UNIVERSITY OF NAIROBI

AN ARCHAEOLOGICAL STUDY OF SIYU OLD TOWN ON THE NORTH COAST OF KENYA FROM THE 9TH CENTURY UP TO THE 19TH CENTURY AD: AN EXCHANGE SYSTEMS PERSPECTIVE

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university

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DEDICATION

I dedicate this work to God Almighty, my source of wisdom, knowledge and understanding. It required His intervention to slow down and readjust to His pace and time. He has kept His promise and by his hand he has fulfilled as it is today.

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ABSTRACT

This study was an archaeological investigation into the early settlement of the ancient town of Siyu. The objectives of the study were to determine the strategic factors that influenced initial settlements and growth of Siyu, determine the exchange system and resource base, and establish the sequence of occupation at the site. To achieve these objectives, the study employed site survey, excavation and analysis of excavated materials. The findings indicate that abundant marine resources, a navigable creek and emergent sand dunes influenced early settlements at Siyu. The study also established that Siyu did not make her own pottery but procured it through exchange. Local pottery bears Early Iron Ware and Tana Tradition affinities that have been reported elsewhere along the eastern Africa coast. This implies an exchange network that linked Siyu to known centres such as Shanga, Pate and Manda and sites on the mainland. It was also established that Siyu was linked to an international exchange system that brought in imported merchandise such as ceramics, beads, cotton cloth and dates from China, Arabia, India and Europe. These were in exchange for items such as mangrove, ivory and silk. The growth of exchange systems between Siyu and the rest of the world was not limited to exchange of merchandise but exchange of ideas on Islamic faith and sociopolitical order that saw Siyu emerge as a strong city-state. Using archaeological evidence, the study has established four periods of occupation of Siyu between the 9th and 19th century. Mud and thatch houses were predominant during Period I with the introduction of stone houses in the terminal phase. Cattle were brought to Siyu during period II that lasted from the 11th to the 13th century. Period III lasted between the 13th and the 16th century. This was the industrial age that saw Siyu's wealth thrive through her textile industry, masonry and carpentry. Finally, Period IV is the period of decline that is associated with the coming of foreign political powers. Turkey, Portugal and Zanzibar orchestrated the decline of Siyu's political power, wealth and population at the close of the 19th century. In conclusion, the study has met its objectives by determining the factors that influenced early settlements, and the exchange systems that characterized Siyu's economy. Finally, the study has determined the sequence of occupations at Siyu. The study recommends further investigations at the site to provide chronometric dates and locate precise sources of local pottery and other ceramics.

ACRONYMS AND ABBREVATIONS

AAS	Atomic Absorption Spectroscopy
AEZ	Agro-Ecological Zone
DP	Datum point
EIA	Early Iron Age
FMNH	Field Museum of Natural History
GPS	Global Positioning System
IDP-F	Innovation Development Progress Foundation
LAPSSET	Lamu Port-South Sudan-Ethiopia Transport
LOI	Light On Ignition
MNI	Minimum Number of Individuals
NCST	National Council of Science and Technology
NDGM	National Department of Geology and Mines
NISP	Number of Identified Specimens
NMK	National Museums of Kenya
OT	Observation Tower
RAS	Research Affiliation Status
TIW/TT	Triangular Incised Ware/Tana Tradition

CHAPTER ONE

BACKGROUND TO THE STUDY

1.1 Introduction

This chapter provides the background information related to archaeology of early urbanism in Africa and early urbanism in the East African Coastal cities. Synthesis of documentary and archaeological evidence on early urbanism has been useful in identifying the problem statement as well as setting the objectives of this study. This study involved an archaeological investigation of the ancient town of Siyu by employing exchange systems approach in explaining the presence of non-local pottery and other materials at the site. The study utilized archaeological survey, mapping and excavation techniques to collect data for analysis. In this chapter I have explained why it was necessary to conduct the study at this time and site as well as the scope and limitations encountered during the study.

1.2 Early African Cities

Early settlements in Africa may be the least understood of any region in the world (Mabogunje, 1962). First, archaeologically, the African city is poorly known, and well-excavated sequences are few. Second, early documentary evidence of Africa's urban heritage is drawn from travellers such as Ptolemy, al-Bakri, al Yakubi, al-Masudi, Ibn Batuta and an anonymous author of the Periplus of Erythraen Sea (Freeman-Grenville, 1975; Hamdun and King, 1994; Kusimba, 2008). The early documentaries, much as they were valuable sources of information, were not based on any scientific research but notes on observations documented in travellers' personal

diaries and therefore subject to bias. The travellers were more concerned with documenting the urban heritage of the 'other' as a product of foreign influence rather than as a reflection of people's cultural systems. Unfortunately, this view found acceptance in the scientific fraternity since the Victorian era. For instance, Reader (1997, cited in Kusimba, 2008: 229) is convinced that Africa's vastness and a readily travelling population and prevalence of disease prevented it from population growth and the socioeconomic dynamics that would lead to urbanism.

Western historiography has broadly relegated Africa as lacking history and was incapable of developing early urban centres due to climate, soil and isolation (Holl, 2003; Kusimba, 2008: 230). The advent of Islam and Christianity has always been associated with early urbanism in East Africa (Levitzioni, 1988; Stigand, 1913; Holl, 1995; Kusimba, 2008: 230)). Yet according to others like Clark (1962), African abundant resources and gentle climate did not need urbanism to premediate resources as required in cities. Clearly, the environmental determinism argument cannot sustain generalizations about this vast continent and its impressive environmental diversity.

A survey of Africa's most successful state societies such as Ghana, Mali and Songhai, and cities like Timbuktu, Walata, Jenne-Jeno and Gao, reveals how these state societies developed from settlements on or near the inland Niger Delta and the upper and middle zones of the Niger (McIntosh and McIntosh, 1984; Hunwick, 1999; Insoll, 2000; Kusimba, 2008). The region cultivated rice and also participated in interregional trade in gold and salt that dates back to the Roman period. The political complex and urban infrastructure at Jenne-Jeno were in place between 300 and 200

BC (Kusimba, 2008:230). The brief survey shows that Western Sahel was already dotted with cities contemporary to urban centres in Europe and the Indian subcontinent.

In the eastern Africa region, two sets of cities emerged. First, the emergence of hierarchical society and cities like Aksum and Adulis is attributed to population pressure on the productive, volcanic soils of the area, which supported agriculture much better than the surrounding area (Butzer, 1981; Kusimba, 2008). Second, were the East African Coastal cities that emerged in areas with numerous resources that required a sound socio-political order to manage. According to Kusimba (1999b), competition for productive land and access to ocean resources are demonstrated by the presence of territorial markers such as mounds and burial tumuli, a system of land tenure in which clan leaders determined access and mediated land disputes, and the demarcation of clan land into sacred and ritual areas to ensure ownership through time, characterized the emergence of a complex sociopolitical order. In the lower coast, the resultant urbanite culture developed a unique architecture of closely built villages and towns with two-storied houses, which suggest competition for land (Connah, 2001:176).

It is clear that the above studies focused mainly on activities that took place in the already advanced settlements which had just realized urban complexity during the 8th century AD. Little attention is given to their occupations prior to this date and the exchange patterns that characterized their beginnings are not emphasized.

