KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF ARCHITECTURE AND PLANNING

FACULTY OF ARCHITECTURE

PRESERVATION OF OUR CULTURAL HERITAGE: THE CASE OF MUSEUMS AS EDUCATIONAL AND ECONOMIC CENTRES.

BY

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ABSTRACT

This research is about evaluating the rising decline of interest in African history, arts and architecture amongst Africans, and offer solutions through a physical edifice.

It is imperative for the African to be adequately equipped with this knowledge of his / her history, arts and architecture which can go a long way to enhance the total development of the continent. Africa must also have a physical platform of documenting, preserving, and presenting life-giving cultural heritage for the benefit of its own people and the international body.

This research did not seek to admonish a return to the negative, somewhat backward practices of the African. It rather investigated the benefits of cultural knowledge acquisition to any group of people, and the physical design intervention that can facilitate the former.

This research employed techniques of analyzing information that border on African cultural issues and their impacts on their economies. Also, past efforts of keeping and disseminating cultural information in all parts of the world were reviewed.

Ultimately, there was a proposal or recommendation of an architectural edifice that will house, preserve and present life-giving cultural knowledge of Africa. Its location and design was conceptualized to fuse with everyday activities of commerce and residence to promote active user-participation all the time.

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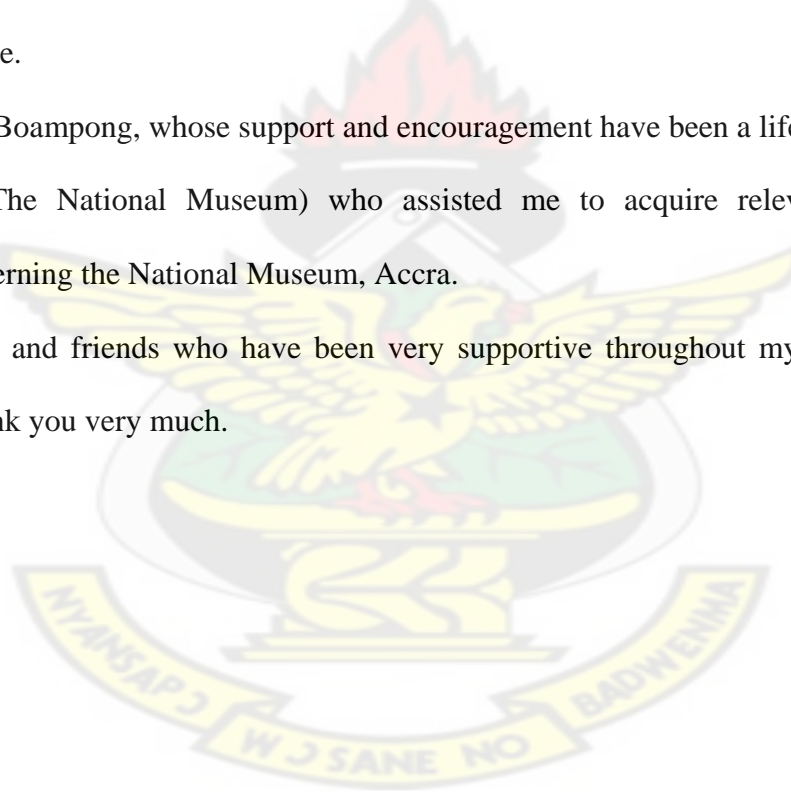
DEDICATION

This design thesis is dedicated to Rt. Rev. S.O. Achamfuo-Yeboah

DECLARATION

I hereby declare that this submission is my own work towards the award of the Masters of Architecture, and that to the best of my knowledge contains no material previously published by another person nor material which has been accepted for he award of any other degree of the University, except where due acknowledgement has been made in the text.

Signature: Date:

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KNUST

CHAPTER ONE

1.0 INTRODUCTION

1.1 PREAMBLE

The cognition of the history, culture and arts which constitute the identity of a group of people initiates the total developmental gains of that societal group. The importance of this knowledge to that societal group cannot be over-emphasized. The history, arts and architecture contribute significantly to shaping the identity of any group of people. Various societies across the world have achieved significant scientific, technological and economic gains upon the realization of the significant role of their culture to their total development aspirations.

Mckissack P. in Royal Kingdoms of Ghana, Mali and Songhai (2000) stated "that the existence of the continent Africa, provides any historian, especially the one who enjoys the art, culture and architecture, an opportunity to study a history that celebrates every facet of sociological, economical, environmental and infrastructural livelihood of the African. The location of the continent in relation to Europe, Asia and North and South America made it a magnetic centre for human interaction and dissemination of culture since ancient times. The most common interactions are those among the indigenous cultures of African peoples and those imported from the Arabian Peninsula and Europe".

www. Wikipedia.com/ Africa continent/ further describe Africa as one continent with several worlds. The continent of Africa covers an area of around 30 million square kilometers, one-fifth of the land mass of the Earth, and has more than 50 countries. Its geographical features are diverse and range from tropical wet or rain forest, with rainfall of 250 to 380 centimeters to tropical dry areas. It has more distinct peoples and cultures than any other continent.

Like their nature, 800 million people of Africa have evolved a cultural milieu which has several dimensions. Africa was the birthplace of the human species between 8 million and 5 million years ago. Today, the vast majority of its inhabitants are of indigenous origin. People across the continent are remarkably diverse by just about any measure: They speak a vast number of different languages, practice hundreds of distinct religions, live in a variety of types of dwellings, and engage in a wide range of economic activities.

www.questia.com/library/history/africanhistory/ states that the African continent is endowed with unique historical data, the arts and architecture. African history such as the rise and fall of the ancient kingdoms of Aksum (now Eritrea) and Carthage (now Tunisia); the culture and people of the ancient African empires of Ghana, Mali, and Songhai, and their respective heroes (Sundiata, Mansa Musa, and Sonni Ali); the Atlantic slave trade; the great African wars: the Yaa Asantewaa War (between the Asantes and the British), the battle at Isandlwana (between the Zulus and the British), the victory at Adwa (where the Ethiopians defeated the Italians); the life and works of the great men and women of Africa or African origin such as, Emperor Haile Salassie, Kwame Nkrumah, Nelson Mandela, Patrick Lumumba, Djomo Kenyatta, Martin Luther King Jnr, Malcom X, Collin Powell, etc, all need to be properly documented and equally well presented or exhibited not only to the peoples of Africa, but to the global community as a whole.

1.2 PROBLEM STATEMENT

Ghana, with Africa as a whole, needs a united front to be able to present its unique rich history, the arts and architecture to the international community. The rich African Culture, History and Arts are gradually being lost due to a lot of reasons.

There is generally a bad maintenance culture of elements of archaeological and historical significance, and a general lack of interest by Africans, especially, in issues that relate to their culture and arts. The sculptures, masks, utensils, caryatids divining bowls and several forms of arts and crafts are being destroyed due to the nature of materials used (wood, etc), wear and tear from daily usage, and lack of proper maintenance.

Another problem is the overwhelming increase in urbanization and modernization in the developing countries of Africa. For example, the concept of the traditional Asante courtyard house is gradually fading away through several forms of modifications (most of the time inappropriate) into commercial or mixed use buildings due to the ever-increasing rate of urbanization.

Unfortunately, issues relating to the culture and arts are relegated to the background and not given much attention.

1.3 AIM

- This research will attempt to identify the extent to which a museum building is able to properly house, preserve and present rich cultural heritage to its peoples as well as foreigners.

- Another aim will be to analyze physical structures around the world that have been put up for such a purpose, and the extent to which they have succeeded

or otherwise. This will show the way in the evolution of an education centre such as a museum.

1.4 OBJECTIVES

Essentially, this scheme will seek to:

- Create a centre for the proper preservation and attractive presentation of our national and continental heritage

- Create and locate the centre so as to enhance the image, economic and tourism potential of the locality in which it is situated, hence enhance the tourism potential of Africa as a whole.

- Design a centre which will serve as a point of reference for issues relating to African history, arts and architecture

1.5 SCOPE

Africa, its cultural heritage, the way it has been handled in the past and some physical institutions in Ghana that have been responsible to manage culture and history will be sampled.

1.6 ORGANIZATION OF RESEARCH

This research is organized in five chapters. Chapter One outlines the problem statement, aims, objectives, scope and research methodology of this research exercise. Chapter Two reviews literature related to the research topic. Chapter Three enumerates the methods used for this research exercise. Chapter Four outlines results followed by proposals. Chapter Five summarises the entire research.

1.7 RESEARCH METHODOLOGY

The Research Methodology will consist of the following:

1. Literature Research:

- The literature research helps the researcher to establish a contextual frame of reference for more empirical research.

It gives the researcher the insight and a clear understanding of the research. The Literature Research provides the researcher the opportunity to be aware of any earlier research done in the area of the study so that the researcher may not waste energy on a similar data which has already been researched into and documented

- It will enable the researcher to underline positive areas of the research that will impact on the outcome on the development of museums in Ghana. A list of related literature and other documents studied are listed in the reference.

2. Literature Review:

- The perspective development and the growth of art and culture of the African continent will have been underlined through the literature research.

- This will include the development of architecture and related facilities like museums and other heritage sites.

- The analysis will show also the short comings and the challenges facing architects, planners in promoting the art and culture of our nation.

- The subject being pursued will be of interest to architects, planners, sociologists etc for that matter of knowledge in the need for the preservation of our national heritage. It may assist the general public to understand the raison d'être of the unity and preservation and the

development of the facilities that house the art and architecture of the African continent.

3. **Data Collection**

There will be visual surveys and studies of a number of institutions in Ghana where the culture and the arts of Ghana and Africa are of prime relevance amongst their activities. Qualitative and Quantitative information will be acquired. Research materials, publications, the World Wide Web (internet) will all be avenues to gain relevant information on the subject matter.

4. **Case Studies**:

The Case Studies will focus on the designs and building-material usage in the design of museums and other facilities in Ghana and elsewhere. The case studies will give useful information that we as architects and planners can incorporate into museum design to international standard. As an exploratory study, it is hoped that the research will generate scenarios with a broader perspective and a deeper insight into the problems of the preservation of our national heritage and the present reasons for some of the successes and failures of our museum to be adequately supported in the socio-economic development.

1.7.1 THE NATIONAL MUSEUM, ACCRA

This museum was established in 1969 by a decree. This makes the museum the legal custodian and manager of Ghana's material cultural heritage and is managed by a board. The purpose and scope of the museum is to acquire, protect, conserve and manage Ghana's movable and immovable materials of cultural heritage

for posterity. The museum will also be for the purposes of research and education of the public.

The main reason for this study is to have an understanding of a typical museum facility in Ghana. This will include its layout, how exhibits within it are organized, managed, kept and displayed.

The National Museum is situated in Adabraka, Accra, in proximity with the Holy Spirit Cathedral. It has provisions for the following:

- Parking lot

- Administrative Unit

- Education Unit

- Permanent Exhibition spaces

- Temporary Exhibition spaces

- Art Gallery

- Store / conservation rooms

- Sculpture garden

❖ **Layout of the National Museum**

The provision for parking is for 50 vehicles. This parking lot is located behind the museum building. Hence, any visitor or staff moves past the museum building to get to the parking lot. There is no provision for parking for buses and other large vehicles.

The museum is modeled on geometry of an inscribed circle.   There is a wide use of blank walls. The windows are arranged in a jig-saw manner to increase lighting levels which illuminate the exhibits. The gallery floor gives visitors the opportunity a real 3D view of activities on the main ground floor.

The main ground floor is rendered in smooth terrazzo, whilst the gallery or mezzanine floor is rendered in polished wooden parquet. The wooden parquet floor reduces noise that may emanate from the movement of the public and visitors in the exhibition halls.

