objects at correct level adequate for

preservation. Capacity climate is a basic factor in the crumbling of legacy materials in Nigeria (Zaid and Abioye, 2010). The tropical climate is not favourable. This makes preservation difficult and expensive to sustain. Poverty of the heritage institutions is therefore a challenge. If the budget for the institution is low, then preservation activities automatically suffer. This is a situation that should be avoided at all costs.

Some of the problems of documentation and ultimately, preservation of traditional medicine incorporates the shortfall of community exertion by different government organisations occupied with documentation of customary information. Another issue distinguished was the simplicity with which digitised data could be replicated and communicated raises issues concerning the capacity of the networks to ceaselessly guarantee proprietorship and uprightness of their insight and that its holy highlights are not compromised. Concerning the materialness of regular licensed innovation rights (IPR) to customary medication information, it was seen that the idea of copyright and individual rights to secretly claim and control data is at chances with conventional thought that information is on the whole own and shared. A maintainable structure with this impact will be one which safeguards the collective rights normal for conventional information, improves admittance to customary information for logical disclosure and advancement while simultaneously conceding conventional networks evenhanded admittance to any business advantage emerging from the utilisation of such information. This is also one of the contentions by Hunter (2003). The community or knowledge holders have to be involved.

Zaid and Abioye (2010) advanced the opinion that absence of collaboration is a problem among cultural heritage institutions. If the institutions cooperate, they can achieve more in their preservation activities. They could exchange trained personnel if need be to tackle knotty problems and also could collaborate in the area of training less skilled personnel for each other. Myriad of problems existed in the area of getting skilled manpower requirements for preservation and conservation work in Olabisi Onabanjo Library, Ago-Iwoye which they studied to determine the deterioration rate of library materials. Exchange in training personnel could be a solution to this problem.

Makinde and Shorunke (2013) pointed out that IK is being harnessed by multinational corporations, universities, research institutions and private firms. They

discussed the challenges facing documentation and communication of IK in libraries in Nigeria. This they garnered from the literature rather than empirical study of their own, and summed up that the challenges are paucity of professional and institutional documentalists, the tacit nature of IK, low patronage of library resources that used consultation of documents on indigenous knowledge, the individualistic nature of IK; and lack of adequate network technology.

Proper preservation or risk management should involve collaboration between librarians and scholars who can make judgements about the physical risks that threaten collections and thus ensure the survival of legacies for the future left by past collectors. Three significant difficulties to the administration and safeguarding of IK have been distinguished as: openness, stockpiling and conservation media and licensed innovation rights. Lack of standard or routine carrying out of periodic environmental surveys in CHI is also a challenge to documentation of indigenous knowledge. If environmental surveys are carried out regularly the shortcomings will be detected early and corrected before the collection deteriorates too much (Schmidt, 2016). Libraries ought to carry out periodic environmental surveys to ensure that there is always good air circulation around the library, the place is physically secure, fire prevention devices are in place and functioning, to mention a few.

Inadequate funding is yet another challenge facing cultural heritage institutions. The budgets of the institutions do not often meet the requirements of their digitisation projects and most times low priority is given to preservation activity by government. Manzhukh (2003) discussed the business misuse of social legacy in memory organisations with regards to the better approaches for performing fundamental legacy access and safeguarding capacities and the difficulties that emerge in carrying out digitisation projects. It was observed that many challenges faced the institutions in trying to charge fees for viewing their digitised collections. Charging of fees for services is not very common in libraries, but museums and archives practice this mostly to be able to maintain their facilities.

Zaid and Abioye (2010) similarly observed that “most legacy organisations are horribly underfunded, a circumstance which has desperate ramifications for the tasks of the establishments and the endurance of the legacy materials in their authority". They thought that it was troubling that an immaterial level of the financial plan allotted to legacy

establishments was reserved for protection, and that the foundations needed to admire worldwide associations with predisposition for social legacy and contributor offices, for subsidizing. They relied on agencies like UNESCO, USAID, and other such agencies to assist them in setting up their cultural heritage institutions for the preservation of indigenous knowledge. Meanwhile funding is critical to the maintenance of indigenous knowledge domiciled in the cultural heritage institutions. Funding actually contributes to the institutional environment of the institution.

Kalusopa and Zulu (2009) in an investigation of the difficulties of computerised legacy materials protection in Botswana tracked down that coming up next were holes with respect to the situation with advanced legacy materials safeguarding in Botswana: absence of a public approach system on advanced legacy material conservation; pertinent enactment on ICTs, particularly on computerised material conservation, is yet to be drawn and established; absence of obviously characterised public legacy institution(s) answerable for computerised material protection; nonappearance of composed public drives and projects on digitisation. They likewise distinguished holes in the vital human asset necessities as far as information, abilities and skills to drive computerised legacy material protection in legacy foundations; absence of norms in advanced legacy material conservation as far as equipment, programming, stockpiling media and metadata; and an indiscriminate way to deal with advanced legacy material safeguarding in most legacy organisations. Different difficulties were nonappearance of neighborhood organisations that could fill in as models for 'best practices' (or focuses of greatness) in computerised legacy material protection. Once more, the administration of native information frameworks, as far as their digitisation, still needed to be tended to just as calamity arranging and recuperation in most legacy organisations, (Kalusopa and Zulu, 2009: 106).

Adewumi (2014) critiqued the National Commission for Museums and Monuments Act of 1990. The article highlighted the Act and its stipulations and provisions systematically one section after the other. It considered the adequacy and relevance of the sections to the objectives of the Act and compared it to that of other nations. It concluded that the NCMM Act does not have provisions wide enough to be used for achieving its purpose of preserving, conserving and restoring Nigeria’s historical, cultural, artistic and scientific relics. In addition, it is outdated and has “failed in meeting the contemporary

reality of integrated development, customary and community rights and value systems." There is an urgent need for the review of the 1979 NCMM Act to accommodate current realities and solve current challenges. Subsidiary legislation can amend the Act because in essence "though cultural heritage is the heritage of humanity, its sustainability rests more on national governments and legislations". The legislation in this case agreeably so will help to improve the conditions under which cultural heritage institutions particularly the Museums and Monuments function and take care of preservation activities.

Absence of skilled manpower was found to be a problem in the preservation of indigenous knowledge in cultural heritage institutions. The institutions usually rely on foreign agencies for human resource capacity building for example. In Nigeria, the Institute of Archaeology and Museum Studies does not have adequate facilities to meet the requirements of heritage preservation (Zaid and Abioye, 2010). This is a sorry state of affairs. Just as with the NCMM Act, action is required to ensure that skilled manpower is provided to preserve indigenous knowledge.

Plockey (2014) looked at the issues, possibilities, and the job of public libraries in Ghana in digitising native information for any kind of family down the line and availability to the overall population. Utilising essentially writing audit and a meeting of the overseer of Public Library Service in Ghana, it was uncovered that absence of human asset, finance; framework, web network, and copyright, in addition to other things, have an incredible test in the digitisation of native information in Ghana. Plockey pushed preparing of public curators, leading of examination dependent on endogenous methodology, arrangement of foundation, and giving a strategy structure which will improve the way toward changing over data into an advanced organisation.

Nakata, Hamacher, Warren, Byrne, Pagnucco, Harley, Venugopal, Thorpe, Neville, and Bolt (2016) proposed the catching, overseeing, and spreading of native cosmic information in the computerised climate. Perceiving that it represents various difficulties, they decided to resolve the issue utilising a community project including specialists in the advanced education, library, and industry areas. They proposed to utilise Microsoft's WorldWide Telescope and Rich Interactive Narratives advancements, to foster programming, media plan, and authentic administration answers for permit native networks

to impart their galactic information to the world based on their conditions and in a socially touchy way. This is a useful preservation exercise.

Chisita and Kaddu (2014) through observation, face to face interviews and literature analysis, discussed the role of higher education institutions in promoting traditional knowledge (TK), challenges of TK with special reference to challenges related to characteristics of TK, challenges of protecting and repackaging TK. They also discussed women's role in the preservation of TK and the reasons why traditional knowledge is lowly appreciated with recommendations towards repackaging traditional knowledge to spur development. Higher education institutions certainly need to be in the forefront of assisting to get traditional knowledge preserved and repackaged for the development of society. It is a challenge that needs to be taken up seriously.

Adeleke, Aina and Lateef (2011) carried out an investigation of the protection and safeguarding rehearses at Chevron Texaco Nigeria Limited, and the Nigerian Conservation Foundation (NCF), Lagos. Poll, meeting and individual perceptions were the significant instruments utilised for information assortment. The investigation set up that the central point answerable for the crumbling of data materials in these associations is the helpless treatment of data materials and absence of room too. It was consequently suggested among others that there ought to prepare programs for data overseers/clients, and improvement in the capacity climate to such an extent that the capacity temperature and moistness levels are controlled maybe most efficiently by air conditioning. It was also recommended that putting in place different staffing options such as Preservation officer, Preservation librarian, Book conservator and Collection conservation librarian would improve the preservation situation.

Oluwaniyi (2015) conducted a study the protection and safeguarding rehearses at Chevron Texaco Nigeria Limited, and the Nigerian Conservation Foundation (NCF), Lagos. Poll, meeting and individual perceptions were the significant instruments utilised for information assortment. The investigation set up that the central point answerable for the crumbling of data materials in these associations is the helpless treatment of data materials and absence of room too. It was consequently suggested among others that there ought to prepare programs for data overseers/clients, and improvement in the capacity climate to such an extent that the capacity temperature and moistness levels are controlled maybe most. Though the resources referred to in the study were not classified as indigenous knowledge

resources, the challenges faced in preserving them are similar to and akin to those for IK resources.

Rakemane and Mosweu (2020) carrying out a systematic literature of difficulties of overseeing and safeguarding general media chronicles in documented organisations in Sub Saharan Africa, found lack of funding, low level of infrastructure, inadequate training of staff, and policy absence or non-implementation to be problems. Budgetary limitations, poor natural controls, unfit staff and innovative out of date quality were the significant difficulties hampering the endeavors of documented foundations in Sub Saharan Africa to oversee and protect general media files. Yet audio-visuals remain one of the main sources of documenting and preserving indigenous knowledge. As Nworie and Nwosu (2019) also observed, the issue of innovative oldness is unavoidable in light of the fact that advanced media have kept on developing throughout the long term. The gear to utilise them change every once in a while, in this manner making issues in recovering the data content.

Challenges identified by Azubuike and Aji (2021) in spite of the accrued benefits of indigenous knowledge and the essence of repackaging are: misconception by many natives as to the extraction of their IK from its borders; inadequate finance to achieve effective IK documentation and communication; cultural homogenization and death of indigenous people to mention a few. They made recommendations for librarians to gain the confidence of indigenous people to make them recognise that IK should be collected, repackaged and preserved for future generation; and for custodians of cultural heritage to be proactive in handling IK resources collaboratively with the community as well as preparing inventories and registers among others, to make IK easily accessible (Azubuike and Aji, 2021).

Preservation of indigenous knowledge especially in Africa is thus faced with many challenges, of which policy, legislation, technology, lack of skilled manpower and inadequate funding are the main issues. The many challenges are to be resolved if preservation activities are to be carried out in institutions that prioritise cultural heritage and its activities.

2.9 Theoretical framework

The main aim of preservation of indigenous knowledge in cultural heritage institutions is to make the knowledge available to the community and the general public

who may be interested in promoting scholarly work (learning, teaching and research activities) or for people interested in preserving the heritage of the people. For these objectives to be achieved custodians of cultural heritage have to use technology, and work within the mandate or policies (especially collection development policies) governing their institutions as well as consider the institutional environment. Their work is not done in isolation but in a social context of relating to others, and of their behaviour cum activity while using technology as a tool for preservation work. Therefore, the theoretical framework of this study is based on the Socio-Technical Theory (STT), and the Cultural Historical Activity Theory (CHAT).

2.9.1 Socio-Technical Theory (STT)

The socio-technical theory grew out of Tavistock Institute of Human Relations, England, where approaches to build efficiency and spirit in associations through "activity research" were investigated (Mumford, 2000). Tavistock researchers pushed that equivalent consideration ought to be paid to giving a palatable workplace to representatives and the principle advancement of the Tavistock research was the plan of innovation upheld work courses of action that could enhance work works on utilising multi-gifted positions with laborers coordinated into groups. The theory posits that repetitive, undemanding work undermines commitment and performance motivation. Scott (2003) was of the view that human and non-human systems need to be considered when jointly optimising commitment and performance motivation. Bottom-up participation, discretionary behaviour, internalised regulation and work group autonomy are considered. This is a socio-technical view. These are the factors needed in preservation of IK resources.

The Socio-technical theory (STT) also referred to as Socio-technical systems (STS) theory, or Socio-technical view (STV) has been used to analyse organisations or industries in terms of the relationships between the human interactions and the technology being used to perform the jobs in the organisation. Socio-specialised framework configuration depends on the reason that an association or a work unit is a mix of social and specialised parts and that it is available to its environment. Based on this relatively old theory, the Leeds University perspective of socio-technical theory adopts a systems view of organisations made up of a set of interacting sub-systems hexagonally represented (Figure 2.1).

The premise adopted is that any association utilises individuals with abilities, who pursue objectives, follow measures, use innovation, work inside an actual framework, and offer certain social suspicions and standards (Leeds University Business School, 2017).

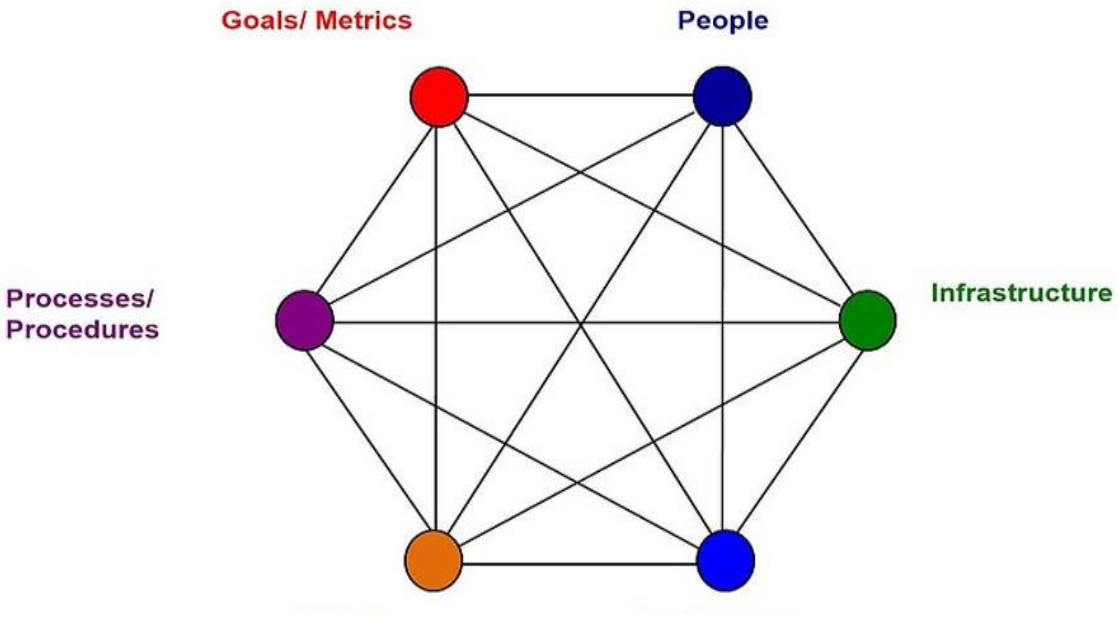

Figure 2.1: Leeds University Business School perspective on socio-technical theory (Leeds University Business School, 2017)

This theory has been used to analyse ICT, since fitting change strategies and procedures that help people and gatherings utilise accessible innovation are required. The sociotechnical approach is one which looks to recognise the elements among innovation and the social, proficient, and social climate in which it is utilised. Indeed Eason (2008) evaluated the helpfulness of the sociotechnical hypothesis in adding to a world in which adaptable, multifunctional data and correspondence advancements are by and large consistently executed into existing functional work framework. For this study however, indigenous knowledge preservation provides a scenario where technology and the social, professional and cultural heritage environment are brought together. The socio-technical frameworks theory is relevant to this study in that what it propounds gives an explanation of the interaction of the custodians of cultural heritage (human resources) in the use of technology to carry out their preservation activities in their work places and within the social environment they are situated in.

2.9.2 Cultural Historical Activity Theory (CHAT)

The other relevant theory to this study is the Cultural Historical Activity Theory (CHAT) which was also used. The Cultural Historical Activity Theory is based on Vygotsky et al's theory (Vygotsky, 1978) that learning (the act of knowledge being imparted (the verb)) is a social activity, and Learning (the noun) is socially constructed. Therefore, knowledge, learning and intentional activity cannot be separated. A movement is a result of an association of the taking an interest subject, instruments utilised in the action and activities and tasks that influence the result (Daniels, Edwards, Engeström, Gallagher and Ludvigsen, 2010). This action has significant setting for singular activities, and it should be remembered for the fundamental unit of examination in research.

The expanded scope of Engeström (2001) on Vygotsky's ternion model of mental turn of events and Leontiev's (1981) chain of command of action framework by including cultural and context-oriented components in particular, rules, local area and jobs or division of labour in the activity model (Fig. 2.2) is applied in this study.

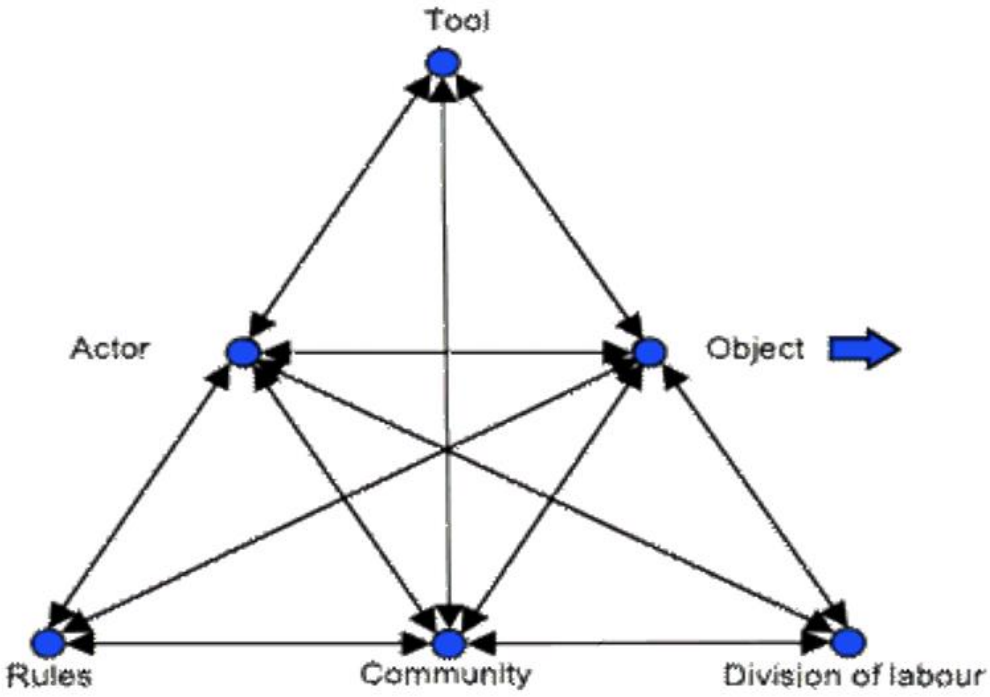

Figure 2.2: Activity system diagram (adapted from Engeström, 2001)

The CHAT theory posits that for new practices to be developed there has to be alignment with local or environmental factors such as the social (mainly relationships like power, support etc.) cultural (the way things happen, what they mean etc.) and historical (current context, arrangements, etc.) context (Daniels et al., 2010). Thus, persons or groups (Subject) perform activities that have impact by using tools and artifacts, on experiences, knowledge or products (Object) to bring about Outcome (Success or Well-being). They need Rules, Community and Division of labour to do this.

For indigenous knowledge preservation, custodians of cultural heritage go through the process of preservation using various manual and digital technologies (tools and artifacts). They follow rules (policies, norms including collection development policies) and have societal and contextual elements (institutional environment) with division of labour applied, to bring about the outcomes of the preservation process (well preserved indigenous knowledge) resulting in a sense of professional success and professional well-being at the end of the activity. The process of preserving cultural heritage by the custodians and their sociotechnical use of the tools is germane to this study.

The two theories proposed for the present study are considered suitable because the cultural construct in CHAT is basically dealing with the indigenous knowledge variable which is also rated historical/cultural in nature hence, the rationale behind choosing it. In addition, the theory has been validated and used by previous studies (Leontiev, 1981; Engestrom, 2001; Daniels et al, 2010). Based on the uniqueness aforementioned, the research considered CHAT to be relevant to the present study. The issue of technology is expected to facilitate the sharing or exchanging of the indigenous knowledge through technology with the help of the Socio-technical theory. STT is the human interactions and the technology being used to perform the jobs in the organisation. In order to gather (or document) the indigenous knowledge or information and to disseminate it to a vast audience, then the use of technology must be embraced. Hence, the researcher found the STT theory suitable for the present study as well, in tandem with studies by Mumford (2000), Scott (2003), and Leeds University Business School (2017) who found the theory relevant to their work; thus, making it best suited to the present study.