1.3 East African Coastal Cities

Archaeologists and historians have done extensive research on the development of complex societies and urbanism in eastern and southeastern Africa (Abungu, 1998; Kusimba, 1999a, 2008; Sinclair and Hakansson, 2000). The studies are all in agreement that early cities developed along the East African coast around 500 AD. Recent research by Oka (2018) and Kusimba (2018) has identified religion, in particular Islam, as a major factor that influenced political stability for the emerging city states. Specialized occupations such as farming, fishing, trading, rulers, scribes and enslaved persons, on the one hand, and wealth from the trans-Indian Ocean trade, on the other, were the main factors that influenced the growth of cities (Middleton, 2004; Kusimba, 2008). Cities that thrived had by the 9th century AD and are well documented along the East African coast include Takwa, Manda, Shanga, Pate, Ungwana, Kilwa (Chittick, 1974, 1984; Horton, 1996; Abungu, 1998).

Mutoro (1998) and Pearson (1998) discuss relationships between hinterland societies and the coastal towns. Socio-economic interactions between the hinterland and coastal people, though drawn from different linguistic groups, encouraged the development of Kiswahili (Kusimba, 2008: 239). It is possible that the social and economic interactions, amongst these groups led to ideological and innovative skills that fed into the international trade exchange systems. As a result of these interactions, the East African coast had been netted to become an important economic player in the Trans-Indian ocean trade involving sea ports in the Middle East and China. Technological advancements in ironworking was a major factor that influenced subsistence agriculture and specialization in fishing and herding of

livestock (Abungu, 1998; Horton, 1996). The growth of agriculture led to the improved quality of life, increased population and economic prosperity that eventually attracted foreign political interests (Kusimba, 2004).

It is important to point out that the coastal towns did not grow in isolation; rather, smaller settlements in the hinterland grew alongside as they too improved their sociopolitical order to control the emerging trade (Kusimba and Kusimba, 2005). The foregoing literature only documents the archaeology of the EAC between 800AD and 1500 AD. We barely have an understanding of how the coastal settlements and their hinterland counterparts interacted.

Archaeological surveys in the Kasigau area by Kusimba and his team have located more than 250 sites. Upon further research evidence emerged for intensive iron production spanning 800 years (Kusimba and Kusimba, 2005). The study concluded that the volumes of slag demonstrate that the most intensive iron smelting occurred during the deposition of these levels, dating from AD 700 to 1380, a time when urban growth was intensifying on the coast.

According to Kusimba (2008: 243), iron from a hinterland site known as K1 in the Taita Taveta region, was probably used in the manufacture of household and farm implements as well as weapons used primarily for hunting and meeting the demand for hinterland items from the coast. The use of iron tools, no doubt, accelerated terrace farming and livestock husbandry in the hinterland (Kusimba and Kusimba, 2005) and enabled local hunters to make successful hunting expeditions.

Archeological research has shown that ancient complex settlements emerged along the East African Coast (EAC) from Somalia to Mozambique around 500 AD (Abungu, 1998; Juma, 2004). However, the occurrence of ancient stone buildings had been erroneously linked to the emergence of settlements and urbanism, implying that there was no urban life predating 500 AD. Yet, documentary evidence of the first century AD such as the *Periplus of the Erythraen Sea* records the prosperity of the trans-Indian Ocean trade involving East African coastal sea ports, the hinterland and overseas ports (Freeman-Grenville, 1975; Huntingford, 1980).

Further, the nature of relationships between the coastal settlements and their hinterland counterparts prior to AD 1500 was not certain before the current study and we could not exactly state the role of ancient settlements such as Siyu. Before this study, there was no archaeological material to show the significance of Siyu in shaping island-hinterland interactions prior to AD 1500. This study has uncovered material evidence for exchange between the two entities.

1.4 Problem Statement

The origins of the ancient Swahili settlement and town of Siyu remain one of the major unresolved questions in East African Coastal archaeology. Five decades of archaeological study documents the long-term processes of urbanization and origins of complex societies in Eastern and South-eastern Africa but none of these has focused on the unique settlement of Siyu.

Researchers working on the East African coast have accumulated data on the origins and growth of urbanism in the region (Juma, 2004; Kusimba, 1999a; LaViolette and

Fleisher, 2005; Middleton, 1992; Horton and Middleton, 2000; Pikirayi, 2001; Pwiti, 2005; Sinclair and Hakansson, 2000). The emphasis has been on early urbanism and on early settlements that were precursors of the city-states. These studies agree that early cities on the East African coast developed around 500 AD. The occurrence of ancient stone buildings has been linked directly to the emergence of urbanism but this view implies that there was no urban life before 500 AD. Yet it is known that the residents of the EAC included farmers, fishers and traders and that their activities generated the wealth that became the main precursor of early urbanism on the East Africa Coast (Middleton, 1992).

The understanding of Siyu's past has hitherto been very little especially about its industrial status which is captured by a legendary phrase, *Mui wa Mafundi* or the city of craftsmen, as Siyu was famously known in East Africa. Siyu is one settlement that has experienced continuous occupation. This study addressed three questions about the early settlements and subsequent developments. First, what factors influenced the settlement, development and location of Siyu? Two, what was the resource base of the earliest settlers? And three, what was the sequence of occupation at the site? Earlier researches in the EAC seldom applied the theories of exchange and settlement patterns to investigate settlements that predate the 7th century AD. It is therefore on the strength of these theories that new scientific knowledge was sought about earlier settlements in the islands and how they related with the hinterland counterparts.

1.5 Objectives of the Study

1.5.1 Broad Objectives

To explore dynamics that influenced the emergence and development of Siyu as an important settlement that evolved into a complex city state.

1.5.2 Specific Objectives

i. To examine strategic influences that led to the initial settlements at Siyu.

ii. To determine the exchange systems and resource base of the early settlement of Siyu.

iii. To reconstruct the sequence of occupations at Siyu.

1.6 Justification of the Study

The Lamu archipelago and the immediate hinterland is undergoing major infrastructural development. The Lamu-Port-South Sudan-Ethiopia Transport (LAPSSET) project is set to create a unique dimension through the following infrastructure development; the sea port hub that will serve the entire eastern Africa littoral and inland up to and including South Sudan and Ethiopia. The construction of infrastructure poses the risk of destroying the cultural heritage of Siyu which is part of the Lamu UNESCO heritage landscape. The settlement and the people of Siyu have a gorgeous cultural, historical and architectural heritage which is worthy studying and documenting. Siyu was known for artistic skills, namely printing press, woodworking and cottage industries that characterized production economy of the region. This study, therefore, provided a window to document the socio-political

dynamics that premediated the early settlement and subsequent occupation of not only Siyu town but other coastal towns.

1.7 Scope of the Study

This study investigated early settlements on the island of Pate and in particular at Siyu during the early first settlements up to the close of the 15th century AD. Emphasis was placed on the site of Siyu old town as well as the contemporary settlement and its surroundings. The study focused on the changing landscape of the island of Pate around Siyu and the human-environmental interaction that is evident in form of ruins within the ruined wall enclosure. It also paid attention to material remains from both past and present human activities. The study endeavoured to establish the ancient physical environment that conditioned a resource base that shaped human activities at the site. It was guided by two theories, namely, settlement pattern theory and exchange systems theory.