Fig 1: **THE MAIN ENTRANCE TO THE ACCRA MUSEUM**

❖ **The Reception area of the museum**

The reception is located at the entrance of the museum. It consists of an enquiry desk for enquiries and large writings that introduce the story of the museum to any visitor.

❖ **Permanent and Temporary Exhibition Spaces**

These are open column-free spaces with exhibits displayed on large blank walls. Exhibits are arranged in a manner to facilitate graphic of movement of visitors whilst viewing the exhibits.

Architecture

Fig 2: MAIN VIEW OF THE MUSEUM. **Fig 3: VIEW OF THE MEZZANINE FLOOR.**

1. THE HERBERT F. JOHNSON MUSEUM OF ART

Fig 4: ENTRANCE VIEW OF THE MUSEUM. Fig 5: VIEW OF THE MEZZANINE FLOOR.

Museums usually have artificial ventilation systems to effectively control adverse conditions of the weather. This is also to protect the museum's exhibits. The Herbert F. Johnson Museum of Art is however an exception. Its modern rectangular mass has been perforated to allow in natural light and ventilation.

❖ This is a museum building that is located in the premises of the Cornell University, to serve as a research and learning centre. The Trustees of the University financed the cost of the building project designed by I. M. Pei and Partners Architects, and was commissioned in 1995.

❖ **Design**

Its design form is a slim tower, open to the south, perforated East and West, and solid to the north. It is a simple rectangular mass, which is in context with surrounding forms.

❖ **Interiors and exhibition areas**

The galleries are linked with neutrally-coloured linen fabric stretched over plywood. This is to allow for an inert and easily-maintained backdrop for the museum's diverse collections. Hence, exhibits can be changed as often as necessary with little alteration to the background materials.

❖ **Finishes**

The floor finish is carefully chosen to facilitate activity in each space. The lobby is paved with tiles, and bordered with concrete. The main stair of reinforced concrete has a finish of hand-trowelled concrete. Galleries have oak floors, and the lecture rooms and Asian galleries have carpeted floors to create a sense of quietness.

❖ Employed is polished glass inserted directly into the concrete shell. This recess protects the glass from the vagaries of the weather. This detail is maintained everywhere except for the lobby skylight, and its continuous vertical glass slots. These are framed in bronze-finished aluminum to quickly drain off rain-water.

Fig 6: WINDOW FRAMED IN ALUMINIUM.

LESSONS LEARNT FROM THE CASE STUDIES

- The perspective development of museums in Ghana has been hindered because of the lack of appropriate human and infrastructural resource.

- There is need for regional planning and development of regional facilities to house the important elements of our national heritage in the country.

- The careful choice of materials in each space facilitates facility within that space.

- Parking provision must be made for buses and bigger vehicles.

- The use of large blank walls provides sufficient backdrops for the exhibits.

- The design of the museum building must be responsive to the climate and utilize natural local building materials.

5. **Visual Surveys**:

This research work will also be facilitated by information from the world-wide web, visual surveys, photographs and personal observations. Photographs and other visual surveys will make it possible to obtain a great deal of pertinent elements of architectural compositions that may be useful for the outcome of the research.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 A BRIEF DESCRIPTION OF AFRICAN ARTS, CULTURE AND ARCHITECTURE.

It has been argued that Africa has no recorded history in the written form, but there is physical evidence which shows the rich culture of the different tribes. Africa has a long literary tradition, although very little of this literature was written down until the 20th century.

To attempt to describe fully the history and arts of Africa will certainly be beyond the scope of this project. The focus will be to capture those issues of African history and arts which play a major role in shaping the lives of its peoples, and link them to the relevance of providing a museum or facility that can preserve and propagate such issues.

Figure 7: Indigenous Western-Africa   Figure 8: Indigenous Central Africa

Figure 9: indigenous Northern-Africa cultural setting:

- The massing curvilinear spatial forms and materials in composition are very expressive. It is monumental architecture that depicts majesty and energy conservation.

Figures 10: The Larabanga Mosque in Northen Ghana.

2.1 History

The history of Africa has been recounted in so many ways. Different legends and oral literatures present it in their own unique way. KeinCurtis in "Mistaking Africa: curiosities and inventions" (2006) explains archaeological research and genetic studies that strongly support the theory that the evolution of the modern human species (homo sapiens) occurred in Africa. The History of Africa begins from the emergence of modern human beings to its current state as a politically developing continent.

www.wikipedia.com/africanhistory states that Africa's ancient historic period involves the rise of Egyptian civilization, the further development of societies outside the Nile River Valley and the interaction between them and civilizations outside of Africa. In the late 7th century North and East Africa were heavily influenced by the spread of Islam, leading to the appearance of new cultures such as those of the Swahili people. This also led to an increase in the Arab slave trade that would culminate in the 19th century. Pre-colonial African history focuses on the time between the early 16th century with the forced transport of African people and cultures to the New World in the Atlantic slave trade up to the beginning of the European scramble for Africa. Africa's colonial period lasted from the late 1800s until the advent of African independence movements in 1951 when Libya became the first former colony to become independent.

Robinson Birch in "The History of Africa retold" (2006) gives an account of five geographical divisions of Africa which is summarized below:

2.1.1 History of North Africa

The region of the present Sahara was an early site for the practice of agriculture (in the second stage of the culture characterized by the so-called "wavy-line ceramics" ca. 4000 BCE.). However, after the desertification of the Sahara, settlement in North Africa became concentrated in the valley of the Nile, where the pre-literate Nomes of Egypt laid a base for the culture of ancient Egypt. Archeological findings show that primitive tribes lived along the Nile long before the dynastic history of the pharaohs began. By 6000 B.C., organized agriculture had appeared.

Africa's earliest evidence of written history was in Ancient Egypt, and the Egyptian calendar is still used as the standard for dating Bronze Age and Iron Age cultures throughout the region.

In about 3100 B.C. Egypt was united under the first known Narmer, who inaugurated the first of the 30 dynasties into which Egypt's ancient history is divided: the Old, Middle Kingdoms and the New Kingdom. The pyramids at Giza (near Cairo), which were built in the Fourth dynasty, testify to the power of the pharaonic religion and state. The Great Pyramid, the tomb of Pharaoh Khufu (also known as Cheops), is the only surviving monument of the Seven Wonders of the Ancient World. Ancient Egypt reached the peak of its power, wealth, and territorial extent in the period called the New Empire (1567–1085 B.C.).

2.1.2 History of East Africa

By 3000 BC agriculture arose independently in Ethiopia, where coffee, teff, finger millet, sorghum, barley, and enset. Donkeys were also independently domesticated somewhere in the region of Ethiopia and Somalia, but most

domesticated animals spread there from the Sahel and Nile regions. Agricultural crops were also adopted from other regions around this time as pearl millet, cowpea, groundnut, cotton, watermelon and bottle gourds began to be grown agriculturally in both West Africa and the Sahel Region while finger millet, peas, lentil and flax took hold in Ethiopia.

Ethiopia had a distinct, ancient culture with an intermittent history of contact with Eurasia after the diaspora of hominids out of Africa. It preserved a unique language, culture and crop system. The crop system is adapted to the northern highlands and does not partake of any other area's crops. The most famous member of this crop system is coffee, but one of the more useful plants is sorghum, a dry-land grain; teff is also endemic to the region.

Ethiopia had centralized rule for many millennia and the Aksumite Kingdom, which developed there, had created a powerful regional trading empire (with trade routes going as far as India).

2.1.3 History of West Africa

By 3000 BC agriculture arose independently in both the tropical portions of West Africa, where African yams and oil palms were domesticated. No animals were independently domesticated in these regions, although domestication did spread there from the Sahel and Nile regions. Agricultural crops were also adopted from other regions around this time as pearl millet, cowpea, groundnut, cotton, watermelon and bottle gourds began to be grown agriculturally in both West Africa and the Sahel Region while finger millet, peas, lentil and flax took hold in Ethiopia.

2.1.4 History of Central Africa

Around 1000 BC, <u>Bantu</u> migrants had reached the Great Lakes of East Africa. Halfway through that millennium, the Bantu had also settled as far south as the countries of what are now Angola and the Democratic Republic of the Congo. One of the major events that occurred in Central Africa during this period was the establishment of the <u>Kanem Empire</u> in what is now <u>Chad</u>. The Kanem Empire would flourish in the coming centuries setting the stage for future great states in the Sahel region of Africa.

2.1.5 History of Southern Africa

The history of Southern Africa is still much of a mystery, due to its isolation from other cultures on the continent. In 500 BC that isolation ended with the settling of Bantu migrants in modern Zambia. To the southeast, Khoisan "Bushmen" adopted cattle domestication and moved from the hunter-gatherer lifestyle that had dominated life in the region since the beginning of time. By 300 AD, the Bantu had reached modern South Africa laying the foundations for centralized states.

2.1.2 Tribes and Ethnic groups in Africa

Africa is home to a vast multitude of tribes, ethnic and social groups. Some of these represent very large populations consisting of millions of people. Others are a smaller group of a few thousands. Some countries have over 20 different ethnic groups. All these tribes and cultures have cultures which are different, but in a total, tell a story of the mosaic of diversity of African culture.

Such tribes and ethnic groups include Tuareg, Igbo, Berber, Masai, Wolof, Bushmen, Senufo, Kikuyu, Afar, Madinka, Anlo, Bobo, Fon, Amhara, Zulu, Yoruba, Arabs, Ashante, and Chewa.

2.1.3 The Arts and Crafts

Fig 11: Source: Arc. Timothy Oluseyi Odayale (Architecture and Myth: Cultural Values and Health Delivery in Africa, UIA [Public Health Group], South Africa 2006)

Visona Monica in "A History of Art in Africa" (July 2007) explains that Africa has a rich tradition of arts and crafts. African arts and crafts find expression in a variety of wood carvings, brass, and leather works of arts. African arts and crafts also can be portrayed in sculpture, paintings, pottery, ceremonial and religious headgear and dressing.

The African arts and culture has always placed an importance on personal appearance, and jewelry has remained an important personal accessory. Many pieces of such jewelry are made of cowry shells and similar materials. Similarly, masks are made with elaborate designs and are an important part of African culture. Masks are used in various ceremonies to depict ancestors and spirits, mythological characters and deities. In most of traditional arts and crafts of Africa, certain themes significant to African culture recur, including a couple, a woman with a chilled, a male with a weapon or animal, and an outsider or stranger. Couples may represent ancestors, married couple or twins. The couple theme rarely exhibit intimacy of men and women. The mother with the child or children reveals intense desire of African women to have children. The theme is also representative of mother earth and the people within as her children. The man with the weapon or animal theme symbolizes honour and power. A stranger may be from some other tribe, or someone from a different country, and a more distorted portrayal of the stranger depicts a proportionally greater gap between the two.

2.1.4. Indigenous African Art

The material a particular African culture uses to make art depend to a large extent on the materials available to it. Wood, plant fibres and clay are abundant in much of the continent. Few sculptures are created from wood in parts of Southern Africa, where wood is relatively scarce. Where riverbeds provide good clay deposits, as in the Niger River Valley of Nigeria, pottery and ceramic sculptures are plentiful. Soapstone is readily available in Zimbabwe and Northern South Africa where the Shona people reside. The Shona carved soapstone birds as early as the 14th century

and they continue a variety of animal and human figures in soapstone today. Other materials include beads, cowry shells and silk.

2.1.4.1 Form and style

Fig 12: Source: Arc. Timothy Oluseyi Odayale (Architecture and Myth, Cultural values and health delivery in Africa, UIA, Public Health Group, South Africa August, 2006)

The form and style of an African art object depend primarily on the traditions and beliefs of the artist's culture. This contrasts with European art, in which form and style often reflect the artist's desire for personal expression or the effort to imitate nature's appearance.