2.10 Conceptual Model

The conceptual model of this study shows how the independent variables (collection development policies (CDP), institutional environment (IE) and technology use (TU) relate to the dependent variable, IK preservation (PIK) (Fig. 2.3).

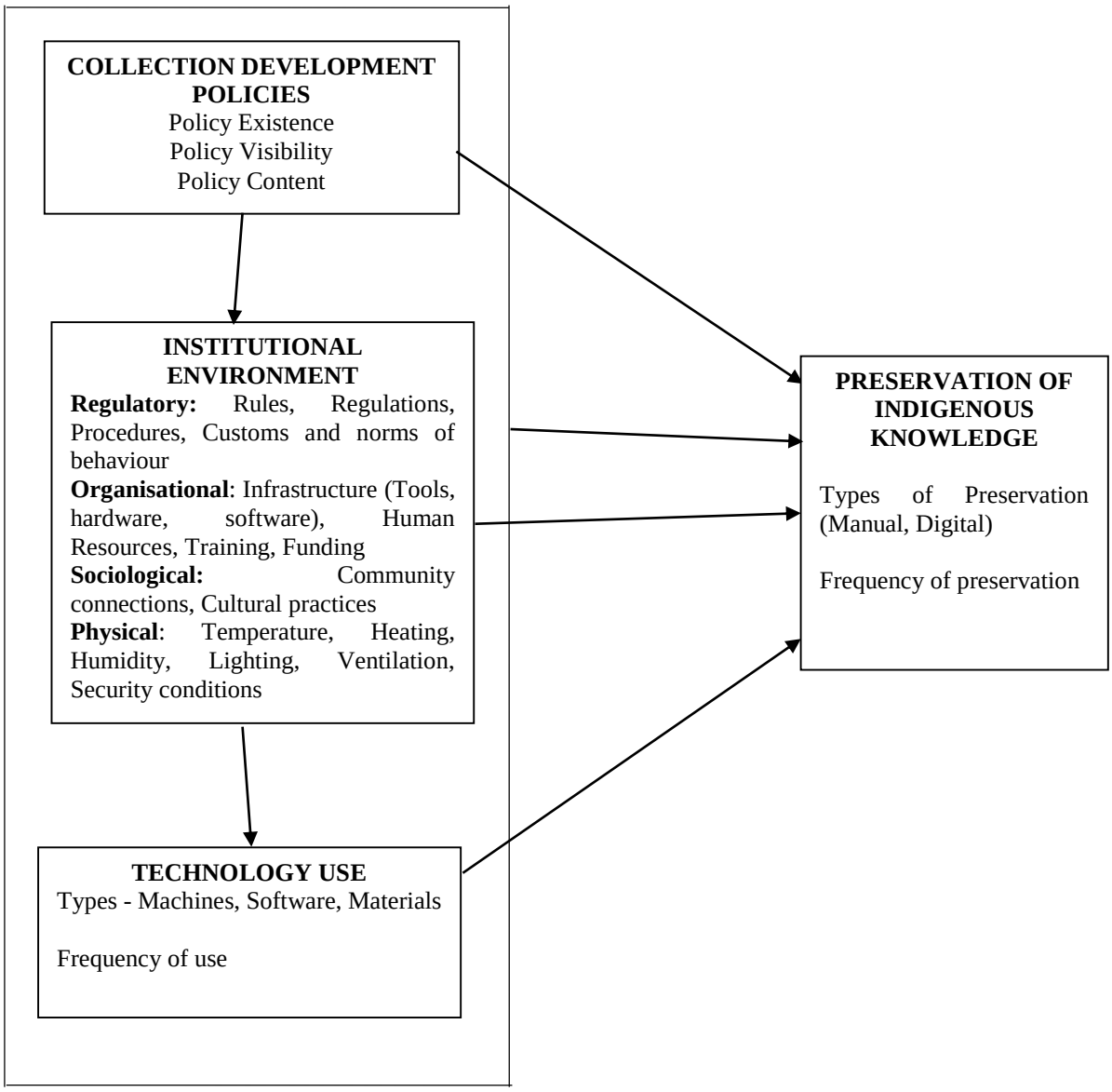

Fig. 2.3. ***Conceptual model for collection development policy, institutional environment and technology use (Self constructed)***

The use of technology in cultural heritage institutions, the collection development policies in operation, and the institutional environment of the cultural heritage institution have influence on the preservation of indigenous knowledge among the custodians of cultural heritage. The model further shows how the independent variables relate to each other as indicated by the arrows. Technology use is linked to collection development policies, in other words, use of technology helps to ensure policy content and where the policy is online the technology assists in making policy visibility an easier task. The institutional environment also can affect technology use since rules regulations, the community connections, and external factors like heating, lighting, security and so on come into play in using technology. These in turn affect preservation of indigenous knowledge.

2.11 Appraisal of the literature reviewed

The literature reviewed revealed that the preservation of indigenous knowledge is now a worldwide concern which has implications in cultural heritage institutions. Cultural heritage institutions especially libraries and archives are playing a great role in cultural heritage development efforts. They help to ensure that the memory of the community, especially records of activities that document development processes are not lost.

Collection development policies in cultural heritage institutions are important documents that provide a guide to the systematic acquisition of heritage materials and also point out how the materials should be organised, what should be done with them, and how to preserve them. The CDP are more often unwritten, though written policies are more desirable. In cases where they are written, they are not always visible, and implemented by the institutions that created them. This has adverse implications for the heritage collections in the institutions in particular. CDP and the ethical, and legal issues they are meant to address are not adequately catered for, neither are CDP very visible on institutions' websites, nor do they adequately describe or give directives on what is to be done with the collections.

The literature reviewed also highlighted the importance of institutional environment in the preservation of indigenous knowledge. The environment of the institution had effect on the preservation activities. The physical environment of the institution has to be that which will allow preservation activities to take place. The security (physical and electronic)

of indigenous knowledge collections was considered to be important in safeguarding the collection in cultural heritage institutions from the literature.

The various technologies used to preserve indigenous knowledge in the CHI included digitisation, emulation, photocopying, deacidification of paper-based materials and lamination among others, while routine use of equipment like airconditioners, fans, dehumidifiers, and dust-blowers were commonly used to ensure IK preservation. The importance and purpose of technology use in the IK preservation was however emphasised in the literature. Technology use in the cultural heritage institutions in Nigeria as compared to the developed world is not yet so sophisticated or advanced, though what is currently being done has preserved some valuable cultural heritage to date.

Preservation practices are hampered by lack of proper use of technology, lack of trained manpower, lack of funds, or insufficient funding in libraries, archives and museums. CHI in Nigeria seem to be besieged with challenges that make preservation difficult. Collection development policies, institutional environment, and use of technology are interrelated in the preservation of the knowledge. However, the collection development policies and the institutional environment especially in Nigeria leave a lot to be desired.

There is gap in the literature as there are very few studies that hinge on the collection development policies, the institutional environment and technology use as having effect on preservation of indigenous knowledge among custodians of cultural heritage. In addition, the studies are mainly on single types of cultural heritage institution, that is, there are studies individually on libraries, archives, or museums and a dearth of cross institutional studies. This study aims to investigate across different types of heritage organisations to fill the gap in literature.

The literature reviewed along the variables of the research, hinging on the behaviour and activities of the custodians of heritage have revealed a relationship that exists within the framework of the Sociotechnical Theory (STT) and the Cultural Historical Activity Theory (CHAT) in the existing literature. The conceptual model of the study has indicated the interrelationships that evolve among the variables, as confirmed in the reviewed literature.

CHAPTER THREE
METHODOLOGY

3.1 Introduction

This chapter is concerned with the method adopted in carrying out the research. It covers Research design; Population of the study; Sampling technique and sample size; Research instrument; Validity and reliability of the instrument; Data collection procedure; Questionnaire administration and response rate; Method of data analysis; and Ethical consideration for the study.

3.2 Research design

This study adopted a descriptive survey research design of the correlational type, using both quantitative and qualitative methods. The design is appropriate because it allows collection of numeric and narrative data, which is necessary for a cross-sectional (spanning libraries, archives and museums) study such as this.

3.3 Population of the study

The population of the study comprised 711 (seven hundred and eleven) librarians, library officers, archivists, and museum curators in southern Nigeria. The heads or the deputy of the cultural heritage institutions were also part of the population. These figures were obtained by summing the total of the population of heads of libraries, archives, and museums (70), and the total number of the librarians, library officers, archivists, and museum curators in charge of preservation activities in the institutions in each state in southern Nigeria (631). The spread of the population is presented in Table 3.1

Table 3.1 Population of the study

SN	Institutions	Head/ Deputy	Librarians & Library Officers	Total
1.	Federal University, Oye-Ekiti, Ekiti State	1	5	6
2.	University of Lagos, Akoka, Lagos	1	17	18
3.	Federal University of Agriculture, Abeokuta	1	24	25
4.	Federal University of Technology, Akure, Ondo State	1	13	14
5.	Obafemi Awolowo University, Ile-Ife, Osun State	1	24	25
6.	University of Ibadan, Ibadan, Oyo State	1	29	30
7.	Michael Opara University of Agriculture, Umudike, Abia	1	9	10
8.	Nnamdi Azikiwe University, Awka, Anambra State	1	12	13
9.	Federal University, Ndufu-Alike, Ebonyi State	1	13	14
10.	University of Nigeria, Nsukka, Enugu State	1	64	65
11.	Federal University of Technology, Owerri, Imo State	1	31	32
12.	University of Uyo, Uyo, Akwa Ibom State	1	19	20
13.	University of Calabar, Calabar, Cross River State	1	19	20
14.	Federal University, Otuoke, Bayelsa State	1	12	13
15.	University of Port-Harcourt, Port-Harcourt, Rivers State	1	29	30
16.	Federal University of Petroleum Resources, Effurun, Delta State	1	3	4
17.	University of Benin, Benin, Edo State	1	21	22
SN	**Special Libraries**			
1.	Nigerian Institute for Oceanography and Marine Research Library (NIOMR), Lagos	1	3	4
2.	Nigerian Institute of Medical Research, Lagos	1	5	6
3.	Centre for Black African Arts and Culture (CBAAC), Lagos	1	4	5
4.	Goge Africa, Ikeja	1	1	2
5.	Obasanjo Presidential Library, Abeokuta, Ogun State	1	3	4
6.	Sopolu Library, Ikenne, Ogun State	-	1	1
7.	National Horticulture Research Institute (NIHORT) Library, Ibadan	1	11	12
8.	Forestry Research Institute of Nigeria (FRIN) Library, Ibadan	1	13	14
9.	International Institute of Tropical Agriculture (IITA) Library, Ibadan	1	4	5
10,	Institute of Agricultural Research and Training (IAR&T) Library, Ibadan	1	4	5
11.	Cocoa Research Institute of Nigeria (CRIN) Library, Ibadan	1	6	7
12.	National Institute for Social and Economic Research (NISER) Library, Ibadan	1	5	6
13.	African Heritage Library & Cultural Centre, Adeyipo	1	2	3
14.	J, C. Pool Library, Baptist Seminary Library, Ogbomoso	1	3	4
15.	Rubber Research Institute of Nigeria (RRIN) Library, Benin	1	3	4
16.	Nigerian Institute for Oil Palm Research (NIFOR) Library, Benin	1	2	3
17.	National Root Crops Research Institute (NRCRI), Umuahia, Imo State	1	4	5
	National Library branch			
1.	National Library of Nigeria, Lagos State Branch	1	9	10
2,	National Library of Nigeria, Ogun State Branch	1	6	7
3.	National Library of Nigeria, Ondo State Branch	1	4	5
4.	National Library of Nigeria, Osun State Branch	1	4	5

SN	Institutions	Head/ Deputy	Librarians & Library Officers	Total
	National Library branch			
5.	National Library of Nigeria, Oyo State Branch	1	6	7
6.	National Library of Nigeria, Enugu State Branch	1	8	9
7.	National Library of Nigeria, Imo State Branch	1	6	7
8.	National Library of Nigeria, Cross River State	1	3	4
9.	National Library of Nigeria, Rivers State Branch	1	6	7
10.	National Library of Nigeria, Edo State Branch	1	6	7
	Sub-Total	**40**	**480**	**520**
SN	**Archives**	**Head/ Deputy**	**Archivists & Assistants**	**Total**
1.	National Archives, Lagos Branch	1	4	5
2.	National Archives, Abeokuta Branch	1	5	6
3.	National Archives, Akure Branch	1	2	3
4.	National Archives, Ibadan Branch	1	6	7
5.	National Archives, Enugu Branch	1	4	5
6.	National Archives, Owerri Branch	1	6	7
7.	National Archives, Calabar Branch	1	6	7
8.	National Archives, Port Harcourt Branch	1	4	5
9.	National Archives, Benin Branch	1	3	4
	Sub-Total	**9**	**40**	**49**
	Museums	**Head/ Deputy**	**Curators & Assistants**	**Total**
1.	Didi Museum, Lagos, Lagos Island	1	4	5
-2.	National Museum, Onikan, Lagos	1	3	4
3.	National Museum, Owo	1	2	3
4.	Ife Museum, Ile-Ife	1	7	8
5.	Museum of Natural History, Ile-Ife	1	8	9
6.	Ibadan Museum of National Unity, Ibadan	1	5	6
7.	Cultural Heritage Museum, University of Ibadan	1	1	2
8.	National Museum, Ogbomoso	1	1	2
9.	National War Museum, Umuahia, Abia State	1	15	16
10.	National Museum of Colonial History, Aba, Abia State	1	5	6
11.	Odinani Museum, Anambra State	1	7	8
12.	National Museum of Unity, Enugu	1	6	7
13.	Oron Museum, Akwa Ibom	1	7	8
14.	Calabar Museum, Calabar	1	8	9
15.	Slave History Museum, Duke	1	5	6
16.	National Museum, Port Harcourt	1	9	10
17.	National Museum, Asaba, Delta State	1	8	9
18.	National Museum, Benin City	1	3	4
	Sub-Total	**18**	**104**	**122**
	Grand Total	**70**	**631**	**711**

Source: Solicited data from librarians, archivists and curators in the selected institutions through telephone and e-mails (2018).

3.4 Sampling technique and sample size

Purposive sampling technique was used to select custodians of cultural heritage in South-west, South-south and South-east, of the six geo-political zones in Nigeria. Two stages were involved in the sampling procedure. The first stage involved the selection of custodians in special libraries that had cultural heritage resources in Nigeria, federal universities in Nigeria, all branches of the National Archives and the National Library of Nigeria, and all branches of the National Museum. The reason for selection of the custodians in special libraries is because their libraries mostly had indigenous knowledge focus. The custodians in federal universities were chosen because the libraries are presumed to have more of indigenous knowledge materials due to their status as collector of the country's cultural heritage, and also have indigenous knowledge materials in their collection through Africana or Nigeriana collections. The custodians in the National Library were chosen to represent public libraries in this study because it is the apex library that should bring together all cultural, heritage and indigenous knowledge of the country. Custodians in other types of public libraries were exempted because not all of them majorly collect indigenous or heritage resources and to keep the study within manageable proportions.

The second stage involved selecting two States each randomly from each of the Southern zones. Of the federal university, special libraries, National Library branches, National Archives branches, and museums in Southern Nigeria, the specific institutions in two states from each of the three zones were chosen randomly by balloting method. Lagos, Oyo, Enugu, Imo, Cross River and Edo States were picked. This resulted in a sample size of 27 libraries, 6 archives, and 9 museums, with a total of 42 Heads of institutions and 354 personnel with preservation schedules totaling 396. The spread of the sample size of the study is presented in Tables 3.2a and 3.2b.

All the sampled institutions were used due to the number of professionals involved. Taking the stance of using all the sample population, agreed with the position of Denscombe (2003) that where the population size of the study is not so large, all the population could be studied. All librarians and library officers in the libraries, all archivists and their assistants in the archives, and all museum curators and their assistants in the museums, totaling 396 (three hundred and ninety six), formed the sample size for the study.

Table 3.2a Sample size of the study

SN	University Libraries	Head/ Deputy	Librarians & Library Officers	Total
1.	University of Lagos, Akoka, Lagos	1	17	18
2.	University of Ibadan, Ibadan, Oyo State	1	29	30
3.	University of Nigeria, Nsukka, Enugu State	1	64	65
4.	Federal University of Technology, Owerri, Imo State	1	31	32
5.	University of Calabar, Calabar, Cross River State	1	19	20
6.	University of Benin, Benin, Edo State	1	21	22
SN	**Special Libraries**			
1.	Nigerian Institute for Oceanography and Marine Research Library (NIOMR), Lagos	1	3	4
2.	Nigerian Institute of Medical Research, Lagos	1	5	6
3.	Centre for Black African Arts and Culture (CBAAC), Lagos	1	4	5
4.	Goge Africa, Ikeja, Lagos	1	1	2
5.	National Horticulture Research Institute (NIHORT) Library, Ibadan	1	11	12
6.	Forestry Research Institute of Nigeria (FRIN) Library, Ibadan	1	13	14
7.	International Institute of Tropical Agriculture (IITA) Library, Ibadan	1	4	5
8.	Institute of Agricultural Research and Training (IAR&T) Library, Ibadan	1	4	5
9.	Cocoa Research Institute of Nigeria (CRIN) Library, Ibadan	1	6	7
10.	National Institute for Social and Economic Research (NISER) Library, Ibadan	1	5	6
11.	African Heritage Library & Cultural Centre, Adeyipo	1	2	3
12.	J, C. Pool Library, Baptist Seminary Library, Ogbomoso	1	3	4
13.	National Root Crops Research Institute (NRCRI), Umuahia, Imo State	1	4	5
14.	Rubber Research Institute of Nigeria (RRIN) Library, Benin	1	3	4
15.	Nigerian Institute for Oil Palm Research (NIFOR) Library, Benin	1	2	3
SN	**National Library branches**			
1.	National Library of Nigeria, Lagos State Branch	1	9	10
2.	National Library of Nigeria, Oyo State Branch	1	6	7
3.	National Library of Nigeria, Enugu State Branch	1	8	9
4.	National Library of Nigeria, Imo State Branch	1	6	7
5.	National Library of Nigeria, Cross River State	1	3	4
6.	National Library of Nigeria, Edo State Branch	1	6	7
	Sub Total	**27**	**289**	**316**

Table 3.2b Sample size of the study contd.

SN	Archives	Head/ Deputy	Archivists & Assistants	Total
1.	National Archives, Lagos Branch	1	4	5
2.	National Archives, Ibadan Branch	1	6	7
3.	National Archives, Enugu Branch	1	4	5
4.	National Archives, Owerri Branch	1	6	7
5.	National Archives, Calabar Branch	1	6	7
6.	National Archives, Benin Branch	1	3	4
	Sub-Total	**6**	**29**	**35**

SN	Museums	Head/ Deputy	Curators & Assistants	Total
1.	Didi Museum, Lagos, Lagos Island	1	4	5
2.	National Museum, Onikan, Lagos	1	3	4
3.	Ibadan Museum of National Unity, Ibadan	1	5	6
4.	Cultural Heritage Museum, University of Ibadan	1	1	2
5.	National Museum, Ogbomoso	1	1	2
6.	National Museum of Unity, Enugu	1	6	7
7.	Calabar Museum, Calabar	1	8	9
8.	Slave History Museum, Duke	1	5	6
9.	National Museum, Benin City	1	3	4
	Sub-Total	**9**	**36**	**45**
	Grand Total	**42**	**354**	**396**

(Source: Librarians, archivists and curators in the institutions through personal contacts, telephone and e-mails, 2019).

Effort was made to identify if contract staff were involved in outsourcing aspects of the preservation process.

3.5 Research instruments

The instruments for data collection were questionnaire, interview, document analysis, as well as observation checklist.

a.) The Questionnaire: The questionnaire with three scales of measurement developed by the researcher was used to collect data from custodians of cultural heritage (librarians, library officers, archivists, museum curators and their assistants, respectively) in the institutions, in order to determine the prevailing conditions and practices. These are: Institutional Environment and IK preservation (IEPIK), Technology Use for IK preservation (TUPIK) and Challenges of Indigenous Knowledge Preservation (CIKP).

b.) An Interview Schedule for the custodians of cultural heritage (Librarians, Archives Directors and Museum Directors or their Deputy) was designed to elicit information mainly on Collection Development Policies and Indigenous Knowledge, and on the Institutional Environment and Indigenous Knowledge Preservation which are not included in the three other instruments.

c.) Document Analysis: The Collection Development Policies (CDP) of the institutions were analysed for content and visibility (where they were available).

d.) Observation: The procedures for IK preservation in the CHI were observed using an Observation Checklist designed for the purpose to guide the collection of the observation data.

3.5.1 Questionnaire

The questionnaire tagged Indigenous Knowledge Preservation Among Custodians of Cultural Heritage (QIKPACOCH) consists of five parts:

Section A: This section elicited information on demographic variables of the custodians of cultural heritage with items such as: name of institution, age, gender, position in the institution, division/section, years of work experience, religion and highest qualification. There were four open ended and four closed ended questions.