1.8 Limitations of the Study

The study had a number of limitations. First, despite the vast area of about 22 acres the study focused on two zones within the settlement and was limited to only four test pits due to limited funding. Second, this study did not conduct absolute dating on any samples of charcoal or pottery. Instead a technic known as cross-dating technique was applied in which known pottery from other regions were used to determine to the chronology of the site of Siyu. Imported potteries to the East African coast were sourced from known kilns in places with well documented production dates such as Siraf in Iran and Lishui prefecture in China.

Finally, it was not easy dealing with relics of the past whose makers and owners have long gone by. This brings forth another limitation of this study; the study was partly through interpretation of non-local materials at the site but it was not possible to interact with past inhabitants to understand why they chose to settle at Siyu and the type of transactions they were engaged in. This limitation was addressed using the excavated archaeological materials accepted as a product of past cultures at the site.

1.9 Definition of Terms

Assemblage

Assemblage refers to the entire set of specimens of ceramics or faunal remains from a given cultural or geological context, in which the defining context is provided by the analyst. Thus, a ceramic assemblage of an archaeological site would comprise all types of potteries excavated from that site. The potteries can be divided into a series of sub-assemblages depending on the analyst's goal. For instance, there could be imported and local pottery sub-assemblages based on the origins and the type of fabrics used in the manufacture of the wares.

City-State

City-state combines two words, city and state. A city is defined as a community or settlement that performs numerous functions in relation to a broader hinterland (Trigger, 2003). It provides specialized services to a wider society (Renfrew, 2008:34). According to Renfrew (2008), cities are a feature of state societies, though the existence of a city does not imply the full range of features associated with the state which often includes a structured political system. A state is a self-governing entity made up of a people who not only claim a territory of their own but also share a

common history, identity, economy and destiny. In archaeology the city with increasing complexity and specialization of functions necessitated the need to control the flow of commodities, hence the growth of political interest from elite class leading to political autonomy. City-states were characterized by competitive emulation, warfare, symbolic entrainment and an increasing flow in the exchange of goods, skills and ideas.

Exchange

Exchange is transfer of commodities through a systematized network. Exchange is considered a form of interrelations such that system interrelations operate on regional level (Torrence, 1986:35). Through exchange social inequalities were reduced through institutionalized channels that allowed the flow of commodities (Earl, 1982:201). The media for exchange are trade, migration and conquest. Trade takes many shapes which include remunerated transactions, barter and direct or indirect transactions between groups or individuals. Populations migrate or move from their settlements due to involuntary or voluntary factors to new places. They carry along material culture and ideas to new cultural systems. These may show distinction with pre-existing cultural materials. Exchange has frequently been equated to trade and defined as the peaceful, reciprocal movement of goods among members of different societies (Hirst, 2019).

Minimum Number of Individuals

Minimum number of individuals (MNI) is one of the basic counting units used in the quantification of bone remains to determine the number of individual animals represented at a site. It refers to the smallest number of faunal organisms represented

in the skeletal assemblage from a site (Grayson, 1984:20). The minimum number of individuals is helpful in determining the ecological diversity and richness of an archaeological site.

Number of Identified Specimens

Number of identified specimens (NISP) is defined as a counting unit that is useful in determining the abundance of taxa within archaeological faunas (Grayson, 1984:17). The identified specimen of the single bone or tooth or fragment therefore, is assigned to some taxonomic unit and then quantified. The NSIP can be applied to bone and other organic remains at a site to determine population size and animal weights. It can also be used to examine the changing taxonomic frequencies through time and space.

Periodization

Periodization is the process of categorizing the past into discrete blocks of time in order to facilitate the study and analysis of history (Pare, n.d.). Periodization leads to descriptive abstractions that provide convenient terms for periods of time with relatively stable characteristics. In archaeological practice there is an ending effort to improve and refine chronological schemes by describing changes in material culture with strata or context. A period is a set of particular dates selected as the boundary between ages marked by unique cultural assemblages. Transition from one period to the next can be defined and characterized by transformation in all aspects of life. Periodization as a tool in archaeology utilizes several principles such as stratigraphy, typology and seriation (Green, 1995).

Sassanian Pottery

This is a type of pottery manufactured in Persia during the Sassanid Empire, the last pre-Islamic Iranian empire that lasted from 224 to 651 AD and stretched from Syria to northwest India (Horton, 1996: 274). The term was first used to summarize the chronological spread of the kind of pottery made during the Sassanid period. A particular feature of this pottery is the use of applique clay strips and stamps for decoration. The fabric is creamy white, fairly hard with a little sand temper but few inclusions with rough fracture and evenly fired.

Seriation

Seriation is a relative dating method in which assemblages or artefacts from an archaeological site are placed in chronological order (Renfrew and Bahn, 2000). Seriation utilizes associations of archaeological finds to determine dates. It can be used to date stone tools, pottery fragments, and other artefacts. In this technique, it is assumed that pottery styles gradually become more popular, reach peak popularity and then fade away. It is argued that at a given time period, a pot style popular at one site would similarly be popular at another.

Settlement

A settlement is a term used in archaeology to denote a permanent or temporary community in which people live, without being specific to size, population or importance (Foley, 1981). It is a site or location that is or was in habitation. A settlement may range in size from a very small number of occupants grouped together to the largest cities.

Sgraffiato Pottery

Sgraffiato is a decorative technique produced by applying layers of colour or colours as under-glaze to hard pottery. Parts of the layers of colour are then scratched off to create patterns underneath. Several varieties of sgraffiato pottery were imported to the East African coast. One of these was late sgraffiato with various decorations including hatched, Champlevé decorated, brown splash, polychrome and green decorated (Horton, 1996: 284).

Trade

Trade involves the transfer of goods or services from one person or entity to another, often in exchange for some benefit. Trade is necessitated by a market, a system or network that is characterized by demand and supply of a commodity or service.

1.10 Conclusion

This chapter has provided background information to the study. It has presented the problem statement, objectives, justification of the study, scope as well as the limitations that this study encountered and how this was navigated. The chapter has concluded with a definition of the key terms used in the study.

CHAPTER TWO

HISTORICAL AND ARCHAEOLOGICAL SOURCES

2.1 Introduction

This chapter provides information on early historical documents. The anthropological composition of the people of Siyu is discussed with a focus on ethnic composition, economy, mode of production and exchange, architecture, marriage, property, religion and custom. The chapter ends by presenting earlier archaeological work at Siyu and the nearby sites.

2.2 Siyu in Historical Sources

Analysis of some of the earliest documents on the East African Coast does not reveal a clear identity of the earliest settlers of this region. However, a critical synthesis gives a keyhole view of the nature of the people of coast and the activities these settlers engaged in. For instance, Busolo *et al.* (2019: 27), observed that long before the 7th century AD when Arab traders sailed down the Western seaboard of the Indian Ocean, the East African coast and the immediate hinterlands were already populated by indigenous people. By the 1st millennium BC settlements had already been established in the Lamu archipelago. In the accounts of the anonymous author of the *Periplus of the Erythraen Sea* dated between 40 and 70 AD, reference is made to flourishing 'marts' of *Azania s*outh west of Adouli and a range of merchandize traded with overseas centres (Huntingford (1980: 28). However, the *Periplus* does not give any identifiable tribal names of the settlers, instead the book captures the prosperity of cities and flourishing trade between them. Concerning settlements in Lamu

archipelago, the *Periplus* captures a succession of sails down the coast of Azania (Huntingford, 1980:29):

> Then the lesser and greater strands, of another six courses and after them in succession the courses of Azania, the first called Sarapion's then that of Nikon after which there are several rivers and a series of other roadsteads separated by several stations and courses of a day, several in all, as far as the *Paralaon* islands and what is called The *Channel*….

