MANAGING CERAMIC COLLECTIONS IN KENYAN MUSEUMS

OCHIENG', PHILEMON NYAMANGA

PROJECT REPORT SUBMITTED TO THE INSTITUTE OF AFRICAN STUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF POSTGRADUATE DIPLOMA IN THE MANAGEMENT OF HERITAGE AND MUSEUM COLLECTIONS OF THE UNIVERSITY OF NAIROBI

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DEDICATION

I humbly dedicate this work to my late parents, Melkius Nyamanga Onyango (1913-1997) Doris Auma Nyamanga (1940-1999) and my late elder stepmother, Regima Adongo Nyamanga (1929- 2002), who passed away while I was taking the course. I also dedicate it to all the family members as well as the Save the Children Fund for their support in my education in High School and University.

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I am delighted to present my honest appreciation of the diverse range of assistance granted me by relatives, friends, institutions and sponsors.

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ABSTRACT

Ceramic management as an aspect of collections management presents certain storage and preservation challenges despite the relative stability of the ceramic materials. They are not only affected by poor handling, poor storage, poor conservation, but also by salt, humidity/water and dust. Systems analysis and SWOT analysis were used to analyse the archaeology department in Nairobi museum. While the museum boasts of longstanding staff, with great knowledge and expertise, lack of resources and motivation was found to threaten the treasures under museum care and archaeological collections are no exemption. The study recommends that proper storage principles be adhered to, staff be stimulated and requisite materials provided to facilitate conservation/preservation of this invaluable heritage. In addition, the study proposes that new storage facilities be established at certain reachable regions to ease space pressure at Nairobi and Fort Jesus Museums.

CHAPTER ONE

INTRODUCTION

1.1 Background Information

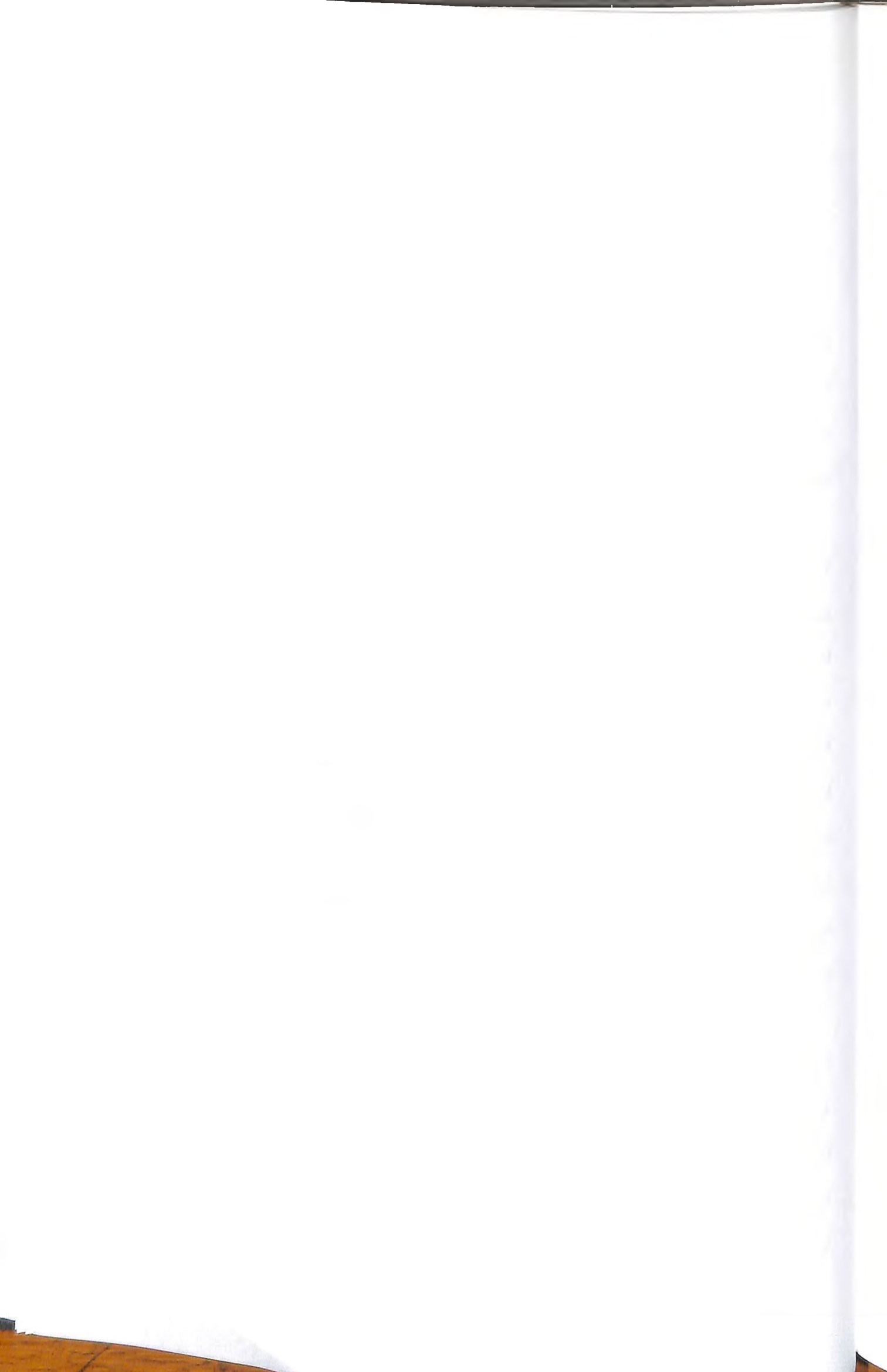
The care of collections is a fundamental aspect of any museum's management policy because the lifespan of objects and collections depends largely on the degree of care provided. This study reviews the preservation of archaeological collections in Kenya and, in particular, underscores the integral value of our ceramic collections and provides useful guidelines for storing and handling of these specimens that are so useful in archaeological investigations. Though rather stable, ceramic collections need specific conditions to ensure their preservation in the museum environment after they have been unearthed from archaeological sites. Limited resources and insensitive bureaucratic systems have led to the magnification of the problems faced in our museums and destruction of the heritage they hold in trust for the Kenyan society. Good management is critical to all success-oriented institutions including the non-profit-making service institutions such as the National Museums of Kenya (NMK). Provision of the necessary elements for this success is paramount. Ceramic collections in Kenyan museums not only require a skilled workforce to record, draw and analyse them, but also sufficient and appropriate storage and packaging facilities, proper handling procedures and presentation to the pubic through exhibitions and publication.

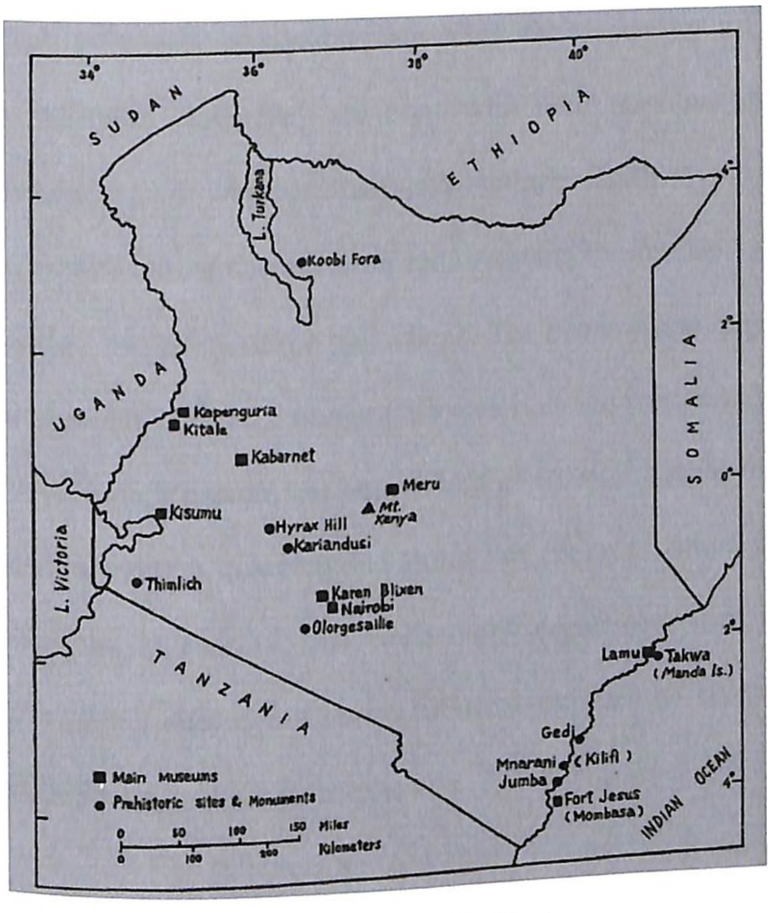
Heritage management in the world has remained a serious concern for policy makers today especially because inherent conflicts have constantly eroded and destroyed both the natural and cultural facets of our ecosystems. Not only is Africa's heritage at the centre of our development agenda, our museum collections have also been the concern of research and conservation. Museum collections, which are integral to the institution's survival, continue to call for specific efforts in their management in order to preserve them for posterity. Museums hold their possessions in trust of humankind and for future welfare of the human race, their value being in direct proportion to the

services rendered – meeting and caring for the emotional and intellectual life of people. Since museums exist essentially to serve the society, the NMK believes and is committed to serve the following five purposes: first, to investigate, preserve and exhibit the various elements of natural history and cultural heritage found in Kenya; second, to enhance public education on Kenya's natural and cultural heritage; third, to properly house, care and catalogue specimens, material culture from Kenya and ensure permanent repository for Kenya's heritage; fourth, to foster an understanding and appreciation of how mankind and the earth evolved; and finally, to promote individual and scholarly study of the national collections (NMK 1995: 8).

The museums in Kenya and other countries in Africa and elsewhere were created after European models. In Kenya, the museum concept was envisioned by the East Africa and Uganda Natural History Society way back in 1910, the first museum being put up in 1911. Through many years of development, the museums have proliferated to about thirty today, structured under the umbrella of the NMK (map 1.1). The nearly thirty museums in Kenya are centrally managed from the headquarters in Nairobi, at the Nairobi Museum (Andersson & Redell 1996: 49). The NMK is legally mandated to interpret and preserve Kenya's natural and cultural heritage in partnership with local communities and international organisations with the primary aim of providing public education, conducting research and managing collections. Collections management is addressed here using part of the archaeological collections, ceramics.

Nairobi museum has always stored natural and cultural objects from across Africa, especially the East African Region. Consequently, the museum has in the past received many artefacts from Tanzania, Uganda, Sudan, Somalia, South Africa and elsewhere, which contributed to pressure on the storage facilities. The museum storage capacity and conservation facilities needed to respond to this ever-increasing collection size. It is for this reason that the museum site even changed from its original





Map 1.1 Museums in Kenya

locations (where Nyayo House and Serena Hotel stand) to the Museum Hill area where it has been since 1928. To this day the storage problem continues in Kenyan museums and, as recently reported, 'congested working, collections and storage conditions inhibit the museum's ability to market new exhibitions at all' (NMK 1995:12). Among the affected collections are the more than two million archaeological collections held in the archaeology laboratory. Ceramics is one of these collections whose storage and other management requirements remain troubling. Nairobi Museum management has been wondering what to do with the numerous un-accessioned collections from the coast for over seven years now. Fort Jesus Museum, to which they might be transferred, lacks appropriate storage facilities. Even a cursory inspection of the store at the Fort Jesus Museum reveals this problem. The storage shelves are not only inappropriate but also inadequate and the records are not up to date. This study sought to uncover the reasons underlying the persistence of such problems in Kenyan museums and to understand the effects of such inappropriate storage over time.