Section B: This section collected data on the availability of indigenous knowledge materials in the collection using the scale ranging from readily available=4 to not

available=1. The twenty eight items in this scale were developed from extensive review of the relevant literature and the experience of the researcher.

Section C: This section covered institutional environment of the custodians of cultural heritage and was developed based on a comprehensive review of the relevant literature. The section contained one question with thirty one items focusing on regulatory environment (six items), organisational environment (eleven items), sociological environment (five items), and the physical environment (nine items). The response format ranged from strongly agree=4 to strongly disagree=1, to measure the level of agreement or disagreement with statements on the type of institutional environment experienced by the respondents.

Section D: This section focused on techniques for manual and digital preservation of IK among custodians of cultural heritage. The scale used by Olatokun (2008; 18) was adapted for this section of the questionnaire. The scale contained a total of 45 items using very often=4, often=3, occasionally=2 and never=1 to measure the frequency of use of manual and digital techniques (twenty-five and nineteen items respectively), in IK preservation.

Section E: This section was on Challenges of Indigenous Knowledge Preservation. It contained twelve items and the response format which ranged from very great extent=5 to no extent=1 to measure the extent of the challenges of preservation of indigenous knowledge, was adopted from the questionnaire by Olatokun (2008; 18). This questionnaire composed of all these sections was administered on all the respondents except the custodians who were the heads, that is, University Librarians, Archives and Museum Director, or their Deputy. Those exempted were interviewed.

3.5.2 Interview Schedule for Heads of Institutions (ISHI)

The interview, as part of the methods for gathering facts was used because it allows the interviewee to set aside effort to give smart answers and to the questioner to test, follow up, and pose more engaged inquiries. "It is for the most part accepted that the meeting is better at uncovering data that is unpredictable or sincerely loaded" (Connaway and Powell, 2010: 172). An interview schedule was used to collect data from the University Librarians or Deputy University Librarians, Archivists, Museum Curators and key staff in preservation units of the libraries, archives and museums selected for the study. They were interviewed

on collection development policy, the institutional environment as well as challenges faced in the institutions as they relate to indigenous knowledge preservation.

3.5.3 Document Analysis

Collection development policy documents of the cultural heritage institutions were collected from the cultural heritage institutions. The content of the policies were examined and data extracted from them on the issues that concerned indigenous knowledge resources. The policy documents or portions of it that were available were scrutinised to determine their visibility to staff and users of the cultural heritage institutions. The content of the policies in the institution (provided in print, or found online) were examined and data extracted from them on the issues that concern indigenous knowledge resources. The availability or not of the policy in each institution was tabled, and the visibility or not noted as well.

3.5.4 Observation Checklist

A checklist of procedures for preserving the indigenous knowledge resources in the cultural heritage institutions was used to gather data. The five-point checklist observed what facilities were provided for the physical and electronic environment, and was used to check if there were policy statements pasted up on walls or other places visible to staff and users. The checklist was also used to observe if staff followed rules and regulations the same way users did concerning use of IK resources, and to check whether the temperature, humidity, ventilation and so on were adequate for the IK resources. In addition, the checklist helped to note observation of whether users complied with basic preservation routines when using the IK resources. Procedures for using technology in the cultural heritage institutions and for preserving IK were particularly noted and the preservation activities participated in when permitted as a participatory observation measure.

3.6 Validity and reliability of the instruments

Validation of the instruments entails all the processes in ensuring that the instruments used measure what they are intended to measure. Thus, the questionnaire, interview schedule and observation checklist designed by the researcher, went through face validity and content validity by the researchers' supervisor and experts in the field to ensure that the instruments measure appropriately, and to ensure that they are clear, simple and

appropriate to understand by respondents. To establish the reliability of the questionnaire, pretest was conducted in cultural heritage institutions in Kwara State, which is outside the intended coverage of the study. The University of Ilorin Library, the Agricultural Research Management and Training Institute Library, and the Esie Museum were used. A total number of 30 copies of the questionnaire for the staff of the institutions were administered. All the staff on ground in the relevant sections of the institution required in the study filled the questionnaire except those who were on leave at the time of administering the questionnaire. This gave an 80% response rate.

The Cronbach's Alpha test of reliability was adopted for the analysis of the pilot study for the research. The alpha reliability coefficients conducted revealed the following levels of reliability: institutional environment was 0.94, technology use in IK preservation was 0.93, frequency of technology use was 0.77, and frequency of preservation technique used was 0.94, while frequency of challenges of preservation was 0.92. The average reliability coefficient for the instrument is 0.91. This value is considered suitable hence the instrument is reliable to measure the variables for the study.

In order to establish the face and content validity of the interview guide, professors of library studies were consulted and the designed interview guide used in interviewing respondents in Kwara State. The responses to the interview questions were analysed and it was found that some of the questions were repetitive of those asked from the staff in the questionnaire. It was therefore advised by the interviewees that some of the repetitions in the questions be removed while the ambiguous ones be refined. Equally, the supervisor and senior professors in the field of library and information studies made necessary corrections to ensure the face and content validity of the interview schedule.

The documents found on websites of some cultural heritage institutions in Kwara State were examined for the indigenous knowledge collection development policy content. This showed that the analysis was possible. Face and content validity of the Observation checklist was ascertained by the researcher's supervisor and other senior professors in the field of Library and Information Studies in general and IK studies in particular. Validity of the checklist was thus established.

3.7 Data Collection Procedure

The researcher made familiarisation visits to about half of the universities, archives, museums and cultural heritage parastatal chosen for the study. This was with a view to getting acquainted with the terrain. In addition, a letter of introduction duly signed by the Head of the Department of Library, Archival and Information Studies, University of Ibadan was collected to solicit for assistance relevant to getting information or help. Seven research assistants were recruited to assist in administering the copies of the questionnaire in the different sampled heritage institutions. An orientation for the research assistants was conducted on the purpose of their assignments and the study, mode of administration of the questionnaire and the schedule for distribution and collection of the instruments. The orientation was conducted during some of the familiarisation visits of the researcher while others were done by colleagues in three of the six States. Copies of the questionnaire were administered at once with the aid of the research assistants to make the administration less cumbersome.

The researcher personally conducted the interview with 10 (ten) University Librarians or the Deputy, the Directors of Archives and Museum Directors after collection of data through the other instruments. The research assistants in Oyo, Edo, Cross River, Imo and Enugu States conducted the rest of the interviews. The researcher and the research assistants in three States observed the points on the checklist and noted them down. The documents gathered from the field and those found online concerning the collection development policy were analysed for their existence, visibility and content as appropriate. In all, a total of 12 weeks was spent collecting the questionnaire and observation data, and 10 weeks spent for collecting the interview and document analysis data.

3.8 Questionnaire administration and response rate

The sample size for the study consisted of 354 librarians and library officers, archivists, and museum curators in charge of preservation activities, and the 42 heads or deputy of the cultural heritage institutions in six States in southern Nigeria (totaling 396). Out of the 354 copies of the questionnaire administered on the librarians and library officers, archivists, and museum curators in charge of preservation activities, 326 copies were returned and all were found usable and valid for analysis (Table 3.3). The response rate was thus 92.4%.

Table 3.3: Response rate of respondents

SN	University Libraries	No. administered	No. retrieved
1.	University of Lagos, Akoka, Lagos	17	16
2.	University of Ibadan, Ibadan, Oyo State	29	27
3.	University of Nigeria, Nsukka, Enugu State	64	59
4.	Federal University of Technology, Owerri, Imo State	31	30
5.	University of Calabar, Calabar, Cross River State	19	18
6.	University of Benin, Benin, Edo State	21	20
SN	**Special Libraries**		
1.	Nigerian Institute for Oceanography and Marine Research Library (NIOMR), Lagos	3	3
2.	Nigerian Institute of Medical Research, Lagos	5	5
3.	Centre for Black African Arts and Culture (CBAAC), Lagos	4	4
4.	Goge Africa, Ikeja	1	1
5.	National Horticulture Research Institute (NIHORT) Library, Ibadan	11	10
6.	Forestry Research Institute of Nigeria (FRIN) Library, Ibadan	13	12
7.	International Institute of Tropical Agriculture (IITA) Library, Ibadan	4	4
8.	Institute of Agricultural Research and Training (IAR&T) Library, Ibadan	4	4
9.	Cocoa Research Institute of Nigeria (CRIN) Library, Ibadan	6	5
10.	National Institute for Social and Economic Research (NISER) Library, Ibadan	5	5
11.	African Heritage Library & Cultural Centre, Adeyipo	2	1
12.	J, C. Pool Library, Baptist Seminary Library, Ogbomoso	3	3
13.	National Root Crops Research Institute (NRCRI), Umuahia, Imo State	4	3
14.	Rubber Research Institute of Nigeria (RRIN) Library, Benin	3	2
15.	Nigerian Institute for Oil Palm Research (NIFOR) Library, Benin	2	2
SN	**National Library branches**		
1.	National Library of Nigeria, Lagos State Branch	9	8
2.	National Library of Nigeria, Oyo State Branch	6	5
3.	National Library of Nigeria, Enugu State Branch	8	7
4.	National Library of Nigeria, Imo State Branch	6	5
5.	National Library of Nigeria, Cross River State	3	3
6.	National Library of Nigeria, Edo State Branch	6	5
	Sub-Total	**289**	**267**
SN	**Archives**		
1.	National Archives, Lagos Branch	4	4
2.	National Archives, Ibadan Branch	6	5
3.	National Archives, Enugu Branch	4	3
4.	National Archives, Owerri Branch	6	4
5.	National Archives, Calabar Branch	6	6
6.	National Archives, Benin Branch	3	3
	Sub-Total	**29**	**25**
SN	**Museums**		
1.	Didi Museum, Lagos, Lagos Island	4	4
2.	National Museum, Onikan, Lagos	3	3
3.	Ibadan Museum of National Unity, Ibadan	5	5
4.	Cultural Heritage Museum, University of Ibadan	1	1
5.	National Museum, Ogbomoso	1	1
6.	National Museum of Unity, Enugu	6	5
7.	Calabar Museum, Calabar	8	8
8.	Slave History Museum, Duke	5	4
9.	National Museum, Benin City	3	3
	Sub-Total	**38**	**34**
	Grand Total	**354**	**326**

3.9 Method of data analysis

Data collected was analysed using descriptive statistics such as frequency counts, percentage, mean standard deviation and weighted average. Pearson Product Moment Correlation was used to test for bivariate relationships for hypotheses 1, 2, 3 and 4. Correlation matrix was used to test relationships for hypotheses 5, while Multiple Regression analysis was used to test for multiple variables (the combined influence of collection development policies, institutional environment and technology use) or (composite influence) on one variable (IK preservation) that is, for hypothesis 6.

Transcribing the recorded interviews took a period of four weeks after which thematic analysis of the data was done. The analysing of the documents provided took two weeks and the data found relevant to the study were also analysed. The observations noted in the observation checklist were also thematically arranged during this period of time.

3.10 Ethical consideration for the study

In order to ensure high ethical standards, the researcher ensured that the ethical requirement was duly adhered to. At the various university and special libraries, National Library, Archives and Museum branches, permission was obtained from various heads of library, archives and museum under study to empower the specialist evoke data/information from their staff. To agree to moral practices, the researcher did not constrain the respondents to take part in the review since their agreement to take part were properly requested. The researcher sufficiently explained to the respondents about the subject of the study to elicit their support in the investigation. The respondents were properly educated and guaranteed that the data being mentioned of them would be treated with most extreme classification. Respondents' privacy and obscurity were guaranteed by assuring them that about nott mentioning for recognising subtleties like names or phone numbers. In the case of the heads of institutions, they willingly gave their phone and e-mail contacts in case the researcher needed further information.

Likewise, the individual data relating to the members were utilised stringently for the examination reason just, that is, towards adding to information and best works on relating to safeguarding of native information. There was no irreconcilable situation and scholarly copyright infringement since this study was intended to supplement and enhance the experimental data assets regarding the matter. The rule that directs the information

assortment, research and translation were immovably clung to help the honesty and legitimacy of the investigation. Eventually, the researcher kept away from information mining or control, or each type of untrustworthy direct by utilising information as evoked from the research instruments.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the data analysis and interpretation of the results. The study examined the extent to which collection development policies, institutional environment, and technology use (which are the independent variables), determine preservation of indigenous knowledge resources (which is the dependent variable), among custodians of cultural heritage in southern Nigeria. The findings were presented, interpreted and discussed based on the research questions and hypotheses using questionnaire, interview, observation and document analysis as the measuring instruments.

4.2 Demographic variables of the respondents

The demographic variables of the respondents of the study are presented in Table 4.1.

Table 4.1: Demographic characteristics of the respondents

Demographic characteristics		**Frequency**	**Percentage**
Gender	Male	156	47.9
	Female	170	52.1
Age	25-35 years	69	21.2
	36-45 years	137	42.0
	46-55 years	97	29.8
	56-65 years	23	7.1
Years of work experience	1-10 years	175	53.7
	11-20 years	90	27.6
	21-30 years	37	11.3
	31-40 years	24	7.4
Highest Qualification	Bachelor's Degree	73	22.4
	Master's Degree	183	56.1
	Ph.D.	42	12.9
	No Response	28	8.6
Religion	Christianity	203	66.2
	Islam	72	22.1
	Other	12	3.7
	No Response	39	12

One hundred and fifty six (47.9%) of the respondents were males and 170 (52.1%) were females. Majority of the respondents (137, 42.0%) were 36-45 years old. Twenty-three (7.1%) were 56-65 years old showing that more than half of the respondents were between the ages 36 and 65 years old (Table 4.2). Majority (175, 53.7%) of the respondents had 1-10 years' work experience. Not many (24; 7.4%) had 31-40 years' work experience. Overall, above 80% had between 1 and 20 years work experience on the job. More than half of the custodians of cultural heritage (56.1%) had a Masters Degree. Only a few (12.9%) had Ph.D. degrees. Twenty eight (8.6%) did not respond to stating their highest qualification. Majority (66.2%) were Christians, and 22.1% were Muslims, though 12% (39) did not indicate the religion they adhered to.

4.3 Answers to the research questions

Seven research questions were asked in the study. The results are presented as follows:

Research question one: What are the types of indigenous knowledge resources available for custodians of cultural heritage in southern Nigeria?

The finding is presented in Table 4.2.

Table 4.2: Indigenous knowledge resources available for custodians of cultural heritage in southern Nigeria

S/N	Indigenous knowledge resources	1	2	3	4	$\bar{X}$	S.D	Remark
1	Nigeriana collection (materials on Nigeria)	20(6.1)	34(10.4)	119(36.5)	153(46.9)	3.24	0.87	Available
2	Books /journals on indigenous knowledge	23(7.1)	29(8.9)	128(39.3)	146(44.8)	3.22	0.88	Available
3	Africana collection (materials on Africa)	20(6.1)	33(10.1)	141(43.3)	132(40.5)	3.18	0.85	Available
4	Photographs of indigenous content	75(23.0)	91(27.9)	97(29.8)	63(19.3)	2.45	1.05	Slightly Available
5	Indigenous art work	80(24.5)	85(26.1)	99(30.4)	62(19.0)	2.44	1.06	Slightly Available
6	CD-ROM with indigenous knowledge content	83(25.5)	89(27.3)	104(31.9)	50(15.3)	2.37	1.03	Slightly Available
7	Grey literature on indigenous knowledge matters	92(28.2)	78(23.9)	101(31.0)	55(16.9)	2.37	1.07	Slightly Available
8	Indigenous sculptures	99(30.4)	72(22.1)	96(29.4)	59(18.1)	2.35	1.10	Slightly Available
9	Databases with indigenous knowledge matters	105(32.2)	72(22.1)	99(30.4)	50(15.3)	2.29	1.08	Slightly Available
10	Audiovisuals with indigenous knowledge content	97(29.8)	90(27.6)	96 (29.4)	43(13.2)	2.26	1.03	Slightly Available
11	Audio discs with indigenous knowledge content	103(31.6)	85(26.1)	102(31.3)	36(11.0)	2.22	1.01	Slightly Available
12	Maps with indigenous knowledge content	109(33.4)	89(27.3)	82(25.2)	46(14.1)	2.20	1.06	Slightly Available
13	Masks, clothing, (realia) of indigenous content	116(35.6)	82(25.2)	80(24.5)	48(14.7)	2.18	1.08	Slightly Available
14	Charts with indigenous knowledge content	116(35.6)	87(26.7)	84(25.8)	39 (12.0)	2.14	1.04	Slightly Available
15	Film/Filmstrips with indigenous knowledge content	109(33.4)	108(33.1)	73(22.4)	36(11.0)	2.11	1.00	Slightly Available
16	Slides with indigenous knowledge content	118(36.2)	92(28.2)	78(23.9)	38(11.7)	2.11	1.03	Slightly Available
17	Transparencies with indigenous knowledge content	137(42.0)	74(22.7)	82(25.2)	33(10.1)	2.03	1.04	Slightly Available
18	Others	261(80.1)	18(5.5)	31(9.5)	16(4.9)	1.39	0.85	Not Available
Weighted mean = 2.36								

Key: 1= Not available, 2 = Slightly available, 3 = Available, 4 = Very available

Table 4.2 shows the type indigenous knowledge resources available for custodians of cultural heritage in southern Nigeria. "Nigeriana collection (materials on Nigeria)" ($\bar{x}$=3.24) was ranked as the highest type of indigenous resources available by the mean score rating as the major type of indigenous resources available. Some others in succession were "Books/journals on indigenous knowledge" ($\bar{x}$=3.22), and "Africana collection (materials on Africa)" ($\bar{x}$=3.18). However, there were majority of the respondents who stated that some other resources are least available types of indigenous knowledge. Majority stated that "Photographs of indigenous content" ($\bar{x}$=2.45), "Indigenous art work" ($\bar{x}$=2.44), "Indigenous sculptures" ($\bar{x}$=2.35), "Databases with indigenous knowledge matters" ($\bar{x}$=2.29), "Maps with indigenous knowledge content" ($\bar{x}$=2.20), "Masks, clothing (realia) of indigenous content" ($\bar{x}$=2.18), "Charts with indigenous knowledge content" ($\bar{x}$=2.14), "Slides with indigenous knowledge content" ($\bar{x}$=2.11) and "Transparencies with indigenous knowledge content" ($\bar{x}$=2.03) among others, were slightly available types.

Other options of types of indigenous knowledge resources available in the CHI were also given by the respondents. The mean for "Others" was ($\bar{x}$=1.39). Inference drawn from the aforementioned result is that, Nigeriana collection (materials on Nigeria), Books/journals on indigenous knowledge, Africana collection (materials on Africa), photographs of indigenous content, indigenous art work, CD-ROM with indigenous knowledge content and grey literature on indigenous knowledge matters were the most available indigenous knowledge resources type in CHI in the study. Those least available types were Charts with indigenous knowledge content, Film/Filmstrips with indigenous knowledge content, Slides with indigenous knowledge content and transparencies with indigenous knowledge content.

Research question two: What is the level of availability of indigenous knowledge resources for custodians of cultural heritage in southern Nigeria?

The level of availability of indigenous knowledge resources for custodians of cultural heritage was computed based on the available data in Table 4.2 by conducting a test norm of the data. Result indicated that the indigenous knowledge resources were slightly available. Result is presented in Table 4.3.

Table 4.3: Norm test displaying the level of availability of indigenous knowledge resources in CHI in southern Nigeria

Interval	Total mean score	Remark
1 - 24		Not Available
25 - 49	**40.44**	Moderately Available
50 - 72		Highly Available

The test norm for the level of availability of indigenous knowledge resources for custodians of cultural heritage in southern Nigeria is considered at three levels; 1 - 24 is considered as not available, 25 - 49 as moderately available, and 50 - 72 considered as highly available. Thus, the overall mean score of the frequency of the level of availability of indigenous knowledge resources in CHI in southern Nigeria of 40.44 falls within the range of 25 - 49 and indicated that indigenous knowledge resources are moderately available. Thus, there is clear indication that indigenous knowledge resources' availability in CHI is on moderate basis. This may be due to the fact that majority of the respondents stated that these resources were not available, though the margin of the percentages between the agreed (strongly agreed and agreed aggregated) and disagree (strongly disagreed and disagreed aggregated) options were not wide.

Research question three: What are the institutional environments for the IK preservation resources among custodians of cultural heritage in southern Nigeria?

The findings on institutional environments (regulatory, organisational, sociological, and physical) for IK preservation resources in the cultural heritage institutions are presented in Table 4.4.