According to Huntingford (1980:97), the name *Paralaon* appears to be in the genitive form and in ancient Greek it means 'fire'. Hence, *Paralaon Island* could be translated as 'Islands of fire'. Bantu agrarian communities are thought to have inhabited Pate, Manda and Lamu islands and used fire to prepare land for a new planting season, an activity that is performed year in and year out (Busolo *et al.* 2019: 27; Busolo, 2005). The Siyu Channel separates Pate Island from the mainland and is still remains a major factor in the navigation between the islands and the hinterland (Huntingford, 1980:97). Since the eastern shoreline is characterized by coral outcrops that and is largely difficult to navigate.

The ancient settlers had their own language as documented and corroborated by early visitors such as Al- Masoud, Idrisi and Burzug (Busolo, 2020; Freeman-Grenville, 1975). These people practiced mixed economy; they cultivated crops, kept livestock and hunted wild game. This is documented in the *Periplus* in which the cites exchanged goods such as animal skins, ivory, tortoise shell, rhinoceros horn, for cloth, beads, metal, wire glass, porcelain and wine from overseas (Busolo *et al.* 2019: 28; Huntingford, 1980:122; Freeman-Grenville, 1975:6). Tuan Ch'eng-Shih, a 9th

century author of the *Yu-Yang-Tsa-Tsu*, a compendium of various kinds of knowledge gives an eye witness account of the coastal people, who married off their daughters to strangers at higher bride prices than they would fetch from local men. They also kept cattle and engaged in a blood-oath to allow Persians trade with them (Freeman-Grenville, 1975:8).

It is not clear when the transition took place from the very early settlers to the later occupants of Siyu. However, the eye witness accounts shed light on the identity of the ancient people. The people of the coast were definitely of black complexion and had by the tenth century AD established indisputable level of political organization as we can read in Burzug's account, a Persian sailor who sailed to Azania coast, and recorded this on encounter with a contingent of naval guards "…The canoes of negroes surrounded us and brought us into the harbour; we cast anchor and disembarked on the land. They led us to their king. He was a young negro, handsome and well made...". (Freeman-Grenville, 1975:9).

Muhammad Ibn Abdullah Ibn Batuta often known by his last name is credited for his vivid description of the towns and the people of the east African coast in 1331. Ibn Batuta is probably the one who introduced the word *Al Sahel* in reference to the dwellers of Lamu archipelago and coastal shores with no intention to create a tribal identity (Freeman-Grenville (1975:31). These were pastoralists, fishers, farmers, traders, scribes, rulers and slaves alike that characterized a cultural dialogue. However, subsequent authors quoted Ibn Battuta to have identified a coastal people

known as *Swahil*i. This name has now evolved to refer to one of the world renown Swahili civilization.

Oral information from the current townspeople, indicate that the early settlers came from Dondo a dispersal point on the mainland in present day Lamu East county of Kenya (Busolo *et al*. 2019: 28). Among the people thought to have been early settlers of Siyu to have come from Dondo on the mainland are *WaBajuni*, *WaTikuu* and *Wakatwa* from Kiwayu and southern Somalia, who settled on the islands.

Karisa (2011) has argued that most of the coastal Bantu people of east Africa including the Swahili and the Taita all share the same legend of origin from Shungwaya. He discusses this in a paper entitled, '*Origin of the Swahili from their neighbours' perspective'*, and illustrates how the Mijikenda and the Swahili interacted with each other as neighbours at Shungwaya before they were dispersed by *Wagalla* and *WaOromo* who forced them to a southerly migration. The Bajuni were the first to leave their domicile and settled at Siyu among other localities that became known as *Uswahilini*. While there they established a maritime economy that saw them hooked up in the trans-Indian Ocean trade network (Karisa, 2011:38).

Siyu's reputation as a 'town of craftsmen' has been noted in several local genealogies including the Pate Chronicle. Revered carpentry that was a preserve of people of Siyu produced fine carved doors, stools and beds. Another reference to Siyu was made by a Portuguese clergy, Father Jao Dos Santos of Faza who in 1586, gave an account of the Turkish attacks of the coastal cities (Freeman-Grenville, 1975). Siyu was one of the city-states that suffered Turkish attack for her association with the Portuguese

(Freeman-Grenville, 1975:150). As fate would have it, Siyu had to suffer humiliation when the Portuguese reclaimed their domain from the Turks. The Sultan of Siyu was sermoned to witness the execution of the Sultan of Lamu in 1569. This action served to communicate two important statements. One of this was to instill fear among the Swahili states and deter future rebellion against Portuguese rule. The second was that the Portuguese were not just about to leave and this suggests Siyu's prominence and relationship with the Portuguese then (Strandes, 1961:138; Horton, 1984: 72). Strandes (1961: 139) also records that the Sultan of Siyu was taken into custody for the accommodation and cash he gave to the Turks and also because he did not agree to the Portuguese demands for military action against the Turks. As reported by Gasper de Santos Bernadino, another Portuguese writer in 1606, Siyu was the principal, well-structured and heavily populated town on the island (Freeman-Grenville, 1975:162). A generation later, Siyu's political fortunes appear to have changed from rule by one ruler to a kind of council of governors or *Wazee wa Mui*, as recorded by Rezende in 1634 (Gray, 1957: 108).

Another very useful reference of Siyu was a Portuguese punitive expedition against Siyu for her collaboration with the Turks. Captian Francisca de Seixas Cabreira, acting in the interest of the Portuguese bombarded the city and destroyed the town wall (Kirkman, 1974:18). The town lost her sovereignty, pledged loyalty that included paying homage to the Portuguese crown. However, despite the European presence and interest in the Lamu archipelago, the late 18th and 19th centuries caused mixed fortunes. Siyu's political power changed hands from the Portuguese to the Omani Arabs (Coopers, 1980). As testimony to Siyu's importance to its new leaders

the Omani constructed a military fortress to guard the fortunes of the region and especially the strategically placed Siyu Channel that separates Pate Island from the mainland (Busolo, 2005:35).

2.3 Previous Archaeological Work

2.3.1 Siyu

Previous research did not attempt to map the site of Old Siyu and its ruins. This study has addressed this gap by mapping the extent of the ancient town including the town wall and some of the ruins on the site. In earlier research, Wilding (1973) and Horton (1984) did some surface survey as an adjunct to the investigation of Swahili settlements in the north coast and Shanga, respectively. From surface surveys conducted in 1972, Wilding concluded that Siyu was not occupied before the 16th century AD. This appears to have been a very limited survey restricted to surface materials and a single test pit at a ruined house structure believed to be a palace. Subsequent test studies by Horton (1996:24) recovered late Sgraffiato pottery of the 12th century AD and a sample of much older Sassanian-Islamic pottery dated to the 6th century AD. The recovery of a sample of Sassanian-Islamic pottery on the surface added confusion to a hitherto difficult question of the date of the early settlement of Siyu. Further, Horton does not mention the significance of local pottery associated with the imported wares recovered. It is evident from current research that the earlier strata at the site exhibited much earlier occupations than the imported pottery could tell. The chronology of occupation is now better understood than previously thought.

