The Condition Assessment Study of the Coastal Archaeological Storage Building and the Collections at Fort Jesus Mombasa, Kenya

Philip M. Wanyama, Mohamed M. Chiguyaso & George G. Kaingu

Coastal Archaeology, National Museums of Kenya (pmwanyama@ymail.com)

Abstract

With the exclusion of archaeologists most professional and the public do not often recognize that archaeological materials not only constitute national heritage, but also form a vital resource and an inalienable property of the Government of Kenya. Every year, huge sets of archaeological artifacts are deposited at the National Museums of Kenya (NMK) including the coastal archaeological storage at Fort Jesus Mombasa World Heritage Site (WHS). Currently, there are perhaps three main archaeological collection repository centers in Kenya: The Earth Sciences Laboratory (NMK) headquarters in Nairobi, Fort Jesus Mombasa (WHS) and Lamu Museums. This study had two objectives: (1) to assess the physical condition of the coastal archaeological storage building and the collections and (2) to make recommendations for the improvement of the storage building and collections management at coastal archaeological storage. The research design adopted was both descriptive and analytical that utilized observation, literature review and matrix tables methods in data collection, analysis and presentation. The study found that the shrinking storage space, coupled with building infrastructure that were not designed to handle such vast collections threaten the survival of this very important heritage of Kenya. Besides, the storage building and heritage collections stored in it are in deplorable conditions and urgent revamping of the building and improvement of collection management activities is recommended. This study finding may have implications for the practice of collections management and conservation not only in Kenya, but also for most of Sub-Saharan African countries.

***Keywords*: Coastal Archaeology, Coastal Archaeological Storage, Archaeological Collections, Fort Jesus Mombasa, National Museums of Kenya, Coastal Kenya Region**

Introduction

The study of current condition of the coastal archaeological storage building and its collections was carried out by the research staff based at Coastal Archaeology, Fort Jesus Mombasa National Monument and World Heritage Site, one of the heritage centers of National Museums of Kenya (Figure 1). The National Museums of Kenya (NMK) is a state corporation established under the *National Museums and Heritage Act 2006* and one of its main functions is to act as the national repository centers for things of scientific, technological and human interest (see, e.g., Government of Kenya, 2006; National Museums of Kenya, 2010). Kenya's archaeological collection together with their sites of origin or where they are preserved *in situ* both on the surface and buried or submerged under the water, constitute one aspect of protected national heritage resource known as 'antiquities'. NMK has numerous repository centers (or national museums) spread across the country, but those mainly housing antiquities are located at Louis Leakey Memorial Building, NMK headquarters (Archaeology and Palaeontology Sections) and Coastal Archaeological Storage at Fort Jesus in Mombasa. However, some more coastal archaeological collections are scattered at Marine Conservation Laboratory (in side Fort Jesus), Gede and Lamu Fort (Omar, 2005).

This study had two main questions: what is the current condition of coastal archaeological storage building and the collections stored in it? How can this condition be improved to safeguard the coastal archaeological collection? Therefore, this work sought to fulfill two objectives: (1) to assess the physical condition of the coastal archaeological storage building and the collections and (2) to make recommendations for the improvement of the storage building and collections management at coastal archaeological storage. In order to obtain accurate data and comprehensive information about the current state of archaeological storage building and collections both descriptive and analytical research designs were adopted. Thus literature review and observational methods were used in data gathering in the study. Fieldwork was carried out at coastal archaeological storage and within its precincts between March and August of 2021. Observation of current state of the storage and collections including identified pathologies were mainly recorded through still photography (Figures 3-21). Physical count of existing collections was attempted coupled with the use of excavation field notes, Material Transfer Agreement (MTA) forms for material collection exported from the study area and the data were analyzed and presented using matrix tables (Table 1 & 2).

The study found that although the coastal archaeological storage holds vast heritage collections in a shrinking storage space, the building structure has deteriorated with the roof, ceiling, windows, walls and fixtures requiring urgent repairs. The surrounding environment outside the storage building ought to be kept clean and provision of fresh water and re-connection to electricity should be made a priority issue. The heritage collections which include archaeological, ethnographic, geological and osteological materials are stored together with fieldwork tools and equipment which should be separated to allow for re-organization of the storage room. The existing NMK Collections Management and Conservation (CMC) policy 2008 only provides general guidelines for the management of collections in all

repositories within NMK. The policy requires that every collecting department/ section within NMK to have its own collections management and conservation policy. Coastal Archaeology Department, thus ought to develop its own CMC policy and for this to happen there should be a substantive collections manager to coordinate collection management activities and supervise, as well as train the current collections management technologists and technicians.

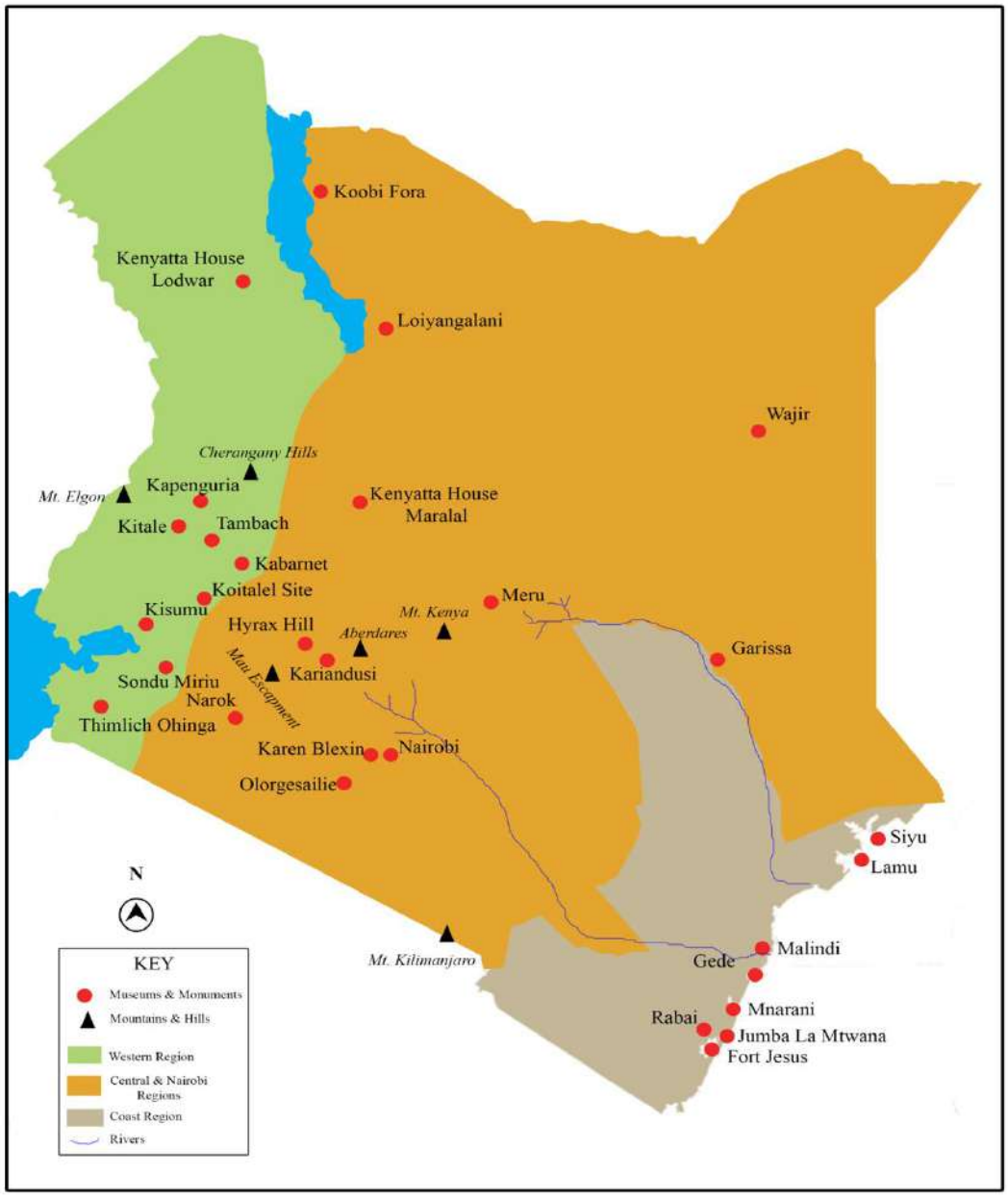

Figure 1: Map locating National Museums of Kenya's administrative regions, national museums and heritage centers.