Table 4.4: Institutional Environments for the IK preservation resources among custodians of cultural heritage in southern Nigeria

S/N	Regulatory environment	1	2	3	4	$\bar{X}$	S.D	Remark
1	The environment of my institution is such as ensures following of rules, regulations and procedures	20 (6.1)	14 (4.3)	141 (43.3)	151 (46.3)	3.30	0.82	Accepted
2	My institution has formal conventions and customs for preservation of indigenous knowledge resources	27 (8.3)	45 (13.8)	160 (49.1)	94 (28.8)	2.98	0.87	Accepted
3	The formal conventions and customs are adhered to in preservation activities carried out	32 (9.8)	50 (15.3)	161 (49.4)	83 (25.5)	2.90	0.89	Accepted
4	The informal conventions and customs are rarely adhered to in preservation activities	36 (11.0)	52 (16.0)	157 (48.0)	81 (24.8)	2.87	0.91	Accepted
5	My institution has informal conventions and customs for preservation of indigenous knowledge resources	44 (13.5)	62 (19.0)	144 (44.2)	76 (23.3)	2.77	0.96	Accepted
6	The environment of the institution determines the rules and regulations for preservation activities	46 (14.1)	76 (23.3)	149 (45.7)	55 (16.9)	2.65	0.92	Accepted
	Weighted mean = 2.91							
	Organisational environment	**1**	**2**	**3**	**4**	$\bar{X}$	**S.D**	
1	The quality of trained staff determines preservation activities in my institution	28 (8.6)	49 (15.0)	154 (47.2)	95 (29.1)	2.97	0.89	Accepted
2	My institutional ensures training of staff through capacity building programmes	36 (11.0)	46 (14.1)	142 (43.6)	102 (31.3)	2.95	0.95	Accepted
3	Computer hardware are essential for preservation of indigenous knowledge resources in my institution	34 (10.4)	51 (15.6)	159 (48.8)	82 (25.2)	2.89	0.90	Accepted
4	Policies are drawn up concerning indigenous knowledge resources preservation in my institution	30 (9.2)	48 (14.7)	183 (56.1)	65 (19.9)	2.87	0.84	Accepted
5	Lack of adequate funding affects preservation activities in my institution	34 (10.4)	74 (22.7)	133 (40.8)	85 (26.1)	2.83	0.94	Accepted
6	Software is used in the preservation of indigenous knowledge resources in my institution	37 (11.3)	64 (19.6)	148 (45.4)	77 (23.6)	2.81	0.92	Accepted
7	The number (quantity) of trained staff determine preservation activities in my institution	42 (12.9)	60 (18.4)	144 (44.2)	80 (24.5)	2.80	0.95	Accepted
8	Communication of policies through memos, online, etc. to everyone on IK preservation takes place in my institution	38 (11.70	60 (18.4)	159 (48.8)	69 (21.2)	2.79	0.91	Accepted
9	There are enough trained staff for preservation activities in my institution	46 (14.1)	88 (27.0)	130 (39.9)	62 (19.0)	2.64	0.95	Accepted
10	There is constant power supply to aid preservation activities in my institution	49 (15.0)	86 (26.4)	130 (39.9)	61 (18.7)	2.62	0.96	Accepted

11	There is adequate funding of preservation activities in my institution	45 (13.8)	100 (30.7)	126 (38.7)	55 (16.9)	2.59	0.93	Accepted

	Weighted mean = 2.80							
	Sociological environment	**1**	**2**	**3**	**4**	$\bar{X}$	**S.D**	
1	Collaboration between indigenous knowledge holders (in the community) and staff on indigenous knowledge preservation activities is necessary	48 (14.7)	65 (19.9)	116 (35.6)	97 (29.8)	2.80	1.03	Accepted
2	Cooperation of the community with those who preserve indigenous knowledge resources is essential	50 (15.3)	69 (21.2)	125 (38.3)	82 (25.2)	2.73	1.00	Accepted
3	Community cultural practices affect indigenous knowledge preservation in my institution	49 (15.0)	88 (27.0)	131 (40.2)	58 (17.8)	2.61	0.95	Accepted
4	My behavior, emotions and belief change due to preservation activities carried out on indigenous knowledge resources	53 (16.3)	93 (28.5)	115 (35.3)	65 (19.9)	2.59	0.98	Accepted
5	The community is not involved with indigenous knowledge preservation in my institution	50 (15.3)	109 (33.4)	114 (35.0)	53 (16.3)	2.52	0.94	Accepted
	Weighted mean = 2.65							
	Physical environment	**1**	**2**	**3**	**4**	$\bar{X}$	**S.D**	
1	Fire prevention strategies are deployed to protect the IK resources	46 (14.1)	47 (14.4)	121 (37.1)	112 (34.4)	2.92	1.02	Accepted
2	The physical environment in my institution is conducive for human actions or interactions	48 (14.7)	51 (15.6)	125 (38.3)	102 (31.3)	2.86	1.02	Accepted
3	Burglary proofs, wire netting etc. are present, to prevent theft of IK	55 (16.9)	52 (16.0)	117 (35.9)	102 (31.3)	2.82	1.06	Accepted
4	Unclean environment affects indigenous knowledge resources	46 (14.1)	61 (18.7)	129 (39.6)	90 (27.6)	2.81	1.00	Accepted
5	The temperature and humidity are controlled in my institution to aid IK preservation resources	43 (13.2)	68 (20.9)	132 (40.5)	83 (25.5)	2.78	0.97	Accepted
6	Periodic environment surveys are carried out to ensure good air circulation	51 (15.6)	55 (16.9)	144 (44.2)	76 (23.3)	2.75	0.98	Accepted
7	Indigenous knowledge resources are kept in well-ventilated areas	51 (15.6)	65 (19.9)	134 (41.1)	76 (23.3)	2.72	0.99	Accepted
8	Lighting is fitted to suit the IK resources being stored	53 (16.3)	69 (21.2)	124 (38.0)	80 (24.5)	2.71	1.01	Accepted
9	Closed Circuit Television cameras are in place to monitor against theft and destruction of IK recourses	95 (29.1)	81 (24.8)	90 (27.6)	60 (18.4)	2.35	1.09	Not Accepted
	Weighted mean = 2.75							

Key: 1 = Strongly disagree, 2 = Disagree, 3 = Agree, 4 = Strongly agree

Table 4.4 presents data on institutional environments for the IK preservation resources among custodians of cultural heritage in southern Nigeria. The variable was measured by four components viz: regulatory, organisational, sociological and physical environments. Results of the overall mean showed that regulatory environment ($\bar{x}$=2.91), organisational environment ($\bar{x}$=2.80), sociological environment ($\bar{x}$=2.65) and physical environment ($\bar{x}$=2.75) proved the institutional environments for the IK preservation resources among custodians of cultural heritage in southern Nigeria is favourable. As far as regulatory environment is concerned, the majority of the respondents stated that their institutions ensure following of rules, regulations and procedures, have formal conventions and customs for preservation of indigenous knowledge resources, and that informal conventions and customs are rarely adhered to in preservation activities. Only a few indicated that the environment of the institution determines the rules and regulations for preservation activities ($\bar{x}$=2.65).

The environment in the institutions surveyed was such as ensured that rules and regulations were followed and in addition, formal and informal conventions and customs for IK preservation resources existed. The informal conventions and customs were rarely adhered to according to almost half of the respondents (48%). There were indications that as part of the regulatory factors at play, the environment of the institution determined the rules and regulations for preservation activities.

Regarding the organisational environment which is a construct of institutional environment, data revealed that organisational environment of IK resources' preservation among custodians of cultural heritage in southern Nigeria, is positive. The quality of trained staff was considered by most respondents as what determined preservation activities in the institution. The institutional ensuring training of staff through capacity building programmes and the importance of computer hardware aas being essential for preservation of indigenous knowledge resources in the institutions was rated high as well. Lack of adequate funding affected preservation activities in many institutions, among others.

The number (quantity) of trained staff was not deemed to determine preservation activities in many institutions. Quality of trained staff was considered more my germane. Both quantity (with 76.3% indicating agree and strongly agree) and quality of staff (with 68.7% indicating agree and strongly agree) for preservation activities mattered, but in

concrete terms, more than half of the respondents confirmed that their institution had enough trained staff for preservation activities.

Infrastructure such as computer hardware, computer software, and constant power supply were factors in the institutional environment that had effect to varying degrees (that is, ($\bar{x}$=2.89), ($\bar{x}$=2.81) and ($\bar{x}$=2.62)) respectively. Majority also indicated that communication of policies through memos, online etc. to everyone on IK preservation took place in their institution. Adequate funding for preservation activities in the institutions wa absent in most of the institutionwith only a few indicating comfortable financial status for their preservation activities. Less than half of the respondents (44.5%) indicated that their institution was not well funded.

Data on sociological environment revealed that the majority of the respondents agreed that collaboration between indigenous knowledge holders (in the community) and staff on indigenous knowledge preservation activities is necessary. They also felt that cooperation of the community with those who preserve indigenous knowledge resources is essential, and that community cultural practices affect indigenous knowledge preservation in their institutions. Results also indicated that the majority of the respondents agreed that their behavior, emotions and belief changed due to preservation activities carried out on indigenous knowledge resources. In another vein, only a few indicated that the community is not involved with indigenous knowledge preservation in their institution. This indicates that sociological environment is favourable to IK resources' preservation among custodians of cultural heritage in southern Nigeria.

As per physical environment**,** results showed most respondents stated that fire prevention strategies are deployed to protect the IK resources, and the physical environment in their institution was conducive for human actions or interactions. This was evidenced by burglary proofs, wire netting and others that were present, to prevent theft of IK. The general opinion was that an unclean environment affects indigenous knowledge resources, while other physical factors like the temperature and humidity were controlled in the institutions to aid IK preservation resources. Lighting was also fitted to suit the IK resources being stored. These showed that physical environment was quite important in the institutions. The use of Closed Circuit Television cameras ranked lowest as the response statement "Closed

Circuit Television cameras are in place to monitor against theft and destruction of IK resources" had a mean of ($\bar{x}$=2.35).

Research question four: What is the extent of use of manual techniques for IK preservation resources among custodians of cultural heritage in southern Nigeria?

Findings on the use of manual techniques for IK preservation resources among custodians of cultural heritage in southern Nigeria are presented in Table 4.5.

Table 4.5: Use of manual techniques for IK preservation resources among custodians of cultural heritage in southern Nigeria

S/N	Manual Preservation Technique	1	2	3	4	$\bar{X}$	S.D
1	Proper shelving for free flow of air	54(16.6)	42(12.90)	82(25.2)	148 (45.4)	2.99	1.12
2	Photocopying	48 (14.7)	53 (16.3)	92 (28.2)	133 (0.8)	2.95	1.08
3	Binding	57 (17.5)	68 (20.9)	80 (24.5)	121 (37.1)	2.81	1.12
4	Using air-conditioner	67 (20.6)	59 (18.1)	83 (25.5)	117 (5.9)	2.77	1.15
5	Cleaning of the resources with soft cloth	68(20.9)	55(16.9)	98 (30.1)	105 (2.2)	2.74	1.12
6	Using fans	73 (22.4)	49 (15.0)	97 (29.8)	107(32.8)	2.73	1.14
7	Installing air-conditioner	68 (20.9)	56 (17.2)	97 (29.8)	105 (32.2)	2.73	1.12
8	Using dust-blowers	82 (25.2)	67 (20.6)	81 (24.8)	96 (29.4)	2.59	1.16
9	Lamination	73(22.4)	99 (30.4)	83 (25.5)	71 (21.8)	2.47	1.07
10	Pictures	89 (27.3)	74 (22.7)	86 (26.4)	77 (23.6)	2.46	1.13
11	Provision of adequate security system	93 (28.5)	64 (19.6)	95 (29.1)	74 (22.7)	2.46	1.13
12	Use of insecticides and insect repellants	99 (30.4)	71 (21.8)	76 (23.3)	80 (24.5)	2.42	1.16
13	Using dehumidifiers	101 (31.0)	66 (20.2)	88 (27.0)	71 (21.8)	2.40	1.14
14	Providing anti-fire conditions	100 (30.7)	67 (20.6)	88 (27.0)	71 (21.8)	2.40	1.14
15	Providing anti-flood conditions	106 (32.5)	62 (19.0)	85 (26.1)	73 (22.4)	2.38	1.16
16	Use chemicals (e.g. creosote, DDT)	86 (26.4)	101 (31.0)	75 (23.0)	64 (19.6)	2.36	1.07
17	Rust removal	100 (30.7)	90 (27.6)	72 (22.1)	64 (19.6)	2.31	1.11
18	Others	123 (37.7)	55 (16.9)	83 (25.5)	65 (19.9)	2.28	1.17
19	Transparencies	112 (34.4)	69 (21.2)	95 (29.1)	50 (15.3)	2.25	1.09
20	Recording on video (e.g. Camcorders)	124 (38.0)	70(21.5)	73 (22.4)	59 (18.1)	2.21	1.14
21	Slides	118 (36.2)	81 (24.8)	79 (24.2)	48 (14.7)	2.17	1.08
22	Tape recorders	118 (36.2)	85 (26.1)	75 (23.0)	48 (14.7)	2.16	1.08
23	Cassettes	117 (35.9)	87 (26.7)	80 (24.5)	42 (12.9)	2.14	1.05
24	Microfilming	132 (40.5)	77 (23.6)	76 (23.3)	41 (12.6)	2.08	1.07
25	Deacidification	133 (40.8)	76 (23.3)	81 (24.8)	32(11.0)	2.06	1.05
26	Desalination	142 (43.6)	85 (26.1)	66 (20.2)	33 (10.1)	1.97	1.02
27	Resin impregnation (reinforcing iron & bronze)	150 (46.0)	80 (24.5)	70 (21.5)	26 (8.0)	1.91	1.00
	Weighted mean = 2.42						

Key: 1 = Never, 2 = Occasionally, 3 = Often, 4 = Very often

Table 4.5 shows indication that manual technique of IK resources' preservation is prevalent. There were majority of the respondents who stated that proper shelving for free flow of air was the most often deployed technique. It was also shown that photocopying, cleaning of the resources with soft cloth, using fans, installing air-conditioners and using dust-blowers as manual techniques of IK resources' preservation were often deployed. Further data showed that other manual techniques such as lamination, taking the pictures, using dehumidifiers, use of chemicals (e.g. creosote, DDT), and rust removal, were manual techniques occasionally used among the custodians of cultural heritage. However, other techniques like using transparencies, microfilming, deacidification, desalination, and resin impregnation (reinforcing iron & bronze), to mention a few, were stated to be never used by the majority of the respondents.

Inference drawn from the results tabled is that, proper shelving to allow free flow of air, photocopying, binding, using air-conditioner, cleaning of the resources with soft cloth, using fans, installing air-conditioner, using dust-blowers, lamination, pictures, provision of adequate, security system and use of insecticides and insect repellants were the major manual techniques used for preservation. Other methods manually used are not so popular.

Table 4.6: Norm test displaying the extent of use of manual techniques for IK preservation resources among the custodians of cultural heritage in southern Nigeria

Interval	Total mean score	Remark
1 - 27		Never
28 – 54		Occasionally
55 – 81	**67.37**	Often
89 – 108		Very often

The test norm for the extent of use of manual techniques for IK preservation resources among custodians of cultural heritage in southern Nigeria is considered at four levels; 1 - 27 is considered as never, 28 - 54 as occasionally, 55 - 81 as often and 82 - 108 considered as very often. Thus, the overall mean score of the frequency of the extent of use of manual techniques for IK preservation resources among custodians of cultural heritage in southern Nigeria of 67.37 falls within the range of 55 - 81 and indicates that extent of use of manual techniques for IK preservation resources among the custodians of cultural heritage in southern Nigeria is often. There is clear indication that the use of manual techniques in IK preservation resources among custodians of cultural heritage is often and is regarded as popular methods of preservation.

Research question five: What is the extent of use of digital techniques for IK preservation resources among custodians of cultural heritage in southern Nigeria?

Apart from manual techniques, findings on digital techniques used for IK preservation resources among custodians of cultural heritage in southern Nigeria are presented in Table 4.7.

Table 4.7: Use of digital techniques for IK preservation resources among custodians of cultural heritage in southern Nigeria

S/N	Digital Preservation Technique	1	2	3	4	$\bar{x}$	S.D
1	Computer for uploading	95 (29.1)	70 (21.5)	85 (26.1)	76 (23.3)	2.44	1.14
2	Internet for cloud storage	100 (30.7)	62 (9.0)	88 (27.0)	76 (23.3)	2.43	1.15
3	Compact Disc (CD)	99(30.4)	82 (25.2)	71 (21.8)	74 (22.7)	2.37	1.14
4	Digital repository	99 (30.4)	79 (24.2)	83 (25.5)	65 (19.9)	2.35	1.11
5	Cameras	111 (34.0)	63 (19.3)	88 (27.0)	64 (19.6)	2.32	1.14
6	Web portals	113 (34.7)	63 (9.3)	88 (27.0)	62 (19.0)	2.30	1.14
7	Digitisation	115 (35.3)	60 (18.4)	99 (30.4)	52 (16.0)	2.27	1.11
8	Use of multimedia	118 (36.2)	65 (19.9)	95 (29.1)	48 (14.7)	2.22	1.09
9	Migration (Transfer of digital materials from one generation of computer technology to a new one)	122 (37.4)	69 (21.2)	81 (24.8)	54 (16.6)	2.21	1.12
10	Databanks in remote locations	131 (40.2)	63 (19.3)	69 (21.2)	63 (19.3)	2.20	1.16
11	Replication (Repeating any old configuration of hardware and software)	115 (35.3)	86 (26.4)	74 (22.7)	51 (15.6)	2.19	1.08
12	Encapsulation (Creating the original application that was used to create or access the digital object on future computer platforms)	119 (36.5)	73 (22.4)	90 (27.6)	44 (13.5)	2.18	1.07
13	Emulation (preserving the original application program)	120 (36.8)	78 (23.9)	80 (24.5)	48 (14.7)	2.17	1.09
14	Refreshing (periodic copying from one physical medium to another)	126 (38.7)	75(23.0)	74 (22.7)	51 (15.6)	2.15	1.10
15	Story beads	133 (40.8)	65 (19.9)	78 (23.9)	50 (15.3)	2.14	1.12
16	Optical storage	125 (38.3)	76 (23.3)	78 (23.9)	47 (14.4)	2.14	1.09
17	Software in local languages	134 (41.1)	64 (19.6)	86 (26.4)	42 (12.9)	2.11	1.09
18	Gene banks	135 (41.5)	752 (22)	73 (22.4)	46 (14.1)	2.09	1.09
19	Others	180 (55.2)	50 (15.3)	59 (18.1)	37 (11.3)	1.86	1.08
	Weighted mean = 2.22						

Key: 1 = Never, 2 = Occasionally, 3 = Often, 4 = Very often

Table 4.7 shows that digital techniques used by custodians of cultural heritage are computer for uploading, internet for cloud storage, compact Disc (CD), digitisation, multimedia, and; databanks in remote locations to mention a few. Procedures like replication (repeating any old configuration of hardware and software), emulation (preserving the original application program), and; refreshing (periodic copying from one physical medium to another), ranked next in order of use of digital techniques. Story beads, optical storage, software in local languages, gene banks and lastly other techniques, were found to be used, but not to a high extent among custodians of cultural heritage in southern Nigeria.

Inference drawn from the result tabled is that, computer for uploading, internet for cloud storage, compact Disc (CD), digital repository, cameras, web portals and digitisation were the major digital techniques for preservation as found, in the study. Other digital techniques were not so popularly in use for preservation.

The test norm for the extent of use of digital techniques for IK preservation resources among custodians of cultural heritage in southern Nigeria is considered at four levels; 1 - 19 is considered as never, 20 - 38 as occasionally, 39 - 57 as often and 58 - 76 considered as very often. This result is presented in Table 4.8.

Table 4.8: Norm test displaying the extent of use of digital techniques for IK preservation resources among custodians of cultural heritage in southern Nigeria

Interval	Total mean score	Remark
1 - 19		Never
20 – 38		Occasionally
39 – 57	**44.46**	Often
58 – 76		Very often

Thus, the overall mean score of the frequency of the extent of use of digital techniques for IK preservation resources among custodians of cultural heritage in southern Nigeria of 44.46 falls within the range of 39 - 57 and indicated that extent of use of digital techniques for IK preservation resources among custodians of cultural heritage in southern Nigeria is often. There is as such, clear indication that the use of digital techniques in IK preservation resources among custodians of cultural heritage is often and is also the popular method of preservation.

Research question six: What is the extent of technology use for IK preservation resources among custodians of cultural heritage in southern Nigeria?
The result of this finding is presented in Table 4.9.