2.3.2 Pate

Understanding the previous archaeological work at Pate is important for two reasons. First, Pate is one of the longest continuously occupied settlements in Eastern Africa with habitation spanning 1,200 years (Wilson and Omari, 1997: 32). Second, Pate is also one of a number of coastal city-states whose histories are documented in local chronicles (Freeman-Grenville, 1975). Third, the chronology of Pate is well established using known ceramic wares and these were useful in comparing with similar ceramic wares at the site, considering that Siyu too has had continuous occupation.

Earlier archaeological work at Pate was conducted with the objective of understanding further the history of the Swahili coast (Chittick, 1967; Wilson and Omar, 1997). Chittick (1967) did some survey, partial mapping and test excavations at various localities. He was able to compare the outcome of the excavation with the content of the Pate Chronicle. Six of these test trenches were located in a crescent from the northwest to the south. He also aimed at determining the date and position of the earliest town wall. The seventh test pit aimed at investigating occupations on the west side. Chittick's investigation indicated that the construction of the town walls in the northwest took place in the 18th century while Trench V in western side yielded 15th and 16th century deposits at the earliest. Trenches VI and VII produced small numbers of 14th century ceramics (Chittick 1967:41).

Wilson and Omar (1997), on their part, undertook to investigate site topography as well as locate by excavation, areas of early occupations. They also aimed at securing

a ceramic sequence for the site and to discover other evidence that would shed light on the relationship between archaeological and historical research in Eastern Africa. The test pits were positioned on the high ground in the central point on the assumption that such an area would have been occupied much earlier when other areas were not habitable due to the high sea level then. Test pit 1 produced a complex urban stratigraphy down to a depth of 4.2 m with structures dating to the 14th century at the bottom and evidence of earlier occupation (Wilson and Omar, 1997: 36). Test pit 2 produced a sequence of occupations from the late 8th or early 9th century through the 13th century using ceramic sequence.

Following their research, Wilson and Omar (1997) established that Pate experienced at least five periods of occupation as follows: Period I: two Phases identified as Ia, lasted from 8th-9th century characterized by Sassanian-Islamic and one white-glazed (Tin glazed) sherd. The local pottery assemblage consists of two kinds of globular pots and two kinds of bowls (Wilson and Omar, 1997:45). Some of the decorations on the pots are similar to those found on Siyu pottery. These include horizontal incisions on rims, below rims, shoulder, cross-hatches and irregular multiple diagonals. Sharp object or fingernail (thumb and index) impressions are also common decorations. Bowls are open carinated types. Period Ib, lasted from 9th -10th century with globular pots similar to those in Period Ia. Decorations include triangles in-filled with diagonal incisions or hatching. Imported pottery in this period included Sassanian Islamic and a red paste earthenware sgraffiato sherd.

During Period II, globular pots no longer resemble necked pots in Period I; rather they tend towards hole mouth pot types. The decorations featured double line lattice, single line cross-hatching, double diagonal incisions and punctates on dark grey or brick red fabric with quartz temper. Hatched and cross-hatched sgraffiato were introduced at the beginning of the 11th century followed by Champlevé sgraffiato and late sgraffiato types at around 1150AD putting a date range for the Period from the 11th– mid-12th century. Period III featured a range of vessels such as globular pots, carinated bowls and open bowls. The clays used in the manufacture appeared to be poorly consolidated and tempered with either coarse quartz fragments or coral shell and grit (Wilson and Omar 1997: 50). A notable appearance of bowls with diagonal or zigzag incisions on expanded rim was observed. Imported pottery consisted of Champlevé sgraffiato and the late sgraffiato types such as late greens. The date for Period III was suggested to between the 12th and 13th centuries.

Period IV lasted between the 14thand the 17th century and contained crudely made vessels, red, brown and black burnished types and painted bowls. The following pottery types from the Arabian Peninsula were excavated; Islamic black-on-yellow, Islamic monochromes, thin glazed ware and late Islamic monochromes. Also excavated was Chinese blue-and-white pottery. Period V lasted from 17th-19th century with local ceramics mainly lighter in density and thinner in body than the pottery of the earlier periods featuring orange or red fabric, sometimes brown or grey. Imported pottery includes Chinese and Islamic blue and white, Chinese polychrome porcelain, Indian earthenware and European wares. The current study revealed that Pate was contemporary to the earliest founders of Swahili culture such as Shanga, Manda and

Kilwa (Wilson and Omar, 1997: 50). It was important to compare these findings with those from Siyu.

2.3.3 Mbui

Mbui is located at the western end of Pate Island near the port of Mtangawanda, approximately 3 kilometres to the northwest of the island. Besides Shanga and Pate, Mbui is one other ancient town that was in close geographical proximity to Siyu. A locale near the eastern shoreline within the ruins of an old mosque was selected and a test pit excavated down to 4.1m deep revealing 13 natural strata on the basis of soil colour and cultural debris. It is thought that Mbui was a centre of pottery production (Chami *et al*., 2012). In their survey and test-excavations, Chami *et al.* (2012) discovered an expansive area with huge mounds of rubble of local pottery. The huge volume of debris of local pottery was attributed to a kiln that may have served local demand and probably spanning Siyu's demand as well. Two sherds of local pottery had similar attributes to those of Siyu pottery (Chami *et al.,* 2012: 40). First, was a potsherd decorated with cross hatches and a horizontal line below the rim. Second, was a shallow bowl with cross hatches on expanded rim. Similar pottery was reported at Shanga and described as mature Tana tradition phase B pottery (Horton, 1996: 261).

Among the imported wares recovered was a thin glaze ware. This kind of pottery was produced in Iraq between 750 and 1258 AD and in Mesopotamia in the 9th century AD (Chittick, 1974). Associated with the tin glazed sherd were two Sassanian sherds, one of which was green in colour with a blue glaze and a raised decoration on a hard

buff body, and the other with a worn-out glaze revealing a white fabric. The two types of pottery were dated to between the 9th and 10th centuries AD (Chittick, 1974). In the lowest stratum between 3.72 and 3.82m deep, evidence of early Triangular Incised pottery ware was encountered. However, no imported ware was associated with these sherds at the depth. The appearance of daub with pole impressions above this stratum suggests an earlier settlement of mud-and-thatch houses at the site. The daub was reminiscent of pre-stone house settlements in both Siyu and Mbui. It was therefore necessary to compare the contexts of daubs found in the two sites. The site chosen for excavation was approximately 1m above the active inter-tidal zone at the time of this research and the beach sands in the lower stratum indicate that this locality was not habitable in the past due to a higher sea level. A more central and higher altitude position would have had potential for early occupations when the sea level was much higher than it is now.

2.3.4 Shanga

The archaeology of Shanga is important for this study for two reasons. First, given the geographical proximity of Shanga to Siyu it was necessary to check similarity of archaeological materials between the two sites. The Pate Chronicle states that Siyu was founded by a people who were abandoning Shanga due to an unidentified epidemic disease that had killed many townspeople (Freeman-Grenville, 1975). It was, therefore, expected that some ceramics reported at Shanga by Horton (1996) also make appearance at Siyu. While it is true that having been an independent political entity Siyu could have procured imported ceramics through the wider trade network,

it could also have been possible for exchange of household goods between the two towns through social networks.