A number of causes were postulated which the research sought to prove or disprove. One of the probable causes of the problems is thought to lie with neglect of the collection management problems in our museums due to limited funds and failure to motivate staff. The other probable cause could be

lack of proper regulations regarding the deposition of the collections with the museums. Many researchers, once they are done with their mission, just dump the materials with the museums, regardless of whether there are storage facilities or not. They also do not bother about the maintenance or conservation requirements the museum would have to put into place afterwards to ensure the safety of the collections. The departments responsible in charge of the maintenance of the archaeological and ethnographic materials are responsible for the care of the ceramic collections. In Fort Jesus Museum, the department of Coastal Archaeology is directly responsible for the cleaning, documentation, research and storage of ceramics, which are the largest collection so far in the store, whereas, in Nairobi, the Archaeology department does the same. The Conservation Laboratory in Fort Jesus carries out conservation work such as repair and cleaning of maritime archaeological collections, including ceramics.

1.2. The Research Problem

Museums in Kenya continue facing collection management difficulties, which call for urgent remedies. Although an appropriate storage is the foundation of effective collection preservation, our museums lack this to some degree. The collections require, in line with preventive conservation principles, standards of safety and environmental stability, which is impossible in the existing congested stores, resulting in serious long-term damage. Congestion in museum stores is therefore a major problem requiring immediate attention. The storage units and packaging are also inappropriate and there is endemic dust accumulation. These problems affect archaeological stores, both in Nairobi and Mombasa, and are more likely to be suffered in other museums as well. Ceramic collections at Fort Jesus Museum, for instance, suffer from inadequate documentation and storage. The collections, which once used to be stored in the ground floor of the Old Law Courts Building, were hurriedly shifted to a new store constructed within the Swahili Cultural Centre compound. Though spacious,

the new storage building itself compounds the problems due to its architectural design- its numerous vents have allowed lots of dust to enter and settle on the collections, a good number of which are not covered.

Since a number of the collections are not properly documented, those wishing to use the collections for research are likely to face some difficulties. Moreover, chances of exhibiting the ceramics become limited because sufficient data on them is lacking. It is probably due to these difficulties that little has been published on the local ceramics held in Fort Jesus, for example. Apart from one significant publication of Fort Jesus Museum collections by James Kirkman (1972), no other person has produced a complete catalogue of such collections to date. Greater focus has been placed on imported ceramics. For instance, Caroline Sassoon (1978) and Kusimba (1994) both discuss the Chinese porcelains in the light of contact. By improving the storage and updating the records, we should be able to make it possible for easier use of the collections. This is achievable through close examining of the collections.

Although coastal researchers concur with other archaeological researchers elsewhere that the local ceramics are the majority of archaeological finds, no plans appear to be put in place for their storage and care once they have been gathered from the field. The project addresses such problems and the ethical issues relating to collections acquisition and ownership, advocating the possibility of de-accessioning certain collections or transferring to other centres where new storage facilities could suitably be provided.

1.3. The Research Question

Museums as custodians of our national heritage require good storage facilities. Does the NMK have sufficient storage space for its archaeological collections and what conditions are the museum stores in? The main questions answered in this research related to WHY and HOW museums keep ceramic collections. An assessment of the storage conditions suitable for ceramic preservation is vital to achieve answers for such questions. Also assessed was the question of HOW museums use these collections. Essentially, the study hoped to understand the general management activities engaged in by the museums in relation to ceramics: how they are acquired, cleaned, restored/conserved, recorded, studied, exhibited, and stored.

1.4. The Research Objectives

Many people wonder why museums spend time collecting broken pieces of pottery and why they should spend money and reserve space for storing them. This project sought to answer questions related to such issues, the overall goal being, to underscore the integral value of ceramic collections and their management in Kenyan museums. Within that premise the specific objectives of the project were:

1. To review the collections (acquisition and de-accessioning) policies of the NMK in regard to ceramic collections;
2. To look at the possible ways of reducing stresses and crowding of the ceramic collections in our museums; and
3. To suggest ways of reducing dust infiltration in the museum storage area and on the objects.

1.5. Rationale

Museums survive because of the collections they treasure and the missions they fulfil in society. They need to live up to the contemporary needs and changing societal demands. Movable heritage items under museum care, therefore, not only need to be properly stored but also documented, studied, displayed and published for wider societal use. This means that information on the collections is vital for their effective management. The NMK is entrusted with the custody of Kenyan's heritage, ceramics being an important component, be they archaeological or ethnographic. Assessing the storage conditions and ceramics usage within the museums is a vital component of heritage management.

Ceramics is an important area of study because ceramics tell us of past intercultural links, related human activities, societal and ideological aspects of communities. As such, they require close attention not only in the academic fields of anthropology, art and material science but also in the museums. Researchers have largely focussed on the analysis of the ceramics with little information on how they are conserved in our museums. Proper management of the ceramic collections, for instance, through adequate documentation and good storage, makes their research, exhibition and publishing possible. Though our museums have a large ceramic collection brought in by various archaeological researchers, this collection has not been integrated into a complete catalogue, neither are ceramics well stored. The study investigated the possible areas of difficulties faced by the museum in ceramics management and provides appropriate recommendations on ways of alleviating them from bad conditions. The study should help the museums in Kenya to arrest, in particular, the storage pressures created by ever-increasing ceramic collections. There is always need to improve the collections management strategies and systems.

1.6. Scope and Limitations

The study was limited to Kenyan museums and was basically concerned with management (especially storage conditions) of ceramic collections. Ceramics is a broad subject. The concern was not with details of units of ceramic analysis, styles and systems of production; these are mentioned only to provide clues to the activities that the archaeology departments do and as pointers to the key elements that ceramic studies involve. Neither was this study concerned with matters relating to ethnic associations or specific time periods. Rather, the main target was to understand how the museum handles the storage challenges it faces, hence the need to review the acquisition and de-accessioning policies. What storage, packaging and housekeeping strategies are used in the museums regarding their ceramic collections? What shelving and retrieval systems are ideal for ceramics collections? These are the areas that the research focused on. Thus, little attempt was made to look at the usual archaeological or ethnographic aspects relating to pottery; neither was there any specific commitment to remedial treatment of ceramics or experiments. Only issues pertaining to archaeological ceramics held in our museums are addressed and because of limited time and resources, the project focuses largely on the storage, packaging and ceramic archives.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature on archaeological research, collections management and its problems. It tackles the hypothesis and concepts. Atkinson (1953), Daintith (1992), Leigh et al (1972), Rye (1981), Pleinderleith & Werner (1971), Price (1995), Pye (2001) and Thompson (1992), provide useful information on how ceramics are recorded, handled studied, analysed, conserved, and stored. Museum collections are obtained in various ways including archaeological reconnaissance and excavation, purchases and bequests. The excavation, recording and repair of pottery are fully dealt with in Atkinson (1953). Rye (1981), also has important information on archaeological fieldwork and ceramic conservation.

Scatters of sherds and other artefacts are a common indicator of an archaeological site. Archaeological surveys (that relate to pottery) involve mapping locations where such materials exist and collecting the sample of sherds. In regions where the characteristics of pottery are well known, the collection is usually restricted to diagnostic sherds, such as rims, bases and fragments with decoration. The sample should give an indication of the range of materials, forming techniques, as well as the range of vessel forms and decorations. This is accomplished by including sherds that exemplify the range of colour, fabric, porosity and hardness along with any unusual features. The distribution of such material culture remains over the surface is among the records taken in the field that constitute the archaeological archives.

Sherds selected for technical study must be assignable to a stratigraphic context as precise by as those employed for stylistic analysis. If sampling is done during excavation, the sherds selected should

represent: the range of **mineralogy**, the range of **form techniques**, the range of **decorative techniques**, the range of **vessel forms**, and the range of **firing techniques** (Rye, 1981: 6-7). In addition **large sherds and soil samples** should be kept as well. Large sherds are extremely useful for studying **forming techniques** because the large surface area allows the orientation of inclusions to be observed, and for chemical analysis when it is desirable to establish the variations in composition over a small area. The large sherds also provide a dilatometer samples for studies of firing temperature, which cannot be cut from small sherds. Soil samples permit the evaluation of the degree to which the composition of the pottery has been modified subsequent to burial.

Although ceramics are basically utilitarian objects, some of the literature sees them as artistic and ideologically loaded materials. They are used in ritual and for decorative purposes as well. Kusimba (1994), for instance, reports that a large portion of imported ceramics was inserted into the ceilings and walls of domestic buildings, mosques, mosque mihrabs, tombs and water cisterns as 'an expression of the symbolic, ritual and status function of imported ceramics on the Swahili coast'. Ceramics may depict society history (Gradier 1975) but this is debatable (see, for example, Adams 1979 and Arnold 1985). Pottery may be used to dramatise coming into existence and continuity of society as well as its end. Ceramic remains have been used as pointers to settlements once occupied by human beings and as evidence of resource utilisation. It is for this latter context that archaeologists have treasured ceramics in their work.

For most scholars in archaeology, ceramics tell age and have thus been used for dating purposes in the Middle East and eastern Africa (see Wilding 1984: 6), for example. However, Mutoro (1979) cautions against the use of imported pottery per se for dating but recommends its use alongside carbon 14 dates. On his part, Kusimba (1999: 32) argues that radiocarbon dating of a provenance otherwise dated by association may give so broad an estimate as to be little more than an informed

guess. This study reviews the usefulness of pottery in the African context, its archaeological value as a dating tool and as an indicator of intercultural links through exchange (gifts and trade) and migrations. These ranges of values are what the museums seek to preserve and present to the public. The study advocates for continued use of ceramics as important domestic utility objects as they are cheap and environmentally friendly as opposed to plastics and metallic utensils.

Many published archaeological and conservation works provide useful information and guidelines for the management of ceramics. Cronyn (1990: 156, 159), for instance, observes that once treated most ceramics are the least problematic to store and display; however, the most damaging hazard is poor handling. 'When reviewing conditions of objects in museum storage, for example', Bradley observes, ' it is not unusual to identify physical handling as the main cause of damage to the collection, a problem made worse by overcrowding' (Pye 2001: 87). Objects are handled when they are retrieved in the field, when they are being packed, when they are being studied, when they are photographed, during conservation and cleaning, when being exhibited or during transportation. Handling issues were central to this study and careful professional handling is particularly advocated.

Richoux and his colleagues in their 'A policy for collections access', advise that every collection needs different written handling instructions, adding that these instructions should stipulate that only staff members may move objects from and to storage drawers and shelves (Richoux et al. 1994: 185). Before handling any object, Edson & Dean (1994: 58) observe that it should be examined for the best and safest way of handling it and that the amount and frequency of handling should be controlled. For most objects in storage, reducing the potential for physical damage can be achieved through such modest procedures as restricting access, exercising care in handling and placing objects in individual boxes or containers. These were useful in the present research to measure against the conditions

prevailing in Kenyan museums. How frequently are the collections handled, by whom and for what purpose?

Heritage and collections management in African museums is reported to be in a crisis. Mzalendo Kibunjia (1997:137), for instance, observes that African archaeological collections are in a crisis, stemming from poor collection management, lack of restoration and conservation services, and lack of statutes that adequately protect cultural resources from developers. For Kibunjia, a variety of problems relates to collections management, such as fragmented collections, poor record keeping, lack of use of computers or where they are used there is the problem of selecting programmes to use, and of course the problem of space. In Kenya, for example, Mzalendo observes, 'we are grappling with what to do with tons and tons of potsherds coming from excavations of coastal historical settlements'. What Kibunjia has not touched on are the training issues and the financial problems that are the primary factors that determine effective management. Although inadequate staff training and monetary deficiencies are largely blamed for poor staff performance leading to collection deterioration in African museums, the red tape bureaucracies that have failed to inspire staff and induce honesty are, sadly, often ignored.