A successful African art must first of all perform its function well. Beauty is an attribute that enables it to do so, especially when the object acts as an intermediary between the human world and the world of spirits. Beauty makes an object pleasing to these spirits. The qualities that African artists may strive for in

order to achieve this beauty include balance, clarity of form, straightness, exaggeration or distortion, and stylized or symbolic depiction.

2.1.4. Indigenous African Architecture

Fig 13: Source: Arc Timothy Oluseyi Odayale (Architecture and Myth: Cultural values and health delivery in Africa, UIA Public Health Group South Africa, August 2006,)

Fig 14: The Old Mosque in Dakar, Senegal
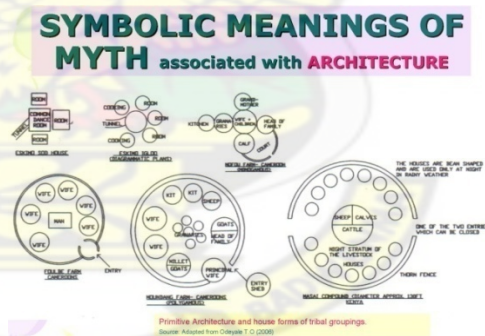
Source: Arc.Timothy Oluseyi Odayale (Architecture and Myth; Cultural values and health delivery in Africa, August, 2006)

Fig 15: The Larabanga Mosque in Northern Ghana.

These two mosques, though at different geographical locations, exhibit similar elements of architectural compositions. They are examples of open museums.

Fletcher B. in "A History of Architecture" depicts that African Architecture consists of more than huts with grass roofs. It reaches back to the monuments of ancient times, to cities of the Middle Ages, and includes construction activities of contemporary times. A good number of wonderful indigenous building forms in the world originate from the African continent. From the great and mysterious Egyptian pyramids that continue to captivate the minds of people, through the concept of brightly-coloured mud huts of the people of Alhambra in Eastern Africa, to the powerful civilizations of the Zambesi valley, these designs have intrigued even the Western world for centuries. Traditional or indigenous African Architecture finds its expression in buildings in rural areas, and buildings in larger, self-ruling urban centres called city-states.

2.1.4.1 Rural Settlements

In a rural settlement, a typical farming village consists of a number of family compounds along with structures that serve the larger community. Each family compound may have separate structures for cooking, eating, sleeping, storing food and protecting animals at night. Structures may be round, rectangular, or semicircular. Communal structures, for holding meetings and teaching children, are located in a prominent place in the village.

Many rural societies in Africa adorn the outside of their houses with painted designs or relief (raised) patterns worked into a soft clay surface. The job of decorating houses generally belongs to women. Fafra women of northern Ghana decorate the walls of their houses and other buildings with geometric patterns that communicate information about the social status of a building's owner. Ndebele women in Zimbabwe and the northeastern part of South Africa paint the mud walls

of their houses with geometric patterns based on the shapes of their windows, steps

and other building features and everyday objects. Traditionally, Africans have used

natural clays as paints, but today, brightly-coloured acrylic paints are popular

2.1.4.2 Town (and city) Settlements

Figure 16: **The Supreme Court, Accra**, Ghana. (Source: Dr. A S Charway, Energy

conservation in buildings and the urban setup.Presentaion, 2003).

These have buildings that are larger and more elaborate than those in rural

settlements. These buildings serve the purposes of government, trade, or organized

religion. In general, town and city-states have developed where trade has brought

people together, or where conquests have merged neighbouring ethnic groups. As a

result, these buildings were built for diverse groups of people rather than for family

units.

Timbuktu in Mali, is one of the best-known examples, but the city of Djenne

has even more significant traits. Djenne serves as a centre of Islamic learning and as

a commercial centre for the trade of gold, slaves and salt. It boasts of one of the oldest mosques in the region. Some of its peculiar architectural descriptions are its baked mud structure, vertical buttresses that rise to pinnacles and wooden or ceramic spouts that drain water from the terrace.

2.1.5 Folklores, folktales, languages and literatures

Africans believe that proverbs are the daughters of experience. Likewise, in essence, folktales and folklores are residue of human experience and a treasury of human values. Folktales present an assessment of any culture's morals and customs. It is estimated that there are around a quarter of a million of African folktales. These folklores and folktales represent a variety of social facets of African culture.

The languages of Africa present a unity of character as well as diversity, as is manifest in all the dimensions of Africa. Among the most prominent languages spoken are Arabic, Hausa and Swahili. However, with a few notable exceptions in East Africa, nearly all African countries have adopted official languages that originate outside the continent and spread through colonialism or human migration. For example, in numerous countries English and French are used for communication in the public sphere such as government, commerce, education and the media.

2.1.6 Festivals, celebrations, food and drink

Africa is a continent of festivals and celebrations which touch all aspects of life. They mark birth and initiation, courtship and marriage, selection of tribal chiefs, harvest rites, beliefs and worship, death and also celebrate spirits and ancestors.

Africa is a huge continent and its food and drink reflect local influences, as also glimpses of colonial food traditions, including use of food products like pepper,

peanuts and maize introduced by the colonizers. The African cuisine is often characterized by the use of starch as a focus, accompanied by stew containing vegetables, peas, beans and cereals, starchy cassava, yams and sweet potatoes are widely consumed

2.2 The Slave Trade of Africa

Figure 17: **The Cape Coast Castle**

(A majestic building which was built by the Portuguese in 1422. There is an architectural expression of majesty and control which also underlines the colonial slavery that took place. The internal spaces are very functional. It is now a heritage site which attracts hosts of tourists. It is an example of open museum and world heritage site).

The history of Africa cannot be recounted without the mention of the Slave Trade. Therefore this section will briefly describe it for the purposes of this project.

Mckisssack Patricia in "The Royal Kingdom of Ghana, Mali and Songhai" (2008) explains the **Atlantic slave trade**, also known as the **transatlantic slave**

trade, was the trade of African people supplied to the colonies of the "New World" that occurred in and around the Atlantic Ocean. It lasted from the 16th century to the 19th century. Most slaves were shipped from West_Africa and Central_Africa and taken to the New World (primarily Brazil). Some slaves were captured by European slave traders through raids and kidnapping, but most were obtained through coastal trading with Africans. Most contemporary historians estimate that between 9.4 and 12 million Africans arrived in the New World, although the number of people taken from their homestead is considerably higher. The slave-trade is sometimes called the Maafa by African and African-American scholars, meaning "holocaust" or "great disaster" in Swahili. The slaves were one element of a three-part economic cycle—the Triangular Trade and its Middle Passage—which ultimately involved four continents, four centuries and millions of people.

The first side of the triangle was the export of goods from Europe to Africa. A number of African kings and merchants took part in the trading of slaves from 1440 to about 1900. For each captive, the African rulers would receive a variety of goods from Europe. Many of them were confronted with the dilemma of trading with Europe or becoming slaves themselves. The second leg of the triangle exported enslaved Africans across the Atlantic Ocean to South America, the Caribbean islands, and North America. The third and final part of the triangle was the return of goods to Europe from the Americas. The goods were the products of slave-labor plantations and included cotton, sugar, tobacco, molasses and rum.

2.3 The Museum

"The museum houses the cultural soul of any nation"- I.M. Pei (Architect,1989).

The museum offers the opportunity to present the identity of the multi-ethnic groups of the people, and at the same time expressing the diversity as one travels across ethnic frontiers. Consequently, a museum will be defined as an institution which houses collections of objects of artistic, historic or scientific interest, conserved and displayed for the edification, inspection and enjoyment of the public.- Patterson Joan :- "The Curator's Handbook "

Suchlike explanations of the nature and purposes of a museum have been propounded by some of the organizations that continue to guide the policies and work of museums throughout the world. Among these are the British Museums Association (founded in 1889) and the International Council of Museums (ICOM), founded in 1947. ICOM works closely with the United Nations Educational, Scientific and Cultural Organization (UNESCO), and other world organizations. Its mission is to develop new museums and to forge links between existing ones through the national governing committees that are responsible to the parent body

2.3.1 Historical evolution of museums

www. Wikipedia.com/historyofmuseums explains the The modern public "museum" to have been derived from the ancient Greek word "mouseion", a place dedicated to the Muses, the nine daughters of Zeus and Mnemosyne (or memory) and so dedicated to artistic creation and memory. Its origins are rooted in the process where totems are chosen and protected in primitive societies: rare or remarkable objects.

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For society as a whole, museums provide valuable intangible benefits as sources of national, regional and local identity. They have the singular capacity to reflect both continuity and change, to preserve and protect cultural and natural heritage while vividly illustrating the progression of the human imagination and the natural world.

Museums as tourist attractions in Ghana have seen very little development in the tourism industry. Over the last 50 years, tourism has gained increasing recognition as an important sector with enormous potential for generating economic growth. Museums collect and care for objects of scientific, artistic, or historical importance and make them available for public viewing through exhibits that may be permanent or temporary. Most large museums are located in major cities throughout the world and more local ones exist in smaller cities, towns and even the countryside. Many museums offer programs and activities for a range of audiences, including adults, children, and families, as well as those for more specific professions. Programs for the public may consist of lectures or tutorials by the museum faculty or field experts, films, musical or dance performances, and technology demonstrations.

With the advent of the internet, there are growing numbers of virtual exhibits, i.e. web versions of exhibits showing images and playing recorded sound. Museums are usually open to the general public, sometimes charging an admission fee. Some museums are publicly funded and have free entrance, either permanently or on special days, e.g. once per week or year.

Museums are usually not run for the purpose of making a profit, unlike private galleries which more often engage in the sale of objects. There are governmental museums, non-governmental or non-profit museums, and privately owned or family museums.

2.4 Types of museums

www.maltwood.wic.ca describes the many types of museums: from very large collections in major cities, covering many of the categories below, to very small museums covering either a particular location in a general way, or a particular subject, such an individual notable person. Categories include: fine arts, applied arts, craft, archaeology, anthropology and ethnology, history, cultural history, military history, science, technology, children's museums, natural history, numismatics, botanical and zoological gardens and philately. Within these categories many museums specialize further, e.g. museums of modern art, local history, aviation history, agriculture or geology. A museum normally houses a core collection of important selected objects in its field. Objects are formally accessioned by being registered in the museum's collection with an artifact number and details recorded about their provenance. The persons in charge of the collection and of the exhibits are known as curators.

2.4.1 Art museums

An Art museum, also known as an art gallery, is a space for the exhibition of art, usually visual art, and usually primarily paintings, illustrations, and sculpture. Collections of drawings and old master prints are often not displayed on the walls, but kept in a print room. There may be collections of applied art, including ceramics, metalwork, furniture, artist's books and other types of object.

The specialized art museum is considered a fairly modern invention, the first being the Hermitage in Saint Petersburg which was established in 1764.

2.4.2 History museums

History museums cover the knowledge of history and its relevance to the present and future. Some cover specialized curatorial aspects of history or a particular locality; others are more general. Such museums contain a wide range of objects, including documents, artifacts of all kinds, art, archaeological objects. Antiquities museums specialize in more archaeological findings.

A common type of history museum is a historic house. A historic house may be a building of special architectural interest, the birthplace or home of a famous person, or a house with an interesting history. Historic sites can also become museums, particularly those that mark public crimes, such as Tuol Sleng or Robben Island. Another type of history museum is a living museum. A living museum is where people recreate a time period to the fullest extent, including buildings, clothes and language. It is similar to historical reenactment.

2.4.3 Maritime museums

Maritime museums specialize in the display of objects relating to ships and travel on seas and lakes. They may include a historic ship (or a replica) made accessible as a museum ship.

2.4.4 Mobile museums

This is a term applied to museums that make exhibitions from a vehicle, such as a van. Some institutions, such as St.Vital Historical Society and the Walker Art Center, use the term to refer to a portion of their collection that travels to sites away from the museum for educational purposes. Other mobile museums have no "home site", and use travel as their exclusive means of presentation.