Second, the descendants of a Chinese shipwreck survivors who settled at Shanga have been traced to Siyu using genetic studies (Bently and Ziegler, 2018). There was a compelling need to find archaeological materials that may have been exchanged between the two towns. In his study of Shanga settlement, less than three kilometres south of Siyu, Horton (1996: 243) established that pottery typologies indicated a logical evolution of forms, decoration and surface treatments. Some of the potteries were similar to those excavated in Mombasa, Pemba, Zanzibar, Kilwa and the Comoros. He also established that earlier pottery forms were found inland along the coastal hinterland in Usambara Mountains and that those represented a separate distribution pattern that did not correspond to that of the Swahili communities. This interpretation aimed to advance an exotic origins hypothesis of coastal settlements without regard to the pre-Islamic settlements and the exchange networks with the hinterland communities.

In addition, Horton's (1996) work suggests a general sequence of early occupation of Shanga and that of other sites on Pate Island dating to 750 AD. The total count of East African pottery in what Horton calls Phase One of occupation comes to 1,371 potsherds (Horton, 1996: 244). This big number of potsherds at a single phase was not clearly explained. For the proponents of the Arab-driven civilization of the Swahili coast, the occurrence of such a high amount of pottery could easily mark the beginning of a settlement such as Shanga, rather than be a settlement at an advanced

stage of occupation with a well-established exchange and trading network. Whichever the view one follows, Shanga could procure supplies from overseas, from other island settlements and from the hinterland with much ease than was thought by earlier researchers. There is no explanation as to why the lower stratification of materials was not examined alongside those that yielded imported wares to understand the dynamics which would mark the state of minimal cultural activity, say, at a time when the site was just being occupied. Earlier scholars, among them Phillipson (1995: 221), based on the available evidence then claimed it was not tenable to suggest pre-Islamic settlements on the EAC prior to the eighth century AD or earlier. However, with the expanded researches along the Swahili coast, there is now overwhelming archaeological evidence for pre-Islamic settlements.

2.4 Theoretical Framework

This study utilized two theories to explain the emergence and subsequent development of the ancient Siyu settlement. First, was the settlement pattern theory which was used to explain how initial settlement on Pate was influenced by the physical environment and natural resources. The theory examines adaptive strategies a society needs to apply so as to survive in a new landscape away from what they had known before. Second, was the theory of exchange systems that was used to explain the continued expansion of the initial settlement into a complex state even after they had diminished resources that attracted them to the island. The theory of exchange was particularly necessary to effectively explain the acquisition of *off-site* materials found at Siyu. The two theories complemented each other in explaining how the unique island-marine environment necessitated early settlements and an exchange

system that characterized the growth of not only Siyu but other settlements on the entire Pate Island.

2.4.1 Settlement Patterns Theory

Settlement patterns theory was developed from central place theory originally postulated by Walter Christaller in 1933 in an attempt to explain spatial organization of settlements, their size and distribution (Fagan, 2008). The theory was first applied to archeological studies of ancient settlements in China (Chang, 1958). The general view held by the proponents of this theory is that settlement patterns on the landscape are the product of relationship between people and their physical environment. For instance, Willey (1953) and Chang (1984) view settlement patterns as the way people exposed themselves over the natural environment in which they lived. Willey (1953) further argues that settlements are a reflection of the natural environment, the technical skills and subtending social responses and dynamics that arise from the interactions. This theory can be used to explain the relationship of living arrangements to geographical features and settlements as reflective of social structure, culture and culture change (Willey, 1953).

Trigger (2003) emphasizes that culture change is a product of environmental adaptation. He argues that the central element in any culture is its technical means and successful interaction with the environment. Trigger further argues that the comparison of many contemporary settlements reveals a settlement pattern that provides information about a large spatial organization across a whole landscape.

Settlement patterns are the distribution of human settlement on the landscape and within archaeological communities (Fagan, 2008: 386).

Settlement patterns in themselves are determined by many factors related to the environment such as the physical practicality of a place for habitation, economic practices, and technological skills. According to Fagan (2008), inherited cultural patterns and well-neat interactions among people's behaviour have a driving influence on settlement patterns in some societies. He also notes that these interactions play an important role in the emergence of *central places* that sooner or later grow into complex societies with define organizational structure. It is further argued that a settlement pattern that develops on the basis of trade may be determined partly by environmental features and partly on social underpinnings. This may eventually develop into a vertically stratified order of sites as technology and socio-demographic forces interact (Busolo, 2020: 94; Fagan, 1991: 419).

The overall outcome of this development is that societies become sophisticated in terms of socio-political structures as they struggle to access exchange networks and to sustain procurement of valuable goods. Settlement patterns theory has, therefore, been an adjunct to settlement archaeology that analyses adaptive interactions between people and their physical environment. Published reports indicate that the earliest settlers of Siyu took refuge on the island as a security measure but maintained agricultural activities on the mainland. Farther to that, the decline of local resources on the island premediated the growth of an exchange system that did not depend entirely on agriculture for survival (Busolo, 2020: 94).

The application of this theory to archaeology dates back to the post World-War I period. In the 1930s settlement sites were increasingly taken as units of study into archaeological cultures by Taylor (1948 cited in Deetz, 2017). The associations of artefacts in specific contexts including spatial distribution became a key tool for reconstructing past lifeways. For instance, the study of the well-preserved Iron Age crannog (lake settlement) of Glastonbury in south-western England is a classic example of settlement pattern analysis where the complex stratified deposits of timber and earth floors were interpreted as a series of horizontal and vertical divisions in site usage (Clarke, 1962). Elsewhere in Europe, large-scale settlement archaeology projects thrived as part of the research into the Aryan heritage (Bailey *et al*., 1984).

By applying the settlement patterns approach, this study was able to reconstruct the physical environment and distribution of ruins of the ancient settlement and how Siyu became habitable through time. However, since the theory was not useful in the investigation of how Siyu acquired *off-site* materials, a second theory was required to examine the presence of merchandize from overseas and other localities in the hinterland. The theory of exchange systems was seen to be appropriate as discussed in the following section.

2.4.2 The Exchange Systems Theory

The exchange systems theory was developed by an economic anthropologist, Karl Polanyi, in the 1940s (Hirst, 2019). Polanyi defined an exchange system as any manner in which consumers connected with producers. He stated that reciprocity, redistribution and market exchange were basic types of trading exchange. For

communities to have engaged in trading exchange it implied that they had gained trust and confidence in each other. Exchange is a mechanism for introducing not only exotic materials, but also for meeting the demand of local goods into the daily life of a society. Market exchange, on the other hand, involved a more or less organized institution in which producers met at specific locations and at specified times to allow those in demand to buy or exchange by whatever medium. In this case we see the theory being used to explain the dynamics of demand and supply in a market environment.

Archaeologists have applied the theory of exchange to explain the acquisition of resources by ancient societies (Earle and Ericson, 1976). In support of the application of the theory in archaeological studies, Renfrew (1977) argued that the institution of trade network was a causal factor for culture change and defined exchange as the mutual movement of goods between ancient societies. According to Torrence (1986), exchange can be seen as a form of interrelations operating at a regional level and reveals the economic aspects of past societies as well as the socio-political order then. According to Dillian and White 2010: 45), investigations of ancient exchange is a useful interpretative means for cultural processes including describing the characteristics of raw materials and their provenance. It is also noted that the exchange networks between societies are productive as trade merchandize are delivered through them depending upon a sustainable socio-political structure as mentioned earlier in the section (Earle and Ericson, 1976). The theory of exchange systems was appropriate for this study because it takes into account of the social dynamics that characterized this process as the traded merchandize themselves. Since

the theory of exchange emphasizes the identification and significance of non-local materials in archaeological assemblages, Earle (1982:201) recommends a multifaceted approach involving provenance, stylistic and economic documentary.