Source: Stephen A. Okoko.

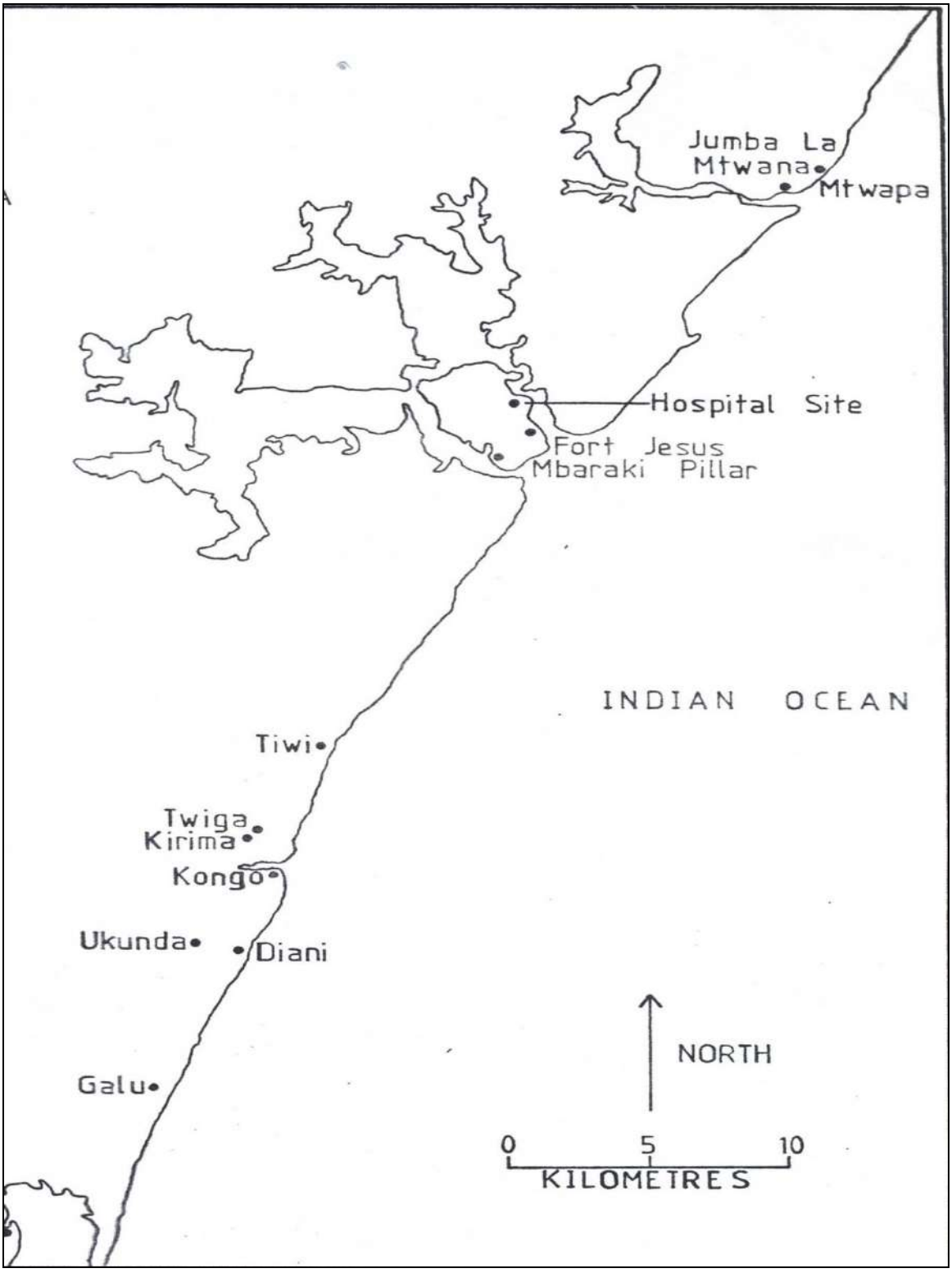

Figure 2: The map locating Fort Jesus National Monument and World Heritage Site and other protected heritage sites in Central and southern Kenya coast. Source: Thomas H. Wilson, 1980

Material and Methods

Research Design

The nature of this study was qualitative and involved the adoption of both descriptive and analytical research designs (Kothari, 2004:37). On one hand, the descriptive research design aimed at describing in detail the current physical condition of the coastal archaeological storage building and collection (ibid.). On the other hand, the analytical research design aimed at evaluating the state of both storage building and collections in order to suggest appropriate strategies for improvement of collection management activities (ibid.). The empirically obtained data and accurate information gleaned from them was necessary to inform decision-making by Coastal Archaeology and National Museums of Kenya management, regarding current and future coastal archaeological collection management and conservation activities.

Material

As already stated above, the main material of this study was the coastal archaeological storage building and the heritage collection at Fort Jesus Mombasa, National Monument and World Heritage Site. Figures 1 & 2 above are the maps of Kenya and central and southern Kenya coastal region respectfully, locating the study area and the facility, as well as other NMK administrative regions, museums and heritage centers. The coastal archaeological storage holds predominantly the archaeological materials from coastal region of Kenya, collected through research excavations conducted by various local and foreign archaeologists since 1948. The early colonial and post-colonial archaeological researches along the Kenya coast investigated mostly the ruined and living historic Swahili town sites which have been dated to between 8th and 18th Centuries in the Christian Era (see, e.g., Kirkman, 1954; 1963; 1964; Wilson, 1978; 1980; Chittick, 1984; Horton, 1996; Abungu, 1989; Kusimba, 1993; Katana & Abungu, 1995; Wilson and Omar, 1997; Namunaba, 2020). In the late 1970s and early 1980s, for instance, Dr. Thomas H. Wilson's research work (which was regional archaeological survey in design), recorded 42 sites between Kiunga in the north on Somalia-Kenya border and the north bank of Tana River and 38 sites between the south bank of the Tana River and Vanga in the south at the Tanzania-Kenya border which are mainly of Swahili ruined town sites and the living historic towns of Pate, Lamu and Mombasa Old Town (Wilson, 1978; 1980). One most important achievement of this work is that it formed the basis for formal protection and conservation of coastal heritage sites by NMK and subsequent archaeological research and heritage management initiatives. Thus, through on-going and/or future research projects, the archaeological material collections have continued to come from other hundreds of previously unknown sites in the immediate coastal hinterland and from submerged areas in Kenya's territorial waters of the Indian Ocean. Apart from the archaeological material, in the storage building there are also geological, faunal and ethnographic material collections and field work tools and equipment (see, e.g., Figures 8, 15 and 16).