4.9: Frequency of technology used for preservation of indigenous knowledge among custodians of cultural heritage

S/N	Manual Preservation Technique	N	Occ	Oft	VO
1	Lamination	320 (98.2)	6 (2.8)	-	-
2	Microfilming	323 (99.1)	2 (0.6)	-	1 (0.3)
3	Deacidification	323 (99.1)	2 (0.6)	-	1 (0.3)
4	Binding	320 (98.2)	5 (1.5)	-	1 (0.3)
5	Use of chemicals (e.g. creosote, DDT)	321 (98.5)	4 (1.2)	-	1 (0.3)
6	Desalination	324 (99.4)	2 (0.6)	-	-
7	Resin impregnation (reinforcing iron & bronze)	323 (99.1)	3(0.9)	-	-
8	Rust removal	323 (99.1)	3 (0.9)	-	-
9	Cleaning of the resources with soft cloth	320 (98.2)	6 (1.8)	-	-
10	Using dust-blowers	323 (99.1)	2 (0.6)	-	1 (0.3)
11	Using fans	325 (99.7)	1 (0.3)	-	-
12	Using air-conditioner	322 (98.8)	4 (1.2)	-	-
13	Photocopying	324 (99.4)	2 (0.6)	-	-
14	Proper shelving to allow free flow of air	322 (98.8)	3 (0.9)	-	1 (0.3)
15	Installing air-conditioner	324 (99.4)	2 (0.6)	-	-
16	Using dehumidifiers	322 (98.8)	4 (1.2)	-	-
17	Recording on video (e.g. Camcorders)	324 (99.4)	1 (0.3)	-	1 (0.3)
18	Tape recorders	324 (99.4)	1 (0.3)	-	1 (0.3)
19	Cassettes	326 (100)	-	-	-
20	Slides	324 (99.4)	2 (0.6)	-	-
21	Transparencies	320 (98.2)	4 (1.2)	-	2 (0.6)
22	Pictures	323 (99.1)	3 (0.9)	-	-
23	Use of insecticides and insect repellants	325 (99.7)	1 (0.3)	-	-
24	Provision of adequate security system	325 (99.7)	1 (0.3)	-	-
25	Providing anti-fire conditions	324 (99.4)	2 (0.6)	-	-
26	Providing anti-flood conditions	325 (99.7)	1 (0.3)	-	-
27	Others	324 (99.4)	2 (0.6)	-	-
	Digital Preservation Technique				
28	Computer for uploading	323 (99.1)	3 (0.9)	-	-
29	Internet for cloud storage	324 (99.4)	1 (0.3)	-	1 (0.3)
30	Compact Disc (CDs)	324 (99.4)	1 (0.3)	1 (0.3)	-
31	Cameras	322 (98.8)	4 (1.2)	-	-
32	Databanks in remote locations	323 (99.1)	3 (0.9)	-	-
33	Gene banks	325 (99.7)	1 (0.3)	-	-
34	Story beads	324 (99.4)	-	-	2 (0.6)
35	Invigorating (intermittent duplicating starting with one actual medium then onto the next)	325 (99.7)	1 (0.3)	-	-
36	Replication (Repeating any old setup of equipment and programming)	324 (99.4)	2 (0.6)	-	-
37	Movement (Transfer of advanced materials from one age of PC innovation to another one)	325 (99.7)	1 (0.3)	-	-
38	Imitating (protecting the first application program)	326 (100)	-	-	-
39	Exemplification (Creating the first application that was utilised to make or access the advanced article on future PC platforms)	325 (99.7)	1 (0.3)	-	-
40	Optical storage	325 (99.7)	-	-	1 (0.3)
41	Digitisation	325 (99.7)	1 (0.3)	-	-
42	Digital repository	326 (100)	-	-	-
43	Web portals	326 (100)	-	-	-
44	Use of multimedia	325 (99.7)	1 (0.3)	-	-
45	Software in local languages	326 (100)	-	-	-
46	Other	326 (100)	-	-	-

Key: N = Never; Occ = Occasionally; Oft = Often; VO = Very Often

Result showed that the highest indication of frequency of use of the technologies tilted towards "Never used". The inference from this finding is that technology was not frequently used among custodians of cultural heritage. Even simple preservation techniques like cleaning of the resources with soft cloth was not used frequently. Replication (Repeating any old configuration of hardware and software) was used occasionally in some institutions. Only 1 respondent indicated that CD-ROM was used often in their institution. Microfilming, Deacidification, Binding, Using dust-blowers, Proper shelving to allow free flow of air were often used as well as Transparencies, Story beads, Recording on video (e.g. Camcorders), Tape recorders, Internet for cloud storage and Optical storage for preservation.

Research question seven: What are the challenges of IK preservation resources among custodians of cultural heritage in southern Nigeria?

The result of findings on challenges to preservation of indigenous knowledge resources among custodians of cultural heritage in southern Nigeria is presented in Table 4.10.

Table 4.10: Challenges of IK preservation resources among custodians of cultural heritage in southern Nigeria

S/N	Possible inhibitions to preservation	1	2	3	4	5	$\bar{X}$	S.D
1	Inadequate funding of the institution	8 (2.5)	30 (9.2)	93 (28.5)	68 (20.9)	127 (39.0)	3.85	1.12
2	Inadequate infrastructure	22 (6.7)	38 (11.7)	108 (33.1)	78 (23.9)	80 (24.5)	3.48	1.18
3	Administrative bottlenecks	28 (8.6)	35 (10.7)	114 (35.0)	82 (25.2)	67 (20.6)	3.38	1.18
4	Lack of competent manpower in preservation	32 (9.8)	46 (14.1)	103 (31.6)	75 (23.0)	70 (21.5)	3.32	1.23
5	Lack of preservation policy	25 (7.7)	63 (19.3)	109 (33.4)	67 (20.6)	62 (19.0)	3.24	1.19
6	Lack of collection development policy	25 (7.7)	60 (18.4)	125 (38.3)	56 (17.2)	60 (18.4)	3.20	1.17
7	Harsh environment conditions accelerating depreciation of preservation materials.	40 (12.3)	45 (13.8)	119 (36.5)	53 (16.3)	69 (21.2)	3.20	1.27
8	Non-availability of chemicals for preservation procedures	35 (10.7)	56 (17.2)	110 (33.7)	69 (21.2)	56 (17.2)	3.17	1.22
9	Outdated or non-existent hardware	44 (13.5)	49 (15.0)	108 (33.1)	56 (17.2)	69 (21.2)	3.17	1.30
10	Outdated or non-existent network connectivity	43 (13.2)	51 (15.6)	106 (32.5)	63 (19.3)	63 (19.3)	3.16	1.28
11	Outdated or non-existent software	45 (13.8)	47 (14.4)	117 (35.9)	49 (15.0)	68 (20.9)	3.15	1.29
13	Others	5 (1.5)	15 (4.6)	274 (84.0)	17 (5.2)	15 (4.6)	3.07	0.58
	Weighted mean = 3.28							

Key: 1 = No extent, 2 = Little extent, 3 = Moderate extent, 4 = Great extent, 5 = Very great extent

The findings on challenges of IK preservation resources among custodians of cultural heritage in southern Nigeria show that inadequate funding of the institution and inadequate infrastructure were the most identified challenges. Administrative bottlenecks, lack of competent manpower in preservation, lack of preservation policy, lack of collection development policy, and harsh environment conditions accelerating depreciation of preservation materials were other challenges faced.. Non-availability of chemicals for preservation procedures and outdated or non-existent software also ranked high among challenges identified while other challenges not listed were indicated as well. Inference drawn from the aforementioned result is that, inadequate funding of the institution, inadequate infrastructure, administrative bottlenecks and lack of competent manpower in preservation were the major challenges of IK preservation resources among custodians of cultural heritage in southern Nigeria.

4.4 Testing of hypotheses:

The six hypotheses raised in the study were tested at 0.05 level of significance, and are detailed as follows:

Hypothesis one: There is no significant relationship between collection development policies and IK preservation among custodians of cultural heritage in southern Nigeria.

The result is presented in Table 4.11.

Table 4.11: Pearson Product Moment Correlation showing the relationship between collection development policies and IK preservation among custodians of cultural heritage in southern Nigeria

Variables	Mean	Std. Dev.	n	r	p value	Remark
Collection development policies	42.5613	11.76674	326	.514*	.000	Sig.
IK preservation in CHI	107.3436	30.91495				

*Sig at .05 level

Table 4.11 presents the correlation between collection development policies and IK preservation among custodians of cultural heritage in southern Nigeria. In order to establish the relationship, a Pearson product moment correlation was conducted. The result shows that there was a positive significant relationship between CDP and IK preservation among custodians of cultural heritage in southern Nigeria ($r = .514^*$, $n= 326$, $p <.05$). In this study, any P value that is less than 0.05 which is the degree of freedom set for the analysis indicates that the stated null hypothesis will be rejected. Hence, it could be deduced from the study that improvement in the IK preservation among custodians of cultural heritage results to better CDP. Therefore, the hypothesis which states that there is no significant relationship between collection development policies and IK preservation among custodians of cultural heritage in southern Nigeria is rejected.

Hypothesis two: There is no significant relationship between institutional environment and IK preservation among custodians of cultural heritage in southern Nigeria.

The result is presented in Table 4.12.

Table 4.12: Pearson Product Moment Correlation showing the relationship between institutional environment and IK preservation among custodians of cultural heritage in southern Nigeria

Variables	Mean	Std. Dev.	n	r	p value	Remark
Institutional environment	86.2117	17.46138	326	.575*	.000	Sig.
IK preservation in CHI	107.3436	30.91495				

*Sig at .05 level

Table 4.12 presents the correlation between relationship between IE and IK preservation among custodians of cultural heritage in southern Nigeria. In order to establish the relationship, a Pearson product moment correlation was conducted. The result shows that there was a positive significant relationship between IE and IK preservation among custodians of cultural heritage in southern Nigeria ($r = .575^*$, $n= 326$, $p <.05$). In this study, any P value that is less than 0.05 which is the degree of freedom set for the analysis indicates that the stated null hypothesis will be rejected. Hence, from the study, improvement in the IK preservation among custodians of cultural heritage results to a better institutional environment. Therefore, the hypothesis which states that there is no significant relationship between institutional environment and IK preservation among custodians of cultural heritage in southern Nigeria is rejected.

Hypothesis three: There is no significant relationship between technology use and IK preservation among custodians of cultural heritage in southern Nigeria

Table 4.13: Pearson Product Moment Correlation showing the relationship between technology use and IK preservation among custodians of cultural heritage in southern Nigeria

Variables	Mean	Std. Dev.	N	r	p value	Remark
Technology use	42.1380	15.0379	326	.750*	.000	Sig.
IK preservation	65.2055	17.9928				

*Sig at .05 level

Table 4.13 presents the correlation between technology use and IK preservation among custodians of cultural heritage in southern Nigeria. In order to establish the relationship, a Pearson product moment correlation was conducted. The result shows that there was a positive significant relationship between TU and IK preservation among custodians of cultural heritage in southern Nigeria ($r = .750^*$, $n= 326$, $p <.05$). In this study, any P value that is less than 0.05 which is the degree of freedom set for the analysis indicates that the stated null hypothesis will be rejected. Hence, from the study, improvement in the TU results to a better IK preservation among custodians of cultural heritage in southern Nigeria. Therefore, the hypothesis which states that there is no significant relationship between technology use and IK preservation among custodians of cultural heritage in southern Nigeria is rejected.

Hypothesis four: There is no significant relationship between collection development policies and institutional environment among custodians of cultural heritage in southern Nigeria.

The result on this hypothesis is presented in Table 4.14.

Table 4.14: Pearson Product Moment Correlation showing the relationship between collection development policies and institutional environment among custodians of cultural heritage in southern Nigeria

Variables	Mean	Std. Dev.	N	r	p value	Remark
Collection development policies	42.5613	11.76674	326	.452*	.000	Sig.
Institutional environment	86.2117	17.46138				

*Sig at .05 level

Table 4.14 presents the correlation between collection development policies and institutional environment among custodians of cultural heritage in southern Nigeria. In order to establish the relationship, a Pearson product moment correlation was conducted. The result shows that there was a positive significant relationship between CDP and IE among custodians of cultural heritage in southern Nigeria ($r = .452^*$, $n= 326$, $p <.05$). In this study, any P value that is less than 0.05 which is the degree of freedom set for the analysis indicates that the stated null hypothesis will be rejected. Hence, from the study, improvement in the CDP results to a better IE among custodians of cultural heritage in southern Nigeria. Therefore, the hypothesis which states that there is no significant relationship between collection development policies and institutional environment among custodians of cultural heritage in southern Nigeria is rejected.

Hypothesis five: There is no significant relationship between institutional environment (Regulatory environment, Organisational environment, Sociological environment and Physical environment) and Technology use among custodians of cultural heritage in southern Nigeria.

The result on this hypothesis is presented in Table 4.15.

Table 4.15: Correlation Matrix showing the relationship between institutional environment (regulatory environment, organisational environment, sociological environment and physical environment) and technology use among custodians of cultural heritage in southern Nigeria

	1	**2**	**3**	**4**	**5**	**Mean ($\bar{x}$)**	**S.D**
1	1					42.14	15.04
2	.434* (.000)	1				17.48	3.99
3	.435* (.000)	.719* (.000)	1			30.76	6.76
4	.358* (.000)	.540* (.000)	.588* (.000)	1		13.26	3.38
5	.433* (.000)	.595* (.000)	.597* (.000)	.599* (.000)	1	24.72	6.49

*Sig at .05 level.

1 = Technology use, 2 = Regulatory environment, 3 = Organisational environment, 4 = Sociological environment, 5 = Physical environment

Table 4.15 shows that there were positive significant relationships between IE (regulatory (r = .434, p (.000) <.05), organisational (r = .435, p (.000) <.05), sociological (r = .358, p (.000) <.05), and physical (r = .433, p (.000) <.05)); and technology use (r = .434, p (.000) <.05). The correlation matrix indicates that organisational environment contributes more, followed by regulatory environment and physical environment and lastly by sociological environment, to technology use. This means that all the indicators of institutional environment are good predictors of technology use for IK preservation. However, precedence should be given to organisational, regulatory, physical, and sociological environment in this order.

Hypothesis six: There is no composite influence of collection of development policies and institutional environment on IK preservation resources among custodians of cultural heritage in southern Nigeria.

The result on this hypothesis is presented in Table 4.16.

Table 4.16: Summary of Regression analysis showing the composite influence of collection of development policies, institutional environment and technology use on IK preservation resources among custodians of cultural heritage in southern Nigeria

R	**R Square**		**Adjusted R Square**	**Std. Error of the Estimate**	
.642	.412		.408	23.7880	
A N O V A					
Model	**Sum of Squares**	**DF**	**Mean Square**	**F**	**Sig.**	**Remark**
Regression	127837.31	2	63918.653	112.956	.000	Sig.
Residual	182776.22	323	565.871			
Total	310613.52	325				

Table 4.16 shows the composite influence of CDP and IE on IK preservation resources among custodians of cultural heritage in southern Nigeria. The table also shows a coefficient of multiple correlation of R = .642 and a multiple R^2 of .412. This means that 41.2% of the variance was accounted for by the two predictor variables when taken together. The significance of the composite influence was tested at $\alpha = 0.05$. The table also shows that the analysis of variance for the regression yielded F-ratio of 112.956 (significant at 0.05 level). This implies that the joint contribution of the independent variables to the dependent variable was significant and that other variables not included in this model may have accounted for the remaining variance.

4.5 Results from Interviews

Section A: Demographic Details of Heads of Institutions

In each of the 42 institutions where questionnaire was administered, the researcher sought to interview heads of the institutions or their deputy, particularly on collection development policy issues and the institutional environment. The demographic information from the interview are presented in Table 4.17.

Table 4.17. Demographic information on interviewed respondents

S/N	Code	Location	Gender	Highest Qualification	Work Experience (Years)
1.	UL1	SW	KIm	MLS, PhD in view	26
2.	UL2	SE	KIf	PhD	17
3.	UL3	SS	KIm	MLIS	25
4.	SL1	SW	KIf	MLS	35
5.	SL2	SW	KIm	MLIS, PhD in view	35
6.	SL3	SW	KIm	M. Inf. Sc.	8
7.	SL4	SW	KIf	MLS	26
8.	SL5	SW	KIm	MLS	29
9.	SL6	SW	KIf	Masters	28
10.	SL7	SW	KIm	PhD	3
11.	SL8	SW	KIf	Masters	30
12.	SL9	SW	KIm	M. A.	6
13.	SL10	SS	KIm	M. Phil	20
14.	SL11	SW	KIf	B. Tech., Lib & Inf. Tech.	4
15.	SL12	SW	KIm	MLS	30
16.	NL1	SW	KIm	MLS	32
17.	NL2	SW	KIf	MLIS	28
18.	NL3	SE	KIf	MLS	13
19.	AR1	SW	KIm	B. A.	32
20.	AR2	SW	KIf	M.Sc.	25
21.	AR3	SS	KIf	Masters	6
22.	MU1	SW	KIm	M. Sc.	17
23.	MU2	SW	KIm	PhD	10
24.	MU3	SS	KIm	M. A.	17
25.	MU4	SS	KIm	MLS	15
26.	MU5	SS	KIf	M. A.	2
27.	MU6	SE	KIf	B. Sc.	7
28.	MU7	SW	KIm	B.A.	15
29.	MU8	SW	KIf	M.Sc.	10
30.	MU9	SW	KIf	PhD	19

Key: UL- University Library; SL- Special Library; NL- National Library Branch; AR- Archives Branch; MU- Museum; KIm- Male Key Informant; KIf- Female Key Informant SW – Southwest; SE – Southeast; SS – South-south

It took a period of 10 weeks from November 2018 to January 15, 2019 to get the responses. Only 30 granted audience giving 71.4% interview response rate. Others could not meet the scheduled appointments for various reasons such as exigencies of duty during the period of data gathering.

Five of the 30 granted the interview by telephone while the others were face-to-face interviews recorded with the permission of the respondents. The duration of each interview varied from 10 minutes to 34 minutes depending on how much information they had to share. Notes were taken where possible in addition to the recording. Section A of the Interview Schedule got demographic details, Section B was on Collection Development Policy, and Section C was on Institutional Environment with Section D on Challenges of Indigenous Knowledge Preservation. These questions were not included in the questionnaire, to triangulate the study and get in-depth information on the variables of the study from the Heads of the institutions. The recordings were transcribed and thematically analysed. Of the 30 interviewed, 16 (53.3%) were females and 14 (46.7%) were males. Their years of work experience ranged from 2 years to 35 years. The mean average work experience year for the respondents is 15 years. All interview respondents gave their contact information.

Results from the interview with the heads of the CHI were thematically analysed and are presented under the headings:

1. Collection development policies
2. Institutional environment, and;
3. Challenges of IK preservation

Collection Development Policies

Cultural heritage institutions have collection development policy but the policy is not always written. Four (13.3%) of the 30 interviewed said they did not have written collection development policy that caters for indigenous knowledge materials. "*I am not aware of any*" was the response of one of the Heads of Library (a Deputy University Librarian) (UL1, KIm). One of the Heads of the National Library branch had no comments on the CDP or IE but stated *"I personally do not want to misrepresent facts. I think that the Headquarters will be in a better position to actually attend to the situation. I therefore humbly refer you to National Library Headquarters, Abuja."* (NL1, KIm)

Of the institutions where the policy is written, and caters for IK, 5 stated that the CDP did not have a preservation policy for IK materials embedded within it; and 8 said the policy was visible online. Many of the institutions do not have websites and where they do, their collection development policy is not online. Visibility of CDP that caters for IK is thus a problem to users and even staff who have to consult the policy from files in cabinets if they need to because the policy documents are kept in files. Only 6 offered the links to or provided the collection development policy while one said it existed, "*but not for public view*" (NL3, KIf)!

Some policies are unwritten, yet adhered to by knowledgeable staff who have imbibed the preservation activities culture by virtue of their training. In some cases, the written policy is overridden by Management of the institution - *"Yes, there are policies, but susceptible to the decision of Management"*, said one respondent of a special library (SL6, KIf). The respondents spoke on the extent to which the CDP provided the guidelines for IK preservation in written, electronic or other formats in their institution. Twenty respondents admitted that the CDP provided guidelines to a great extent while 3 (10%) said it guided to little extent. On the extent of the CDP providing guidelines on the IK preservation in the institution, 1 (one) said it guided minimally (SL1, KIf) while majority recognised the great extent to which it guided. Some respondents' responses are: *"We don't have many IK materials, it is a relatively new part of our collection therefore we don't have guiding policy for it yet."*(SL5, KIm); *"The policy helps to prolong the life of the objects or artifacts; The CDP is very helpful."* (MU8, KIf; MU6, KIf).

Apart from any policy in the CDP, respondents were asked to describe other policies that related to IK preservation in their institution. Only 12 (40%) described these other

policies. The responses were as follows: *"Relocation policy"* (SL2, KIm); *"Denial of accessibility*" (AR1, KIm); *"Re-organisation relating to IK preservation"* (MU1, KIm); *"Cumulative indexing"* (SL6, KIf); *"Yes, glass casing, no taking pictures, and researchers get permission for access".* (SL9, KIm); *"There is no direct contact with books. We have a museum library and archives.* (MU4, KIm)*"*; *"Don't touch policy, no pictures, retouching some items. Those are the other policies we have.* (MU5, KIf)*"*; *"We are a museum, library and archive, so the policy is 'do not touch any item'.* (MU6, KIf)*"*; *"Chemical preservation; dust fumigation.* (AR3, KIf)*"*; *"Education policy"* (MU8, KIf); *"Brushes are used for cleaning. The Department of conservation does the work, and chemical preservation is carried out.* (MU9, KIf)*"*; *"Institutional repository policy."* (UL2, KIf)*; "Documentation Policy"* (MU3, KIm).

The rest of the respondents claimed not to have any other policies apart from the collection development policy.

Asked whether their CDP had been evaluated periodically and what the results of this evaluation were, 15 respondents (50%) affirmed this though only 5 (16.7%) stated that the evaluation had yielded good and positive results. Two (NL3, KIf; AR1, KIm) respondents (6.7%) expressed the fact that it was in plan to evaluate the CDP while 16 (55.3%) said their institution had not evaluated the collection development policy.