A close look at the exchange of goods reveals a set of mechanisms at work within larger systematic practices (Dillian and White, 2010). Organized trade takes many shapes that include remunerated transactions, barter and direct or indirect transactions between groups and individuals. The theory of exchange systems can be seen in two approaches as defined by Earle (1982: 201), the formalist approach and the substantivist approach. In the formalist approach exchange is examined through the context of individuals, while in the substantivist approach exchange is examined in the context of social groups. Using the formalist approach this study investigated the outcome of rational decision-making with regard to the choices available to a population. To apply this approach, the following assumption was envisaged, that socio-political institutions control the distribution of valued items. Under such circumstances individuals acting within these institutional constraints, procure and distribute materials within the political class. This behaviour is likely to produce regular patterns visible in the archaeological record and suggest a predictive element for an expected percentage of exotic items in archaeological assemblages.

On the other hand, the substantivist approach focuses on the social and political contexts of economic behaviour as suggested by Earle (1982:202). Sahlins (1972) and Mauss (1990) view exchange and social relations as intertwined and should not be treated in isolation, rather as mechanisms that sustain interactions. Dillian and

White (2010, cited in Busolo et al., 2019: 27), suggest the use of social simulations of exchange from ethnographic data. Such models are then applied to archaeological data since living societies can be studied to serve as viable models for such processes in the past (see also Renfrew and Shennan, 1982: 278). Other aspects to consider under the substantivist approach are symbolic and ideological dimensions of exchange, information flow and social change as these are likely to be visible in the archaeological data. The strength of this approach is that it pays attention to the role of social differentiation, political and economic systems and exchange as important catalysts for the emergence of complex societies as people try to manage the stress between distance and resources (Arnold, 1985: 32).

The large-scale American projects to examine the settlement evidence for the emergence of states in both Mesoamerica and South America provide a good example where both the settlement patterns approach and exchange system theory were applied. For instance, in the Oaxaca Project in Mexico, Flannery (1976) combined settlement pattern techniques with palaeo-environmental reconstruction to investigate the origins of farming and the emergence of the Zapotec state. He established that in the earliest period, families lived in micro-band camps such as Guila Naquitz and engaged in broad-spectrum hunting and gathering, with the shift to food production. Later, permanent villages and hamlets of up to sixty people were established for the first time, with one central place, at San Jose Mogote. Finally, a three-tier hierarchy was documented on the basis of site size, with a ceremonial centre at the largest site of Monte Alban which had hitherto been unoccupied (see also Renfrew, 2008).

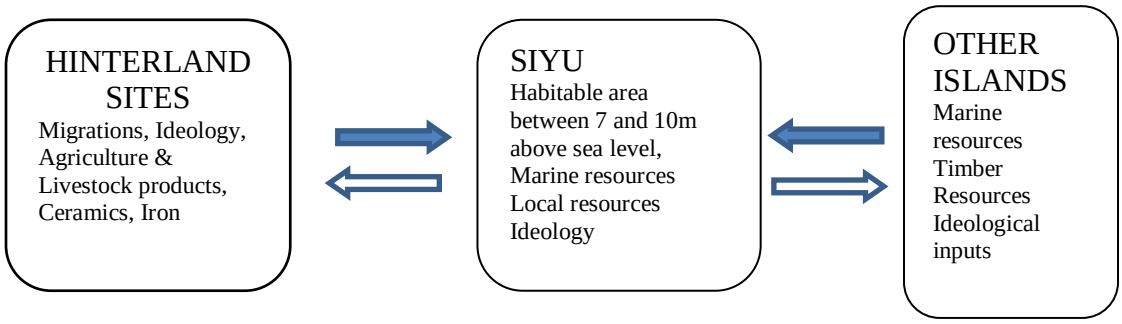
This study applied the exchange systems theory by examining off-site archaeological assemblages not only as indicators of contact and exchange but as an expression of social organization and status as well. Imported pottery sub-assemblage, for instance, was not accessible to all urbanite populations except to the elite class and wealthy traders who were able to spur socio-political power that sovereign states could afford (Busolo et al., 2019: 27). This way the elite class could control accessibility to prestigious trade items by hooking up in the international trade network and ensure sustainable exclusivity. Farther, fictive ties were created through blood brotherhood between coastal communities and hinterland traders to legitimize partnerships beyond the family to tap into exchange network at the time (Kusimba, 2008: 241). The application of the settlement patterns and exchange systems theories allowed a more complete picture of the early settlements and the long-term structure of exchange networks that enabled Siyu to develop into a complex society.

2.5 Conceptual Framework

The settlement of Siyu took place in two phases marked by variations in declining resources and intermittent hostilities from invasions by the mainland societies. The first phase was mere experimental as fishermen set up fish camps on the shores of Siyu creek mid-way the island between Mtangawanda on the western tip and Faza on the northeast. The site was mainly coral outcrop overlaid with sands and occasionally submerged in the ocean due to tidal oscillations. The site was appropriate for the sea fearing fishermen who could stop by to cast their nets and sun-dry their fish on return from fishing expeditions. Semi-permanent settlements were established as the settlers continued to depend on local resources, supplemented by various supplies from the

hinterland and other localities from neighbouring islands. As reported in an article published by Busolo (2020), the fishermen would go back to their permanent settlements on the mainland with a stock of marine resources. The site of Siyu continued to attract not only the fishermen but other personnel who opted to set up sedentary settlements apart from the hinterland. The site was relatively secure compared to hinterland sites which were prone to invasions from the Oromo and the Wagalla tribes. The landscape was such that the habitable area continued to be reclaimed as the sea level continued to drop leaving behind a sand-laden coral with an altitude of between 7 and 10m above sea level. Phase two was marked by declining resources and increasing human population. These events premediated the growth of a political structure to enable a controlled access to traded merchandize without necessarily depending on local and agricultural products from the mainland. The result was to tap into the exchange network that saw the influx of resources, new ideas and skills from other localities to Siyu (Fig. 2.1). These aspects witnessed the development of a complex social system which did not need an agrarian economy for survival.