In his article, 'Managing Museum Space', Wilcox (1994: 147) observes that poor management causes considerable trauma to staff, damage collections and significant waste of other critical resources and staff time and that there never seems to be enough space for collections. He adds that museums have been slow in using modern resource management techniques because of ignorance, lack of time and resources to set aside time for planning and implementation and for investigating new technologies (ibid. p.148). Owing to the unforeseen occurrences, museum collections need to have records, which ease the activities involving such collections. Computers are used today to store museum data. What challenges have our museums faced in attempts to apply computer programmes to archaeological

information? Computer technology and application is one area which calls for training and retraining of museum staff to enable them effectively manage the irreplaceable valuable heritage under their care. Museums should take training as a critical need so that their employees are able to utilise modern skills and machinery in their routine work. People are an important resource, and as Ambrose recommends, individuals already employed by the museum should be trained periodically to make them useful and enthusiastic (Ambrose 1993). Fully trained documentation personnel are required to ensure that our cultural heritage is in a position of being used for public education and research activities. Training alone will not safeguard our priceless heritage, but sincere devotion would certainly vouchsafe them.

2.2. Theoretical Framework

Collections management within the museums should involve everyone within the museum. For that reason, systems theory seems an appropriate theoretical framework for this study. Systems theory arose some time between 1940 and 1950. It argues that the world is like an organism with many different parts and organs well coordinated to facilitate its effective operation and survival. Failure of one part of the system puts other parts of the system in jeopardy. Poor storage and improper documentation of the collections makes other museum operations, such as research, exhibition, and educational programmes difficult, not to mention the threat to the life of the collections themselves (fig. 2.1). This study uses SWOT analysis framework as part of the systems approach, to gauge the collections management in Kenyan museums. SWOT is an abbreviation for Strengths (S), Weaknesses (W), Opportunities (O), and Threats (T).

Studies in ceramics have embraced a number of theories, however for effective management of the heritage in museums, systems theory probably is most suitable. To function properly, various units in

a system should work supportively together-as well-coordinated parts. Ceramics are functional objects in society, created by people imaginatively, and so an aspect of mentalist or structural functionalism is evident. In discussing the history of ceramics, Price (1987) reports that the appearance of pottery in the archaeological record was at one time interpreted in evolutionary theories as marking the development of human societies out of upper savagery into lower barbarism (as espoused by Morgan 1877). However, in more recent thinking, pottery is seen as part of the so-called Neolithic techno complex (Rice 1987: 9) produced independently by various needs (Arnold 1985). They are a unique creation of human society and need not be seen in an evolutionary way as once thought of and interpreted by some scholars.

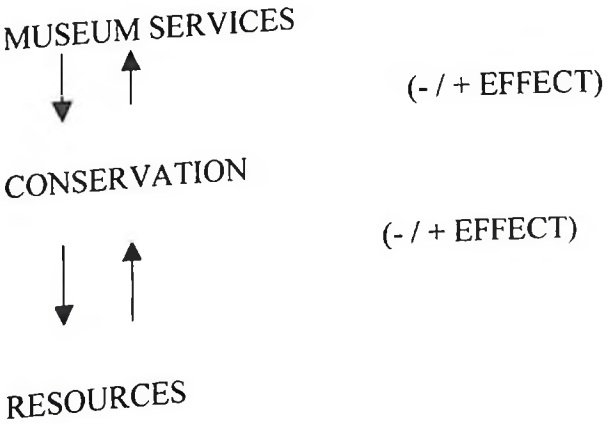


Fig. 2.1 Conceptual Model

2.3. Study Hypothesis

Storage conditions in Kenyan museums are harmful for the conservation and preservation of their ceramic collections.

2.4. Definition of Concepts

The following terms constitute the core of the present work: ceramic collections, storage, conservation, resources and museum services. The meanings provided here are not restrictive and can be gathered in the contexts in which they are used.

Ceramics, as used here means fired clay objects, whole or in broken form that are kept in museums obtained largely through archaeological and ethnographic research.

A **Collection** merely means an assortment of objects or artefacts of the same, similar or different kinds. A group of objects brought in together by one researcher or researchers could constitute a collection. It may also refer to all the objects housed in the museum. Ceramic collections are an essential part of archaeological collections.

Storage means a storeroom or place where collections are kept permanently. Aside from the housing of museum collections, storage means the provision of all the necessary facilities and conditions for the arrangement and display of the objects in a manner that is easy for study, records, inspection and retrieval. As used here, storage and laboratory are interchangeable and refer to the store where archaeological materials are kept and studied.

Conservation means preservation, protection, treatment and maintenance of objects or collections. Conserving museum collections means the protection of objects against destruction by the environment and human beings so as to keep them 'alive' for long.

Resources are essential things such as labour/personnel, finances, stationery, tools and equipment, and information, needed for the accomplishment of an activity or objective.

Museum Services refer to the various components of the museum mission, especially public outreach activities such as education and exhibition, research, entertainment.

CHAPTER THREE

METHODOLOGY

3.1. Introduction

This chapter provides information regarding the research site, universe of study, sample unit and procedure, data collection method and analysis and ethics. Direct visual observation of the relevant museum storage formed the key method of data that is provided pictographically in chapter four. This was supplemented by a structured questionnaire and interview with museum staff. The chapter ends with a review of the relevant ethical requirements for heritage conservation.

3.2. Research Site

The research was conducted in Nairobi museum. However, some data from Fort Jesus Museum, Mombasa, and Gede have been incorporated because of linkages in the museum system. Nairobi museum was chosen because it has a long history of collections management and being the headquarters it would provide a better study opportunity.

3.3. Universe and Unit of Study

The archaeological ceramic collections in Nairobi museum formed the universe for this study. The unit of analysis was the individual ceramic specimen.

3.4 Sampling Procedure

The archaeological laboratory is reported to house about two million collections stored in boxes and cartons resting on forty-one shelves. Since the concern was with ceramics, one tenth of the entire ceramics collection were studied in depth regarding their storage, packaging and archival data. This sample was selected randomly and the results are provided both descriptively and pictographically in chapter four, table 4.1.

3.5. Methods of Data Collection

The methods of data collection included documentary evidence from the literature, books journals, documentation records and files, key informant interviews of museum staff in various grades, personal observation aided by photographs and use of structured questionnaire. Each method has its on strengths and weaknesses and it is because of this that several methods were used concurrently. Susane Keene (2002: 117), in addressing museum condition assessment, argues that many of the most drastic effects on the well being of objects are brought about by aspects of the environment that can only be assessed by making visual judgement of the adequacy of store space, building condition, whether sound or leaking, condition of cleanliness, adequacy of coverage and support, and whether the organisational procedures are satisfactory. Visual judgement was largely used in this study.

Both structured and unstructured questionnaires were used in the inquiry. Where responses were not forthcoming from structured questionnaires, oral inquiry was used. Published works on ceramics were also used as well to address specific issues and answer queries that are under review. Museums storage records and inventories were scrutinised where possible. The range of methods used here provided a broader scope of the ceramic management with wider applications. Although collections

management systems are in widespread use in museums, they do not easily provide such information as the number of objects in the store, the environmental parameters set for the store or even the size of the store for managing (Keene 2002: 104).

3.6. Data analysis

The primary way of analysis is descriptive. However, quantifiable data generated from the research were also presented in appropriate tables. Pictographic details are also provided to supplement the descriptions.

3.7. Ethical Issues

Permission to access the collections was necessary in line with research and work ethics. This was granted by the Head of Archaeology Dr. Karega Munene. Collections management is subject to archaeological and conservation ethics, which together with the museum policies and codes, act as important guide in such study.

3.8. Difficulties

Among the limitations faced were, scarcity of time and resources that made it impossible to complete some of the targeted objectives. For example, it was not possible to reach targeted informants like researchers who deposited the research finds with the museums. Another problem was lack of access to some files, coupled with the reluctance of some of the museum employees to respond to some questions, especially those related with challenges and problems the department faces fearing victimisation. Data processing facilities were also inadequate.

CHAPTER FOUR

MANAGEMENT OF ARCHAEOLOGICAL MATERIALS IN KENYAN MUSEUMS: NAIROBI MUSEUM

4.1. Introduction

This chapter presents the finds of the study. It begins with the review of the building's external and internal conditions by critically assessing the storage and archival data and provides answers that were given in response to the research questions. The various activities relating to ceramic management such as cleaning, documentation, packing, storage, conservation, analysis and exhibition, as well as the challenges faced, including dust and policy are presented.

4.2. The Building

The Archaeology Division of the National Museums of Kenya is a research division that manages archaeological collections. In Nairobi the department occupies the Leakey Memorial Building (Plate 4.1a), which also houses the Administration, other departments as Palaeontology, Sites and Monuments and Regional Centre. The Archaeology department contains over two thousand five hundred collections including samples from East African sites and the rest of the world ranging from the Early Stone Age to Neolithic Age and Iron Age.

The spacious archaeological laboratory contains a wide range of archaeological collections including thousands of ceramics, lithics, faunal remains, shells and beads. The collections are acquired through

fieldwork, mainly archaeological research, gifts and bequests and purchases. How frequently are collections acquired at the division? According to Simon Katisya, collections are acquired whenever there are excavations at the Neolithic or Iron Age sites, or according to Freda Nkirote, whenever a pastoral Neolithic site is excavated.

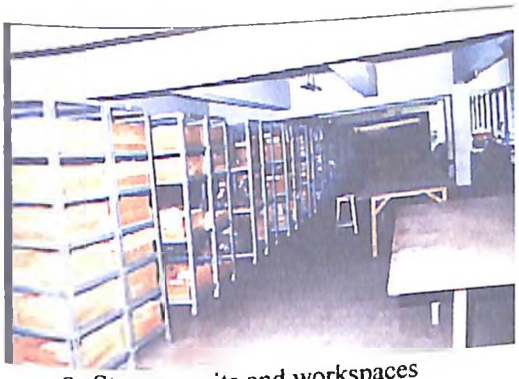
Plate 4.1: Administrative Block of NMK

The Archaeology laboratory is divided into two, one section dealing with archaeological collections such as ceramics, lithics, metals and glass, while the other Section deals with osteological materials. The laboratory has forty-one shelves of which thirty-two are reserved for archaeological collections and the rest for osteological materials. Since my project centred on ceramics, it is this collection that is discussed here in detail especially regarding their storage. Collections are put on shelves, in trays, cartons or boxes and covered with polyethylene sheeting purposely to keep away dust and water. Although the quantity of ceramics in the laboratory is not known, we attempted to establish this by sampling the shelves.

The Leakey Memorial building was opened in 1976 and houses the Administration (ground floor), Archaeology (first floor), Palaeontology (second floor), sites and Monuments departments and the Regional Centre (ground floor). The NMK has over a thousand employees, fourteen of whom serve at the Archaeology Division/Department in Nairobi, now headed by Dr Karega Munene. The Division was created way back in 1972 and was permanently transferred to the Leakey Memorial Building in 1977 (NMK 1981: 27). Of the fourteen employees at the department, two are cleaners, who according to Katisya maintain the cleanliness of the lab and the offices. They dust the collections; mop the floor and the worktables. Katisya himself documents collections, assisted by other people, amongst them

volunteers. He says that restoration is done mostly by the collection assistants while research is carried out by researchers affiliated to the department and other interested local researchers. Nkirote on her part says that cleaning is done by researchers and restoration is carried out by researchers with the help of casting department and collections managers.