Institutional Environment

On institutional environment, it was gathered that the physical environment of the institutions were conducive and the collection suited to the environment. Some of the responses were: *"There is no existing physical environment for preservation."*(SL1, KIf); *"Our physical environment is suitable for preservation activities"* (AR1, KIm); *"We have a very well structured building."* (SL1, KIf); *"Refurbished building to house the collection."* (SL7, KIm); *"We have a good environment, not disaster prone though not much technology for preservation has been introduced."* (UL1, KIm); *"The collection has space provided for all types of IK."*(SL8, KIf); *"Our physical environment is good. We have air conditioners and good facilities."* (SL11, KIf); *"Well-built exhibition space, good shelving, well ventilated, good cooling facilities are what we have. We also have moisture extracting machine."*(SL9, KIm); and, *"Our facilities are nothing to write home about. Matters of physical redesigning have been left till next budget year."*(MU4, KIm).

On the whole, the physical facilities were well secured with burglary proof, fire extinguishers, netting on the windows and the temperature, humidity and ventilation appropriate for the different types of IK in the institutions. Only in two institutions (MU7, KIm; SL10, KIm) did the physical environment have challenges like being located in very bushy areas that made the buildings rodent and termite prone.

The electronic environment of the institutions is not well developed as less than half have digitised IK collections already, four (SL11, KIf; MU4, KIm; SL10, KIm; MU1, KIm) indicated that it was in progress and the rest did not have at all as yet (See Appendix B). Electronic equipment like computers and scanners were in use in some of the institutions. For the institutions where the electronic environment was not conducive, responses like: *"There has been no electricity for 2 years in the Federal Secretariat where the Institute is"* (AR2, KIf); and *"No AC. Only computer, scanner which are outdated"* (MU2, KIm) were not encouraging.

Human factors in the institutions form part of institutional environment and it was found that many of the staff in charge of preservation activities are not very well trained to handle IK preservation. Apart from this, shortage of staff is experienced in a number of institutions. It was found though that in some of the CHI, the staffing situation and their level of training in preservation activities was high. Some of the responses on human factors were: *"Trained staff, archaeologists, librarians, Community connections, programmes, symposia etc. are the human resources we rely on for IK preservation"* (SL9, KIm); *"Human factors in terms of them resisting change of migrating to digital is our situation now. That affects preservation of indigenous knowledge."* (MU4, KIm); *"Very poor. No contribution from any staff or [XYZ] community."* [the original name replaced to maintain anonymity]. (UL1, KIm); and, *"Just two staff who take care of the place are the human resources we have."* (SL8, KIf).

A few had ideal or fairly ideal human resources environment as evidenced in some of the responses thus: *"We have knowledgeable preservation staff."* (SL4, KIf); *"UNESCO helps in training staff."* (AR1, KIm); *"Well trained professionals, friendly healthy community relations."* (MU3, KIm); *"Professional librarians are available, and also a Department within the research community is also available to help with preservation*

activities" (SL6, KIf); and, *"We have fairly good staff situation."* (SL7, KIm). (See Appendix C for others).

Challenges to Preservation of Indigenous Knowledge

Funding is a major challenge in cultural heritage institutions in southern Nigeria. Subsidising for the historical centers for instance come exclusively from the Federal Government, an intermittent use that is essential for the country's colossal yearly thoughtful assistance trouble on the country's expanding framework deficiency. Seventeen (56.7%) of the 30 respondents complained extensively about lack of adequate funding for their institution generally, and then particularly, a dearth of funds for preservation of indigenous knowledge resources.

The next high in rank of challenges, disclosed by respondents was unstable electricity (5, 6.7%), shortage of qualified preservators (4, 13.3%), poor internet connectivity (3, 10%), and inadequate training of staff (3, 10%). Other challenges described were electronic incompatibility when migrating from analogue to digital platforms (SL4, KIf), the establishment or starting off of preservation activities (SL1, KIf), the lack of well-arranged space for the IK collection (SL5, KIm), the breakdown of preservation equipment, the need for re-training of staff and the need for policy to be drawn up for Africana or IK resources (AR2, KIf; MU8, KIf), the frequency of response which was by 2 respondents each. Yet other challenges identified by 1 respondent each were: *"Lack of time to do the preservation."* (MU8, KIf); *"The attitude of leaders to preservation is a challenge."*(MU5, KIf); *"Harsh weather."* (NL3, KIf); *"We have challenge of cataloguing the collection."* (SL8, KIf); *"Security of the IK resources."* (SL5, KIm); *"Marketing of the IK resources."* (MU9); *"The institution not being a parastatal is a challenge as we cannot ask for direct funding from government"* (AR1, KIm); *"Our digitisation project was hijacked by Headquarters. This is a challenge."*(AR1, KIm); and, *Government intervention is needed in our institution to alleviate the challenges of IK preservation."* (MU8, KIf).

In only one of the institutions (SL3, KIm) was it said that there were no challenges whatsoever in the IK preservation. Further questioned on suggestions they had for solving the challenges, respondents made many suggestions. Some of them are summarised as follows: *"Utilising the staff available, allocation being given regularly"* (AR3, KIf); *"Museum turning the prototypes of the IK materials for market purposes to raise funds, use*

of social media and internet marketing" (MU9, KIf); *"Computerisation, community inclusiveness and training and retraining of staff."* (MU7, KIm); *"Re-orientate leaders on building cultural heritage. We should preserve our language."* (SL9, KIm); *"Get funding."* (AR1, KIm; MU7, KIm); *"Proper funding by government; community should be enthusiastic."* (MU3, KIm); *"Get preservation experts. Seek funding. Advocacy, soliciting grants."* (UL1, KIm; SL8, KIf); *"Provision of fund which covers every* other *area."* (SL6, KIf); *"Adequate budgeting of the funds."* (SL7, KIm; MU4, KIm) and, *"Using initiative & prioritising needs."* (SL4, KIf).

These solutions it was hoped would help to resolve the challenges faced in IK preservation in the institutions. Funding the institutions well particularly allocating adequately for preservation activities and ensuring capacity building for staff on preservation schedules were major solutions proffered.

4.6 Observations in the study

Results on observations of the study are presented in Table 4.18.

Table 4.18. Observation results

SN	Code	Observation
1.	UL1, SW	Well secured, burglary, CCTV, rules followed by staff, not always by students. Some policy statements pasted on walls. Temperature, humidity okay moderately. Some collections not well secured. Ventilation lighting poor.
2.	UL2, SE	Not well secured, no policy pasted, staff don't follow rules as users do., users comply temp, humidity, ventilation not adequate
3.	UL3, SS	Well secured, moderately ok temp, humidity etc.
4.	SL1, SW	Secured, burglary proofs, rules followed by staff and users. Temp, humidity ventilation are controlled.
5.	SL2, SW	Secured. Policy statements not posted. Staff follow rules. Adequacy of temp, humidity etc. probably. Users comply.
6.	SL3, SW	Well secured. Burglary proof, fire extinguishers, emergency exit in place. Policy statements not pasted, but online. Users log in to library OPAC. Air-conditioned. Staff follow rules, users too. Temperature, humidity etc. monitored. Well preserved, well organised.
7.	SL4, SW	Secured but located near bushes. Rodents can easily be deteriorates. The IK materials are in the Librarians' office. Staff follow rules. Ventilation, temperature and humidity are monitored.
8.	SL5, SW	Well secured, no policy pasted, but library guide exists. Staff and users follow rules. Airconditioners used. Occasional use of IK materials.
9.	SL6, SW	Secured, burglary proof, fire extinguisher, but only one exit to the library. Well arranged, well maintained, rules followed. Not heavily used. Moderate temperature. Good ventilation.
10.	SL7, SW	Well secured, burglary proofs, rules followed, staff and users, temp, humidity ventilation ok
11.	SL8, SW	Not secured, no burglary proof, no fire equipment, dilapidated in some places, materials at risk from disaster, rodents. well ventilated, no policy displayed, staff users comply, No control on temp, humidity,
12.	SL9, SW	Well secured, burglary proofs, rules followed by staff and users. Temp, humidity ventilation are controlled.
13.	SL10, SS	Policy statements not posted. Secured, burglary proofs, rules followed, staff and users, temp, humidity ventilation are controlled.
14.	SL11, SW	Secured. Staff follow rules. Adequacy of temp, humidity etc. probably. Users comply.
15.	SL12, SW	Well secured, burglary proofs, rules followed by staff and users. Temp, humidity ventilation are controlled.
16.	NL1, SW	Policy statements not posted. Secured, burglary proofs, rules followed, staff and users, temp, humidity ventilation are monitored.
17.	NL2, SW	Well secured, burglary proofs, rules followed by staff and users. Temp, humidity ventilation are controlled.
18.	NL3, SE	Secured well physically. Temp, humidity, ventilation controlled. Users and staff comply with rules and regulations.
19.	AR1, SW	Well secured, but preventive methods are old. Policy not pasted. Staff follow regulations, users too. Materials well arranged on steel shelves. Ventilation ok. No airconditioners for preservation.
20.	AR2, SW	Well secured, policy statements in files, staff, users follow rules, temp, humidity ventilation okay.
21.	AR3, SS	Well secured, ventilation, users and staff comply. No policy pasted
22.	MU1, SW	Well secured, ok environ, burglary, alarms, fire extinguisher, staff, users (pry school students mostly) follow rules, no policy pasted. Temp, humidity moderate, ventilation ok.
23.	MU2, SW	Secured, burglary proof, fire extinguishers present. Rules followed, no visible policy statement on walls. Temperature rather high for the materials. No preservation is carried out. It is not a heavily viewed collection.
24.	MU3, SS	Well secured, temp, humidity, ventilation; users & staff comply. Policy statements not pasted.
24.	MU4, SS	Well secured, temp, humidity, ventilation, users staff comply
25.	MU5, SS	Secured. Physical environment is adequate. Rules maintained
26.	MU6, SE	Secured in all aspects.
27.	MU7, SW	Well secured; temperature, humidity, ventilation are controlled well; Users and staff comply with regulations. Policy statements not pasted visibly.
28.	MU8, SW	Secured. There are no entrances to where IK materials are used. Staff and users follow rules, temp humidity ventilation are adequate.
29.	MU9, SW	Well secured, temp, humidity, ventilation, users staff comply

It was observed that more than half of the institutions had good facilities, well sited buildings for their libraries, archives and museums. Only a handful (10%) had Closed Circuit Television (CCTV) monitoring for security of their premises. Except for a few institutions, all had burglar proof, and fire extinguishers. On observing if policy statements were conspicuously pasted concerning use of indigenous knowledge materials, it was found that only one of the libraries, archives and museums did paste on the use of its special collections or rare materials. No particular note was visibly made to ensure preservation except staff of the archives and museums telling users verbally not to touch unless authorised and not to take pictures as well. Some of the libraries had library guides, and the museums had their brochures which users were to purchase.

Generally it was observed that all the custodians of cultural heritage (staff of the libraries, archives and museums) complied with the rules and regulations governing handling the resources, and in preserving them. A few institutions had users not very compliant with the rules. One library was observed to have only one entrance and exit to it. This is not quite good for security purposes. The temperature and humidity was noted to be monitored more in the museums than in the libraries and archives. Ventilation averagely was good across all the institutions except for two (a library and a museum) that had serious ventilation problems.

4.7 Document Analysis

Documents from the website of museums were analysed. It was seen that the reference to preservation of the resources went thus in a particular paragraph –

Part II **Declaration of Antiquities as National Monuments. Etc.** *National Monuments:*

> "(c) if the Commission considers it expedient that any antiquity (other than a monument) should be preserved in a museum, and with the knowledge of the State Government concerned, arrange for the purchase or loan of the antiquity and its removal to a national or other approved museum;" (National Commission For Museums and Monuments Act, 1990).

So also it goes further to state in yet another paragraph:

"13. (1) The Commission may if it considers that any antiquity is in need of protection or preservation and ought in the national interest to be protected or preserved publish notices to that effect in the Federal Gazette and in the appropriate State Gazette and cause a copy of the notice to be served on the owner of the antiquity concerned and every such notice shall-

(a) specify the antiquity and the place where it is or is believed to be;

(b) state that it is intended to make an application to the President to declare the antiquity to be a national monument; and

(c) state that any objection to such declaration shall be lodged with the Commission within two months from the date of publication of the notice.

(2) The Commission shall in any case in which it is reasonably practicable so to do, cause a copy of any notice published under subsection (1) of this section to be posted in a conspicuous place on or near antiquity to which it relates and additional copies shall be sent to the local government in which the antiquity is located and the Secretary to the local government concerned shall post a copy of such notice in a conspicuous place in the principal office of such local government." (National Commission For Museums and Monuments Act, 1990).

The document stipulates the penalties for not adhering to the rules or ignoring the Act which is called the National Commission for Museums and Monuments Act. Documents analysed from the libraries did not yield much on the collection development policy content. The few written policies available were not very specific on policies for IK preservation resources.

4.8 Discussion of findings

The discussion section is organised in line with the major findings from the research based on the stated objectives.

4.8.1 Types of indigenous knowledge resources available for custodians of cultural heritage in southern Nigeria

It was found in this study that the types of indigenous knowledge resources available for custodians of cultural heritage are Nigeriana collection (materials on Nigeria),

Books/journals on indigenous knowledge, Africana collection (materials on Africa), photographs of indigenous content, indigenous art work, CD-ROM with indigenous knowledge content and grey literature on indigenous knowledge matters. Those least available were Charts with indigenous knowledge content, Film/Filmstrips with indigenous knowledge content, Slides with indigenous knowledge content and transparencies with indigenous knowledge content. These IK resources are akin to those identified by Mabawonku (2002) and include even more IK preserved in and with emerging technologies like those identified in the studies by Abioye and Oluwaniyi (2017); Mole, Ekwelem and Din (2018); and Chimko (2021). It is noted in addition that Rakemane and Mosweu (2020) found such available in the institutions they researched noting that audiovisual resources were needed for IK preservation.

4.8.2 Level of availability of indigenous knowledge resources for custodians of cultural heritage in southern Nigeria

It was established in this study that the level of availability of indigenous resources for custodians of cultural heritage in southern Nigeria was moderate. Only three out of the seventeen listed were stated to be highly available while the majority of the other IK resources listed were stated to be moderately available with the overall data indicating moderate availability when taken together. This finding affirmed Akor (2013) statement that library and information resources are very expensive and thus are lowly or moderately available. Similarly, Khan (2016) recorded the availability of canvas dessert art as indigenous art forms available while Abioye and Oluwaniyi (2017) indicated availability of indigenous knowledge materials in form of text books, newspapers, projects, indexes and abstracts, magazines, encyclopedias, CD-ROM databases, e-resources, video cassettes and microfilms without indicating the level of the availability.

4.8.3 Institutional environments for the IK preservation resources among custodians of cultural heritage in southern Nigeria

This study found that all the institutional environment for the preservation of indigenous knowledge resources in cultural heritage institutions was in support of IK preservation resources. Results of the overall mean showed that regulatory environment, organisational environment, sociological environment and physical environment proved

that the institutional environments for the IK preservation resources among custodians of cultural heritage in southern Nigeria was favourable. This finding corroborated Bogota (2015) who stated that adequacy of the resources in the institution, with respect to the planning of human, physical and budgetary resources of the institution (organisational and physical environment) is germane in ensuring proper indigenous knowledge materials preservation and conservation. It also supported the finding of Kulkami and Deshpande (2012) in affirmation of the expectations about library service quality of library users from 29 State Administrative Training Institutes (ATI) in India hinged on physical environment, guidance, staff, resources (organisational environment) and services adequacy of the libraries. The study affirmed that majority of the respondents expressed the fact that they gave first priority to the physical environment aspect of the library service quality.

Biddle (2012) and Safar et al. (2012) established that physical conditions of heritage institutions impacted on the users and the collections and practices going on it. Human resources play a role as well in this type of environment, with capacity building for staff and proper funding being key components as pointed out by Abioye, Zaid and Egberongbe (2014) and Filson, (2016).

4.8.4 Extent of use of manual techniques for IK preservation resources among custodians of cultural heritage in southern Nigeria

Twenty six types of manual preservation methods namely: Lamination, Microfilming, Deacidification, Binding, Use of chemicals (e.g. creosote, DDT), Desalination, Resin impregnation (reinforcing iron and bronze), Rust removal, Cleaning of the resources with soft cloth, Using dust-blowers, Using fans, Using airconditioners, Photocopying, Proper shelving to allow free flow of air, Installing air-conditioners, Using dehumidifiers, Recording on video (e.g. Camcorders), Tape recorders, Cassettes, Slides, Transparencies, Pictures, Use of insecticides and insect repellants, Provision of adequate security systems, Providing anti-fire conditions, and Providing anti-flood conditions were identified in the study. The submissions of Stevens (2008), Isibor and Mamudu (2017), and Chimko (2021) are confirmed by this study. Manual technology use, applying usual cleaning methods in cultural heritage institutions are highlighted to rid the collections of things that could destroy IK in the institutions. The usefulness of indigenous insecticides and insect repellants are confirmed in this study to a moderate extent, akin to the reportage

of Singh (2010) and Salmon (2021) on the use of neem leaves to prevent insects attacking wood objects, and even using "poisonous chemicals" in bookbinding as Angelova et al (2023) discovered. Technology use involving artificial intelligence for preserving languages is just a proposal in southern Nigeria, so also is that of recording intangible heritage using 3D virtual immersive digital media in recording heritage stories, unlike their use in other places already reported by Child (2022) and Kocaturk et al (2023) respectively. These technologies are not used yet among custodians of cultural heritage in southern Nigeria. Most of those technologies found to be in use were used to a moderate extent.

4.8.5 Extent of use of digital techniques for IK preservation resources among custodians of cultural heritage in southern Nigeria

From this study, it was established that digital methods used for preservation of indigenous knowledge among the custodians of cultural heritage were varied. They ranged from simple techniques such as cleaning with soft rags or dusting, to more technical ones like use of chemicals, digitisation and so on. This buttresses what Mohanlal and Krishnaswami (2017) found out in the study of the effort of digitally archiving medicinal plants of Kerala, in India. Digitally archiving IK was common among custodians of cultural heritage in southern Nigeria and corroborates Okoro et al. (2009), Onyemaizu (2015) and Ogunsola and Ikegune (2016). This is the same for other methods used elsewhere as exemplified in Akter (2011) using digitisation and OSTA (2014) using optical media, and recommending the use of disc robots for streamlining imaging processes. These have presented the extent of use of technology in southern Nigeria as revealed in this study.

4.8.6 Extent of technology use for IK preservation resources among custodians of cultural heritage in southern Nigeria

This study found an overwhelming claim of non-usage of technology for the preservation of indigenous knowledge materials among custodians of cultural heritage. Therefore, technology was not frequently used among custodians of cultural heritage and even simple preservation techniques like cleaning of the resources with soft cloth was not used frequently. Replication (Repeating any old configuration of hardware and software) was used occasionally in some institutions. CD-ROM was used often by the custodians as well as microfilming, deacidification, binding, and using dust-blowers. Proper shelving to

allow free flow of air was found not to be widely used as well as transparencies, story beads, recording on video (e.g. Camcorders), tape recorders, internet for cloud storage and optical storage for preservation. This finding corroborates Kalusopa (2008) who claimed that only 28.6% of organisations in Botswana have a programme for the digitisation of audiovisual materials, and Mnjama (2010) who subsequently discussed the problems with maintaining audiovisual archives in Botswana as being majorly affected by lack of technology use in preserving the information. The study however also corroborates Bedlu (2018) in projecting that technology use to keep indigenous knowledge documented is the best course of action by custodians of cultural heritage. The work of Ormond-Parker et al, (2015) is barely corroborated in this study as the extent of use of technology for documenting IK in indigenous communities though underscored, is not clearly indicated as being used to a high extent. Digitisation proved to be a favourite technology recommended for use by custodians of cultural heritage interviewed. This corroborates Akter (2011), Ramanan et al. (2015) and Biyela et al. (2016) on the importance of digitisation as a technology to use for preservation of indigenous knowledge. Baty, et al. (2010) have their study corroborated as they describe use of microfilming and mass deacidification for preservation of IK. Other techniques found to be used in this study were CD-ROM, microfilming, deacidification, binding, and using dust-blowers for preservation. These technologies were used extensively before new technologies like digitisation, 3D technologies and AI cropped up. The extent of use of the newer technologies are therefore low.

4.8.7 Challenges of IK preservation resources among custodians of cultural heritage in Southern Nigeria

One of the many challenges of digitisation as a preservation method is the rapidity with which technology changes. Before a system of technology is well understood and used, new ones are out thereby forcing re-learning of skills. Threats identified by Nworie and Nwosu (2019) to digital resources, are corroborated in this study. Respondents mentioned hardware failure, hardware obsolescence and economic failure (lack of funds) as issues. These were similar to those identified by Rakemane and Mosweu (2020). In southern Nigeria, all these are currently experienced.