2.4.5 Natural history museums

Museums of natural history and natural science typically exhibit work of the natural world. The focus lies on nature and culture. Exhibitions may educate the masses about dinosaurs, ancient history, and anthropology. Evolution, environmental issues, and biodiversity are major areas in natural science museums. Notable museums of this type include the Natural History Museum in London, the Oxford University Museum of Natural History in Oxford and the Muséum national d'histoire naturelle in Paris, France

2.4.6 Open air museums

These collect and re-erect old buildings at large outdoor sites, usually in settings of re-created landscapes of the past. Most open air museums are located in regions where wooden architecture prevail, as wooden structures may be translocated without substantial loss of authenticity.

2.4.7 Science museums

Science museums and technology centers revolve around scientific marvels and their history. To explain complicated inventions, a combination of demonstrations, interactive programs and thought-provoking media are used. Some museums may have exhibits on topics such as computers, aviation, railway museums, physics, astronomy, and the animal kingdom. Science museums, in particular, may consist of "planetaria", or large theatre usually built around a dome.

2.4.8 Virtual museums

A recent development with the expansion of the web, is the establishment of virtual museums. The art historian Griselda Pollock elaborated a virtual feminist museum, spreading between classical art to contemporary art.

2.5 Historical Developments of Museums in Ghana

Prof. Hagan (National Commission on Culture, Ghana), recounts the historical evolution in Achimota School in 1929 with collections that the Englishman James Wilcocks made when he was in command on the relief expedition to Kumasi. The collections were to be temporarily stored until a more permanent place was found. These collections were in the form of spears, flintstones, and shields. The 1924 Wembley exhibition, as well as a collection of Gold Coast rocks from the established Geological Survey Department, contributed to the growth of these general collections.

In 1951 the government decided to get started on the establishment of a permanent museum through the Gold Coast University, and two years later Achimota School gave the new establishment all that had been collected so far. When the museum was finally opened in Accra, as a National Museum, exhibits brass weights and Kente cloth (material indicating some aspect of the cultural life of other African countries) were brought in.

In the same year, the Ghana Museums and Monuments Board was inaugurated to run museum services in Ghana and to control and conserve National Monuments and Traditional Buildings. The latter forms the monument's division and together with the museum's division, it formed the Board's area of responsibility.

Eventually the Board evolved a policy to provide each regional capital with at least one instructive and an actively functioning museum.

2.6 Technical and Special Studies

The following areas which are peculiar to the design of museums were studied. This served as a guide to the evolution of the recommended or proposed museum.

2.6.1 Vision and Viewing

The normal limit of vision without moving the head is a cone of 40 degrees. A picture can only be comfortably viewed as a whole only from a distance of about double the diagonal of the size of the picture. However, the average adult human eye level height is about 1600mm. With little eye movement, people usually see and recognize with ease objects that are within an approximately elliptical cone of vision with the apex at the eye-level height. In general, the studies showed that the adult visitor observes an area only a little over 300mm above his own eye level to 900mm below it at an average viewing distance of 600mm to 1200mm. Therefore, arranging objects and labels above and below these limits places a strain on the not very-much-used muscles, burning eyes and stiff necks.

2.6.2 Environmental Controls

- **Temperature and humidity:**

Control of relative humidity levels is the single most critical factor in the design of museum environments. This level must be held constant day and night. Too damp or too dry an atmosphere can be very harmful. Humidity is closely linked to

temperature: a rise in temperature gives a corresponding fall in humidity. The comfort of permanent users (staff) and temporary users (visitors) to the facility must be ultimately considered

Temperature and humidity must be controlled so that as outside conditions vary, stable internal environmental conditions are maintained to preserve the delicate exhibits. Low temperatures of 18-21 C, high temperatures of 22-24 C, and annual relative humidity of 50-60% are required.

Fluctuations in relative humidity are very destructive, repeatedly stressing the very sensitive exhibits within the museum spaces. It is important to define clearly at the onset of any museum project if the entire building will be maintained at conservation standards or only those areas containing collection items (galleries and collection storerooms). If the conservation standard areas are limited, the rest of the building can be treated as any other public building. Adequate physical separations, including vapour barriers must be provided however between conservation and human comfort zones. In essence, this may mean the galleries will have to be separated from the main public circulation areas in interior zones.

2.6.3 Lighting

Natural lighting is supplemented when necessary by artificial lighting. The artificial lighting must be designed to blend sympathetically with natural light. The generally accepted level for ultra-violet radiation is 75 micro-watts per lumen.

2.7.4 Lighting at public areas.

Lighting for such areas should be treated in the most aesthetically pleasing way, since these places set the tone and mood for the entire centre. Public circulation

areas most of the time do not contain objects of exhibit, so the use of natural lighting is accepted if the galleries are clearly distinct from these spaces, otherwise natural light in such public areas will have to be keenly monitored and controlled.

2.6.5 Lighting at exhibit areas.

Lighting at exhibit and gallery areas presents a basic paradox because since the very light that is needed for the appreciation of the exhibited objects is a potent element or source of destruction of these objects. A line voltage (120V) track offers more flexibility in the selection of fixtures (a key consideration), and the fixtures generally produce softer effects. Small, low, voltage effects are less intrusive, in other words, shielded lighting levels are desirable. Track lighting can be exposed, shielded, or concealed.

Windows generally, are undesirable in object-exhibit areas and galleries because of glare, photochemical degradation and visual competition with the objects exhibited. There could also be security risks. Sculpture galleries are an exception since stone and bronze are unaffected by light to that appreciable extent.

2.6.6 Sky-lighting.

This can be a very effective method of lighting interior spaces, but its use must be carefully understood and applied. Special lighting design consultation must be sought. Risks include photo-chemical degradation and degradation of museum objects due to excessively high levels of ultra-violet light and heat. If used, the sky-lighting should be placed in the centre of fixed galleries so that the light generally comes from behind viewers as they look at the exhibition walls. Overall top lighting in flexible spaces can result in lighting that is too flat and will produce glare. Some

of the successful uses of sky-lighting have limited the uses to general diffused reflected light in ceiling surfaces, leaving the actual exhibition lighting to track lighting features. Clerestories are safer and more easily controlled than horizontal or pitched sky-light and can result in satisfactory background light levels. The ultra-violet component of museum lighting is especially dangerous to the exhibits. This component can be avoided almost entirely by the use of incandescent light sources, otherwise ultra-violet filtration is essential if natural or other

2.6.7 Fire protection

In order to reduce the risk of fire from spreading, the museum building can be divided into compartment not exceeding 1860sq.m with a cubic area not exceeding 7080cu.m. Escalators should be enclosed within fire proof construction and their openings protected by automatic fire doors.

2.6.8 Firefighting equipment and systems

- Fire extinguishers

They provide adequate fire protection and are cheap. Some of the most common types are the water based; dry powder or foam type and the ones that use carbon dioxide.

- Sprinkler

It extinguishes fire by soaking the burning material and charging the atmosphere with excessive water so that it will not support combustion. Sprinkler heads are supplied by water mains or by pressurized storage cylinders of 22.5 to 50cu.m capacity usually housed in the basement.

- Fire hose

Unlike the sprinkler, which is indiscriminate, the fire hose is directional and controllable. It may be connected to the mains as long as the mains pressure is adequate. Otherwise, tanks (usually, 1150litre capacity) are require to feed the hoses by gravity or pumps. The hydraulic requirements are that, the hoses should be able to deliver 22 litres of water per minute at a distance of 6metres from its nozzle and those three nozzles should be in operation at a time.

- Fire alarms

Fire alarms may be automatic or manually operated. For the purpose of this discussion, the automatic type will be considered. The automatic alarm system operates in a command chain explained in the diagram below.

- Emergency voice communication panel.

- Fire department communication panel.

- Fire detection and alarm system enunciators.

- Sprinkler and stand pipe supervisory display panel.

- Status indicators and control for smoke control system.

- Fire and sprinkler pump control and status indicator.

2.7. DEDUCTIONS FROM LITERATURE REVIEW

Literature on world heritage sites and museums in Ghana and elsewhere indicate that:

- Africa has a rich heritage, stretching from the giant and magnificent pyramids of the North to the Koishan (Bushmen) settlements of the South, the story of Africa's history, arts and crafts, indigenous

architecture, settlements, folktales, languages and literature, foods and drinks, slave trade, etc, can be told and retold again and again.

- In the African scenario, there is the need for Africans to be proactive for the development of their scientific and technological goals.

- Museums are the repository and display centre of collections and objects of artistic, cultural, scientific and historical importance.

- It further listed the variables, design and control mechanisms, technical data and information that contribute to the successful functioning of the museum building.

- The conclusion is that Africa has a rich mix of history, arts and architecture. This, if well harnessed, preserved and presented in well-organized and controlled physical infrastructural environments, can go a long way to enhance the total socio-economical livelihood of all Africans.

- In Africa, as well as in Ghana, the museum development is hampered by lack of adequate human resource i.e geographers, curators, architects and planners most needed in infrastructure for museum development.

- There is need for continuing training in human resource to assure that the museum as depository of art and culture achieves its full potential and contribution to the national economy.

- In addition, greater organizational investment is needed to ensure education of the masses in the importance of our heritage

CHAPTER THREE

3.1 RESEARCH METHODOLOGY

3.1 Review of Literature

The present state of the history and culture of the diverse ethnic groups across the African continent, against the backdrop of what used to exist, would be looked at. Technical aspects of museum buildings and other learning centres will also be factored in the review of literature.

3.2 Data Collection

There will be visual surveys and studies of a number of institutions in Ghana where the culture and the arts of Ghana and Africa are of prime relevance amongst their activities. Qualitative and Quantitative information will be acquired. Research materials, publications, the World Wide Web (internet) will all be avenues to gain relevant information on the subject matter.

3.3 Analyses and Recommendations

Data collected will be critically dissected and discussed. The ultimate aim of this architectural research will be to propose a facility that will address and solve the issues as captured in the problem statement of this research. Hence, against the backdrop of the literature review and findings obtained from the case and technical studies, a recommendation of an architectural edifice will seek to resolve all issues that have been raised in the chapters preceding this one, ultimately to impact positively the image and perception of African History and arts to the local Africans as well as the larger international body.

It will also be recommended that in order to encourage the desire to acquire knowledge, the activity of learning should be combined with other more pleasurable and desirable life processes or activities.

CHAPTER FOUR

4.0   FINDINGS AND RECOMMENDATIONS

4.0a FINDINGS:

- Africa needs a centre or facility that will properly preserve the rich Arts, Culture, ethnographic and traditional Architecture.

- It will be a catalyst for development in tourist areas and socio-economic development.

- There is not a compulsory History of Cultures course in all secondary schools in Ghana.

- There are not enough facilities to be used as reference points for education on issues relating to African history, arts and architecture.

- The development of human resources in the area of study is weak (The lack of architects, curators and other experts in museum architecture.

- Africans lack interest in issues pertaining to African art and culture.

- African art and culture has not had a corresponding growth as technological advancement and modernization.

- The few museums available are not specialized with the required infrastructure and equipment.

4.0b RECOMMENDATIONS:

- There should be a museum building to properly house, preserve and present Africa's rich cultural heritage to both Africans and non-africans.

- There should be a compulsory History of Cultures course in secondary schools.

- Primary, secondary and tertiary schools must be encouraged to undertake trips and excursions to museums and cultural-heritage sites.

- A lot more resources and infrastructure must be put into issues of African history and arts across the continent.