Methods

This study gathered data through the use of literature review and observational methods. The data were analyzed by use of matrix tables as described respectively in the following subsections.

Literature Review

Literature review is one of the recommended methods of any scientific research work including the social sciences (see, e.g., Mugenda & Mugenda, 1999:14). In this study the secondary data were gathered through the review of

literature on the existing national legislation and policy for protection and management of movable heritage collections in Kenya and reports of past actions in the collection management in the study area. Two documents were found useful in this investigation: *National Museums and Heritage Act 2006* (Government of Kenya, 2006) and *National Museums of Kenya Collection Management and Conservation Policy* 2008 (National Museums of Kenya, 2008). These legal and policy documents were publicly available and accessible to any member of the public including their use for this research work. Another source of secondary data was the *Report on Re-organization of Archaeological Storage Room* (Namunaba, 2007). This work provides information on the condition of the coastal archaeological storage room before 2007 and strategies that were put in place to improve collection management in the study area.

Observation

The observational method of data collection in the social sciences involves the investigator sensing and recording the observations about the phenomenon being studied. This study adopted the direct observation to gather primary data about the coastal archaeological storage building and collection. This involved recording of the status of the archaeological storage and the collection as it was in the natural setting (Frankfort-Nachmias & Nachmias, 1996:206; Mugenda & Mugenda, 1999:169). The unit of observation and analysis was the archaeological storage building and the collection contained it. The digital camera was used to record the observed condition of the storage building, as well as the material collections as they were at the time of this study. The coastal archaeological storage room holds vast collection of varied material types ranging from archaeological local pottery, imported ceramics, palaeontological objects, floral and faunal, charcoal, soil and geological samples to complete size ethnographic pots, and faunal objects (Table 1). In this work the estimate of material counts in the collection and material samples exported out of study area and/or the country was determined (Table 2). This study method is justified since the observation of the archaeological storage and collection required non-verbal responses.

Data Analysis

The estimate of the material collections held at coastal archaeological storage and other storages at Marine Conservation Laboratory (in side Fort Jesus), Gede National Monument and Lamu Museum was determined from physical object counts and data contained in field excavation notes and reports. Similarly, the count of material samples exported from the study area and/ or the country was determined from the Material Transfer Agreement (MTA) forms and presented in matrix tables. Table 1 below shows the estimated material collection holding at Coastal Archaeological Storage room and other heritage centers in the region such as Gede and Lamu Fort National Monuments. In Table 2 are the estimated collection material samples exported from the study area and/or out of the country for specialized laboratory analyses by the NMK affiliated researchers from various local and international research organizations.

Table 1: Estimated count of movable heritage collection at coastal Kenya Repository Centers

S/No.	Material/ Object Type	Site of Origin	Storage Method	Object Count	Storage Location	Preservation Condition
1	Pottery of east African origin/ Local undiagnostic bodies	Coastal land archaeological site Ungwana, Lower Tana	Wooden trays 200	40,000	Caves/ military bunkers at Fort Jesus	Stacked in humid Environment.
2	Local Pottery undiagnostic bodies	Coastal land archaeological site Mambrui/Khatibu Mosque, Malindi town	Garny bags stacked upon one another	12 pick-up tracks	Gede National Monument	Dilapidated storage room.
3	Local Pottery diagnostic bodies, rims, necks and bases	Coastal land archaeological sites	Wooden trays 786, Boxes 78 Plastic cases 70 Garny bags 28	183,040	Storage Room Fort Jesus	Metal, wooden supports/ shelves. Obstructed access to stored objects.
4	Imported ceramics: Chinese, Islamic, Indian and European origins	Coastal land archaeological site	Wooden trays, Study cabinet	20,886	Storage Room Fort Jesus	Good condition Dust and humidity
5	Bottles/ glass pieces	Coastal land archaeological site	Boxes	379	Storage Room Fort Jesus	Good condition.
6	Beads	Coastal land archaeological site	Wooden cabinets with drawers	37,606	Storage Room Fort Jesus	Good condition.
7	Lithic/ geological samples	Coastal land archaeological site	Wooden trays/ Plastic bags	19,123	Storage Room Fort Jesus	Dust accumulation.
8	Human skeletons	Coastal land archaeological site	Wooden Cupboard	6	Storage Room Fort Jesus	Good condition. Lack soft padding/ cushioning material.

S/No.	Material/ Object Type	Site of Origin	Storage Method	Object Count	Storage Location	Preservation Condition
9	Charcoal samples	Coastal land archaeological site	Plastic Packs	130	Storage Room Fort Jesus	Good condition.
10	Iron slag	Coastal land archaeological site	Plastic bags	238	Storage Room/ Caves	Good condition/ humid condition in caves.
11	Metal objects	Coastal land archaeological site	Plastic bags	218	Storage Room	Good condition.
12	Soil samples	Coastal land archaeological site	Plastic bags	235	Storage Room	Good condition.
13	Coprolite samples	Coastal land archaeological site	Plastic bags	16	Storage Room	Good condition.
14	Shells samples	Coastal land archaeological site	Wooden Trays/ Plastic bags	993	Storage Room	Good condition.
15	Complete Pots/ Jars	Ethnographic Coastal communities /Orme-Smith collection	On floor surface	62	Storage Room	Good condition.
16	Water Jars	Ethnographic/ Orme-Smith collection	Exhibition	15	Gede Museum	Good condition.
17	Whale skeleton	Ethnographic	Exhibition	-	Fort Jesus Courtyard	Good condition.
18	Whale vertebrae	Ethnographic	Wooden shelves	-	Storage Room	Good condition.
19	Bovid Bone	Ethnographic/ archaeological	Wooden Shelves	-	Storage Room	Good condition
20	Animal bone assemblage	Coastal land archaeological site	Wooden Trays 339 Plastic cases 14	-	Storage Room	Good condition. Dust accumulation.

S/No.	Material/ Object Type	Site of Origin	Storage Method	Object Count	Storage Location	Preservation Condition
21	Small/medium sized animal bone	Coastal land archaeological site	Boxes 24	-	Storage Room	Good condition.
22	Santa Antonio de Tanna (Mombasa wreck) collection	Underwater wreck site Tudor Channel, Mombasa	Specialized storage	-	Marine Conservation Laboratory	Complete large sized objects. Good condition.
23	Ngomeni wreck collection	Underwater wreck site Ngomeni, Malindi	Specialized Storage	-	Marine Conservation Laboratory	Complete large sized objects. Good condition.

Table 2: Exported archaeological material samples from Coastal Kenya Repository 2007-2015

S/No.	Material Type	Site of Origin	Purpose of Export	Researcher/ Exporter	Institution of Affiliation	Material Count/ Quantity	Date/Year Exported
1	Shell, Lithics, beads, workedbone	Panga ya Saidi Panga Ya Mzigo Panga ya Mwandzumari (Kilifi county)	Residue, microscopic wear, isotopic, paleo-environmental analyses, species identification.	Dr. Ceri Ben Shipton, Research Permit NCST/P/15/7427/5051	McDonald Institute for Archaeological Research, University of Cambridge	170 samples	28/08/2015
2	Faunal Samples	Manda, Shanga (Lamu County)	Chemical and elemental analysis, carbon dating.	Prof. Chapurukha Makokha Kusimba, Research Permit NCST/5/002/E/543	Field Museum of Natural History, Chicago, USA.	108 samples	01/02/2013
3	Wood Samples	Ras Ngomeni Shipwreck. (Kilifi County)	Scientific analysis and Dating	Mr. Ao Jie (Sino-Kenya project)	National Museum of China, Beijing	17 samples	08/01/2013