The building is strong and in good condition. The interior of the building used as the archaeological laboratory is very well lit, has ample moving and working space for the staff and researchers. There are also fire extinguishers and moving equipment. The building has many glass windows, which together with the door that is always open are the avenues through which dust and dirt enter (Plate 4.2a), of course much of the dirt and dust come with visitors and staff as they enter the laboratory.



a. Storage units and workspaces

b. Moving equipment and fire extinguisher

Plate 4.2 Interior of the Archaeology Laboratory

The museum galleries and storage environments should be conducive for the preservation of its organic and inorganic collections. Environmental conditions should be conducive to allow protection against atmospheric pollution, adverse climatic conditions and biodeterioration. In a museum gallery the temperature level should not only favour the preservation of the collections, but also suit the comfort of visitors. In the archaeology lab the environmental conditions must not only satisfy the collections but department's staff as it serves as their office as well. Conditions of conservation of objects (archaeological or art) depend on two main factors: the material of which the object is made and the environmental conditions the object is subjected to in its life. Environmental conditions

(water, air, heat and light levels) influence the intensity of change; relative humidity (RH) and temperature of the atmosphere have profound effect on the object's stability. Whether in archaeological excavation or in the museum, objects must be kept under constant conditions to ensure their preservation. The conditions in the archaeology lab were reported by the collections manager to be stable and favourable for the preservation of the collections, except for the dust and crowding that was evident.

The preservation of collections require that the museum environment should be conditioned to hold in check the major causes of decay, for instance, suitable limits of relative humidity (RH) considered to be safe for the objects within given temperature range are necessary. The lowest permissible RH limit is usually set at 40% while the highest permissible limit is 65% within a temperature range of 16-25° Celsius. The lowest limit targets checking on the desiccation of collections that could be detrimental to the objects (such as wood, paper, parchment, leather and adhesives) while the highest limit checks on the excessive dampness that could create fungal and bacterial growth that could endanger the life of the objects (such as glue, leather and paper). Such conditions are satisfactory for museums, libraries, and muniment rooms. For picture galleries, which contain hypersensitive collections, a constant RH of 58% at temperature level of about 17°C is the ideal condition (Plenderleith & Werner 1971: 4-11). The recommended light levels are 300 lux for objects not particularly sensitive, 150 lux for objects of medium susceptibility and 50 lux for objects that are extremely sensitive to and are damaged by light. There are no records of humidity, temperature and light levels in the archaeology lab.

In line with the requirements of preventive conservation, the following were observed:

a. The storage was unlighted when not in use.

b. No curtains or blinds are used to exclude direct sunlight in the focus storage.

c. Ceramics are not subject to strict environmental control, although fluctuations are deemed harmful.

d. The lighting system here is good as there are numerous glass windows, which permit natural light, and the types of fluorescent lamp used are believed to emit little ultra-violet (UV) radiation.

e. Collections are covered with polyethylene sheets or put in cartons to exclude dust. Some collections, however, are not covered

4.3. Cleaning of Ceramics

Cleaning is one of the mandatory skills entailed in collections management. The cleaning of an object is usually the first stage in the conservation process. It is done only after a thorough examination of the object has been carried out. The examination involves checking for any signs of flaking glaze or friability. If signs of flaking is found the ceramic is consolidated using polyvinyl acetate (PVA) adhesive. Ceramics are washed using water and a brush with soft brittles that remove only loose deposits from the surfaces. Hard encrustations are kept for later examination because they may provide clues for reconstructing methods of production or use of the vessel. Washing is done in such a way that no scratches are produced whatsoever by the brush or grit dragged over the surface. Studies of manufacturing techniques and functions of vessels make use of scratches on the surface and those added during washing can confuse or destroy important evidence. During washing, the water is changed frequently to eliminate suspended particles of grit. Detergents are not used detergents as these can damage glazes. The archaeology department has experienced staff members who have handled collections since the 1970s; they believe that they are well trained to carefully handle objects in all levels, even without guidance from a collections manual. The department has always been headed by fully trained and qualified archaeologists since its inception in 1972. Cleaning

is normally carried out, in most instances, in the field using water and soft brush as already pointed above. Some cleaning however is done in the laboratory and for objects requiring further study and analysis no cleaning at all is done.

When cleaning ceramics, the person must be alert for the following seven phenomena: 1.) Organic coatings on the surface, especially fugitive materials such as resins or other plant derivatives; 2.) Decoration or coating added after firing which are easily removed with a brush, such as pigments filling incisions and clay painted on the bottom of cooking pots to enhance resistance to thermal shock; 3.) Variations in colour between the inner and outer surfaces, which may offer clues to the use of the vessel; 4.) Deposits resulting from usage, such as carbon on the exterior indicative of cooking and accumulation on the interior resulting from heating hard water; 5.) Residues on the interior that may permit identification of cooking or storage functions; 6.) Fragile surfaces resulting from application of a friable slip or use of material containing soluble salts; and 7.) Decoration that may be visible only when surface is wet because of destruction by erosion. In all the above cases, washing stops at the point where removal of any of these substances is likely and their presence should be noted. Museum staff members acquire cleaning skills through experience in the archaeological fieldwork missions.

Materials from the sea require particular care in cleaning, which involves removal of salts, coral and other marine growths, as was done with the San Antonio wreck collections at Fort Jesus Museum. Cleaning such collections is done manually without use of chemical since chemicals damage glazes. Any salts, which have crystallised on the ceramic surface, is brushed off before washing. Removal of salts is called desalination. Soluble salts are washed out from objects not only because they cause flaking of glaze but also structural degradation of the body itself. Objects removed directly from the sea are never allowed to dry out until the salt removal process is completed. According to Brian

Nyambu (personal comm.), the desalination process takes at least two weeks. To remove the salts, the ceramic is soaked in distilled water for two weeks and then a chloride test carried out. The chloride test involves taking a small quantity of the water in which you are desalinating the object (1 or 2 ml in test tube is sufficient) and adding two drops of nitric acid (10% by volume) to the water, followed by two drops of silver nitrate solution (about 15grams in 100ml distilled water). If a white precipitate forms when you add the silver nitrate then chloride is present. The water is change and the objects soaked again for another two weeks. But when, after leaving the test tube for ten minutes, the cloudiness is only just detected, the object can be considered sufficiently desalinated (Western Australian Museum p. 63). Great care must be taken when soaking ceramics because soaking has been reported to damage the ceramic body/fabric. After cleaning, the ceramics are dried, marked, recorded, bagged and made ready for storage. Such pieces could be used for education and exhibition.

4.4. Documentation of Ceramics

All collections in the archaeological laboratory should be documented but due to huge collections being brought in sometimes a large backlog occurs, making this to remain a continuous activity. The NMK has an appropriate system of collection documentation, following universal guidelines drawn by international bodies such as ICOM (international Council of Museums) and ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property). The range of records kept, whether accession register, classified index cards, loan registers, photographic records, audio-visual records or computerised documents, should facilitate the efficient management of this heritage and allow research, exhibition and other educational activities.

Documentation is a vital component of collections management in museums because it gives the extent of the objects, their characteristic qualities and quantity and where they are to be found within the museum. Documentation should also reveal whether any object has been published and whether any conservation work has been carried out, how, who has done it, when and why. This makes it necessary for the museum to have fully trained personnel to provide valid records that would be useful for research purposes and publication. Documentation particularly involves stocktaking. Periodic stocktaking is mandatory to assess the preservation, status of the objects, the loans yet to be returned, exhibition adjustments and any other necessary management activity. It was found that no periodic stocktaking is ever conducted and this makes it difficult to establish collection size and to determine whether some of the collections have been wrongly placed on the shelves.

The major documentation cards in the department are culture cards and site cards (Appendix 3), which essentially contain the same information in different order. The data fields on the Nairobi cards are site, locality, map reference, date, donor or collector, culture, accession number, object description, associated fauna, associated documents, references, card number and total number of cards. The archaeology department in Nairobi does not have specific record cards or files especially designed for ceramics. The Coastal Archaeology card, on the other hand contains the following fields: card title and number, accession number, previous number, object name, number of objects, material, shape, date of collection, acquisition method, site, sases, map reference, trench, level, feature, donor/collector/ researcher, field number, physical description, decoration and finishing, colour, rim, base, height, weight, width, length, photo number, slide number, negative number, permanent location of object, building, shelf, published reference (date, author, title, journal or publisher). Such information forms a good database that researchers would treasure, unfortunately, in many instances not all these fields are ever filled in.

4.4.1 Computerisation of the NMK

Museums in the present age require up-to-date data processing and communication technology such as computer facilities. The Computer Services Department (CSD) of the NMK is responsible for the entire information technology (IT) functionality of the Museums. The design, development and implementation of various software applications for use within the Museums' diverse areas is centrally managed and controlled from this office. Departments within the Museum co-ordinate their activities with the CSD through designated Database Administrators resident in the user departments. Together with the Database administrators, systems are designed to meet the individual departments needs in various areas, including collections management systems and research databases. Of paramount importance is the methodology used in the pursuit of the museum goals. CIDOC (ICOM Documentation Committee) has provided guidelines in various fields and these guidelines have been adopted in the implementation of some of the databases, for example, Archaeology and Palaeontology. The Ethnography department is using a collections management system designed from efforts emanating from the AFRICOM (African Council of Museums) project. Other systems in the design stage include a database system for the Sites and Monuments team also based on CIDOC standards. The CSD is also involved in the development activities of the Biodiversity Centre.

According to the CIDOC Newsletter (1996, 2000) the NMK has responded to the needs of each department by providing IT solutions based on standalone PCs and LANs. At present, the report continues, 'the Museum maintains the bulk of the databases on PCs with a number of them running on Client Server LAN with a Sunspace Server. Database software used ranges from ORACLE through MS-Access to the traditional Dbase. Operating systems span the entire range and include Unix, DOS, Windows and Macintosh. There is a move towards the establishment of an institutional

network that will provide internal file transfer and E-mail as well as access to Internet facilities'. While the CIDOC report talks rather encouragingly on the use of computers in our museums, it is unfortunate that some of the programmes have failed. The archaeology database is one such failed effort. The archaeology department's computerisation programme failed due to lack of maintenance facilities and qualified personnel. Despite their recognition to the fact that computers are useful for data production, storage and management, and for communication purposes, the archaeology department's staff members claim that following the crushing of their computers and the collapse and abandonment of the programme there has been no motivation to restart the exercise again.