4.1 PROPOSED MUSEUM FOR AFRICAN HISTORY AND CULTURE.

4.1a Reasons for location of site of museum

The literature reviewed in Chapter Two revealed a problem of parking and accessibility into the National Museum, Accra. Taking this into consideration, the site of the physical recommendation was carefully selected because of the myriad of opportunities that it stands to offer.

- **Potentials**

The site has the following potentials,

- Location within a strategic catchment area.

- The area of land available is large enough for the project

- The facility would be highly patronized because it is at a meeting place of a large number of people, of varying backgrounds.

4.2 Location

The proposed location for this centre is the Old Polo Grounds, South West of the Kotoka International Airport, (KIA) Accra, in the Greater Accra Region of Ghana. It lies about 100m northeast of the Liberation Road, a major spine that connects North-Eastern Accra through Ridge to the Central Business District of Accra. The site, because it is in the vicinity of the KIA, is only some 5 minutes' drive

from the latter, 10 minutes' drive from the Accra end of the Accra-Tema Motorway, and only some 10 minutes' drive from the rapid-urbanization area of the Airport Residential Area. Its present state is a fallow piece of land that has a future intent of conciliating extension / expansion works of the waiting area of the KIA terminal.

4.3 Existing Site Conditions and Inventory

The reviewed literature showed that the natural and built environments for a museum building are major contributing factors for it to function effectively. Hence. the site occupies an area of 11797m sq. It takes about only 5% of the total land that belongs to the Ghana Civil Aviation Authority, who are in charge of the KIA, Accra. The following will seek to describe the present site conditions, at a glance.

1. The natural physical characteristics consist of a lush vegetation of grass, and a few herbaceous trees dotted on it. The site has gentle slopes, peaking into knolls / hummocks in a few instances. However, the dominant gentle slope rises north-east, towards the KIA terminal. Some other natural features of the site include a predominant wind that blows from the South-West, and rises up along the gentle hill towards the KIA terminal.

2. The built environment / man-made interventions made on the site are very minimal, but for the existence of service lines. These include overhead electricity poles, located down south-west and sewer and drainage pipes, located at the Southern fringes of the site. There is also a human intervention of a secondary circulation route from the Airport Police Quarters, through the site to the KIA terminal.

3. The site is bordered by two access roads on its Northern and Eastern boundaries

4.4 SITE ANALYSIS

Fig 18 - Site analysis, source: author's own construction 1, 2008

- CLIMATE

Macroclimate: Generally, the climate of the region is warm and dry, with no particular dominant winds. Southern winds blow from the sea, during the Wet Season, and Dry harmattan winds blow from the North during the Dry Season.

Microclimate: The peculiar nature of the site, having gentle slopes and even a valley (towards its South-Western boundary) creates a micro-climate of rising and falling winds, varying temperature conditions, etc, especially with the onset of Wet and Dry Seasons.

- VEGETATION

The entire site is covered by grass, with a few shady trees and shrubs dotted all over. There is a cluster of shady and herbaceous trees, further North-Eastwards of the site.

- GEOLOGY

By a visual inspection, the general soil type is sandy loam, with no signs of rock outcrops on the entire site.

- HYDROLOGY

There is no indication of the presence of water or water bodies anywhere on the site, and even its immediate environs. There is a low amount of atmospheric water due to the generally dry weather conditions mostly prevalent on the site yearly

- RAINFALL

Averagely there is rainfall about two-fifth the year with an average depth of 100mm.

- TEMPERATURE

Annual mean maximum is 31.6°C; Annual mean minimum is 22.2°C.

- SUNSHINE DURATION

The sun is up on the average of about 8 hours daily through out the year.

- TOPOGRAPHY

There is a predominant slope falling from the KIA terminal down south-westwards. The contours on the site map extract the slope to be 1 in 42 metres.

- SERVICES

    The site has access to all the utility services including water, electricity and telecommunication. The presence of drains at the site peripheries ensure that any excess site water is effectively removed off the site.

- TRAFFIC AND NOISE

Towards the North of the site is a double lane that leads to the Kotoka International Airport, KIA, where access into the proposed facility can also be taken. Traffic count on two different occasions, yielded 25 vehicles per hour each. Another stretch of road that borders the western side of the proposed site, a bypass to the Liberation Road, yielded traffic counts (per hour) on three different occasions of 60, 55 and 72, and averaged 62 (per hour).

Of very significant consideration is the influence of the Kotoka International Airport terminal and the activities of the aeroplanes to the proposed site and facility. These aeroplanes produce excessive sound levels which flow into the area of the proposed site. The proximity of the KIA to the proposed site creates secondary circulation patterns through the latter to the former.

4.5 Site Peripheral Studies and Architectural Character

4.5.1 Peripheral Land use.

The proposed site is engulfed with a wide range of mixed use, office / commercial and residential activities, mainly because of the presence of the KIA terminal around which all these above-mentioned activities revolve. There is an everyday increase in the rate of provision of first class residential accommodation, first class office buildings and apartments, and mixed use facilities.

Fig 19 – Peripheral land-use, source: author's own construction 2, 2008

4.5.2 Architectural character

In most sense, the architectural style at the site fringes and surroundings is Post Modernism. The Kotoka International Airport, KIA.'s post modernism style has been a major influence on the newer structures that have been built around both the KIA and the proposed site. It is as though the entire story of Ghana's ever growing architectural and building character is being told at the premises of the KIA and its environs (Airport-West, Airport-East, Airport Residential Area, etc), within which lies the proposed site. Broadly, the buildings are of sand cement blocks and reinforced concrete structural framing. There has also been a surge in the use of glass

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and curtain walling as the non-load-bearing envelopes for most of the buildings. Flat concrete roofs, pitched aluminium roofs, etc are all employed,

4.6 Design Evolution

4.6.1 Brief Development

The Ghana Civil Aviation Authority (GCAA), as depicted in its structure plan, is to increase facilities and provisions for visitors and general public who wait long hours for their own flights or flights of their loved ones. In line with this, the waiting lounge will be expanded by the year 2020 so as to solve such problems that come with congestion at the present waiting lounge.

Hence, other facilities should be incorporated within such a structure plan that will function both to engage the visitor or public who is waiting, and also to whip up interests of Ghanaians and non-Ghanaians alike in cultural issues.

The airport and its environs are flooded with commercial, restaurant, office and residential facilities. Therefore, a knowledge-acquisition centre would be an ideal incorporation into the GCAA's structure plan.

The brief for the facility has been carved around two major factors;

- The smooth integration of the proposed centre with the myriad activities of the Kotoka International Airport, KIA

- The need to create a museum edifice that will be maximized in terms of usage and level of interest by the target group

4.6.2 Potential Users of proposed musuem

USERS	TRAFFIC NEEDS
Foreigners en-route to overseas	Hired vehicles and taxis
Foreigners from overseas	Hired vehicles and taxis
Persons who work at the airport and its premises	own cars, taxis
School children	Hired buses
Employees and staff	own cars
Foreigners resident in Ghana	Personal vehicles
Young adults, students	public transport, personal vehicles

Table 1 – users and traffic needs

4.6.3 Potential tenants of proposed museum

With the exception of the restaurant and the artifact-selling shops which will be managed by private individuals and bodies, the museum and its administrative unit will be run by staff recruited by the National Museums and Monuments Board (NMMB). Hence the NMMB will ensure that its operations and activities will not conflict with those of the KIA, in whose premises the facility is located.

4.6.4   Design Requirements and User function

As mentioned in the Literature Review of the types of museums, this proposed facility / museum will basically focus on the cultural heritage of Africa. All users should be able to identify with all the spaces, both outdoor and indoor. The design must be such that it will maintain interest and engage the curiousity and involvement of passers-by and visitors to the KIA. It should be such that workers

working and residents residing at the airport and its surrounds will be attracted into it

at all times to learn more about the heritage of Africa.

KNUST

4.6.5 Museum Planning Principles

The information obtained from the researched literature, case and technical studies served as a guide to the contriving and configuration of the elements of the brief.

4.6.5.1 Storage Areas

Darkness will be the ideal situation for prints and drawings in storage. Daylight, the richest source of ultra-violet radiation must be excluded from storage rooms. Fluorescent tubes will be covered with UV-absorbing sleeves. Incandescent and photographic lamps, which can cause appreciable heat damage in the form of brittleness, dehydration and distortion, will be kept far from any work on paper to prevent even the slightest increase in surface temperature

4.6.5.2 Display Areas

Exhibit objects will be presented in one of the following ways depending on their material composition:

- Mounted on a wooden platform and in glass showcase

- Leaning against blank walls, exaggerated columns

- Free-standing with supports on the floor

4.6.5.3 Organization of views and circulation

Entrance into the museum at the reception lobby will be through a turnstile or an electronic detection system. Movement of visitors to the museum will be organized to ensure maximum user-involvement in all processes, with a tour-guide. There will be a linear-circulation

pattern at the slave-trade memorial hall where because a story is being told, the issues will have to presented in a linear sequential manner.

However, at the gallery areas where there will be exhibits showcased in glass, circulation pattern will be random.

4.6.5.4 Movement of the public within the museum spaces

The control of public accesses at the entrance will be critical. The reception desk where information can be sought, food and snack services, guard's station, lecture halls, meeting rooms, toilets will be accessible by the public without their necessarily going through the permanent and temporary exhibit spaces. There will be special provision for the handicapped within the facility. Ramps and elevators will thus be employed

4.6.5.5 Separations of functions of public and staff areas

Public accesses to staff areas will be limited and controlled. Thus, the public will have ancillary facilities like washrooms at a different location from those of the staff. The delivery and reception of museum exhibits will be closely monitored and controlled by security for quality, quantity and safety. Hence, there will be a security-check point next to the drop-off zone for the delivery van.

Private parking and access into the facility will be different from those of the public and visitors. The private access will lead to administrative and education units. These areas will be accessible by the public but by through the main public entrance and spaces.

4.6.5.6 Security

The design of the facility will be such that the exhibit objects and collections will not be in danger of peril or theft, or necessitate heavy security staffing. It will be possible to close off the galleries from public areas during meetings in the meeting and seminar rooms, performances or social functions, and to close off permanent galleries during openings of temporary exhibitions.

4.6.6. Site Planning Principles

The site will be planned such that any future intentions of the Kotoka International Airport (KIA) to expand its waiting lounge, as according to its structure plan by the year 2020 will not adversely affect this proposal of a centre. Therefore, the public parking area will be laid out and positioned between the KIA and the proposal. The site will have its access from the service road (on its Northern boundary) that leads to the KIA and not from the major dual-carriage bypass that has a heavier traffic count. The design will be laid out to take opportunities that the site offers. Some of these are a gentle slope westwards, terrific views to the KIA and flying planes, infrastructure and service lines that are existent because of the KIA, etc. Conceptually, there will be orderliness, balance, unity and beauty in the arrangements and disposition of all the natural and built elements of the site. These will among other things, ensure an active user-participation and comfort at every time of the facility.

4.6.6.1 Foot traffic

Visitors and users will be directed along a pedestrian walk way or sidewalk through an entrance security post into the facility. Upon anticipation of huge numbers of such foot-traffic

visitors, the large sidewalks will be lined with refreshing landscapes interspersed with sculptural pieces to catch and engage views into the facility, as well as to whip up interest and curiosity in visitors.

4.6.6.2 Vehicular and motor traffic

This kind of traffic will be ordered and organized so as not to conflict with pedestrian traffic. Public and private accesses into the facility will be through different routes. For the public access, a median of flowers and landscapes will separate one direction of traffic from the other. This will lead to an oblique parking system so as to achieve the most in terms of area from the land that will be allocated for public parking.

4.7 Philosophy and concepts of Design

4.7.1 Design Philosophy

The Holy Bible puts it in a very clear and simple way that "For lack of Knowledge, My people perish". The design philosophy thus is: **knowledge is a giver of life**. This fact of life has been expressed in a number of different ways by renowned people the world over.