S/No.	Material Type	Site of Origin	Purpose of Export	Researcher/ Exporter	Institution of Affiliation	Material Count/ Quantity	Date/Year Exported
4	Pottery sherds, soil samples, iron slug, Carbon, bones	Mambrui, Malindi (Kilifi County)	Radio carbon dating, determine smelting, identification of ancient plants remains	Prof. Qin Dashu (Sino-Kenya project)	School of Archaeology and Museology, Peking University, China.	611 samples	16/09/2012
5	Faunal samples	Panga Ya Saidi, Mwandzumari and Mzigo, Kilifi County.	Further analysis	Dr. Mary E. Prendergast (SEA LINKs project: Bridging continents across the Sea), Research Permit NCST/RR1/12/1/ SS/541/3	Department of Sociology and Anthropology, St Louis University, Spain	20 samples	04/05/2012
6	Fossil wood samples.	Mwaluganje and Shimba Hills (Kwale County)	Palaeo-botanic analysis	Prof. Michael Boppre	Forstzol Institute, University of Freiberg, Germany	7 samples	28/03/2012
7	Beads, pottery copper, worked bone, flotation samples, seeds, charcoal, sediment samples	Kauma and Jibana Sites. (Kilifi County)	Microscopic residue, Technological analysis.	Dr. Richard Helm (SEA LINKs project), Research Permit NCST/RR1/12/1/ SS/541/3	Research Laboratory for Archaeology and History of Art, University of Oxford	408 samples	30/08/2011
8	Rodent bones	Siniseme cave, Mgombani and Panga ya Saidi.	Geometric morphometric, Genetic analyses	Dr. Heidi Eager (SEA LINKS project),	Research Laboratory for Archaeology and	733 samples	24/08/2011

S/No.	Material Type	Site of Origin	Purpose of Export	Researcher/ Exporter	Institution of Affiliation	Material Count/ Quantity	Date/Year Exported
		(Kilifi County)	and Radio carbon dating	Research Permit NCST/RR1/12/1/ SS/541/3	History of art, University of Oxford.		
9	Pottery sherds	Mambrui Site. (Kilifi county)	Expert review and academic work	Mr. Caesar Bita (AAN project)	NMK/ University of Dar-es- Salaam	130 samples	30/03/2011
10	Pottery sherds	Ganda site. (Kilifi county)	Expert review and academic work	Ms. Sarah Mchombo, (AAN project)	University of Dar - Es- Salaam	58 samples	09/03/2011
11	Glass, charcoal, pottery sherds.	Gede, Mtwapa, Kaya Bate, Mbui) Kilifi County	Scientific Physical, chemical, Elemental and dating analysis.	Prof. Chapuruka Kusimba, Research Permit NCST/5/002/E/543	Field Museum of Natural History, Chicago, USA	65 samples	12/08/2011
12	Pottery, flaked stone tools, soil samples, floatation samples, beads, copper, glass, marine shell, Asian rat bone.	Panga ya Saidi, Siniseme cave, Mgombani (Kilifi County)	Microscopic starch, phytolith analysis, charred plant remains, carbon dating, taxonomic identification, provenance anaylsis, genetic analysis.	Dr. Richard Helm (SEA LINKs project), Research Permit NCST/RR1/12/1/ SS/541/3	Research Laboratory for Archaeology and History of art, University of Oxford	487 samples	16/09/2010
13	Faunal samples	Mtwapa site (Kilifi County)	Chemical and elemental analysis	Prof. Chapurukha Kusimba, Research Permit	Field Museum of Natural History, Chicago, USA	126 samples	22/03/2010

S/No.	Material Type	Site of Origin	Purpose of Export	Researcher/ Exporter	Institution of Affiliation	Material Count/ Quantity	Date/Year Exported
				NCST/5/002/E/543			
14	Goniastrea and porites samples	Shanga, Takwa, Ungwana and Mnarani site (Lamu /Kilifi Counties)	Geochemical analysis	Dr. Jen Zinke Research Permit NCST/RRI/12/1/BS/210	Royal Netherlands Institute for Sea Research, Marine Geology Department.	25 samples	15/11/2010
15	Fish skeleton, Coral samples	Vumba Kuu Mosque. (Kwale County)	Species identification, Coral health analysis	Ms. Erendira Quintana Morales ‘ Research Permit NCST/5/002/R/363	University of Bristol	8 samples	12/06/2009
16	Faunal samples	Shanga , Mtwapa sites (Lamu/ Kilifi Counties)	Ancient DNA analysis	Prof. Chapurukha Makokha Kusimba Research Permit NCST/5/002/E/543	Field Museum of Natural History, Chicago USA.	15 samples	22/02/2009
17	Flotation samples (plant fossils), Iron slug	Vumba kuu (Kwale County)	Preliminary analysis	Dr. Stephanie Wynne-Jones, Research Permit MOST 13/001/37C466	BIEA Nairobi/ United Kingdom	23 samples	12/02/2009
18	Grindstone, lithic, shell, glass, faunal	Koromio, Makoroboi, Amwathoya/ Vitengeni site	Species identification, skeletal part,	Ms. Lydia Lee Ann Wilson, Research Permit	University of Virginia/ Simon Frazer University, Canada	25samples	February 2008

S/No.	Material Type	Site of Origin	Purpose of Export	Researcher/ Exporter	Institution of Affiliation	Material Count/ Quantity	Date/Year Exported
	remains, beads, pottery samples	(Kilifi County)	measurement of dimensions	MOST 13/001/37C359			
19	Pottery, resin, charcoal, iron slug, quartz, clay daub samples	Shimba Hills (Kwale County)	Fabric analysis, Carbon dating	Mr. Jambo Haro (AAN Project)	NMK/ University of Dar-es-Salaam	327 samples	20/02/2007

Acronyms used in the Table 2

S/NO. Serial Number

AAN African Archaeology Network

DNA Deoxyribonucleic Acid

MOST Ministry of Science and Technology

NCST National Council for Science and Technology

NMK National Museums of Kenya

USA United States of America

Results

Legislation on movable heritage collection management

This section presents the findings gathered from the literature review of the existing national legislation and policy that regulate conservation and management of movable heritage collections. It covers the national heritage legislation, collection management and conservation policy respectively and National Museums of Kenya research policy.

Kenya's National Heritage Legislation

First, Kenya's national heritage is protected by *National Museums and Heritage Act 2006* (Government of Kenya, 2006). The archaeological collection together with their sites of origin or where they are found *in situ* both on the surface and in buried or submerged state, constitute one aspect of protected heritage resource known as *antiquities*. Part I (preliminary section) of this legislation defines an antiquity as: "any movable object other than a book or document made in or imported into Kenya before the year1895. It also means any human, faunal or floral remains of similar minimum age which may exist in Kenya (Section 2, Government of Kenya, 2006). The statute designates movable archaeological heritage resource as a sub-category of antiquities as follows: "object of *archaeological* or palaeontological interest means an antiquity which was in existence *in Kenya* (emphasis ours) before the year 1800…object of historical, cultural or scientific interest means an object which came into existence in or after the year 1800 (ibid.).