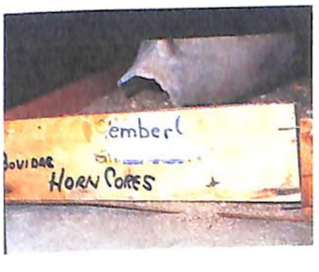
4.5. Packing and Storage of Ceramics

4.5.1 Packing of Ceramics

The collections held in the archaeological laboratory are packed in brown (sugar) paper and polythene bags, and are then put in boxes or cartons and trays, which are in turn put on the sturdy metal, shelving available (Plates 4.3ii). They are padded with tissue paper and other shock absorbers such as foam (Plate 4.3iii), sand and sawdust (Plate 4.3i), wooden stand (Plate 4.4a) and coils of vegetative material (Plate 4.4b & c) but metal stands could also be used as in the Gede exhibition (Plate 4.8).

a. White Sand

b. Brown Sand



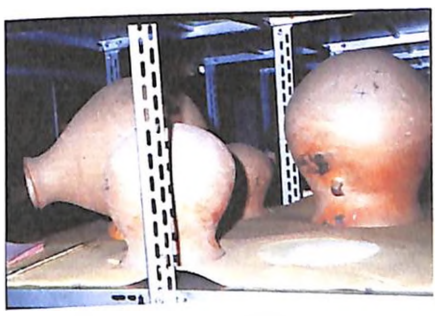
c. Effect of Heavy Support

Plate 4.3(i): Support with Sand

Plate 4.3ii. Packing in Brown Paper, Cartons, Trays and Shelving

a. Padded: notice other handle of ceramic

b. Padded and covered with polyethylene



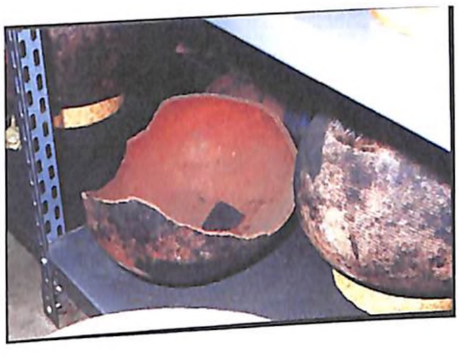
c. Padding on shelf

Plate 4.3iii: Foam Padding

Sand is a good shock absorber but it is heavy and as can be seen from (Plate 4.3(i)c), the sand is causing the tray to come apart. Sawdust is light but could contain dust and emit gases that could damage the ceramic surfaces or be dangerous to the collection user. Both sawdust and sand can get wet through absorbing moisture. In such a case, the reconstructed ceramics can be weakened and fall into pieces. Polyethylene bags and sheets have been used in large measure to keep dust and water from the artefacts. After careful packing, the trays are covered with polythene paper and thumb pins used to attach them firmly onto the trays. There are difficulties associated with such packing. Each time the collections are to be used the pins and the polythene must be removed. Signs of such

frequent removal were evident. When they are resealed this is not well done and so avenues are left that would facilitate dust infiltration onto the artefacts that should have been otherwise protected.

a. Stick and foam



b. Coils of vines

c. Coil of vine and banan leaves

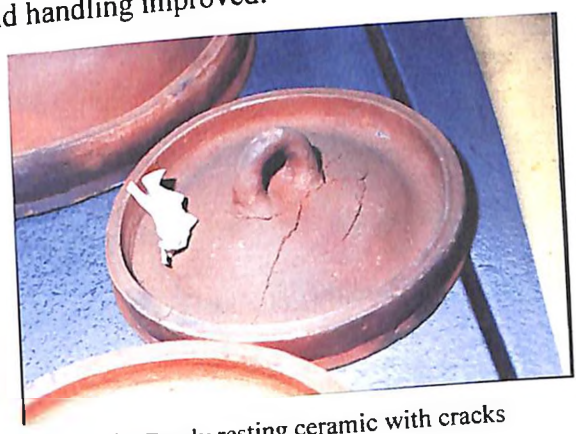
Plate 4.4: Support with Plant Materials

Most of the trays are filled with objects, making them rather heavy and potentially dangerous to move even during casual inspection. This was particularly noted with collections on shelf 20. In shelf 17 a large reconstructed pot lies on top of sherds in small polythene bags. This poses danger to the small sherds and slow cumulative damage through abrassion. Some of the pots with handles are ill positioned with the handles resting directly on the carton or tray; this creates pressure that could damage the ceramics in the long run. Transparent polythene bags and sheeting are used because they allow inspection of the collections without having to handle them. This is not the case in the archaeological laboratory because a good number of the collections are first put in brown paper before they are put in polythene bags and, finally, stored in trays that are shelved. The use of brown paper is questionable, not only because they easily get torn but also because such paper is not recommended for the preservation of artefacts.

All ceramic objects need proper packing and careful handling not only when they are being transported from the field, but also in the storage. The packaging used should provide physical protection to the object, allow easy examination, must have sufficient accompanying information and

durable. This necessitates careful selection of packing materials used; only inert materials such as acid-free tissue or polyethylene are to be used. Several archaeological and contemporary ceramics in the archaeology lab are broken or show signs of active cracking (Plate 4.5d) and tearing of polyethylene bags and sheet; these are testimony to the fact that storage conditions are damaging and need to be reviewed, checked and packing and handling improved.

a



b. Freely resting ceramic with cracks

Plate 4.5 Unsupported Storage

Table 4.1 Packing Materials for museum collections

RECOMMENDED PACKING MATERIALS	NON RECOMMENDED PACKING MATERIALS
Acid-free boxes	Cigar boxes or regular card boxes
Polypropylene containers	PVC or plastic containers
Acid-free poster board	Acidic cardboard
Polyethylene foam	Styrofoam
Polyethylene bags with zip closure	Sandwich baggies
Polyethylene sheeting and chips	Plastic wrap
Acid-free tissue paper	Polyethylene chips
Polyester batting	Toilet paper, facial tissue or newspaper
Metal containers	Acidic paper
Tyvek for labels	Brown paper bags
Cotton or muslin fabric	Cellophane tape
Cotton or polyester batting	Cotton wool
Mular	Foam rubber, urethane foam
Ethafoam	Masking tape

Source: National Park Service Chapter VIII p. 5

4.5.2 Storage of Ceramics

The archaeological collections in storage are arranged according to names of the sites from which they were collected. After they are carefully documented and packed into polythene and paper bags, the ceramic sherds are put in trays or cartons and then stored on the shelves as can be seen in the photographs below. The storage appears to be well organised allowing free movement and inspection and maximum usage of available space ensured (Plate 4.6: a, b, c, d, e, f & g). But this is not so in all circumstances. At the northeastern corner of the laboratory, a large number of ethnographic ceramics (Plate 4.6c), which are said to be only temporarily stored here, limit access to shelved collections in cartons and trays. Cleaning equipment are mixed with collections (Plate 4.6g). Some of the packing materials get torn (Plate 4.6f) due to the size of their contents and frequent or careless handling. Each shelf has number and each has numbered divisions, which are also reflected on the trays that are placed on them to ease their handling, inspection and general management. An attempt to maximise the use of space can be observed where tops of shelves are used and space beside walls (Plate 4.6a, b, d, e and f). Most of the trays were found to be excessively packed (Plate 4.6i) thereby reducing the possibility of placing trays on top of others thus limiting the tray holding capacity. Heavily packed materials pose danger to the otherwise strong metal shelves used in the storage. The trays used are also not of uniform size, as can be captured from Plate 4.6k that contains only empty trays.

a. Packing on top of shelves and sides

b. Searching through congested space

c. Unused shelf space

d. Unaligned shelving

e. Ceramic in torn carton

f. Cleaning equipment

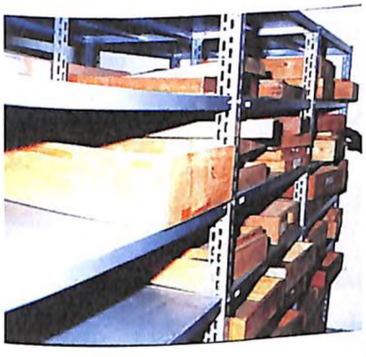
Plate 4.6(i): Metal shelving and side usage: attempt at maximum space usage

g. Ceramic portions outside tray edges eroding

h. Heaped cartons

i. Over packing

Plate 4.6(ii) Oversize packing with or without polyethylene covering



i. Reserve trays Varied tray sizes

k. Storage used as working space

Plate 4.6 (iii) Organisation, lighting and use of storage

4.6. Conservation and Analysis of Ceramics

4.6.1 Conservation

Ceramic conservation involves cleaning, reconstruction, packaging and storage. Museums must maintain their collections in proper manner to ensure the objects' survival and use for research, education, and exhibition. It means that the museum has to have a proper conservation policy and plan. Does the NMK have a conservation policy? Is the policy adequate? How often has the conservation policy been reviewed/revised? Kenya has a long history of conservation backed by law beginning from 1927, but this law, which seeks to conserve our cultural heritage, has difficulties and so need for its revision has been voiced (Wandibba 1996). Periodic checks for conservation needs are a must to ensure that any deteriorating objects are given the necessary treatment.

Conservation is the science of taking care of heritage and involves specialised treatment and preservation. There are basically two types of conservation carried out: **active** (remedial or interventionist) **conservation** and **preventive conservation**. All conservation work carried out must be fully recorded: when, why, how and what materials and equipment were used. Because of the central concern with conservation, every museum needs full-time conservation staff. Periodic cleaning and checking are among the elements that such staff should commit themselves to.

Regarding conservation of materials, Rye (1981) points out that four basic rules should be observed. First, conservation should stabilise rather than change an artefact. Second, all treatments should be reversible. The main purpose of conservation is to maintain the object as close to its original form as possible. When a conservation process is fixed and unalterable, then the material shall cease to be

what it originally was. Third, all physical or chemical treatments should be recorded, specifying adhesives or impregnating mediums as well as simpler procedures such as removing soluble salts from the pores. Notes and records are vital in any activity carried out because such information will guide further future operations dealing with the object. Finally, he says that unstable specimens should be kept in an environment similar to the one from which they were removed; if wet, keep wet and if dry, keep dry. Alteration of the environment is destructive to an object since the object in trying to adjust to a new change may suffer breakage that will limit its survival span.

The conservation carried out in Kenyan museums is only on a minimal scale and involves cleaning and joining together sherds of the same ceramic vessel using glue and gap fillers such as plaster of Paris. Ideally, restoration or reconstruction of ceramics is done when the pieces have been photographed, cleaned and adhesives made ready and is better carried out in the laboratory. Some ceramic objects in Nairobi Museum and Fort Jesus are reconstructed using stainless and easily removable resins. Still many of our ceramics are in need of restoration (some are so badly broken, but could be saved by minimal intervention such as sticking the pieces together with glue) for which Plenderleith and Werner's (1971: 334-342) ideas on treatment, repair and restoration of ceramics are very helpful. Examples of restored ceramics are shown in plate 4.7.

a. Glued ceramic

b. Filling with plaster of Paris

Plate 4.7: Restored Ceramics

Crumbling ceramics may require stabilisation, especially as they are brought into new environments, soon after excavation or into storage or display, to which they must adapt to avoid deterioration. Strengthening is achieved by impregnation, using dilute synthetic lacquers containing polyvinyl acetate or polymethacrylate. Cold-setting, gap-filling adhesives, which are resistant to boiling water, are of great convenience for many types of objects. No such practice is done in our museums. The practice of removing dust from an object before any treatment is carried out is, however, obeyed. Restored ceramics are handled with extra care. In the store, they were found to be padded with foam and covered with polyethylene bags and sheets to keep away moisture and dust, which could weaken and dismantle them. Gloves are supposed to be used whenever objects are handled and during conservation the person should put on dustcoats.

4.6.2 Pottery Analysis

Since ceramic analysis involves visual inspection, handling and drawing it has a bearing on the conservation of these collections. Many approaches have been designed by scientists for the analysis of artefact remains, but the primary one is direct visual examination, involving technical aids such as microscope, binoculars, and radiography. The analysis carried out may be quantitative or qualitative. Descriptive qualitative analysis involves direct physical attributes achieved through magnification (by binocular microscope), whereas quantitative analysis relates to material composition (such data derived by radiography). The approaches advanced by Shepard (1956, 1963, 1985), Soper (1971), Wandibba (1982), Abungu (1989), Rye (1981), Joukowky (1980) and any other relevant published or unpublished source are helpful for ceramic analysis. Ceramic analysis consider a number of things including the preparation of clay, methods of manufacture, and shape and according to Rye there are four basic cumulative units of analysis in pottery technology: attributes, techniques, process sequence

and technological traditions (Rye 1981:4-5). During analysis, which involves drawing, the ceramics are handled. This necessitates the use of proper handling principles to ensure that they are not damaged in any way. After study and analysis, the ceramic data could be used for publication and for educational and exhibition purposes.