- Any river that forgets its source will definitely dry up – Aristotle

- The roots of education are bitter, but the fruit is sweet – Aristotle

- Education is the most powerful weapon which can be used to change the world – Nelson Mandela

- Science without culture is lame; culture without science is blind. – Albert Einstein (1879-1955).

- He who cherishes knowledge cannot fail to be a pacifist (violence-opposer). Such a man is a man of peace.- Albert Einstein.

The importance of acquiring and obtaining knowledge cannot be over-emphasized. Bold decisions can be made because there is the knowledge as to the results of such decisions. It is actually the knowledge that will inform as to how such decisions should be made. Knowledge is life-giving, and human beings must strive for it.

For the purposes and scope of this project, this life-giving knowledge will be knowledge of the history, arts and culture of Africa. Like the scientist and technologist, Albert Einstein put it; "science and culture go hand-in-hand for the total development of any societal group." Past and present issues will be the stepping stones for future development agendas. The African, especially, who informs himself of his history, art and culture will be in a better position to make decisions in all aspects of his life.

4.7.2. Design Concept

The design concept is fusing knowledge acquisition with other life activities. This idea of fusion will be conceptualized as a natural organism that is soft and fluid. It will flow with nature, and will unassumingly and unconsciously attach itself to other life processes or activities. It may be viewed again like a parasitic behaviour of a worm.

The whole idea and purpose is that the processes of knowledge acquisition will be merged or fused with other life activities which may seem more important, so that Ghanaians and Africans as a whole will obtain such cultural knowledge without really making that much effort to. The attempt will be to encourage cultural knowledge-acquisition by all Ghanaians and Africans as a

whole which will greatly improve and sustain economic, scientific and technological life on the
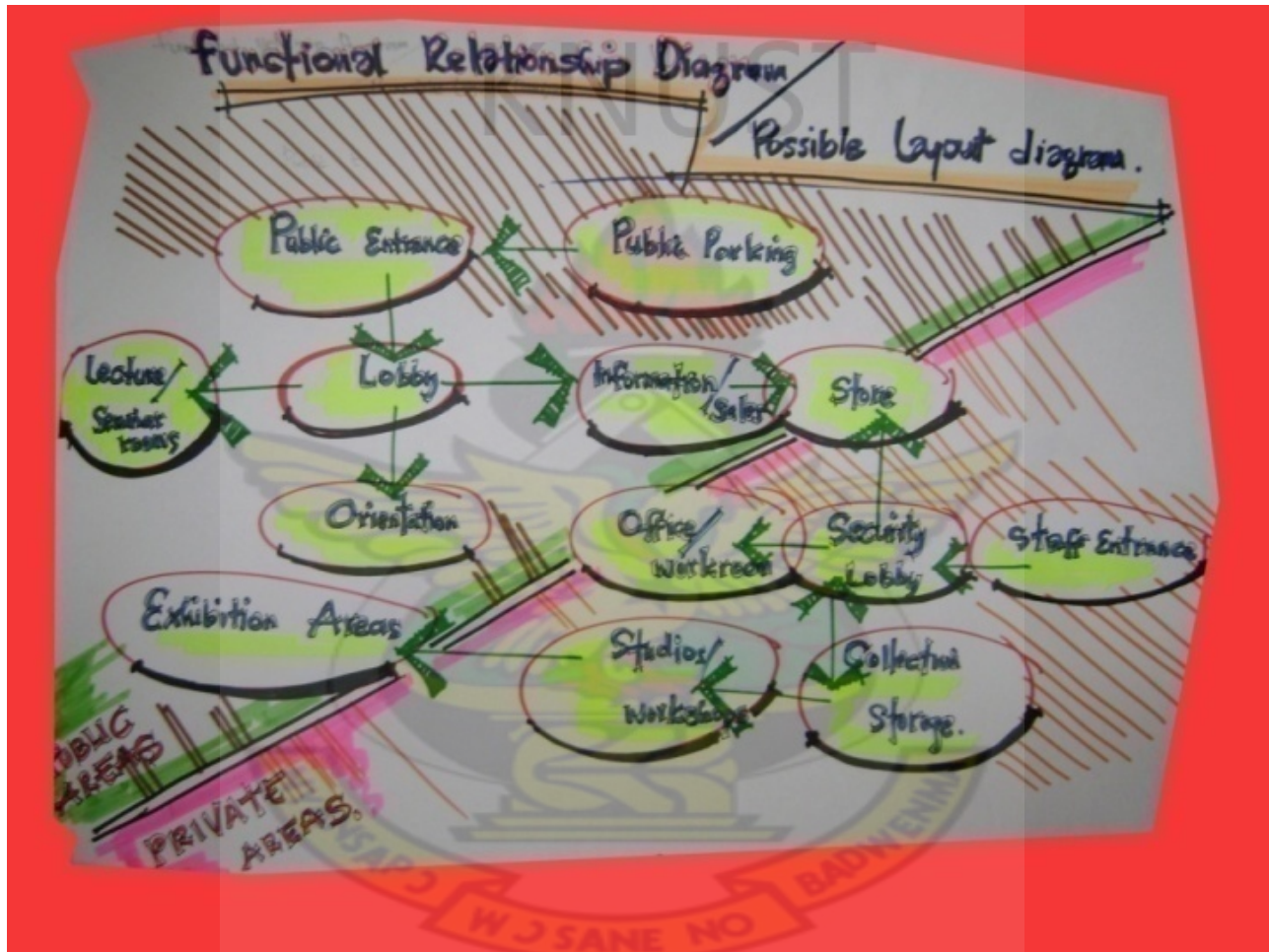
continent.

4.8 Functional Relationships

Fig 20 – Functional relationships between macro site elements, source: author's own

construction 3, 2008

4.8.1 Goods / Exhibit movement

Fig 21 – Functional relationships between micro museum elements, source: author's own construction 8, 2008

4.9 CONCEPTUAL DEVELOPMENTS AND PLANNING

4.9.1 Conceptual Site Planning

A number of conceptual site layout options evolved, each having its merits and demerits.

4.9.1.1 Option One:

The first option was to have the public areas face the two adjoining that border the South and West of the facility. Access into the facility will be taken from any of these two roads, but preferably the one with less traffic.
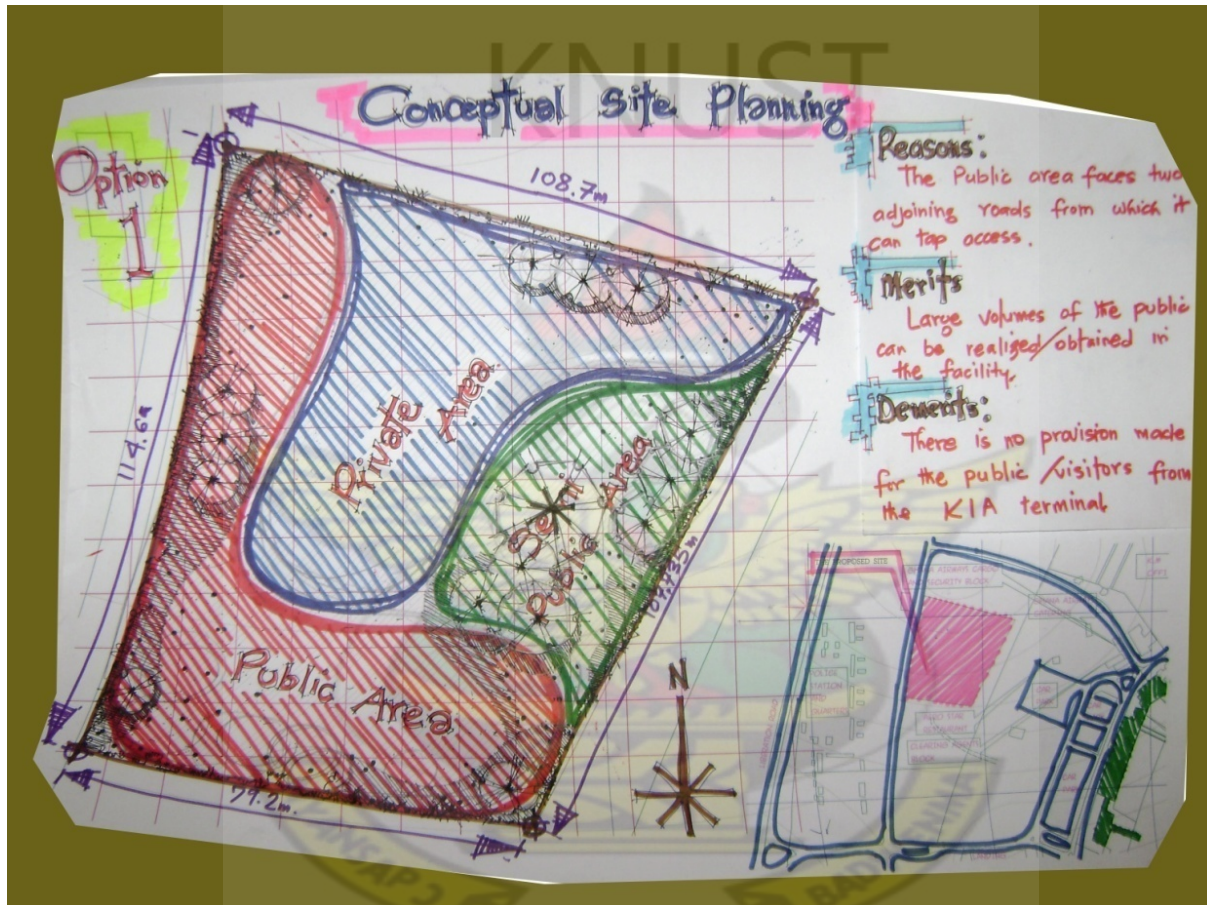

Fig 22 – Conceptual site planning (Option 1)

Fig 23 – Conceptual site planning (Option 1)

Merits:

Large volumes of the public can be expected into the proposed centre, since public access is in the same area as the course of public traffic.

Demerits:

It will be unwise to tap access into the facility from major traffic zones when there are other options. Also, there will not be any direct access for the public or visitors from the Kotoka International Airport (KIA).

4.9.1.2 Option Two:

With this option, a focal point was to be serve as the fulcrum or hub of the design. This focal point could be in a form of a monument. Access into the facility will be from the two adjoining roads. However, there will be a provisional access directly from the KIA terminal into the proposed facility.

Fig 24 – Conceptual site planning (Option 2)

Merits:

A beautiful maze of sculpture in a sculptural garden can be used to usher the visitor from the KIA into the facility or centre. Vehicular access can also be direct from the adjoining roads that the border the South and West of the site.

Demerits:

There are a lot of accesses into the facility which will create security problems.

4.9.1.3. Option three:

Here, the KIA was conceptualized to be a driving force to force open the proposed facility. Here, the public area is placed between the KIA and the proposed facility. This option will allow for a natural integration or fusion of the future event of extension of the KIA's waiting lounge, with the public parking and recreational areas of the proposed facility.

Fig 25– Conceptual site planning (Option 3)

Merit:

Access into the facility is kept to a minimum.

4.10 Description of Design

Figure 26: Site layout (source: author's own construction).