In contrast to the existing misunderstanding in practice that ascribe ownership of movable archaeological collection to individual researchers or to the staff of Earth Sciences Department and Archaeology Sections, the law puts it clearly that: "all *antiquities* (emphasis ours) which are lying in or under the ground, or on the surface of land already protected under any law as a monument or *being objects of archaeological*, palaeontological or cultural interest is discovered in Kenya… *shall be the property of the Government* (ibid.). In addition, the legislation regulates possession of antiquities by private individuals or groups, as well as activities directed at them which must be conducted under research permit and/or exploration license from Minister (Cabinet Secretary) in charge of national heritage. For instance, the Act states that: "A person shall, if so required in writing by National Museums, within such period, not being less than one month as may be specified by the notice, furnish the National Museums with particulars of all objects in the person's possession which the person knows or has reason to believe to be antiquities or protected objects (ibid., section 46). Further, the very statute establishes National Museums of Kenya as the national repository centers in the country for antiquities and other classes of movable heritage material. It states that: "The National Museums shall serve as national repositories for things of scientific, cultural, technological and human interest…" (ibid., section 47). Clearly, all activities directed at archaeological heritage, such as research at the site and in the laboratory, as well as ownership of the resource itself is the monopoly of the government. In this regard, the National Museums of Kenya is the custodian of such heritage collections on behalf of the Government of Kenya.

Collection Management and Conservation Policy

Second, Kenya's movable heritage collection is regulated by the Collection Management and Conservation (CMC) policy 2008 (National Museums of Kenya, 2008). It provides the policy

guidelines relating to the scope and use of NMK collections and includes the collection management activities such as regulating the new acquisitions, accessioning, de-accessioning and disposal, loans and exhibits. The guidelines require that each collecting NMK department/ section puts in place its own collection management and conservation policy at least after every three years. The Director of National Repository and Research (DNRR) enforces the CMC policies through Registrar of Collections, Collection Managers and other staff with responsibility in the area of collections. The policy establishes nine types of collections at the NMK repository centers. These include natural history collections (i.e. botanical and zoological specimens); palynological specimens (i.e. modern and prehistoric pollen, phytoliths and palaeosols); geological collections (i.e. rock, mineral and soil samples); archaeological collections (i.e. artifacts, ecofacts, and *in situ* features/ structures); palaeontological collections (i.e. fossils, casts and *in situ* specimens at site museums); ethnographic collection (i.e. objects from historical/ethnographic or living cultures); library collection (i.e. books, journals, reprints and government records); archival collections (i.e. NMK current and closed records) and audio-visual and digital materials. It further establishes four categories of collections: exhibit quality, study, education and type material collections.

Furthermore, the CMC policy provides guidelines for what is considered as 'collection management activities' within NMK. These include documentation where the collection manager maintains the accession, de-accession, loan records, insurance records and minutes of all collection management meetings. The master collections management file (a restricted document) which must be kept in the office of Registrar of Collections. The second collection management activity is acquisition of collections. The acquisition methods of NMK's collections are varied and range from field collecting (which is the main), to bequests, purchase, exchange and gifts. The decision to acquire the collection is influenced by: nature and quality of the specimen, availability of complete data/ proper labeling, identifiable quality, must be obtained legally with clear provenience, ample material of individual specimen and availability of resources to make purchases/ manage the collection. The CMC policy lays down guidelines for other collection management activities such as: de-accessioning and disposal, access (for research and public appreciation), care and maintenance, risk management, security, inventory, temporary custody and lending and borrowing (out-going/in-coming loans), insurance (for out-going and in-coming loans), reproductions and publications and handling of collections.

Lastly, CMC provides guidelines for conservation of collections within NMK. Conservation is defined as a profession that deals with the stabilization and restoration of collection/object with the aim of caring for object/specimen so as to maintain it as much as possible in its current condition. Conservation can be preventive (or passive conservation), it can also be remedial/ active (also known as conservation treatment). The office of Chief Conservator of collections is established by the NMK Board of Directors under conservation policy who is responsible for conservation of all the NMK collections and works closely with Collection Managers and conservators in all the collecting departments/sections. The conservation policy in addition provides guidelines for conservation plans, preventive conservation activities, conservation treatment (stabilization and restoration), documentation of the conservation treatments, disaster preparedness and production of casts. The CMC in Appendix 1 and 2 respectively, there are further guidelines on how each of the NMK collecting departments/sections can develop their

own collection management and conservation policies. However, Coastal Archaeology as a collecting department/section at Fort Jesus does not have its own archaeological collection management and conservation policy.

National Museums of Kenya Research Policy

The third policy document is the National Museums of Kenya Research Policy 2010. According to this policy the function of managing and conserving the NMK collections is vested in the Directorate of National Repository and Research (DNRR). This directorate was formerly known as Directorate of Research and Collections (DRC). The research policy states that: "National Museums of Kenya shall serve as a national center of heritage for the repository of materials that are of scientific, cultural, technological and human interest" (Preamble, National Museums of Kenya, 2010).

The Re-organization of the coastal archaeological storage: 2006 and 2009 period

The existing literature shows that Coastal Archaeology (NMK) put in place some initiatives between January of 2006 and January 2007 (one year's work plan), that sought to revamp the coastal archaeological storage. This was about a decade and half ago. According to Namunaba (2007), before the re-organization of the storage room, the collection was stored in both wooden and metallic shelves and trays, plastic bags and cartons. The system of shelving and labeling the collection was not uniform. Some collections were mixed due to decay of packaging material. Before attempts at re-organization, the archaeological storage room contained archaeological, palaeontological, osteological and ethnographical material (Table 1). The packaging, accessioning, cataloguing system of the collection was haphazard. There were 30 shelves (8 wooden and 21metallic) that needed repair. More than half of the storage space contained archaeological material from Ungwana site in Tana River County (excavated by George Abungu in 1986/1987). The storage had poor lighting and ventilation system. The wooden shelves were sagging under the weight of sacks full of potsherds and bones. The geological and soil material samples were stashed in shelves without any order. Further, cartons were the main packaging material for the collections and coastal archaeology staff did not have the safety tools and equipment. Furthermore, there was not any fire-fighting equipment such as fire extinguishers (Namunaba, 2007:3). With the financial and logistical support from the Programme for Museum Development in Africa (PMDA) and Institute of Research Development (IRD) project, the re-organization of the storage sought: to improve working environment in storage room, introduce strategies for proper collection management, re-structure the shelving system for ease of access and retrieval of the collection and develop a Database Management System to manage archaeological data. The main achievements of this project were: polishing and painting 12 metal shelves, repair of 185 wooden trays, purchase of 25 plastic containers/trays, 679 trays were packed with collections and labeled on basis of site of origin of the collection they contained (Figures 7 & 9). The Electronic Database Management System (DBMS) was also established, however, computer with high capacity storage is still needed for its optimal performance.

The development of Coastal Archaeological Storage in the Post 2009 Period

In 2013, the Old Law Courts building, along Nkrumah Road (a national monument declared in 1985), which for many years had hosted Coastal

Archaeology Department and Centre for Heritage Development in Africa (CHDA) offices and archaeological collection storages, was repossessed by the National Judiciary through the recommendation by the Parliamentary Justice and Legal Affairs Committee. While executing the court order requiring the NMK to vacate the said premises, the archaeological material collection from the storage at Old Law Courts, was so roughly handled during their removal by the Judiciary personnel that it got jumbled up before it was temporarily stored in the coral caves behind Fort Jesus (see, Figures 18, 19 & 20). (Figure 19 below illustrates some archaeological material collections still stored in coral cave at the time of this study.) The other portion of archaeological collection (mainly local body sherds excavated from Ungwana), that had been stored in the Portuguese military bunker in 2006/ 2007, was on 30th of August 2016 removed by a contractor to Jumba Ruins National Monument, to ostensibly pave the way for clearing and presenting the bunkers to the public and for tourism. The mentioned Portuguese bunker illustrated in Figure 17, is located south of Fort Jesus on Swahili Cultural Centre compound. In conclusion, there have been no other major improvements on the coastal archaeological storage building since 2009 except for small-scale works, such as piece-meal repair of roof and clearance of vegetation around the building, with support of the Office of the Principal Curator of Fort Jesus Mombasa WHS.