A lack of trained personnel for preservation among custodians of cultural heritage in southern Nigeria is another challenge that corroborates Anyaogu (2015) study on

preservation of non-book materials. In the study, the media resources were well kept, but the institution lacked trained librarians. Lack of trained preservation staff is the bane of IK preservation in southern Nigeria. Indeed the finding on more training being needed for those staff currently working on preservation schedules corroborates Alegbeleye (2009), findings as well. However Alegbeleye's (2008) submission that digitisation is scarcely being used among custodians of cultural heritage is not corroborated in this study. This study clearly found that digitisation is now commonly used among cultural heritage custodians. The fact is supported in that currently many of the institutions studied have digitisation as an on-going preservation process, and those not yet digitising are planning to commence digitisation.

Thirdly, digital resources have a lifespan and this drawback imposes the need for rearchiving. This was one of the findings corroborated in this study. The obsolescence of technology used for preservation caused problems, same as that of the need to re-archive items that had been archived using outdated technology. This corroborates Ormond-Parker et al (2015) in that technical obsolescence of analogue materials posed a threat to information and knowledge being lost forever in cultural heritage institutions.

Organisational failure also cropped up as one of the challenges. Issues specifically mentioned like – "*Collection development policy change is susceptible to management changes"; "the Senate needs to be approached to legislate on more funds"; "if the institutions were directly under government budget, they would be better."* and *"The National has hijacked the digitisation project"*, were some of the responses elicited from the interviews. Similar challenges identified in this study corroborate findings of Zaid and Abioye (2010), Adeniyi and Subair (2013), Anasi et al (2013) and Ogunsola and Ikegune (2016) on there being inadequate human and capital resources, funds and insufficient infrastructure.

Alhassan and Abdulsalaam (2013) study in Abuja is confirmed for indigenous knowledge among custodians of cultural heritage in southern Nigeria. Government documents in the National libraries are indigenous knowledge resources that are usually preserved by air conditioning, binding, fumigation and effective security devices. This study also found that similar preservation methods are used across other CHI like in museums and archives studied. Digitisation of documents was similarly found to be a favored preservation

strategy adopted across the CHI in southern Nigeria. Clement and Foy (2010) study which enlightened the visibility of CDP online is reiterated from the findings of this study – a large percentage of the institutions in CHI in southern Nigeria surveyed did not have CDP unlike many of those outside Africa.

Again, it was found in this study that the National Library branches did not have their CDP visible online. It could probably have served some purpose if the National Library had its policies online like that found at the National Library of Korea (2010) or that of the Science Museum Group (2021). Lack of well-articulated policies result in collections deteriorating because there is no guide as to how to handle them better. This finding corroborates Vingnai and Sanchez (2005), Zaid and Abioye (2010), Abioye, Zaid and Egberongbe (2014) and Chaputula and Kanyundo (2014).

Respondents in this study recommended collaboration in implementing policies. This corroborates Abioye (2010) on training of staff in institutions because collaboration strengthens institutions. Torrence, Power and Sheffield (2011) (pg. 62) asserted that CDP may need to be altered to adopt to new fiscal and environmental realities thus the policies need to be renewed to reflect new technologies, the realities and further projections. Doyle, Lawson and Dupont (2015) and Mole et al. (2018) are also corroborated on the issue of collaborating to preserve IK, emphasising community collaboration in IK preservation. This was additionally buttressed in this study, from the suggestions proffered in the interviews of heads of institutions in southern Nigeria. The existence of policies, albeit not very visible policies, was established in the study. Most of the policies were unwritten policies as well, rather than written policies recommended by Kenya National Examinations Council (2022). Unstructured methods used for data collection probably resulted in the rich collection of data by Abioye and Oluwaniyi (2017). The policies existed, the IK was in varied formats, but challenges faced were funding and linguistic problems, in IK collection.

Attached to funding is repatriation of IK resources from foreign lands. It costs money to retrieve artifacts from foreign lands, for museums and archives. This was noted to be a challenge in collection development of IK resources and corroborates Okuyeme (2017) on the loss of artifacts and using, collaboration and cooperation as the main means to ensure the repatriation of stolen artifacts from foreign environments in which they have

been domiciled. One of the respondents from a museum reiterated this fact in the interview on the cost of retrieving artifacts from abroad and securing the museum collections.

As propounded by the Leeds University Business School (2017) in support of the premise that organisations that use human resources that work to attain set goals and follow processes (CDP), use technology (manual, digital) and operate within a physical infrastructure (IE) and share certain cultural assumptions and norms (IK); this study further postulates that the best use of the human resources can be made if the IE is controlled and the rules and regulations adhered to in preserving IK. The Cultural Historical Activity Theory (CHAT) is further applied here in the study in that the outcome of a learning activity such as IK preservation constituting needs tools (that is, technology), the rules (that is, CDP) guiding information technology, and the community (users, staff, society), each doing his or her part (division of labour) to attain the desired outcome. For the library staff, the sense of well-being, achieving a well preserved collection in the institution for users, accessing IK now and in the future, for government, having a well preserved cultural heritage in the cultural heritage institution, and for society having the memory of the people preserved intact, and being able to apply IK to make informed decisions.

As Phiri (2002:81) reiterated, good documentalists are needed for IK preservation. This was buttressed in this study with respondents calling for experienced and well trained professionals to handle IK preservation among custodians of cultural heritage in southern Nigeria. Furthermore, this study corroborates Adeleke, Aina and Lateef (2011) on the need to put different staffing options like Preservation Officer, Preservation Librarian, and Book Conservation Librarian in place to improve preservation in the cultural heritage institution they studied. Findings of this study are similar as different types of preservators, documentation specialists and techno savvy staff was also recommended for IK preservation among custodians of cultural heritage in southern Nigeria.

4.8.8 Relationship between collection development policies and IK preservation among custodians of cultural heritage in southern Nigeria

Sawant (2014)'s findings in India are similar to that of this study on the fact that only a few of the institutions studied had written collection development policies. The difference for this study being that only libraries were the focus of Sawant's study, while

this study is cross-sectional and applies to libraries, archives and museums. Written collection development policies are not common in CHI in southern Nigeria. Rather, unwritten policies are adhered to and where written, the policies are not visible online and physically in most of the CHI.

The issue of preservation policies in CHI being present was found to be a dicey one as the study by Abioye and Oluwaniyi (2017) in southwestern Nigeria seems to be negated. On the collection development and preservation strategies of selected federal university libraries, Abioye and Oluwaniyi (2017) found that majority of the libraries had a policy for indigenous knowledge collection development and preservation because almost all of the 72 respondents confirmed the existence of a policy while very few (5.6%) denied the existence of such a policy in their institution. This finding is different from the current study in some ways, the first being that it studied only federal universities, while this study cut across more institutions than that. Perhaps the policies are visible in federal government institutions and other institutions are yet to make their policy visible or create the policy.

On the other hand, Demas and Miller (2012)'s submission is corroborated by this study, on the issue of collection development policies being designed to guide formal collection management plans and policies. This study also found that collection development policies were necessary as a practical framework for decision making. It guided management decision on how to handle IK preservation among custodians of cultural heritage and thus should not be ignored. In addition, collection development policies need to be reviewed and analysed periodically to improve them. This corroborates the stand of Ahmadian, Chandrashekara and Marjaei (2019) on the issue of policies generally. Similarly, scanners are being used to digitise photographs, manuscripts, maps and historic documents among custodians of cultural heritage in southern Nigeria. They are used to generate 3D digital surrogates of physical artifacts such as tools, shields, carvings, clothing and baskets, in museums and cultural institutions just like those described by the National Museum of the American Indian (NMAI) (2004), and Kocaturk et al (2023).

4.8.9 Relationship between institutional environment and IK preservation among custodians of cultural heritage in southern Nigeria

This study found a positive significant relationship between institutional environment and IK preservation among custodians of cultural heritage in southern Nigeria

and this means improvement in the IK preservation among the custodians, results to a better institutional environment. And the hypothesis which states that there is no significant relationship between institutional environment and IK preservation among custodians of cultural heritage was rejected.

This study affirmed the claim of Amusa, Iyoro and Adebisi (2013) who carried out research on work environment and job performance of librarians in public universities in Nigeria and reported on environmental indicators such as physical facilities, open communication, motivation, and participatory management, viewing participatory management as participation in decision making, and staff development and personal emolument. Results from the study indicated that the physical facilities aspect of librarians' work environment was favourable and therefore, the favourable work environment correlates with high productivity in any organisation and that the work environment of the librarians in South–west Nigeria was fairly favourable. The study reported other indicators of work environments such as physical facilities, open communication, motivation, participatory management and staff development were all fairly favourable and determined job performance.

The study of Sufar, Talibb and Hambali (2012) is corroborated by this study. They agreed that physical interior surroundings influence user expectation needs and behaviour. Even though their study was more concerned with user satisfaction, the physical environment affects preservation too and has its impact. This study again corroborates Kulkami and Deshpande (2012), as their respondents gave first priority to the physical aspect of library service quality; that is, computers availability, OPAC (Online Public Access Catalogue) terminals, cleanliness, adequate light, proper ventilation, functional furniture and so on. These are institutional environment factors that influence preservation of indigenous knowledge.

4.8.10 Relationship between technology use and IK preservation among custodians of cultural heritage in southern Nigeria

It was found in this study that there was a positive significant relationship between technology use and IK preservation among custodians of cultural heritage in southern Nigeria. This translates to the fact that improvement in the technology use results to a better IK preservation among custodians of cultural heritage in southern Nigeria and thus, the hypothesis which states that there is no significant relationship between technology use and

IK preservation among custodians of cultural heritage in southern Nigeria was rejected. This supports the claim of Akter (2011) who posited that use of technology is necessary to be able to achieve IK preservation and that it is the current trend in all modern libraries and is recognised as a vital part of managing information in scientific format. Okore et al. (2009) also are corroborated on preservation methods for IK which include documentation, digitisation, video recording, and others that involve technology use. Mohanlal and Krishnaswami (2017) are corroborated in this study as they brought to the fore the importance of digital technology in preserving indigenous knowledge. This is the findings of this study as well.

4.8.11 Relationship between collection development policies and institutional environment among custodians of cultural heritage in southern Nigeria

This study affirmed that positive and significant relationship exists between collection development policies and institutional environment among custodians of cultural heritage in southern Nigeria. As such, improvement in the collection development policies is deemed to better institutional environment among custodians of cultural heritage in southern Nigeria. The study based on this finding rejected that stated null hypothesis which postulates that there is no significant relationship between collection development policies and institutional environment among custodians of cultural heritage in southern Nigeria. Institutional environment has been affirmed by Babalola (2012) as being a catalyst to make librarians work better and one that would enhance the service they are going to provide to the users. It is the relationship between ICT skills and conducive environment that would enhance librarian's job performance and this includes the IK preservation resources of the libraries and cultural heritage institutions.

4.8.12 Relationship between institutional environment (regulatory environment, organisational environment, sociological environment and physical environment) and technology use among custodians of cultural heritage in southern Nigeria

Results in this study showed that positive significant relationships between institutional environment (regulatory environment, organisational environment, sociological environment, and physical environment); and technology use exists. The

correlation matrix indicates that organisational environment contributes more, followed by regulatory environment and physical environment and lastly by sociological environment to technology use. This means that all the indicators of institutional environment are good predictors of technology use for IK preservation, however, precedents should be given to organisational, regulatory, physical, and sociological environment in this order. This finding corroborates the claim of Ahmed and Unlu (2017) who advanced that institutional environment in cultural heritage institutions are conditions that must exist to ensure that cultural heritage materials are properly housed and stored. The institutional environment provides the essential structures where human actions and or exchanges take place for the handling of cultural heritage materials. Giglitto, Ciolfi, Claisse and Lockley (2019) are also corroborated in the socio-technical interactions that their study pointed out showing work on participatory ICT in disciplines such as human-computer interaction and community informatics. These exemplify technology use and the interaction with the institutional environment.

4.8.13 Composite influence of collection of development policies, institutional environment and technology use on IK preservation resources among custodians of cultural heritage in southern Nigeria

This study affirmed the contribution of all the independent variables to the dependent variable. It established that collection development policies, institutional environment, and technology use compositely and jointly contributes to success in indigenous knowledge preservation among custodians of cultural heritage in southern Nigeria. Karvonen (2012) reiterated the fact that policies are important because they set out goals to be achieved as well as guidelines for implementing them and therefore re affirm the indispensable role of collection development policy in IK preservation resources. Ahmed and Unlu (2017) also advocated institutional environment should be part of conditions that will ascertain proper IK preservation resources while Akter (2011) posited that use of technology is necessary to be able to achieve IK preservation resources.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The study investigated the extent to which collection development policies, institutional environment and use of technology determine the IK preservation among custodians of cultural heritage in southern Nigeria. In order to achieve the objectives of the study, six research questions were raised and answered and seven hypotheses were tested. Thus, this chapter presents the summary of findings, conclusion and recommendations and also presents the conclusion based on the result of data analysis. It also entails the contribution of the study to knowledge and recommendations for future research.

5.2 Summary of the findings

The key findings of the study are as follows:

i. The indigenous knowledge resources that are present in CHI in southern Nigeria are mainly Nigeriana (materials on Nigeria) collection, books/journals on indigenous knowledge, Africana (materials on Africa) collection, photographs of indigenous content, indigenous art work, CD-ROM with indigenous knowledge content and grey literature on indigenous knowledge matters. They are the most available indigenous knowledge resources available among custodians of cultural heritage in southern Nigeria.

ii. The preservation methods used for indigenous knowledge resources are proper shelving to allow free flow of air, photocopying, binding, using air-conditioner, cleaning of the resources with soft cloth, using fans, installing air-conditioner, using dust-blowers, lamination, pictures, provision of adequate security system and use of insecticides and insect repellents across CHI in southern Nigeria;

iii. The collection development policies are mainly unwritten, and those that are, are not visible, but mainly in files in office cabinets. The few visible online do not particularly address indigenous knowledge preservation and may need to be reviewed or rewritten to reflect preservation issues in more concrete terms. The

collection development policies are scarcely visible online in CHI in southern Nigeria.

iv. The adequacy of the institutional environment for IK preservation among custodians of cultural heritage in southern Nigeria is in question for some cultural heritage institutions in southern Nigeria. The physical environment is mostly conducive, with well-located and well-built buildings. The sociological environment is adequate however, the organisational environment (infrastructure, electronic and funding) is not adequate for IK preservation among custodians of cultural heritage in southern Nigeria.

v. Institutional environment has a great effect on the IK preservation among custodians of cultural heritage in southern Nigeria. Without the regulatory, organisational, sociological and physical aspects of institutional environment being satisfactory, preservation of indigenous knowledge cannot be adequately carried out in cultural heritage institutions in southern Nigeria;

vi. The extent of use of technology for IK preservation across different types of CHI affects the preservation of indigenous knowledge among custodians of cultural heritage in southern Nigeria. Manual techniques for preserving IK were used more than digital techniques in preserving IK among custodians of cultural heritage in southern Nigeria;

vii. There were significant relative relationships among collection development policies, institutional environment, technology use, and IK preservation among custodians of cultural heritage in southern Nigeria;

viii. There was composite influence of collection development policies, institutional environment and technology use on IK preservation among custodians of cultural heritage in southern Nigeria.

ix. The challenges of IK preservation are lack of adequate funding for their institution generally, and then particularly, a dearth of funds for preservation of indigenous knowledge resources, unstable electricity, shortage of qualified preservators, poor internet connectivity, and inadequate training of staff.

5.3 Conclusion

The study confirmed that collection development policies, institutional environment and technology use have significant and positive relationship with preservation of indigenous knowledge among custodians of cultural heritage in southern Nigeria. The study found out that collection development policies, institutional environment and technology use all have effect on preservation of indigenous knowledge. Furthermore, it was established that the collection development policies in the institutions are not very visible, and the content does not particularly define issues concerning preservation of indigenous knowledge among custodians of cultural heritage in southern Nigeria. In addition, the institutional environment especially the physical and electronic aspects are not adequate for preservation of indigenous knowledge among custodians of cultural heritage. Technology use for preservation of indigenous knowledge in cultural heritage institutions is limited, with digitisation being the major one that is used in a gradual process across the cultural heritage institutions. It is clear that the cultural heritage institutions will be better able to preserve indigenous knowledge resources if given adequate funding and well trained personnel as well as adequate infrastructure.

5.4 Recommendations

In view of the findings of the study, the following recommendations were made:

1. Cultural heritage institutions should put their collection development policies in written form. The policy should have clear cut statements on how to preserve indigenous knowledge resources being an important aspect of the collection. The preservation policy should be visibly displayed in the institutions for users and staff to see constantly. Online sources of displaying the policy should be adopted.
2. The institutional environment of cultural heritage institutions has impact on the preservation of indigenous knowledge resources therefore, the regulatory, organisational, sociological and physical environment of CHI should be given priority attention. Custodians of cultural heritage should be more concerned with making the environment more user and staff friendly. The buildings, infrastructure, and community relations are very important and should be continually improved for preservation activities to be enhanced and ensured. Human factors that propel the activities have to be given particular consideration therefore training and retraining

of staff handling preservation schedules should be prioritised. Funding as a component of institutional environment is a critical one that must be improved for preservation of indigenous knowledge among custodians of cultural heritage in southern Nigeria to be adequate.

3. Although the findings from the study indicated that technology use had a positive influence on preservation of indigenous knowledge, it was observed that the overall performance in use of technology for preservation of indigenous knowledge is more of a manual effort than digital. More concerted efforts at using digital methods for preservation of indigenous knowledge is recommended.
4. It is therefore imperative that custodians of cultural heritage be trained on digital aspects of using technology for preservation of indigenous knowledge resources. Training and retraining of staff could be achieved through refresher courses in special areas of preservation and conservation.
5. Applying the Socio-technical theory and its rules could be made easier among custodians of cultural heritage if more attention is paid to developing preservation units in cultural heritage institutions in southern Nigeria.

5.5 Implications of the study

The inference drawn from this study indicated that collection development policies, institutional environment and technology use and preservation of indigenous knowledge among custodians of cultural heritage are significantly related in southern Nigeria. This implies that collection development policies, institutional environment and technology use are factors influencing indigenous knowledge preservation. They have positive influence on indigenous knowledge preservation among custodians of cultural heritage in southern Nigeria.

The implication of study is for preservation of indigenous knowledge resources among custodians of cultural heritage, institutional environmental conditions should be provided in a way that custodians of cultural heritage are well adjusted to regulatory, organisational, sociological, and physical aspects. Beside the role of visible, written and collection development policies for IK resources, the results obtained in the present study contribute toward a better understanding of policy issues in preservation studies , and may be valuable for custodians of cultural heritage involved in IK preservation. This implies that

the policies have to specifically state the procedures and these should be visibly displayed in the institutions. In addition, technology use and preservation of indigenous knowledge among custodians of cultural heritage in southern Nigeria cannot be separated from one another, but are interdependent.

5.6 Contribution of the study to knowledge

This study has contributed to knowledge in librarianship in the following ways:

1. The Socio-technical Theory and the Cultural Historical Activity Theory are being brought to bear on the subject of preservation of indigenous knowledge perhaps for the first time, and have validated the theories used in the study, as all the variables were found to be significant.
2. Factors of collection development policies, institutional environment and technology use are determinants of preservation of indigenous knowledge among custodians of cultural heritage in southern Nigeria.
3. Collection development policies existence, visibility and implementation affect IK preservation among custodians of cultural heritage in southern Nigeria.
4. Collection development policies, institutional environment and technology use jointly determine preservation of indigenous knowledge among custodians of cultural heritage in southern Nigeria.

5.7 Suggestions for further study

The followings are suggested for further studies:

1. Collection development policies, institutional environment and technology use and preservation of indigenous knowledge among custodians of cultural heritage in other geo-political zones in Nigeria.
2. Collection development policies, institutional environment and technology use and preservation of heritage sites in southern Nigeria.
3. Effect of preservation of indigenous knowledge on cultural heritage in southern Nigeria.
4. Effect of preservation of indigenous knowledge on cultural heritage in other geo-political zones in Nigeria.

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APPENDIX A
UNIVERSITY OF IBADAN
DEPARTMENT OF LIBRARY, ARCHIVAL AND INFORMATION STUDIES
QUESTIONNAIRE ON INDIGENOUS KNOWLEDGE PRESERVATION AMONG CUSTODIANS OF CULTURAL HERITAGE (QIKPACOCH)
(For Librarians, Library Officers, Archivists, and Museum Curators)

Dear Sir/Ma,

I am a doctoral student carrying out research on indigenous knowledge management. This questionnaire is designed to collect data for research purpose only. Data collected will be treated with strict confidentiality. Thank you very much for your cooperation.

Adetoun A. Oyelude

Instruction: Please answer the following questions either by a tick in the appropriate box (√) or by writing in the space provided (where applicable) for each item.

SECTION A: BACKGROUND INFORMATION

(1) Gender: Male ( ) Female ( )
(2) Name of Institution: ……
(3) Position in the Institution: ……...
(4) Division/Section you work in: …….
(5) Age range: (a) 25 – 35 ( ) (b) 36 – 45 ( ) (c) 46 – 55 ( ) (d) 56 – 65 (e) 66+ ( )
(6) Years of work experience: ……
(7) Religion: (a) Christianity ( ) (b) Islam ( ) (c) Other …….
(8) Highest Qualification: (a) Bachelor's Degree ( ) (b) Masters Degree ( ) (c) PhD ( )
(d) Other ……..