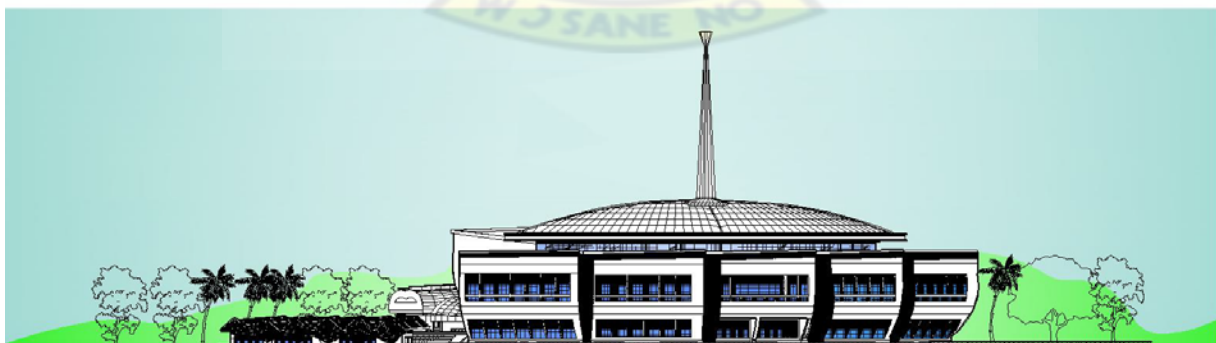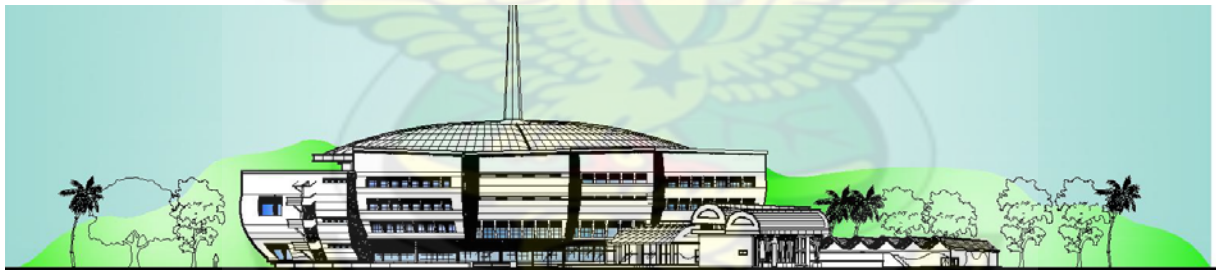Fig 27: Block plan and aerial views. (source: author's own construction, 2008).

Fig 28: Elevations (author's own construction, 2008)

4.10.1 Site layout

From the conceptual layouts evolved a block plan where the entire facility comprises a museum building, an attached block of shops and artifact-selling areas, an amphitheatre, a sculpture garden, public and staff parking, and a service yard. A security post ushers the visitor into the facility. This security post has a form of a trumpet to symbolize the announcing of a life-giving opportunity of the museum to all. An extensive driveway that precedes parking is beautifully interspersed with landscaped median and pedestrian sidewalks on its sides. This driveway buds into a 30 degrees oblique parking and terminates at a reserved parking area for buses. The literature review revealed that the provision for buses parking and turning is key, hence the inclusion in the design. Sidewalks are functionally interwoven into the public parking to transit visitors from the parking lot into the facility.

On the other side, Northwards of the site, is a restricted entry area for staff, delivery and services. Entry terminates in a private parking, a delivery yard and a service yard.
The layout is also such that souvenirs can be purchased from the art and artifact-selling shops which precede the entrance of the museum building. A museum court consisting of a fountain, pieces of sculpture, soft landscapes and sitting areas, heralds the entry into the main building.
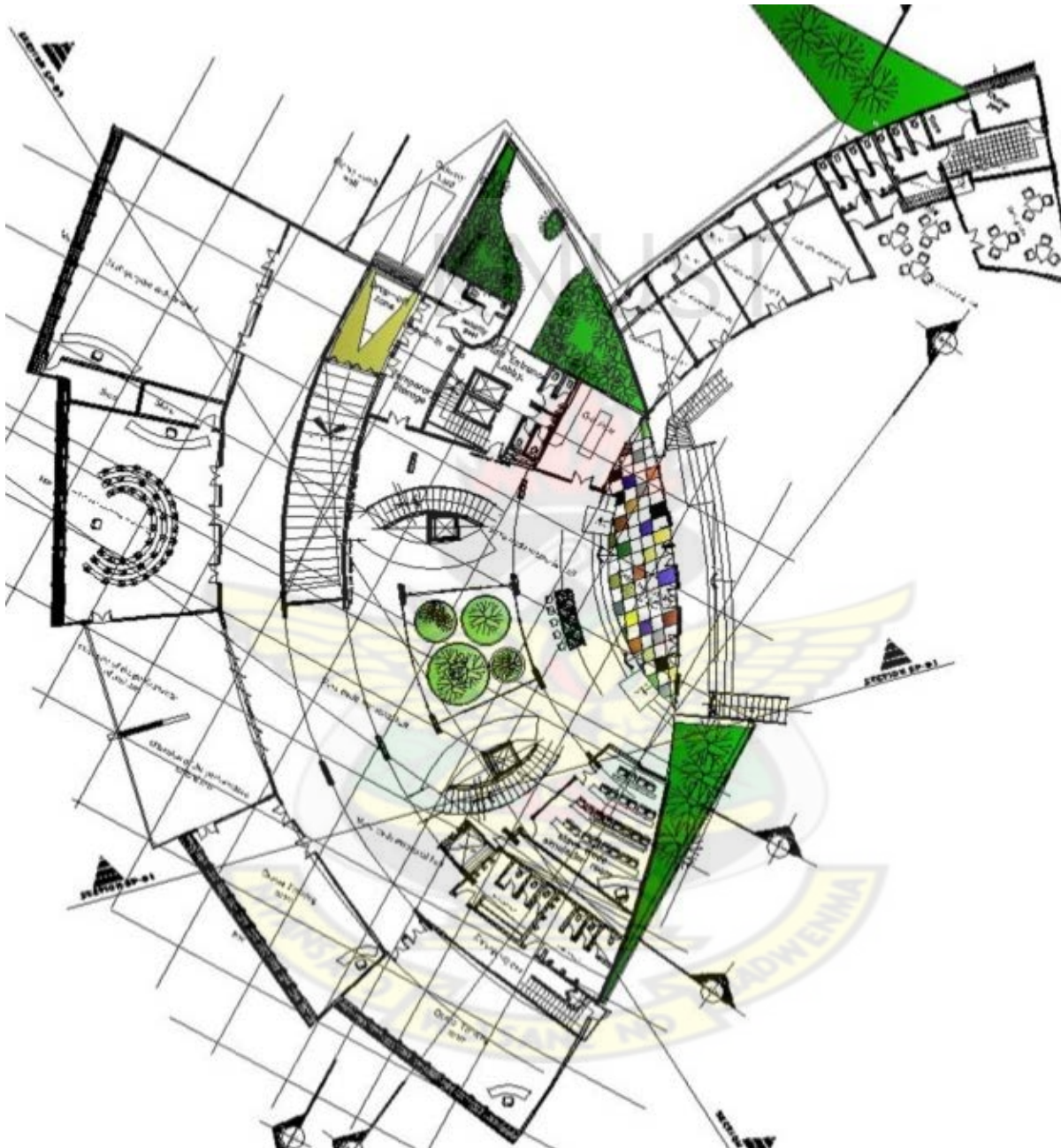
4.10.2 Ground Floor

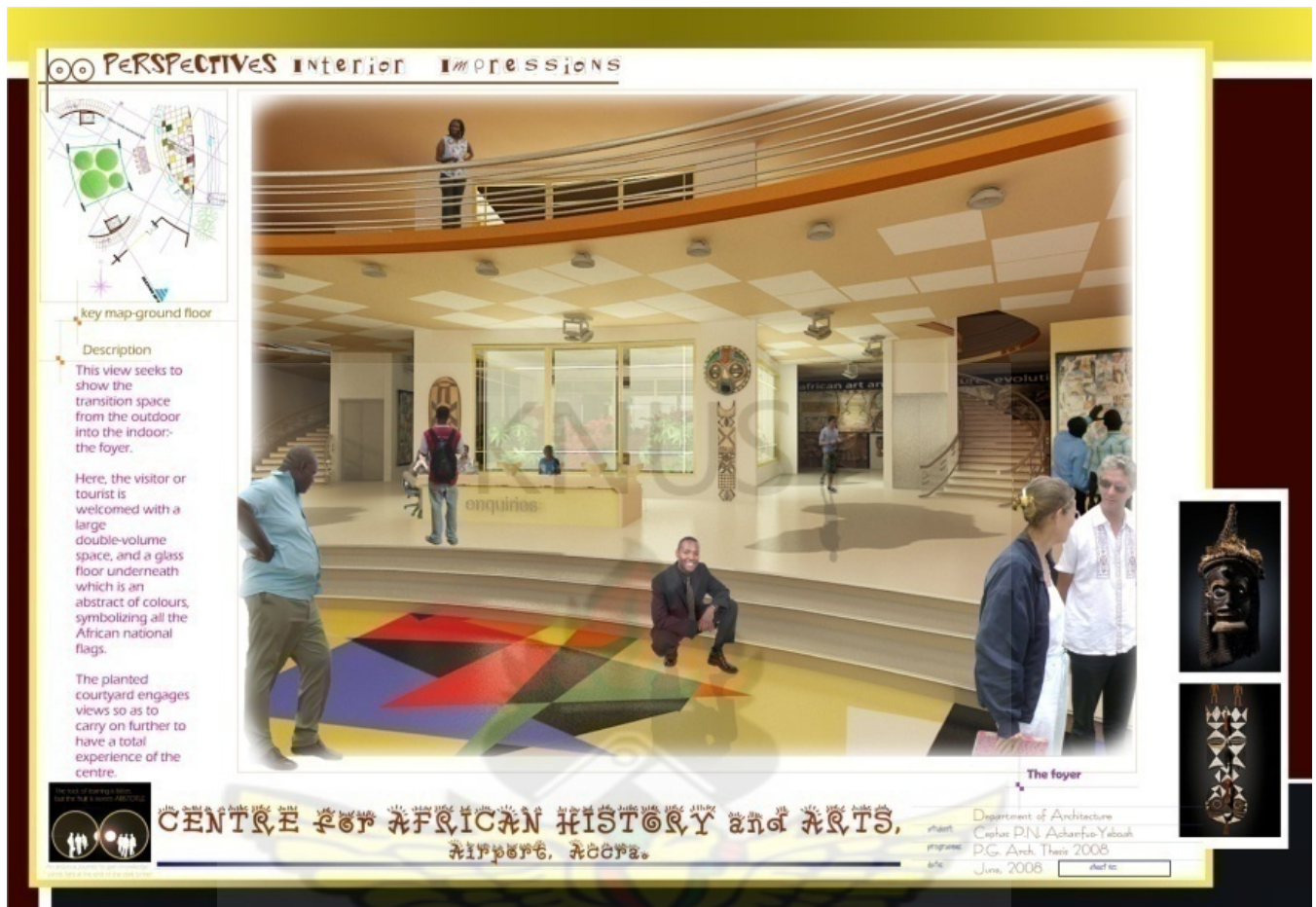Figure 29: Ground floor plan (source: author's own construction, 2008).

Fig 30: view of Entrance Lobby (source: author's own construction, 2008).

One is ushered into the museum building first into the entrance lobby. The literature reviewed showed the diverse groups of nationals and ethnicities within the continent. Hence to make all Africans identify with this facility, all national colours of the fifty two African states will be engraved under a toughened glass floor. The space is a double volume so as to have a hyped effect right at the admission into the museum space. The Slave Trade, as mentioned in the literature review, evokes in Africans and African descendants, feelings of empathy. After inquiries are made at the information desk, the slave-trade memorial hall presents itself next to create an initial feeling of empathy for the African ancestry who toiled through such hardships from their colonial masters. The space will be adorned with large portraits, paintings, old relics

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like chains, castle guns and bullets, sculptural pieces, etc, to tell the story, and to serve as a caution to prevent any occurrence of neo-colonialism presently or in the future.