The Current condition of Coastal Archaeological storage building and collections

The Coastal Archaeological storage building is an 'L' shaped, stone and corrugated iron sheet structure (Figure 3). It measures 26m long (along the northern side), and on the eastern span is 12m, while the western span measures 17 m. The southern projecting part includes the entrance (door) and the partitioned section used as drawing room and laboratory, measuring 5 x11m (55 sq. m). The material collection storage area measures 12 x 26m (312 sq.m). The building has four windows on the northern side, three on the western side and three windows and a door on the southern side. All windows except one on the drawing room (southern side) are permanently fixed and without shutters which means dust, wind and dirt can get into the storage without any form of control (Figures 3, 4 & 6).

The observation of the archaeological storage building from outside of the northern side found that the roof fascia board was broken at three points (see e.g., Figures 5 & 6). The corrugated iron sheets were not only rusty and sagging, but also debilitated and caused leakage during rainfall. The hedge behind the storage building was overgrown and dropped a lot of dead foliage on the roof of the building (Figure 3). This vegetation also supported breeding of mosquitoes within the archaeological storage precincts (Figures 5, 6 & 21). Some bone and pottery material that previously were among the collection, as well as old iron sheets and rubble were dumped in this area of the storage building following the previous repair works (see e.g., Figure 21). On the western side, the fascia board was weakened and broken at one point. On the east and south side of the building, tree seedlings and used sockets were visible scattered on the ground. While on the southern side, the fascia board was relatively stable following recent repair works. Thick sheet of decaying foliage covered the roof of the building. The electricity main power supply line passed slightly above the roof the storage building (see, Figure 4).

Second, inside the archaeological storage room are stored material samples collected from sites of the coastal region of Kenya. The main acquisition method at Coastal Archaeology is through research (i.e. field collecting through excavation and ethnography etc.). The material

collections range from predominantly local pottery (east African origin), the imported ceramics, beads, soil and geological samples, to non-archaeological faunal assemblage (see, e.g., Table1). Out of these the archaeological material samples alone account for over 40,000 in count. While the samples exported from the study area or out of the country total over 3400 in count (see Table 2). As illustrated in Figures 10, 11 & 12, inside the storage room the roof and ceiling at some places were debilitated and prone to leakeages during the rainfall. This caused considerable proportion of the collection to get drenched in rain water. Although metallic and wooden shelves were acquired in 2006/2007, they appear to have been poorly made, as some are sagged and waney while the drawers are weak and seem to break easily (Figures 7 & 9). Termites were also observed to ravage the storage wooden fixtures and the shelves (see Figure 14). It is recommended that repair of the roof members (including the new timbers and iron sheets) be made an immediate short term priority. While the construction of Modern Coastal Earth Sciences Laboratory and Storage be made long term priority of NMK.

It was also observed that the storage room apart from housing the archaeological mataerial, it contained both very large sized ethnographic pot collection, on an indefinate loan from the late Mr. Orme-Smith (Figures 8 & 11). There is also the faunal material assemblage, archaeological tools and equipment, including the diving gear sets, air tanks and compressor (Figures 15 & 16). Third, the storage room was poorly ventilated, filled with dust and was very dark without any electricity connection (Figure 13). This makes it impossible for the staff laboratory technician, technologist and local, as well as visiting researchers to work from the storage room. There is need to separate ethnographic, archaeological and oesteological material collections. There is also need to re-install electricity, provide running fresh water and redesign the windows to have shutters. It is recommended that the tools and equipment be separated from the heritage collections. Figures 3 althrough to 21 are illustrated below and followed by the chapter discussing the study findings.

Figure 3: The archaeological storage building located South-West of Fort Jesus. Notice the dry foliage on the roof of the building. Photo by Stephen Okoko.

Figure 4: Outside the archaeological storage building. An insulated electricity main power lines slightly above the roof. Photo by Stephen Okoko.

Figure 5: Outside the archaeological storage building. Notice broken fascia board at the northwest the corner. Rehabilitate entire roof structure of the storage building. Photo by Stephen Okoko.

Figure 6: Outside the archaeological storage building. The poorly designed windows impede ventilation and control of dust inside the storage room. The vegetation growth provides ideal environment for mosquito breeding. Photo by Stephen Okoko.

Figure 7: Inside Archaeological Storage Room. The metallic framework and wooden shelves were donated by PMDA/IRD Project in 2006. The metallic framework should be repainted to prevent rusting. Photo by George Ghandi.

Figure 8: Inside Archaeological Storage Room. The polythene sheets were provided by PMDA funding in 2006. Provide adequate padding and polythene material. Photo by Stephen Okoko.

Figure 9: Inside Archaeological Storage Room. The wooden shelves and drawers were poorly made of very weak material. The labels were printed on poor quality paper that can fade easily. Photo by George Ghandi.

Figure 10: Inside Archaeological Storage Room. Notice the derelict condition of the roof structure and ceiling of the building. Revamp the roof and ceiling and replace wooden drawers and shelves with metallic and plastic ones. Photo by Stephen Okoko.

Figure 11: Inside the Archaeological Storage Room. Notice rainwater-drenched surface in the storage room. This endangers the organic material collection. Revamp the roof and separate camping gear from the collection. Photo by George Ghandi.

Figure 12: Inside the Archaeological Storage Room. Notice the damaged shelves and pile of decaying matter resulting from leaking roof and darkness due to poor lighting. Re-install electricity, revamp windows and maintain high standard of cleanliness. Photo by George Ghandi.

Figure 13: Inside the Archaeological Storage Room. Notice the action of termites and dust accumulation on the wall and fixtures. Regular cleaning and inspection is recommended. Photo by Maseno University attachment students of January-April 2021.

Figure 14: Inside Archaeological Storage Room. Notice the termite infestation on the wall which threatens the preservation of the collection in the storage room. Regular pest control measures required. Photo by George Ghandi.

Figure 15: Inside Archaeological Storage Room. Notice the ethnographic pot collection, tools and equipment and debilitated ceiling. Photo by George Ghandi.

Figure 16: Inside Archaeological Storage Room. Notice the mix of the heritage material collection and fieldwork tools and equipment in small space. The latter should be stored separately from heritage collection. Photo by George Ghandi.

Figure 17: Portuguese military bunker located south of Fort Jesus. It housed the archaeological material from Ungwana site until 30th of August 2016 when it was transferred to Jumba Ruins. Photo by Philip Wanyama.

Figure 18: Coral cave in the ditch outside south western side of Fort Jesus. Notice a pile of asbestos which is harmful to human health. The asbestos should be disposed of by licensed handler under supervision of National Environment Management Authority. Photo by Stephen Okoko.

Figure 19: Some archaeological collection still stored in coral cave (Figure 18) outside Fort Jesus. Condition inside the cave is not appropriate for storage of scientific collection. Photo by Stephen Okoko.

Figure 20: Military tunnel cut through coral formation outside Fort Jesus. It can be cleaned and presented to public as part of tour trail around Fort Jesus. Photo by Stephen Okoko.

Figure 21: The osteological collection poorly disposed of behind the archaeological storage building. Coastal Archaeology should develop a policy to guide the disposal of de-accessioned or unusable collection. Photo by Stephen Okoko.