4.7 Exhibition of Ceramics

Ceramics are also exhibited in our museums. The exhibited objects are chosen on the basis of the shape, decoration, functions and texture as well as type. In Fort Jesus museum, the ceramics on display are arranged chronologically from the 8th century AD to the 19th century and include complete vessels and sherds of local earthenware, and porcelains and stoneware from China and the Middle East. Apart from expressing chronology, ceramics are exhibited to display the range of collections and the functions they fulfil. Ceramics can be displayed in tabletop cases (as shown in Plate 4.9a and b) or on open spaces with a variety of supports such as metal, wood or sand (Plate 4.9c). Display of ceramics in cases with wooden supports is the predominant practice. To exhibition any collection including ceramics collaboration with other departments such as the design and exhibits department is necessary. Mounted displays in the museums have always been carried out by the exhibition officers.

a. Porcelain Bowls

b. Earthenware

c. Earthenware

Plate 4.8.1 Ceramic displays at Gede Interpretation Centre

4.8 Major Challenges of the Archaeology Department

Although the division of archaeology has a long history spanning over three decades, it was found to face many challenges. Among the problems cited to be faced by the department are, slow damage in the storage and dust (Table 4.2), undocumented collection, failure of the computer database, lack of money specifically allocated for the department, insecurity, lack of staff motivation (Table 4.3). For Samuel Kahinju, dust seems to be the most worrying problem, but he believes that the Nairobi environment seems to be ideal for the preservation of heritage collection, since it has lower humidity compared to the coast. Simon Katisya sees the main problems to relate to specimens, which are collected without recording their proper provenance. For Freda Nkirote, it is accessioning of individual sherds and opening cards for each, which seems to be the greatest puzzle.

TABLE 4. 2. STORAGE PROBLEMS

Shelf	Available Trays	Trays with Ceramics	Packaging/Supports (Foam, sand, veg mat.)	Danger/Problems Observed
1	177	29	1.Polythene Bags 2.Brown paper 3.Polythene sheeting 4.Carton 5. Supports	1. Cracks, 2. Broken, 3. Dusty, 4. Congestion, 5.Poor object placement, 6. No tray used, 7. Mishandling.
6	193	190	Same as above	1. Cracks, 2. Broken, 3. Dusty, 4. Loose packing, 5. Loss of decoration, 6. Mixing of objects. 7. Eroded surfaces.
10	244	23	Same as above	1. Cracks, 2. Broken, 3. Dusty, 4. Mishandling, 5.Objects overlying others, 6. Mixing of objects, 7. Poor packing, 8. Poor handling in field, 9. Weak tray base, 10. Poor labelling, 11. Poor storage.

13	274	17	Same as above	1. Cracks, 2. Broken, 3. Dusty with dirt, 4. Poor handling in store & field, 5. Mixed collections, 6. Abraded, 7. Torn tray cover, 8. Un-proportionate storage, 9. Loose storage, 10. Overloaded trays.
18	255	12	Same as above	1. Cracks, 2. Broken, 3. Dusty, 4. Natural decay, 5. Poor handling, 6. Poor reconstruction, 7. Torn bags & tray covers, 8. Objects crowded, 9. Disproportionate trays, 10. Unlabelled trays 11. Objects overlain
22	205	30	Same as above	1. Cracked, 2. Breakage, 3. Dusty, 4. Improper labelling, 5. Improper tray arrangement.
26	127	36	Same as above	1. Breakage, 2. Abraded, 3. Dusty, 4. Obtrusion by contemporary pots, 5. Difficult access, 6. Crowded & heaped, 7. Torn bags & tray covers, 8. Heavy packing.
32	0	0	1.Polythene Bags, 2. Polythene sheeting, 3. Carton, 4. Supports.	1. Breakage, 2. Misplaced support, 3. Dusty, 4. Mixed placement, 5. Congested, 6.Poor placement.
TOTAL	1485	337		

(veg mat.- vegetative or plant material)

From Table 4.2 above, 22.7% of the trays in the shelves surveyed contained ceramics. The maximum tray capacity for the seven shelves surveyed is 2016 (288 per shelve). Since 1485 normal size trays were found shelved, the unoccupied space is 26.3%. If this is correct for the whole lab, it implies that the available unused storage space is only 26.3% of its entire capacity. This means, additional storage is highly needed.

Table 4.3. Analysis of Archaeology Division

INTERNAL	EXTERNAL
STRENGTHS · Trained and experienced staff · Strong permanent building · Little conservation treatments · Strong metallic shelves	**OPPORTUNITIES** . Is a national and regional hub . Attracts external funding . Benefits from volunteer service . Cooperation with local and international universities
WEAKNESSES · Few equipment · Limited storage space · Lack staff motivation · No inventories	**THREATS** . New emphasis on people and services not collections . Attractive employment elsewhere that may lead to loss of competent staff

4.8.1 DUST

From the table 4.2 above, dust is among the major problems the archaeological laboratory in Nairobi is facing. Dust is defined as any particulate matter that will settle on surfaces in still air (Kibrya 1999: 34). Particulate matter can typically vary in size from the over 100 to 0.01 microns and consist of soil dust, organic matter, elemental carbon (soot) and fibrous material (ibid). Deposition of dust on objects and surrounding surfaces can obscure fine detail or spoil the appearance of displays and may also suggest to visitors a lack of care on the part f the museum (ibid). Surface dust can also act as a nucleation point for moisture; the dust also contains pollutants absorbed from the atmosphere, it may

result in permanent damage to materials such as metals or stone. How is dust monitored in the museum? Levels of dust deposition are determined by measuring the loss of surface reflectance (gloss) on glass microscope slides caused by deposition of particulates (Schwar 1994; Adams 1997; Ford 1996- quoted by Kibrya 1999: 35). Such a measurement has, to my knowledge, never been carried out in the Kenyan museums. As pointed out earlier, polyethylene sheets are used to cover the collections to protect them from dust, coupled with periodic dusting by departmental cleaners. Sealing all paths of dust using gap filling self adhesive tape is usually the recommended control for dust, but such controls are not used. Parameters for gaseous and particulate pollution are less often specified because they are much more difficult to measure and expensive to control (Keene 2002: 116).

4.9 Collections Management Policy

Policy may be defined as a set of rules, principles and guidelines directing the operations of an organisation or institution. Keene (2002: 172) defines policy as 'The rules on how the organization intends to behave in principle in most circumstances'. The museums in Kenya as they exist today operate under two Acts of Parliament (cap 215 and cap 216 of 1983) that define their roles and determine what they are and how they are operated. Every museum should have a written collections management policy derived from its mission statement, stating what will be done to preserve the collections adequately, such as:

a. Ensuring that there are appropriate procedures for the acquisition and documentation, use and de-accessioning of artefacts in the collection;
b. Ensuring that there are appropriate documentation procedures the for incoming and outgoing loans;

c. Ensuring appropriate procedures for the management of collections records;

d. Demonstrating a commitment to conservation standards in the labelling, care and handling of artefacts; and

e. Distinguishing collection types (for example, between artefacts in a research collection and artefacts in an education (or hands-on) collection.

Since the care of collections is a fundamental aspect of the museum's management policy, proper collections policy document should: clearly state the fact that it is the duty of all museum staff to ensure the proper keeping of objects. Each staff has a role to play in the care of collections. Secondly, state which museum professional is responsible for the care of collections, be it a curator, or collections manager. This person is not solely responsible for care of collections, but a coordinator of all the activities associated with collection care. Thirdly, state how often collections should be inspected (weekly or monthly) and inventoried (once yearly or every two years). This will bring efficiency and regularity in the process of inspection and account for the collections adequately. Fourthly, indicate the array of documentation associated with it, such as object movement or conservation records. These must be well kept by the professionals.

While many of the staff interviewed reported that the department, and for that matter the museum, had no collections management policy, Kiriama holds that the museum has a policy. According to him the policy requires that the collections should bear site name, SASES (Standard African Sites Enumeration System) Number and the type/kind (category). The policy also requires that all collections be handed over to the nearest museum where they should receive appropriate packing, recording and storage in the appropriate laboratories and stores. The policy further states that all collections must be acquired using normal scientific procedures and processes and that all materials/collections should be documented using the approved NMK practice. The policy also

requires that every appropriate care should be taken to preserve fragile and delicate materials, such as reconstructing sherds appearing to come from the same vessel.

Museum employees know that there should be specific policies guiding the institution, however it appears that such policy document is never accessible to them. Each department is expected to draw up its specific policies; however, the archaeology department has no such policy document like the one for the Department of Invertebrate Zoology.

CHAPTER FIVE

DISCUSSION AND CONCLUSION

1.1 Discussion

This survey was concerned primarily with the conservation practice at the Nairobi museum and Fort Jesus Museum. Ceramic collection acquisition, documentation, storage, study and display are been presented and failures and achievements are pointed out. It is realised that our museums still have multiple problems of conservation, storage and display that need immediate concrete remedy. The collections are heavily packed and dust infiltration a real problem, as well as alack of proper policy document to guide. Need for the provision of vital storage and display conditions conducive for the long life of the material culture at our custody has been voiced. Need for a sensitive management plan and allotment of funds for the purchase of suitable storage and display cabinets for our museum collections, and for facilitating continuous research are worth consideration.

The museums use packaging, filters and sealants to address the dust problem. The archaeological collections in the stores and laboratories are basically research centred; they are also used for educational purposes. Through appropriate research and information dissemination to the public, museums will undoubtedly remain committed to serve the people. The effectiveness of the services rendered depends much on the collaboration not only among the various museum departments but also with partner institutions like universities and research institution both from within Kenya and from abroad. These partners' efforts have generated the many of the collections whose care now falls on the hand of museum personnel.

1.2 Conclusion

While ceramics are important in archaeological research, their conservation in our museums has been given only limited attention in our museums, they do not have even records of treatments carried out. Although the storage in Nairobi was found to be very well organised it failed to check on the improper packing and heavy placement of the collections. Our museums need to provide the right conditions for the management of all its collections as an essential matter of policy. According to Edson and Dean to provide safe and secure storage for museum collections, the assigned space must be dedicated to storage and serve no other purpose. The storage area must be separated from all other museum activities, including exhibition, research, administration and work (1994: 98). This is not true with the laboratory in Nairobi since, the laboratory serves both as store and as workspace for the staff members of the archaeology department.

1.3 Recommendations

The study makes the following recommendation for consideration. First, space within the laboratory is reducing and only about 24% of the entire space remains unused. With continued research, it means that additional space should be sought. Since some of the collections held here only temporarily, it would be appropriate for them to be removed to their right destinations, care taken to ensure that the recipient storage has the right preservation conditions and the right staff to care for them. For instance, in the light of the new move to decentralise operations of the museums in Kenya, one would suggest that certain facilities be provided at certain localities reachable by researchers and the public. This project proposes that apart from the existing facilities in Nairobi, Fort Jesus and Lamu, new storage facilities for ceramics and other collections need to be created at Gede to cater for the collections in Malindi area, Kisumu museum to cater for collections from Nyanza and Kitale for Western Kenya region – later the district museums might be asked to store such collections.

Secondly, there is need for continued staff training, not only to enable them use new technology such as computers, but also to enable them to willingly share their experiences with the goal of improving conditions of work, and improving on the museum image as part of marketing. Since many staff members were shy to share their experiences and tell of the difficulties and problems they are facing, for fear of victimisation, it is imperative that they be encouraged to voice these because only then could such difficulties and problems be solved. Thirdly, there is need for the revision of the collections management policy in line with the museum mission statement. The policy should reinforce need for conducting environmental condition assessments and encourage periodic taking of inventory. Fourthly, there is also need to repackage all torn packs and reduce all over-packed boxes and trays and remove all nonessential items contained in the lab. To keep dust away there is need to seal off all entry points, ensuring that all windows remain closed or fitted with dust filters, all soiled materials including staff clothing and shoes be cleaned before entry into the laboratory. Finally, there is need for researchers to be encouraged to consider post excavation management of finds; they need to be selective in the kinds and quantity of collections they gather. The various researches that have so far contributed to the acquisition of the current collections have contributed trays for keeping the collections but they have not been uniform. There is need to create uniformity in the storage trays by clearly spelling out the standard trays and reducing the use of heavy supports that spill over and add more dust into the storage. Overall good housekeeping will remain the principal step forward for proper collections care.