The Ground floor will have rooms that are dedicated to the learning and performances of drama, dance and the oral arts. The partitioning materials between these spaces will be demountable so as to have an increment of space for any activity as the need arises. Other necessary spaces include bathrooms for both male and female, and an emergency exit point.

4.10.3 First Floor

Figure 31: First floor plan (source: author's own construction 2008).

Figure 32– permanent exhibition space (source: author's own construction, 2008).

Two curving stairs that wrap around an elevator each propel the visitor to the next floor from the ground floor, which is the first floor. The first floor is dedicated to permanent exhibition areas. These permanent exhibits are housed under controlled environmental conditions (a lesson learned in the literature review) to enhance their preservation and conservation. The organization and display of such exhibits have been done geographically, meaning that there will be a representation of unique objects of antiquity, of historical and archaeological significance from each part of Africa: west, east ,south, central and northern.

There are gallery areas which will display temporary exhibit objects. Such objects will be of stone and earth, and can survive well under natural uncontrolled conditions of the environment. With the curator's advice, some of such exhibit objects will be encased and

showcased in glass on plinths. The galleries will serve as mezzanines so that in as much as there will be greater vertical space experienced on the ground floor, views can be appreciated downwards into the ground floor from the mezzanines. There are again provisions for public sanitary areas and an emergency exit point.

4.10.4 Second Floor

The second floor presents a wide array of opportunities for learning and research. Included are internet browsing centres, libraries and art galleries. Again, straight-flight stairs that wrap around elevators project the visitor from the first to the second floor. This floor is also heavily administrative. Such administrative areas will be accessible by the public but very controlled. Temporary exhibit areas flood the open gallery which also has a mezzanine with terrific views further down below. Public sanitary facilities can be found.

4.10.5 Third Floor

The third floor, being the top-most is dedicated to art galleries, an audio-visual library, administrative areas and open galleries for the display of objects that can bear natural environmental conditions. All these floors are connected to each other by elevators and stairs. Some of these administrative areas include staff pantry, records office and the education unit. The third floor will maximize and enhance natural stack ventilation; from the lower first floor, through the courtyard and then out through large openings on the third floor.

4.10.6 Sub-basement Floor

The Sub-basement floor is the heartbeat of the entire structure. Here are found the store and conservation rooms, the electrical and air-conditioning mechanical rooms and changing and sanitary areas for staff. The conservation rooms will be accessible by a ramp from the ground floor. Items to be stored or taken as the need arises will be transported by trolleys from the check-in area to the item-unloading platform, and vice versa.

4.11 SERVICES AND CONSTRUCTION TECHNOLOGY

4.11a Services

4.11.1. Electricity

Power will be solicited from the buried underground cables that run parallel along the bypass to the Liberation Road. Electric power at the KIA terminal and its environs is through underground cables, so this development will be continued into the proposed facility. Taking a cue from the literature review in chapter two, this power will be stepped-down by a 500KW transformer before being sent to the switchboard room in the sub-basement for onward transmission and distribution to the panel board rooms on each floor at a voltage of 120V. A large amount of this electricity from the switchboard room will be fed to the central air-conditioning mechanical-equipment room in the sub-basement. A 24-hour stand-by generator will be provided, to be positioned by the 500KW transformer, to augment and supersede any unreliable and fluctuating power from the mains.

4.11.2. Lighting and ventilation

- **Ventilation**

In as much as natural ventilation will want to be maximized in this proposal, where the site is in a developing country and electric power is not 100% reliable, significant consideration is given to the fact that there must be a control of air, temperature and air movement within the museum spaces, especially the display areas and the specimen storage (as captured in the literature review). Hence, artificial ventilation systems will be largely employed in all areas especially those of object display and storage. The central courtyard greatly augments the ventilation levels within the deep volume main building. Sanitary areas have extractor fans that draw out odour and introduce fresh air. Extractor systems are installed at the basement floor.

- **Lighting**

The literature review showed that the ultra-violet component of light is harmful to the exhibits. To protect the collections / exhibits and at the same time providing a safe environment for people, the museum spaces of the centre will have diminished light levels (sometimes using darkened exhibit cases with automatic switches that turn on a light when a visitor nears the exhibit and turns it off again when the visitor passes by), while at the same time the visitor and staff areas, aisles, walkways, etc are well lit for safety. The central courtyard also augments lighting levels at the display areas as well as the circulation spaces. However, well-controlled spotlights, and localized luminaries will be provided in every space within the main museum building. Special emergency lighting will be provided for the emergency exit route, to illuminate fire alarm call points and fire fighting equipments.

4.11.3 Information systems

The centre houses an Education Department and an Administrative Unit. These, with the front-desk receptionists constitute the information systems and setup for the centre. Enquiries, and any form of help can be obtained at the front-desk reception in the entrance lobby and more assistance will be followed up, especially, at the Education Department. The Security Control Room will also be installed with an emergency public address system where the public can be informed and alerted on any exigency.

4.11.4. Security control

There will be three security check-points. The first, where the main public entry / exit is, the second where the private / staff / services entry / exit is, and the third where the exhibits taken in and taken-out are cross-checked. All these security check-points will be locked and wired with an alarm system, ultimately connected to the security control room on the second floor.

In order to prevent pilfering of museum exhibits, and also to ensure total security and safety within the museum spaces, Close Circuit Television (CCTV) will be employed. This will be organized by positioning mini-dome cameras at strategic locations throughout the exhibition areas.

A central security control room will be located within the administrative areas of the second floor. The security control room will be specially designed with pedestal desks, incorporating night service switch boards and fire alarm detector panels. Night patrol in and around the facility will be in place.

4.11.5 Fire

- **Protection and Prevention**

Fire controls systems such as smoke detectors and fire alarms systems will be controlled from a central control board located in the sub-basement. The fire alarm arrangement shall be an automatic 1-24 zone single loop addressable fire detection and alarm system, utilizing conventional detection and alarm sounders. Detection shall be by means of optical and heat detectors located throughout the museum building with break glass units on the escape routes. Fire hydrants will be strategically positioned on site to help fire-fighting personnel when the need arises. Here, electrically induced fire outbreak can be prevented from one area to other.

Sprinkler heads and Hose reels are placed at important locations within the facility as a fire fighting measure. It consists of fire alarm initiators, indication panels and bells. Fire extinguishers also located at strategic intervals within the facility is an additional source of fire control. Fire hydrants will be located strategically on site to aid the fire service team when the need arises.

- **Fire and smoke detection**

Automatic sprinkler and standpipe water flow indicators. Area smoke detectors will be provided in all electrical and telecommunication equipment rooms and elevator machine rooms. Duct smoke detectors will be provided in recirculation air systems as required by code. In addition to activating alarm signals, activation of the smoke detectors will cause shut down of related fan systems. Smoke detectors will be provided in all elevator lobbies. Activation of this detector will initiate automatic elevator recall to the designated floor. Manual fire alarm stations will be located at entry to exit door and exit stairs.

4.11.6 Water supply

Water-supply into the proposed facility will be tapped from the mains supply that feeds water to the Kotoka International Airport (KIA). To ensure a continuous supply of water, the Loop system of water supply will be adopted. Here, a 45000 gallons underground water storage is linked by a booster pump into overhead water storage tanks at the highest point of the site. The objective is to provide the following:

- Over 48 hours reserve of water supply

- Buffer for mains against excessive demand in some areas resulting in low pressure

- A constant supply of water for the hydrants which will be placed at well-thought-of points on site.

4.11.7 Telecommunication

Presently on site, underground communication cables are being laid to take care of all telecommunication needs on the site and its immediate environs.

4.11.8 Sewerage

The natural slopes of the site will aid immensely in the drainage of surface water. A network of covered and open drains along the slope will discharge into the culvert that runs south of site, along the double-lane main entry into the Kotoka International Airport, (KIA). Soil and waste are to be discharged by underground pipe work into a septic tank and a filtration bed at convenient locations within the site.

4.12 CONSTRUCTION TECHNOLOGY

4.12.1 Structural system

The edifice is composed of a structure of curved shell envelope of reinforced concrete. A column grid system that radiates from some point is also employed. The columns, beams and slabs are of reinforced concrete. However, I-section steel beams are used at the roof level in conjunction with steel trusses. There is an extensive use of cantilever of the upper floors off the ground floor.

4.12.2 Materials and finishes

- **Walls and Columns**

The case study contained in the literature review revealed that material finishes of the interior spaces facilitate their use. Though the centre will seek to exhibit objects of historical importance amongst others, its materials of construction will not seek to be a retrogressive return to past inferior materials. Stone and concrete masonry as well as brickwork finishes are employed on retaining walls as part of external landscaping. Wall cladding makes use of combination of concrete masonry units, structural clay tiles and facing tiles. All columns will have the minimum-sized reinforced concrete part, but exaggerated with sand-cement block-work so as to create larger display surface areas.

- **Ceilings**

A lot of ceiling finishes will be used, especially, to augment the functions of each space. The ceiling for the entrance lobby and the slave-trade memorial hall, for instance, being the first point of call or experience for the visitor will be of sharp reflecting glass to heighten and maintain interest of users. Other spaces designated for the performances of drama, music and oral arts will

have acoustic ceiling panels to make better sound levels and quality. The research, library and learning areas will have ceiling finishes of rich mahogany t&g. The permanent exhibition areas and art galleries will have their ceilings finished off with non-reacting substances.

- **Floors**

The floor of the entrance lobby will be of toughened glass with the national colours of all 52 African countries showing underneath. Thereafter, that of the slave trade memorial hall will be of sharp polished granite, all in a bid to create a solemn atmosphere, to enhance the spirit of empathy for the victims of the trade. The other spaces to be used for the special and performing arts will have a floor finish of wood parquet and tongue and grove. All permanent exhibit areas will have a floor finish of polished marble. For the external works, asphalt finishes and pavement blocks are used in varied ways for driveways and car parks. Pavement materials such as concrete blocks, stone finishes are to be employed. Materials to be used for steps, ramps and retaining wall definitions are consistent with general hard landscape finishes. Basement floors are of smoothened screed over concrete. Porcelain tiles will be used for the gift shop and the artifact-selling areas. The offices and administrative areas will have floor finishes of porcelain floor tiles.

- **Roofing**

Enamel coated, sequoia brown aluminium roofing panels, on steel trusses.

- **Doors**

Rich, mahogany-wood doors, laminated glass in aluminium frames and rolling grilles (for the check-in area of the delivery yard).

- **Signage**

Multi-coloured diverse materials from glass to plastic are employed for these elements. Directional signs will all be made of stainless steel satin finishes.

CHAPTER FIVE

5.0 CONCLUSION

There must be a paradigm shift of funding of resources, and a change in attitude towards our cultural heritage.

Extra money and resources have to be put into the development of arts and culture in the country. The history, culture, arts and architecture of Africa have to be preserved and renewed for the sake of posterity. Such an action will go a long way to improve the economic situations in all African countries as that will serve as the impetus to ignite the tourism sector of such countries with the attendant infrastructural developments and foreign investments.

Also the processes of learning or acquiring knowledge must be encouraged in all spheres of life. Education centres, museums, libraries, etc, must be built all across Africa. These should be well equipped, resourced designed to effectively carry out what they are mandated to do.

More Africans must be trained as curators, exhibitors, historians, artists, architects, etc to improve on her human resource potentials. The general public must be well educated to appreciate issues pertaining to the arts and culture. A compulsory course in History of Cultures can be introduced in all secondary schools in Ghana.

The recommendation of this centre for African History and Arts will be fused with other life activities, so that rather naturally and unconsciously, such cultural knowledge will be imbibed for life.

Africans must be cognizant of what they have, their rich history of earliest cities of civilization in the world, to drive their ability to achieve greater heights, for the total betterment of the entire continent.

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