Discussion

One objective of the study was to assess the condition of the coastal archaeological storage building and the collection stored in it. This study has found that one main problem facing the coastal archaeological storage building, is that its roof members are in derelict state, not only due to natural aging, but also due to termite infestation and neglect (Figures 3, 4 & 5). Clearly, the windows of the building structure, were designed in a way that allows entry of dust, humidity and vermins, but cannot allow the internal aeration and ambience, thus the result of this is that in side of the storage room remains dump, dusty and poorly ventilated (Figures 6, 8, 11, 12 & 13). The second problem is the mixing of heritage collections together with fieldwork tools and equipment in the storage room (Figures 15 & 16). This contributes to a situation where some objects cannot be accessed easily because of over-crowding of material collections and other tools/equipment-non-heritage items. In addition, it contributes to the building's lack of storage space to accommodate more shelves to hold the in-coming collections (from current and future) research projects. In fact, the building structure does not even fit to be considered a collections' storage the reason being it is not fire resistant (there is no working fire extinguisher), has poor ventilation and drainage system. The room is very dark because the electricity was disconnected (for unknown reasons). There is not any running fresh water within the precincts of the storage building except for a water tank belonging to Mombasa Butterfly House Project (which is usually purchased from suppliers). The freshwater pipeline that had connected the storage building from the Old Law Courts building, broke down long time ago and this was replaced by salty water

pipeline from Swahili Cultural Centre or National Museums of Kenya Heritage Training Institute (NMKeHTI), which also deteriorated due to corrosion of metallic pipe fixtures. In any case salty water is not recommended for use in the laboratory and the cleaning of heritage collections. Therefore, it can be seen that such conditions of storage room make it difficult to execute heritage collections' management activities, for instance, e.g., internal climate control since windows and vents with large spaces allow free entry of pests and dust as required by NMK CMC policy 2008 (National Museums of Kenya, 2008). Some of the problems related with storage room fixtures, for instance, the poor condition of shelves and drawers was noted in 2007 by David Otieno, in his PhD research (which partly investigated coastal archaeological storage as a case study). Mr. Otieno, an archaeologist, made an observation that although wooden shelves and drawers were provided in coastal archaeological storage, most of them were poorly designed and made of soft wood that broke easily (Otieno, 2013). This problem has never been rectified mainly due to the institution's financial constraints. It is high time that we began to re-examine the quality of the fixtures in our heritage storage rooms.

The second objective of this study was to make recommendation for the improvement of the condition of storage and collection. The study shows unequivocally that a great deal of improvement should be done on the coastal archaeological storage building and the collection management actions if we have to secure the future of this vast heritage collection. On basis of NMK CMC policy 2008 and the global best practices of heritage collection management, the building that permanently stores the collection, must provide at minimum, some form of physical security, climate control, fire suppression and collection monitoring. The surroundings must guard against agents of damage and deterioration, such as pollution, vermin and pest infestation and theft through human agency. There must be a comprehensive policy on how to maintain the storage room and building. This means that there must be policies for the management of this facility with trained personnel being responsible for the regular management, cleaning, inspection and maintenance. The existing NMK's CMC policy 2008, as already mentioned, is a good document for enhancing the management of collections. Nevertheless, it appears more inclined towards the collecting departments/sections that have proper staff capability, such as well-trained collections' managers and conservators. Those collecting departments/sections located in the regions like Fort Jesus, Gede and Lamu, are disadvantaged since they are left to develop their own CMC policies. One salient question that comes to mind: do all NMK regional collecting centers have personnel with requisite technical skills of developing CMC policies? From this study we have learnt that Coastal Archaeology does not have its own collection management and conservation policy at present as required by NMK CMC policy. This may be so because since June 2009, when the then substantive collections manager, Mr. Ibrahim Busolo Namunaba resigned from NMK and took up lectureship at Pwani University, we have not had his replacement. Also, as from December 2015, a curator of coastal archaeological collections, Mr. Mohamed Mchulla retired from service and has also not been replaced. The current two technical staff responsible for collections that consist of: laboratory technologist and laboratory technician, who in our view may not be technically capable of developing a CMC policy. (If they should, such personnel need some higher level training and even upward job grading to enable them to competently execute the collection management and conservation function.) This explains why there were numerous collection management activities before 2009 as compared to the present

period. The CMC policy 2008 can further be critiqued on basis that it is only concerned with the collections and does not address how the buildings in which these collections are stored should be designed and managed. This is quite significant point to be put into consideration because most of the storages in the region (Fort Jesus, Gede and Lamu) were not originally planned and built as heritage collection storages.

Further, the appropriate strategies for preventive conservation of the collections within the storage must also be put in place, for example: cleaning, temperature and relative humidity monitoring, survey programs to assess the needs of the collections, fire prevention measures, collections accessibility, security, pest control programs and emergency programs for disasters among others. It should also include training programs for staff working in the collections storage on matters like handling of collections, pest detection, hygiene and security. The archaeological storage should be organized to ensure maximum space utilization. This is only achievable by ensuring that objects are stored correctly and in the right fixtures like trays for small objects and pellets for large ones. This, apart from maximizing space can help especially when planning for the future expansion of the collections. The selection of storage fixtures and materials for their construction also should be done wisely. If anything, the materials used should guard objects against atmospheric pollutants. Storage fixtures should be selected well to protect objects against pest, unsuitable relative humidity, pollution, light, dust and fire. They should facilitate easy access to collections for examination and inspection during stock-taking. The storage must also have a good documentation system, which allows easy location of the objects.

Furthermore, the issue of shrinking storage space for coastal archaeological collections has been a major problem since early 2000s. The literature reviewed demonstrates that in 2006 for instance, about a half of the coastal archaeological storage space was occupied by finds from only one site (Ungwana site, in Tana River County) and most of the assemblage consisted of mostly body sherds which were later moved to Portuguese military bunker to create space in storage room (Namunaba, 2007). Also, in 2005 Mr. Athman Lali Omar, then out-going Head of Coastal Archaeology, pointed out that there was limited storage space for collections both at Fort Jesus and Lamu as there were 'tons of unused pottery body sherds particularly from Ungwana and Shanga' for which he recommended their removal back to their sites of origin for reburial in their contexts (Omar, 2005). It can also be remembered that, on 30th of August 2016, following the NMK's desire to open the Portuguese bunker to public, the Ungwana local pottery body sherd collection was hurriedly moved to Jumba La Mtwana Ruins. In our view, storage of archaeological collections in coral caves and bunkers (as shown in Figures 17, 18 & 19), is tantamount to keeping the material under inappropriate conditions which is unprofessional. It is also our view that such 'back-and-forth' movements of archaeological collections may cause damage to the collections. Thus there is an urgent need for a comprehensive policy on how such material should be returned to their sites of origin for reburial. Such a decision must be preceded by a discussion involving the NMK Director General, Director of National Repository and Research, Registrar of Collections, Collections Manager, Heads of Section/department, researchers of Coastal Archaeology and the principal investigators of the research projects that deposited the collections in question.

Finally, the current material collections holding in the coastal archaeological storage (as shown in Table 1) and the collection samples exported from the study area (as shown in Table 2) above is very vast. The literature reviewed in this study

has shown that archaeological collection (antiquities) is a significant protected national heritage resource and property of Government, as per the provisions of Kenya's national heritage legislation which deserves similar care and attention like the immovable national heritage assets such as monuments and sites (Government of Kenya, 2006). It is not the property of the archaeologist, anthropologist or palaeontologist who excavated it, as is most often erroneously thought. Also, it is noted from literature on formal policies and legislation that collection management is one of the main functions of NMK with a dedicated Directorate of National Repository and Research (DNRR), formerly Directorate of Research and Collections (DRC), to carry out this mandate (Government of Kenya, 2006; National Museums of Kenya, 2010). Therefore, improvement of coastal archaeological collection repository should be given priority in NMK's budgetary allocations.