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Appendix 1

QUESTIONNAIRE

GUIDELINES FOR FILLING IN THE QUESTIONNAIRE:

This questionnaire has four parts, A, B, C and D. Part A deals with personal details of the interviewee/respondent. Parts B and C deal with issues related to ceramic management in museums. Part D, which is for official use, concerns the researcher's evaluation of the interviewee's responses. Please complete parts A, B, and C as accurately and as detailed as possible. The information provided will be treated with utmost confidence and strict confidentiality. All answers provided are useful; therefore, do not hesitate to give your personal views. Should you require additional space use back pages of the questionnaire and indicate the part and question number. Thank you for accepting to respond to these questions.

A. RESPONDENT DETAILS

1. Name of Respondent _____ Sex _____
2. How long have you been working at the Museum? _____
3. What position do you hold? _____
4. What is your highest level of education? _____
5. What professional training have you received since you entered the museum?

_____

_____

_____

_____

B. MUSEUM BACKGROUND

1. When was your museum created? _____

2. How many Staff members are there in your museum? _____

3. Do you have a division/department or section dealing with or has ceramics/pottery? _____

4. Who heads that division/section having ceramics? _____

5. How many people work in that division/section? _____

6. What specific training have they received? _____

_____

_____

_____

7. What specific jobs are done on the ceramic? Who does it/them?

Activity 1Documentation, Done by _____

_____

_____

Activity 2 Cleaning, Done by _____

_____

_____

Activity3 Restoration, Done by_____

_____

_____

Activity 4 Research, Done by_____

_____

_____

Other Activities? Specify, giving who does them

_____

_____

_____

C. QUESTIONS RELATING TO CERAMICS

1. How do you acquire the ceramics in your museum? Through (tick or fill as appropriate):

a. Research (Archaeological/Ethnographic) _____

b. Gifts and Bequests _____

c. Purchases _____

d. Others _____

_____

_____

2. How frequently do you receive new ceramic/pottery collections? _____

_____

_____

3. How large is your museum's ceramic/pottery collection? (Specify in kg/ tons, bags, shelves, crates)

4. What records do you keep regarding the ceramics/pottery by your museum?

5. Who is in charge of these records?

6. How many copies of each record do you keep?

7. Why do you keep that number of copies?

8. How are your ceramics stored?

9. What materials do you use in packing and storing your ceramics?

_____

_____

10. How frequently do you clean your ceramics, what materials do you use in cleaning and how is it done? _____

_____

11. Do you have some of your ceramic collections on display? _____

_____

12. If your answer to 10 is Yes, How many? _____

What themes are explored in such displays? _____

_____

_____

13. Do you have publications about your ceramic collections? Yes _____

No _____. If Yes, Please name them _____

If No, please explain why _____

14. Are your activities relating to ceramic acquisition, research, storage, and restoration /conservation adequately funded? Yes _____

No _____ How much? _____

Who funds the activities? _____

15. Do you think that museums should have ceramic collections? What for? Explain in brief.

16. What challenges and problems does your museum experience regarding the documentation, storage and research of the ceramics collections?

17. What do you think are the best ways in which these challenges and problems can be solved?

18. Many institutions today use computers in their management; does your museum have computers? What specifically do you do with them?

19. Do you have any further observations to make regarding ceramic management in you museum in particular and Kenya as a whole?

Thanks a lot for your time and your considerate responses to these questions.

FOR OFFICIAL USE ONLY

D. EVALUATION OF RESPONSES

Are all the questions attempted? _____

Would there be any need for further enquiry to the respondent?_____

Further Comments on the specific responses

_____

_____

_____

_____

_____

_____

_____

_____

_____

Appendix 2

GUIDELINES FOR KEY INFORMANT INTERVIEW

(Museum staff and users)

Interview with _____

Date _____ Time _____

1. How frequently are the archaeological collections in Nairobi Museum used?

   _____. Who uses them? _____

2. What do you think is the purpose of keeping these collections?

   _____

   _____

3. If you have conducted or participated in archaeological research, please, briefly state and explain how you handled the ceramic finds

   i. Cleaning _____

   _____

   _____

   ii. Sorting _____

   _____

   _____

iii. Remedial

conservation_____

_____

_____

iv. Packing_____

_____

_____

_____

v. Transportation_____

_____

_____

_____

vi. Recording_____

_____

_____

vii. Storage_____

_____

_____

4. Does the NMK have a collections management policy?_____

5. What does the policy say on the following

i. Collections? _____

_____

_____

ii. Acquisition? _____

_____

_____

iii. Documentation/records? _____

_____

_____

iv. Conservation? _____

_____

_____

_____

v. Storage? _____

_____

_____

_____

vi. Deaccesioning? _____

_____

_____

vii. Anything else?

_____

_____

_____

6. What management requirements do you think ceramics collections in museums should have?

_____

_____

_____

7. What are the most important challenges the museums face regarding collections management?

_____

_____

_____

8. What comments would you provide regarding the services provided to the public by our museums?

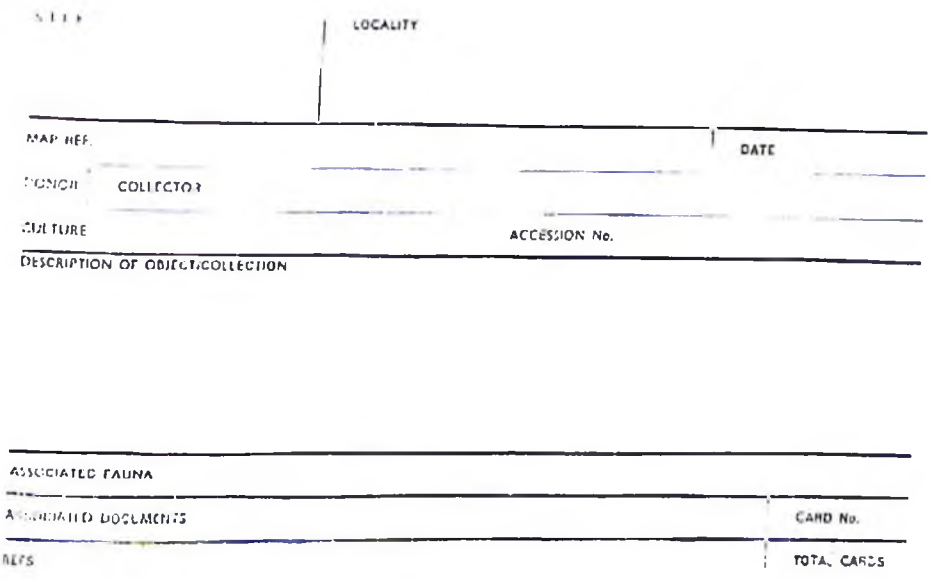
_____

_____

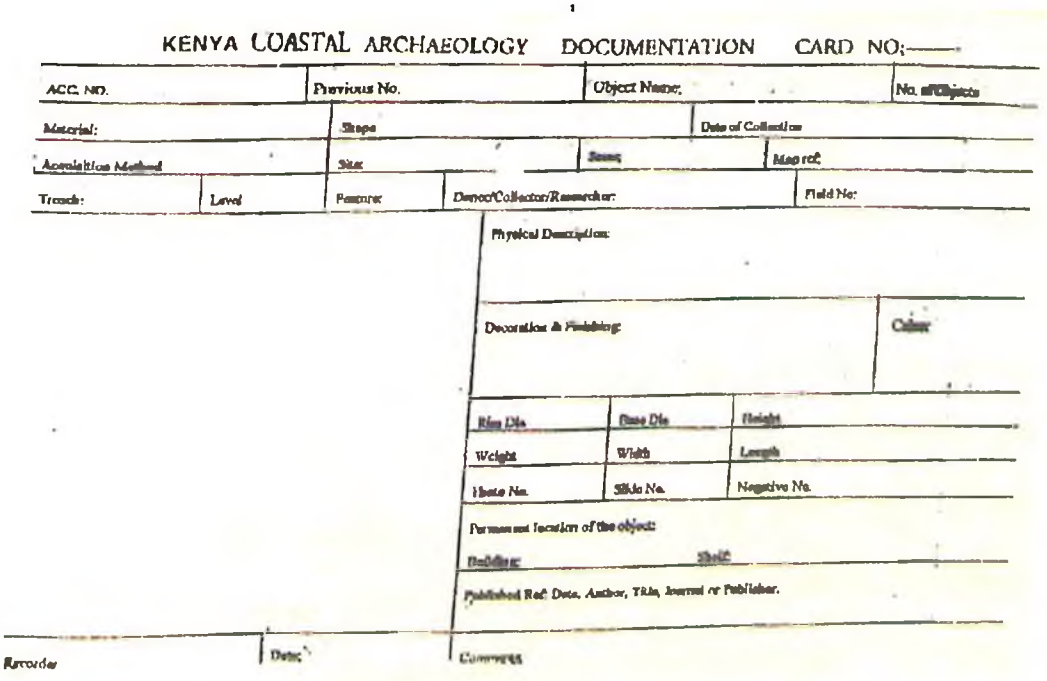
_____

Appendix 3

DOCUMENTATION CARDS



a. Nairobi Documentation Card



c. b. Coastal Archaeology Documentation Card

Appendix 4

Conceptual Definitions

The following terms constitute the core of the present work: ceramics, collections management. The meanings provided here are not restrictive and can be gathered in the contexts in which they are used.

CERAMICS

Ceramics, as used here means fired clay objects, whole or in broken form that are kept in museums obtained largely through archaeological and ethnographic research. Derived from the Greek word *keramos*, ceramics literally means burned stuff or earthenware and describes a fired product and not a clay raw material. While in popular usage ceramics denotes materials made of clay, modern science applies the term very broadly to chemical compounds combining metallic and non-metallic elements. Ceramics is thus seen as the art and science of making and using solid articles, which have inorganic non-metallic materials as their essential component (Rice 1987: 3). The basic raw material used in ceramics is clay although today synthetic materials are used especially in industrial ceramics (Hofsted 1974: 18-19). Ceramic makers usually use the secondary clays, which include kaolin, ball clays, fireclays, stoneware clays, earthenware clay and porcelain. Apart from its use in the manufacture of vessels for cooking, storing, and measuring bulk items, clay in various forms is used to make jewellery, wigs, furniture, paint, coffins, beehives, toys, essential elements of architecture, sieves, grind stones, musical instruments, smoke pipes, and even rattraps (Barley 1997). Ceramics may be grouped according to the type of clay used, the firing temperature and the whether they are glazed or not. Additionally, ceramics may be classified as permeable or impermeable.