SECTION B: AVAILABILITY OF INDIGENOUS KNOWLEDGE RESOURCES

(8) Indicate the level of availability of indigenous knowledge resources in your institution. Please write quantity if you know. **RdlA** (Readily Available), **OA** (Occasionally Available), **RA** (Rarely Available), and **NA** (Not Available).

S/N	**Indigenous Knowledge resources**	**RdlA**	**OA**	**RA**	**NA**	**Quantity**
i.	Books/journals on indigenous knowledge					
ii.	Africana collection (materials on Africa)					
iii.	Nigeriana collection (materials on Nigeria)					
iv.	CD-ROM with indigenous knowledge content					
v.	Audiovisuals with indigenous knowledge content					
vi.	Audio discs with indigenous knowledge content					
vii.	Film/ Filmstrips with indigenous content					
viii.	Photographs of indigenous activities					
ix.	Indigenous art works					
x.	Indigenous sculptures					
xi.	Grey literature on indigenous knowledge matters					
xii.	Databases with indigenous knowledge content					
xiii.	Masks, clothing, (realia) of indigenous content					
xiv.	Charts with indigenous knowledge content					
xv.	Maps with indigenous knowledge content					
xvi.	Slides with indigenous knowledge content					
xvii.	Transparencies with indigenous knowledge content					
xviii	Others (Please specify) ……					

(9) SECTION C. INSTITUTIONAL ENVIRONMENT

Indicate your level of agreement/disagreement with the following statements: **SA** (Strongly Agree), **A** (Agree), **D** (Disagree), and **SD** (Strongly Disagree).

S/N	Regulatory Environment	SA	A	D	SD
i.	The environment of my institution is such as ensures following of rules, regulations and procedures				
ii.	My institution has formal conventions and customs for preservation of indigenous knowledge resources				
iii.	My institution has informal conventions and customs for preservation of indigenous knowledge resources				
iv.	The formal conventions and customs are adhered to in preservation activities carried out				
v.	The informal conventions and customs are rarely adhered to in preservation activities				
vi.	The environment of the institution determines the rules and regulations for preservation activities				
	Organisational Environment				
vii	My institution ensures training of staff through capacity building programmes.				
viii.	The quality of trained staff determines preservation activities in my institution.				
ix.	The number (quantity) of trained staff determines preservation activities in my institution.				
x.	Computer hardware are essential for preservation of indigenous knowledge resources in my institution				
xi.	Software are used in the preservation of indigenous knowledge resources in my institution				
xii.	Policies are drawn up concerning indigenous knowledge resources preservation in my institution				
xiii.	Communication of policies through memos, online, etc., to everyone on IK preservation takes place in my institution				
xiv.	There is constant power supply to aid preservation activities in my institution				
xv.	There are enough trained staff for preservation activities in my institution				
xvi.	There is adequate funding of preservation activities in my institution				
xvii.	Lack of adequate funding affects preservation activities in my institution				
	Sociological Environment				
xviii.	Community cultural practices affect indigenous knowledge preservation in my institution				
xix.	The community is not involved with indigenous knowledge preservation in my institution				
xx.	My behaviour, emotions and beliefs change due to preservation activities carried out on indigenous knowledge resources				
xxi.	Cooperation of the community with those who preserve indigenous knowledge resources is essential				
xxii.	Collaboration between indigenous knowledge holders (in the community) and staff on indigenous knowledge preservation activities is necessary				
SN	**Physical Environment**	**SA**	**A**	**D**	**SD**

xxiii.	The physical environment in my institution is conducive for human actions or interactions				
xxiv.	The temperature and humidity are controlled in my institution to aid IK preservation resources				
xxv.	Indigenous knowledge resources are kept in well-ventilated areas				
xxvi.	Lighting is fitted to suit the IK resources being stored				
xxvii.	Periodic environmental surveys are carried out to ensure good air circulation.				
xxviii.	Unclean environment affects indigenous knowledge resources				
xxix.	Fire prevention strategies are deployed to protect the IK resources				
xxx.	Burglary proofs, wire netting etc. are present, to prevent theft of IK resources				
xxxi.	Closed Circuit Television cameras are in place to monitor against theft and destruction of IK resources				

SECTION D. TECHNOLOGY USE FOR PRESERVATION

(10) How often are preservation techniques used? (Pls. tick √) For how long? (Please write duration). **VO** (Very Often), **Oft** (Often) **Occ** (Occasionally) and **N** (Never)

S/N	A. Manual Technique for Preservation	VO	Oft	Occ	N	Duration
i.	Lamination					
ii.	Microfilming					
iii.	Deacidification					
iv.	Binding					
v.	Use of chemicals (e.g. creosote, DDT)					
vi.	Desalination					
vii.	Resin impregnation (reinforcing iron & bronze)					
viii.	Rust removal					
ix.	Cleaning of the resources with soft cloth					
x.	Using dust-blowers					
xi.	Using fans					
xii.	Using airconditioners					
xiii.	Photocopying					
xiv.	Proper shelving to allow free flow of air					
xv.	Installing air-conditioners					
xvi.	Using dehumidifiers					
xvii.	Recording on video (e.g. Camcorders)					
xviii.	Tape recorders					
xix.	Cassettes					
xx.	Slides					
xxi.	Transparencies					
xxii.	Pictures					
xxiii.	Use of insecticide and insect repellants					
xxiv.	Provision of adequate security systems					
xxv.	Providing anti-fire conditions					
xxvi.	Providing anti-flood conditions					
S/N	**B. Digital Technique for Preservation**	**VO**	**Oft**	**Occ**	**N**	**Duration**
xxvii.	Computer for uploading					

xxiii.	Internet for cloud storage					
xxix.	Compact Discs (CD)					
xxx.	Cameras					
xxxi.	Databanks in remote locations					
xxxii.	Gene banks					
xxxiii.	Story beads					
xxxiv.	Invigorating (intermittent duplicating starting with one actual medium then onto the next)					
xxxv.	Replication (Repeating any old setup of equipment and programming)					
xxxvi.	Movement (Transfer of advanced materials from one age of PC innovation to another one)					
xxxvii.	Imitating (protecting the first application program)					
xxxiii.	Exemplification (Creating the first application that was utilised to make or access the advanced article on future PC platforms)					
xxxix.	Optical storage					
xl.	Digitisation					
xli.	Digital repository					
xlii.	Web portals					
xliii.	Use of multimedia					
xliv.	Software in local languages					
xlv.	Other (Pls. specify)……..					

SECTION E: CHALLENGES OF INDIGENOUS KNOWLEDGE PRESERVATION

(11) To what extent do the following inhibit indigenous knowledge preservation in your institution? **VGE** (Very Great Extent), **GE** (Great Extent), **ME** (Moderate Extent), **LE** (Little Extent) and **NE** (No Extent)

S/N	Possible Inhibitions to Preservation	VGE	GE	ME	LE	NE
i.	Inadequate funding of the institution					
ii.	Lack of competent manpower in preservation					
iii.	Lack of collection development policy					
iv.	Lack of preservation policy					
v.	Inadequate infrastructure					
vi.	Administrative bottlenecks					
vii	Non-availability of chemicals for preservation procedures					
viii.	Harsh environmental conditions accelerating depreciation of preserved materials					
ix.	Outdated or non-existent hardware					
x.	Outdated or non-existent software					
xi.	Outdated or non-existent network connectivity					
xii.	Other (Please specify)……					

Thank you for sparing your time to fill out this questionnaire.

APPENDIX B

INTERVIEW GUIDE FOR UNIVERSITY LIBRARIAN, ARCHIVES / MUSEUM DIRECTOR ON COLLECTION DEVELOPMENT POLICY AND INSTITUTIONAL ENVIRONMENT IN CULTURAL HERITAGE INSTITUTIONS IN SOUTHERN NIGERIA

Section A: Background Information

1. What is the name of your institution? …….
2. What is your highest academic qualification? …….
3. How many years of work experience have you in the institution? ……...
4. Telephone Number and E-mail address (optional) ……

Section B: Collection Development Policy

5. Does the institution have a collection development policy that caters for indigenous knowledge (IK) resources? Y/N …… Written? Y/N …… Visible online? Y/N.....
6. To what extent does the collection development policy provide guidelines in written, electronic or other formats in your institution?
7. To what extent does the collection development policy provide guidelines for the preservation of indigenous knowledge in your institution?
8. Do you have a policy for reformatting (e.g. digitisation), refreshing, migrating, and emulating data to newer technological platforms? Y/N ……..
9. Please describe any policies apart from those in the Collection Development Policy document you might have that relate to IK preservation in your institution.
10. Generally collection development policies are evaluated periodically. Has the program or activity of collection development reached the point of either testing or evaluating any of the methods or techniques you are using in your institution? Y/N …… If evaluated, what are the results to date?

Section C. Institutional Environment

11. Please describe the **physical environment** (e.g. building, temperature, humidity, security, cleanliness, ventilation, etc.) of your institution that has impact on preservation activities for indigenous knowledge resources in your institution.
12. What of the **electronic environment** (e.g. computers, networking, ICT, audio, audiovisual, digital technologies etc.) that you feel makes preservation of indigenous knowledge resources effective in your institution? Kindly describe them.

13. Please describe the **human factors** (e.g. staff situation, user or community contribution**)** in your institution that contribute to or impact on preservation of indigenous knowledge resources in your institution

Section D. Challenges of Indigenous Knowledge Preservation

14. What challenges do you face in preservation of indigenous knowledge in your institution?

15. Kindly suggest ways in which you think the challenges can be overcome for the IK preservation in cultural heritage institutions.

Section E. General

16. Do you have any supporting documentation that you can share with us, e.g. policies, specifications, non-proprietary information? Y/N

    (List the items provided and collect, photocopy them, or get the URL as the case may be.)

OBSERVATION CHECKLIST

1. Is the institution well secured physically? Burglary proofs, alarms, preventive methods (e.g. Fire extinguishers, sprinklers etc.).
2. Are policy statements pasted up on walls, entrances to spaces where IK materials are used?
3. Do staff follow rules and regulations the same way users do concerning use of IK materials?
4. Check whether the temperature, humidity, ventilation etc. are adequate for the IK resources.
5. Observe users while using or viewing the IK materials to see if they comply with basic preservation routines expected.

   Note these down.

APPENDIX C
INTERVIEW TABULATED

1	**5**	**6**	**7**	**8**	**9**	**10**
UL1, SW	Not aware of any	No policy for it.	Not yet in place.	-	No	Yes
UL2, SE	Yes; Yes; Yes. FG policies on forestry & environment	Great Extent, utilisation and acquisition policy.	[No] Great Extent, existing guideline for preservation	No, looking forward to that.	Relocation policy,	Yes, Positive effect. Helps in appraising and improving IK materials.
UL3, SS	Yes; Yes; Maybe	Great Extent	Great Extent	Yes	-	Yes, positive and effective
SL1, SW	Yes; Yes; No	Great Extent	Mandate for preservation	Yes, as you migrate, you evaluate the policy.	None	Yes, has been really helpful.
SL2, SW	Yes; Yes; No. use vendor catalogue	-	Not many IK materials, relatively new	No policy. Preservation through binding	None	No
SL3, SW	Yes, Yes, few of the policies online	Great Extent, acquisition, donation, gifts, purchase	Great Extent, legal, fiscal/financial, historical value checked.	Yes, policy for digitisation stuck for lack of fund and obsolete machines	Denial of accessibility	-
SL4, SW	Yes; Yes; Yes	Great Extent	Great Extent	None, CDP from HQ;	Re-organisation relating to IK preservation	HQ may have done so, hopefully with positive result
SL5, SW	Yes; Yes; Yes	Great Extent, positive	No, though a written CDP helps.	Yes	None	No

SL6, SW	Yes; No; No	Great Extent, Management changes policy	-	Yes	Cumulative indexing	No
SL7, SW	Yes; Yes; No	Great Extent, getting relevant resources.		Yes	-	-
SL8, SW	Not aware of any	No policy for it.	Seen actions that emanated, but not yet in place.		No	Yes
SL9, SW	No; No; No	No	No	No	None	No
SL10, SS	Yes; Yes; No	None	No	-	-	-
SL11, SW	Yes; Yes; Yes	Great Extent, CDP helps	Highest extent	Yes, other non-objects documented on slides, electronic, or videoing cover cultural events.	Yes, glass casing, no taking pictures, researchers get permission for access.	Yes, to some extent.
SL12, SW	Yes; Yes; No	Low Extent, minimal level	Yes, CDP guides	No, just coming up gradually	No direct contact with books. Museum library and archive	Yes, but policies are not evaluated.
NL1, SW	No comments.	-	-	"I personally do not want to misrepresent facts. I think that the HQ will be in a better position to actually attend to the situation. I therefore humbly refer you to [PQR]" (name changed to anonymise)		
NL2, SW	No; No; No	Not yet, but hope to very soon	-	-	-	-

NL3, SE	Yes; Yes; Yes	Great Extent	Great Extent	Yes	High number of digitised materials	No, but there is clamour for it
AR1, SW	Yes; Yes, few of the policies online	Great Extent, acquisition, donation, gifts, purchase	Great Extent, legal, fiscal/financial, historical value checked.	Yes, policy for digitisation stuck for lack of fund and obsolete machines	Denial of accessibility	No
AR2, SW	Yes; - -	-	-	Yes	-	Yes
AR3, SS	Yes; No; Yes	Great Extent	Great Extent	Yes	Chemical preservation, dust fumigation	No
MU1, SW	Yes; Yes; Yes	-	-	Yes	-	Yes
MU2, SW	Yes; Yes; Yes	Low Extent	Great Extent	No	-	No
MU3, SS	Yes; Yes; No	Great Extent, Written	Sufficiently	Yes	Documentation Policy	Yes
MU4, SS	Yes; Yes	For the general public to access the museum	To prolong the objects or artifacts	Not yet	For research education, preservation and education	Educational policy. Enables to know ones culture & others too.
MU5, SS	Yes; Yes; No	Great Extent	Great Extent	Yes	Brushes for cleaning. Department of conservation, chemical preservation	Yes
MU6, SE	Yes; Yes; No	Written, no electronic	High Extent	Yes	Institutional repository	Yes

MU7, SW	Yes; Yes; Yes	Great Extent	Great Extent	Yes	High number of digitised materials	No, but there is clamour for it
MU8, SW	Yes; No; Yes	Great Extent	Great Extent	Yes	Chemical preservation, dust fumigation	No
MU9, SW	Yes; Yes	For the general public to access the museum	To prolong the objects or artifacts	Not yet	For research education, preservation and education	No

INTERVIEW TABULATED CONTINUED

1	11	12	13	14	15	16
UL1, SW	Good environment, not disaster prone. Not much technology for preservation introduced.	Yes, yes positive	Very poor. No contribution from any staff or [XYZ] community	Funding, lack of preservation experts, policies need to be drawn up for Africana materials.	Get preservation experts. Seek funding. Advocacy, soliciting grants.	CDP
UL2, SE	Acquired from forestry political zones in Nigeria, physical environ suitable for preservation activities	Scanner, AC etc. Oven dry, cleaning, fumigation, Air-conditioned environment	Farm system research & extension department help in preservation. Adopted villages, curators, preservators	Fund, electricity	Provision of funds, stable power supply, trained staff.	-
UL3, SS	Positive impact	Computers, electricity, resource managing, AC	All the human factors contribute positively	None. IK well preserved.	Nil	Website available
SL1, SW	We design the environment to suit the material, customise	Use of airconditioners	Knowledgeable preservation staff	Electronically, incompatibility when migrating. Funding.	Using initiative & prioritising needs.	No
SL2, SW	No negative impact. Very well structured building.	None	-	Funding, security, well arranged space	Adequate funding, security and space provision	-
SL3, SW	Great impact. Physical environ of archives promotes preservation activities,	IT section helps	Unesco helps in training staff	Funding; not being a parastatal, Digitisation project hijacked.	Funding to the archives, making it a parastatal to seek direct funding from government.	-

SL4, SW	Environment regulated, temperature moderate,	Computer to digitise	conservators, preservators, ethnographers, librarians, curators, archaeologists	Fund, preservation equipment, staff training inadequate	fund, equipment provision, regular personnel training	-
SL5, SW	Physical moderately ok. Preservation not right, –ve impact, too much air flow.	No AC. Only computer, scanner which are outdated,	Very poor. No contribution from any staff or ABC community {name anonymized]	Major one is fund, then inadequate staffing	Provision of fund, qualified staff (preservators and conservators, archaeologists)	-
SL6, SW	-	-	Professional librarians. A department is also available	Fund, lack of qualified preservators	Provision of fund which covers every other area	-
SL7, SW	Refurbished building to house the collection	None	Fairly good staff situation	Inadequate funding	Adequate budgeting of the funds	No
SL8, SW	Conducive environment, well located, not disaster prone. Not much technology for preservation introduced.	Yes, yes positive	-	Funding, lack of preservation experts, policies need to be drawn up. Africana materials.	Get preservation experts. Seek funding. Advocacy, soliciting grants	CDP
SL9, SW	The collection has space provided for all types of IK	The collection not digitised.	Just two staff who take care of the place	Funding, Cataloguing, trained staff needed	Fund provision, govt. intervention, preservation experts	No
SL10, SS	Physical environ ok, AC, good facility	E-library is recent, digitisation in process	Staff shortage	Funding, staffing	Provision of enough manpower, adequate funding	No, website available

SL11, SW	Well-built exhibition space, good shelving, well ventilated, good cooling, moisture extracting machine	Videos, slides, pictures. Print format like flex	Trained staff, archaeologists, librarians, Community connections, programmes, symposia etc.	Finance, attitude of leaders to culture & preservation. Attitude of society to culture, awareness creation on IK.	Re-orientate leaders on building CH, preserve our language. Get funding.	Yes, website available
SL12, SW	Nothing to write home abt. Matters of physical redesigning left till next budget year	Preliminary digitisation processes, scanning	Human factor, resisting change of migrating to digital.	Finance, Lack of electronic tools, training, retraining opportunities.	Awareness to professionals, govt. Increased budgetary allocation.	-
NL1, SW	24/7 power, AC, steady temp., enough space no clutter.	Website accessible to all	-	-	-	Website available
NL2, SW	Not quite conducive	Trying to improve	No policy that caters, capable librarians. Currently sort of staff	Not yet started IK preservation	-	No
NL3, SE	Well ventilated, protected	Yes, protected	Staff take care of materials, monitor users. Users do not shelve, closed access system used.	Finance, harsh weather, irregular power supply	More funds, provision of steady power supply	No, not for public
AR1, SW	Great impact. Physical environment of archives promotes	IT section helps	UNESCO helps in training staff	Funding; not being a parastatal, Digitisation project hijacked.	Funding to the archives, making it a parastatal to seek	

	preservation activities.				direct funding from government.	
AR2, SW	Lack of office space and power.	No electricity for 2 years in the Fed Secretariat where the Inst is.	Staff situation bad. Inst not funded for 3 years	Lack of fund. Inadequate training and re-training of staff	If more space is allocated, training and retraining of staff. Allocation of funds.	
AR3, SS	"I personally do not want to misrepresent facts".	"I think that the HQ will be in a better position to actually attend to the situation".	"I therefore humbly refer you to (ABC) HQ, Abuja".	-	-	-
MU1, SW	Lack of office space and power.	No electricity for 2 years in the Fed Secretariat where the Institution is.	Staff situation bad. Institute not funded for 3 years	Lack of fund. Inadequate training and re-training of staff	If more space is allocated, training and retraining of staff. Allocation of funds.	-
MU2, SW	Wet during rainy season, humid during dry season	Digitisation of collection	Trained staff on ground	Funding, lack of adequate preservation materials	Funding, computerisation, community inclusiveness and training	-
MU3, SS	Conducive & Secure	Digitisation of collections nationwide	Well trained professionals, friendly healthy community relations.	Funding, sometimes constraints from artisans	Proper funding by government; community should be enthusiastic.	-
MU4, SS	Cultural environment,	None	Staff preserving collection.	Funds, time, human policy or	Staff should be given a free hand,	-

	Air-conditioning	Audiovisual materials, films	Donation of objects from individuals and community	govt. intervention (policy)	funds should be provided	
MU5, SS	Well ventilated, air-conditioned, well lettered	Not digitised	*Igwes*, chief priest, artists and art runner and staff help in preserving.	Funds, adapting and changing from analog to digital, marketing	Museum turning the material for market, use of social media and internet marketing	Internal policy
MU6, SE	Materials on IK frequently consulted	IR, Dspace	Contribute enough	Network issues, power supply, fund, space	Standby generator, radius for internet, no measure for space	No
MU7, SW	Well ventilated, protected	Yes, protected	Staff take care of materials, monitor users. Users do not shelve, closed access system used.	Finance, harsh weather, irregular power supply	More funds, provision of steady power supply	No, not for public
MU8, SW	Conducive & Secure	Digitisation of collections nationwide	Well trained professionals, friendly healthy community relations.	Funding, sometimes constraints from artisans	Proper funding by government; community should be enthusiastic.	No
MU9, SW	Well located, secure		Adequately trained staff on ground	Funding, lack of adequate preservation materials	Funding, computerisation, community inclusiveness and training	No