In conclusion, the usefulness of scientifically acquired coastal archaeological collections that is well managed under appropriate conditions cannot be over-emphasized. One example of why research collections should be properly managed is demonstrated by Freda M'Mbogori's PhD research work between 2005 and 2011on *Population and Ceramic Traditions 7th-14th Century A.D*, which utilized coastal archaeological local pottery collection from Manda Island site (excavated by Neville Chittick in 1966/1980s); Ungwana site (excavated by George Abungu in 1986/1987) and Shanga (excavated by Mark Horton in late 1980s). This enabled her to investigate and make conclusions on the debate concerning the origins of the coastal Tana Ware (Kwale Ware or Triangular Incised Ware) pottery tradition (M'Mbogori, 2011). In the early 2010s there was a resurgence of research interests in the archaeology of coastal Kenya region targeting excavated collections. Mr. Seth M.N. Priestman, research fellow at British Museum/ University of Southamptom under the project title: '*Early Islamic Maritime trade between the Gulf and East Africa: a review of the ceramic evidence from Manda and Shanga*' revisited the Manda and Shanga excavated material stored in coastal archaeological storage at Lamu Fort. Similarly, Ms. Erendira Quintana Morales under title*: 'Relating Fish consumption to Climate Change using architecture of the Swahili coast'* sought to study the excavated coral samples in Lamu and from ruined Swahili buildings. The last example is by Mr. David Maina Muthegethi's PhD research project: *Rethinking materiality in social identities: archaeological perspective of Thimlich Ohinga and Gedi from 1000- 1900 CE*. This research project is (currently on-going) and involve partly studying the coastal archaeological collection excavated at Gede national monument in the late 1990s and early 2000s. Lastly, students from local universities have more often visited and used storage and collections, as their learning resource. Thus, coastal archaeological storage is a facility that should be improved to safeguard the future of the material collections contained in it.

Conclusions and Recommendations

Conclusions

This study sought to assess the physical condition of the coastal archaeological storage building and the archaeological collections in it and to make recommendations for its improvement. The coastal archaeological storage at Fort Jesus Mombasa WHS, is among the two major archaeological repository centers in the coastal Kenya region. Country-wide, this storage is ranked second after the Earth Sciences Laboratories (housing archaeological and palaeontological collections), at Louis Leakey Memorial Building, NMK headquarters in Nairobi. From physical observation made in this study the roof of the building was in derelict

condition with rusty iron sheets with holes and prone to leakages. Some of the main timbers supporting the roof and fascia board outside were partly rotten and broken. Inside the storage room the ceiling board was decaying and appeared falling off at most of places. The outside of the building was overgrown with vegetation especially the hedge which is conducive for mosquito breeding. Inside the storage room there was vast collection of heritage material including archaeological pottery sherds, geological and soil samples, osteological and ethnographical complete size pot and bowl assemblages and tools and equipment (Table 1). The collections are threatened by dampness (leakage of the roof), dust, termite infestation, poor ventilation and inadequate lighting. The Kenya's national heritage legislation establishes NMK as a corporate body which acts as the national repository centers for things of scientific, technological and human interests (these include archaeological, palaeontological, geological and historical collections among others). Also, the archaeological and palaeontological collections (antiquities) wherever they are located, and whether known or unknown to NMK are considered to be the government property (Government of Kenya, 2006). This is contrary to non-professional, but common knowledge within and without NMK that erroneously links ownership of such items to individual archaeologists and anthropologists whose research projects deposited the material after fieldwork. NMK CMC policy 2008 provides guidelines on how various collections should be managed and conserved in the repositories in the country, although it allows each NMK collecting department/section to formulate own collection management and conservation policies. However, Coastal Archaeology does not have such a 'written' and approved collection management and conservation policy. This can be attributed to lack of a collections manager responsible for collection management in the department. The existing personnel comprising of a laboratory technologist and laboratory technician, do not have capabilities of developing such a policy. Besides, the current NMK research policy 2010 situates the function of archaeological collections management and conservation in the Earth Sciences Department within the Directorate of National Repository and Research. This means collection management is one of the most important core functions of NMK. In the period 2005-2007, Coastal Archaeology recorded numerous collection management activities including reorganization of the storage room through acquisition of drawers, shelves and trays, de-congesting the storage area by removal of unusable local pottery sherds and repainting of metallic shelves etc. This was possible because of the availability of a substantive collections' manager who resigned in June 2009 and has never been replaced. From 2009 up to the present very little activity on collections management was done except for small scale repairs of roof leakages and removal of some pottery sherd collection from the Portuguese military bunker to Jumba Ruins. Therefore, Coastal Archaeology and NMK should make deliberate efforts towards revamping the coastal archaeological storage building in order to safeguard the future of this vast heritage collection.

Recommendations

On basis of the study findings presented and discussed above the following recommendations if effected will improve the management and conservation of archaeological collections at Coastal Archaeology Department. These include:

(1) The Head of Coastal Archaeology to arrange for the total overhaul of the storage roof and have it repaired. It will involve purchase of timber for roofing and ceiling, galvanized corrugated iron sheets. The windows ought to be revamped. The

walls of building both inside and outside should be repainted and re-installed in the storage room. In addition, adequate fresh water fresh water to the storage room is provided. The fresh water can be harvested from the revamped roof meaning a suitable plastic water tank and some pipes and gutters will be procured. It can also involve seeking connection to Ministry of Water pipeline. Some feasibility ought to be done to determine appropriate budget.

(2) The lighting and fixtures such as side benches drawing tables in the laboratory section and office in the storage building should be repaired to enable researchers and technicians handling the collections to work from the storage.

(3) Coastal Archaeology should create a separate storage area for tools and equipment away from the heritage collections. An extension of the current storage building can be made to serve this purpose.

(4) Coastal Archaeology to ensure regular cleaning, inspection and monitoring of the collection inside the storage room. This should involve re-organizing the material according types into sections e.g., archaeological finds, geological, oesteological, ethnographic finds sections etc. Provision of High Capacity Computer system to host collection databases following guidelines of Registrar of Collections is required. The collection technologist should undergo some training in collection management activities at NMK headquarters in Nairobi under Registrar of Collections. He can bring back the skills and train others and work to improve collection management activities at Coastal Archaeology.

(5) The Head of Coastal Archaeology in consultation with DNRR, Collections Registrar and Head of Earth Sciences Department, arrange for the development of Collection Management and Conservation policy for Coastal Archaeology. This means there should be a substantive Collections Manager who ought to be appointed to spearhead this work. Current laboratory technologist and technician need to be trained on how to execute collections management activities following guidelines of NMK CMC policy 2008.

(6) Coastal Archaeology should ensure regular maintenance of the cleanliness within the precincts of coastal archaeological storage building through pruning of the hedge and clearing the vegetation and dirt outside the storage building. Anti-mosquito spraying in the surrounding and inside the storage room may be required as well.

(7) The Head of Coastal Archaeology should make arrangements with NMK management and researchers who were responsible for excavations at Shanga, Ungwana, Mambrui (Sino-Kenya Project) and skeleton bones from Kijipwa for return and reburial of the unusable collection to de-congest the storage room.

(8) The asbestos (as shown in Figure 18) are known to cause lung cancer among other diseases in humans. Its disposal is controlled by National Environment Management Authority under the Asbestos Disposal Guidelines. Therefore, necessary steps should be taken by the Principal Curator of Fort Jesus to ensure these asbestos are transported and disposed of at the designated site in Mariakani by a certified asbestos handler.

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