Clay is a substance present in the soil. Geologists define clay as extremely small particles of soil that measure less than 4 micro-metres in diameter. Although there are primary and secondary clays, it is usually the secondary clay such as kaolin, ball clays, fireclays, stoneware clays, earthenware clay and porcelain that is used by potters. Different types of clay react differently when mixed with water producing two general types of clay: expandable and nonexpendable clay. Expandable clay swells when water is added to it even as to become liquid. The petroleum industry uses a kind of expandable clay as a chemical agent in the process of oil refining. Non-expandable clay becomes soft but not liquid when mixed with water. Ceramics industries use non-expendable clay in the making of bricks, pottery, tiles, and other products (World Book vol. 4: 69-70). 'While clay is plastic in the moist condition, it can be hardened to a stone-like mass on *heating to redness*. This hard condition persists on cooling and no amount of soaking in water will soften the material again because a permanent and irreversible change has taken place. Baked clay is also highly resistant to chemical action and in this sense it is one of the most stable material known rivalling gold itself in permanence. Raw clays vary in their chemical composition and in the nature of the impurities they contain, although they are mostly basic aluminium silicates' (Pleinderleith & Werner 1971: 334-344).

Kaolin is natural clay that is composed mainly of silica and alumina, which are forms of decomposed feldspar. It is usually white and withstands very high temperatures when formed. As a product of decomposed feldspar, kaolin consists of the mineral kaolinite, {Al4Si4O10(OH)8}, and occurs as a fine powder made of tiny plate-like crystals. Kaolin is either mined dry with a shovel or dislodged with jets of water and sucked into a pump system, then washed and separated from impurities such as sand, mica, and iron oxide as well as excess water and the clay formed into cakes that are dried and shipped to potteries. China, the United States of America, Great Britain, France and Germany are important kaolin producing countries in the world. Kaolinite clays are non-vitreous and when fired mature at around 1200 degrees centigrade resulting in nonporous and less breakable pieces popular

both with merchants and consumers for their transportability and long life (Kusimba 1994: 55). Also called china, or porcelain clay, this white clay is used for making the highest grades of ceramics such as porcelain. It is also used in the textile, paper and tyre industries (World Book vol.4: 70, vol.11: 192).

Ball clay resembles kaolin but is finer and more plastic. When fired it is almost white. **Fire clay** resembles kaolin in chemical contents but has more iron, giving it a buff colour when fired. It contains a large percentage of silica and can stand high temperatures. It is used in making firebricks and furnace linings.

Stoneware clay is the most generally used clay by potters. Usually made from several natural clays plus alumina and silica, it fires to a light-grey colour (and sometimes tan or slight reddish) and matures between 1250 and 1300 degrees centigrade producing hard and vitreous pots (able to hold water without being glazed) that withstand great heat. Stoneware is a high fired, less well-purified porcelaneous ware with the following characteristics: Its natural colour is ash-like or with high temperatures, red-brown; it cannot be scratched readily with a steel point on the body; it is nonporous even when unglazed; and it is resonant (Talking Jars 1976: 68)

Earthenware is usually made from natural clay and is low fired as opposed to stoneware, which is high fired. Earthenware matures at a kiln temperature ranging from 950 to 1150 degrees centigrade with a resultant buff or red colour. It produces non-vitreous vessels and will not hold water without being glazed. Pottery, which is synonymous with earthenware, red-ware, black-ware, primitive-ware and terra cotta, is made from a slightly calcareous clay which when baked at low temperatures possess the following attributes: it is always porous; it can be scratched with a knife or sometimes even with a hard wood stick; it is opaque save for very thin flakes such as those ground for

microscopy; the colour is usually reddish-brown, yellow, brown or grey depending on the clay content and the temperature under which it was fired; and it may be sun baked (Talking Jars p. 68).

Porcelain is a ceramic product invented in China, highly valued for its beauty and strength, that Europeans referred to as china or Chinese ware. The manufacturing process of porcelain was a Chinese secrete that was unknown to Europe until the 18th century. Porcelain is made from a prepared body containing kaolin, ball clay and flint. Hard, non-absorbent, of pristine whiteness, translucent in thin areas, porcelain requires the highest firing temperature of all, up to 1450 degrees centigrade. Since it is not very pliable and requires more skill to work it is not recommended as a clay body for beginning craftsmen. Being the hardest ceramic product porcelain is used for electrical insulators and laboratory equipment. Porcelain is, however, known primarily as a material for high quality vases and tableware as well as for figurines and other decorative objects and the type of porcelain used for such purposes produces a bell-like ring when struck. A piece of porcelain is shaped on a potter's wheel or in a mould and then decorated. Unlike earthenware and stoneware, porcelain is basically made from a mixture of kaolin (pure white non-melting clay formed from decomposed feldspar) and petuntse (a type of vitreous feldspar found only in China that is ground to fine powder and forms a nonporous natural glass upon heating) fired between 1250 and 1450 degrees centigrade.

There are three main kinds of porcelain based on the body or paste (the material from which they are made): **hard-paste porcelain** (true or natural porcelain) made from kaolin and petuntse fired at higher temperatures making the body and the glaze to merge. There are two subclasses of hard-paste porcelain- severe porcelain contains a high percentage of kaolin, while mild porcelain has low kaolin content); **soft-paste porcelain** (or artificial porcelain) is made from mixtures of fine clay and glass-like substances fired at low temperatures to produce porous vessels of a creamy tone preferred by some people to white); and **bone china**, largely produced by the English potters since 1750 by adding

bone mash to kaolin and petuntse yielding more durable vessels than soft-paste porcelain but not as hard as true porcelain.

Universal Properties of Ceramics: Ceramics have some four universal properties (Macropedia Vol. 3: 1154; World Book Vol 3: 325) that enable them to have enduring utility: First is their mechanical strength in spite of brittleness. Second, their chemical durability a (at both normal and elevated temperatures) against deteriorating effects of Oxygen, water, liquid or vapour, acids, bases and salts at all concentrations and organic solvents. Thirdly, their hardness contributes to their resistance against erosion. Lastly ceramics have a unique ability to be decorated in a wide range of colours, textures and designs. Most ceramics are hard and can withstand heat and chemicals. Most ceramic products can withstand acids, gases, salts water and high temperatures. Common ceramics are good insulators, however, certain ceramics lose their electrical resistance and become super conductors when they are cooled. These properties give them a wide range of uses in industry. Manufacturers make common ceramics from minerals such as clay, feldspar, silica and talc. Chemists make advanced ceramics from compounds such as alumina, silicon carbide and barium titanate other than silicates.

Ceramics is relatively widely manufactured among cultures of the world. In Africa itself, earthenware ceramics are so widely used in the homes since very ancient times and has been linked with both physical and the spiritual aspects of life. Uniquely capturing skill, time and people, ceramic products are both aesthetic and utilitarian. We need to understand the characteristics of ceramics in order to conserve them. Salts and water, for example, affect low-fired ceramics. Dust affects the ceramics by concealing the surface, creating conditions for abrasion. We therefore need to keep, dust, water and salts from ceramics.

COLLECTIONS MANGEMENT

A group of objects brought in together by one researcher or researchers constitute a collection. A **Collection** merely means an assortment of objects or artefacts of the same, similar or different kinds. It may also refer to all the objects housed in the museum. Museum collections differ according to the type of museum whether scientific, historic, and archaeological or war museum. Museum collections differ because of the different materials with which the objects are made. The various materials include paper, photographs, leather, plastics, metals, glass, stone, ceramics and others, all of which could be dichotomised as organic and inorganic. Organic collections are objects of plant or animal origin; they are highly sensitive to environmental conditions such as light, heat, and humidity. Inorganic collections include metals, glass, stone, and ceramics; they are also affected by fluctuating humidity levels.

Collection Management means the caring for of collections in heritage centres or museum. It includes the accession, documentation, storage and conservation of such objects constituting a collection. The care of ceramics is an aspect of collections management. Ownership of objects and collections is gained through **accessioning**. Accessioning means assigning unique numbers to each object or collection. Then the collections and activities involving them are recorded and this recording of information pertaining to objects and collections, which includes drawing and photographing, is what is called **documentation**.

Storage and Packaging are essential for the conservation of collections. **Storage** means a storeroom or place where collections are kept permanently. Aside from the housing of museum collections, storage means the provision of all the necessary facilities and conditions for the arrangement and display of the objects in a manner that is easy for study, records, inspection and retrieval (Agbo &

Labi 1991; Jonson & Horgan 1979; Shabu & Mubina 1998). Proper storage should provide easy access to the collections while protecting the artefacts in a safe and secure manner. A safe storage is important not only in providing adequate security, but also proper environmental conditions, appropriate storage fixtures, proper packing and adequate support. Before the collections are stored they must be cleaned and packed well. **Packaging** means provision of wrappings or covering materials around objects to protect it from environmental factors such shock, dust, dirt, water, especially during transportation and/ or in storage. The storage should be clean, well ventilated, and properly illuminated. The temperature and humidity levels and air quality must be monitored regularly, especially where sensitive organic materials re lest irreparable damage occur to these irreplaceable heritage.

Conservation means preservation, protection, treatment and maintenance of objects or collections. Conserving museum collections means the protection of objects against destruction by the environment and human beings so as to keep them 'alive' for long. Various methods are used to conserve museum and heritage collections (Pye 2001 and Museum XXXIV, 1, 1982 provide further details) but preventive conservation is understood today as the cheapest and less destructive method. All museum workers need to be aware that museum collections require special conditions since light, temperature, humidity levels, pests, pollutants and the use of inappropriate materials and inadequate handling, all pose threats to these priceless heritage (Read n.d p 5). Philip R. Ward in his paper, 'Conservation: keeping the past alive' speaks of conservation as study, understanding how things behave, environmental control, storage, handling, transportation, consolidation, cleaning, repair and field work (Museum XXXIV, 1, 1982: 6-9). It is indeed the general management of objects, which begins from the time they are unearthed or purchased to the time they are discarded. Managing the collections effectively and efficiently as well as making essential investment in them will ensure that

they are maintained not only for research but also for other purpose in support of the museum missions.

Collections Management Policy: Policy may be defined as a set of rules, principles and guidelines directing the operations of an organisation or institution. Keene (2002: 172) defines policy as 'The rules on how the organization intends to behave in principle in most circumstances'. The museums in Kenya as they exist today operate under two Acts of Parliament (cap 215 and cap 216 of 1983) that define their roles and determine what they are and how they are operated. Apart from the broad mandate contained in the Acts, the museum should have a written collections management policy stating that it will:

f. Ensure appropriate procedures and documentation for the acquisition, use and de-accessioning of artefacts in the collection;
g. Ensure appropriate procedures and documentation for incoming and outgoing loans;
h. Ensure appropriate procedures for the management of collections records;
i. Demonstrate a commitment to conservation standards in the labelling, care and handling of artefacts; and
j. Distinguish between artefacts in a research (or study) collection and artefacts in an education (or hands-on) collection

Museum policy, like in other institutions, is determined by the mission statement. Since the care of collections is a fundamental aspect of the museum's management policy, proper collections policy document should: Firstly, clearly state the fact that it is the duty of all museum staff to ensure the proper keeping of objects. Each staff has a role to play in the care of collections. Secondly, state which museum professional is responsible for the care of collections, be it a curator, or collections manager. This person is not solely responsible for care of collections, but a coordinator of all the activities associated with collection care. Thirdly, state how often collections should be inspected

(weekly or monthly) and inventoried (once yearly or every two years). This will bring efficiency and regularity in the process of inspection and account for the collections adequately. Fourthly, indicate the array of documentation associated with it, such as object movement or conservation records. These must be well kept by the professional in charge of the care of collections. Fifthly, set out the technical standards for the proper care of collections, such as environmental conditions, how they are monitored and recorded, pests control measures, human threats to the collections, procedures for packaging and freight of incoming or outgoing loans.

SWOT

SWOT is an abbreviation for a method of institutional analysis. **S** stands for **strengths, W** for **weaknesses, O** for **opportunities** and **T** for **threats.** Any institution has its strong and weak factors, which may be resulting from internal and external influences. Table 4.2 provides such analysis of Nairobi museum's Archaeology Department.