Stage I: Initial settlement



Stage II: Complex settlement

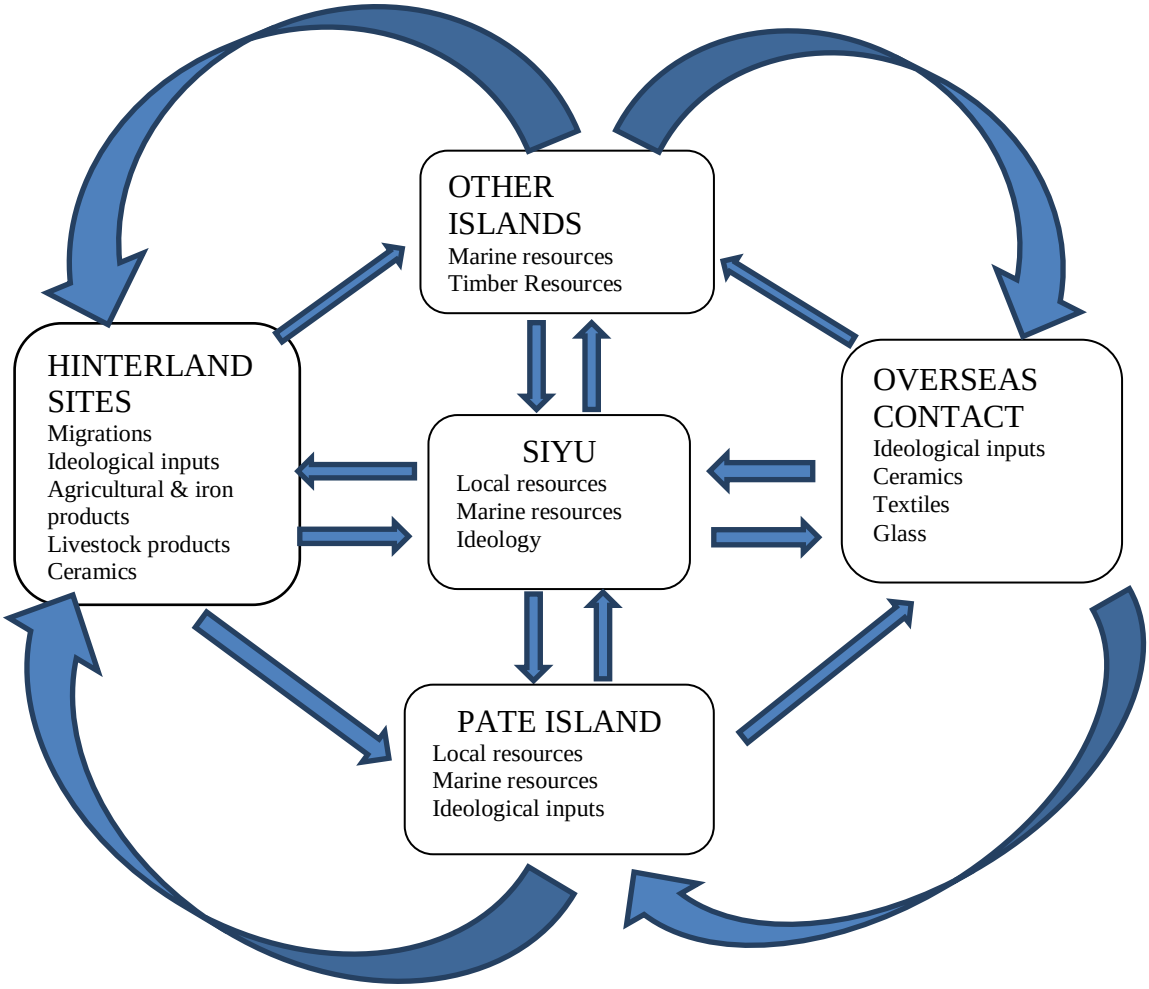


Figure 2.1 Conceptual framework for the early settlement of Siyu

2.6 Conclusion

In the foregoing chapter historical documents and current sources have been discussed. The chapter has also discussed previous archaeological research at Siyu, Pate, Mbui and Shanga ancient settlements all located on Pate Island. Theoretical approaches and conceptual framework for early settlements of Siyu have also been discussed.

CHAPTER THREE

THE RESEARCH SETTING

3.1 Introduction

This chapter describes the physical setting of Siyu from a wide perspective of coastal region and the Lamu archipelago. It covers the physical environment under which geology, topography and the palaeo-environment are discussed. The anthropological structure of the people of Siyu is discussed with a focus on ethnic composition, economy, mode of production and exchange, architecture, marriage, property, religion and custom. The chapter also discusses the climate, vegetation and agro-ecological zones in the Lamu archipelago and the hinterland.

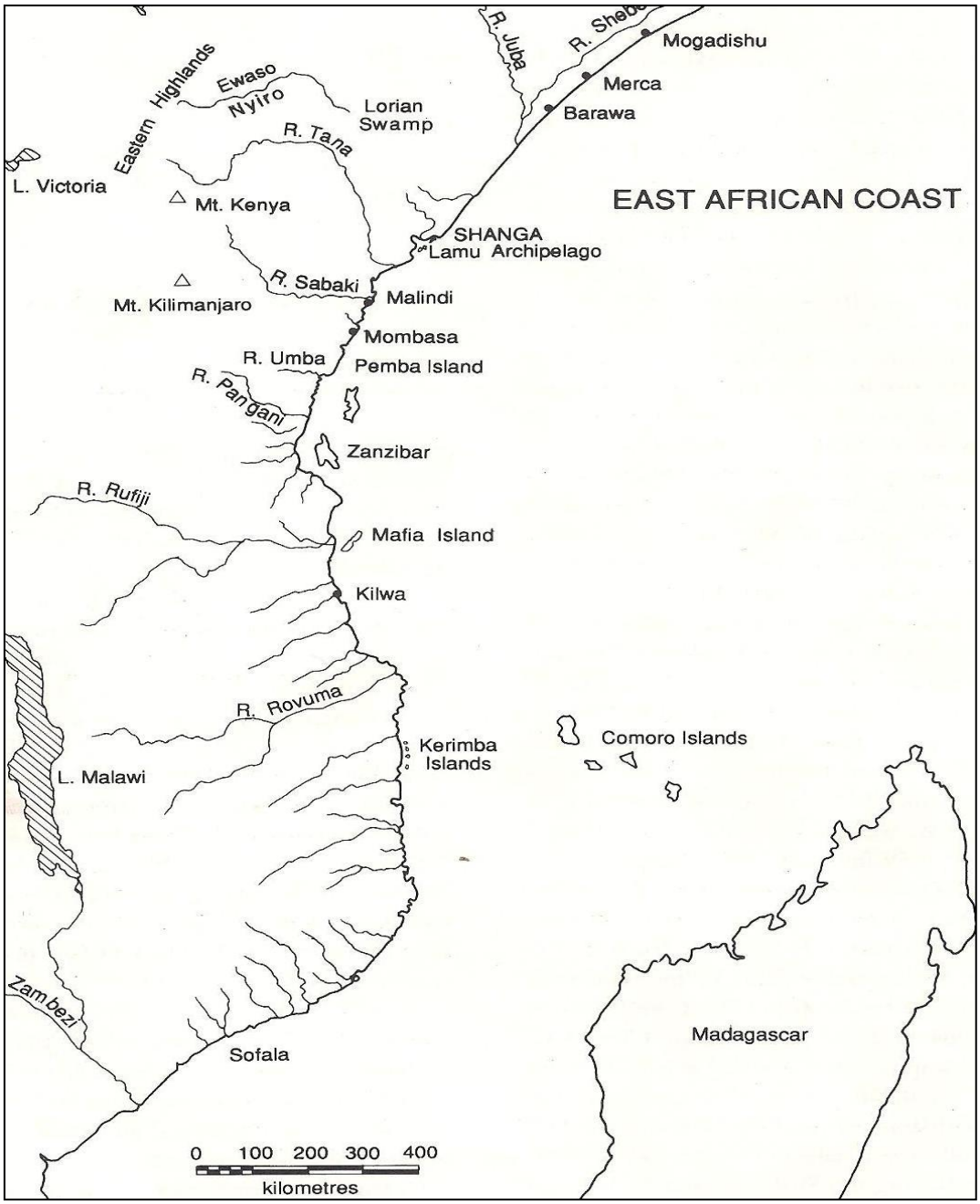
3.2 Physical Environment

To understand the physical environment of Siyu, it is imperative to first of all understand the physical environment of the coast of Kenya. According to Tychsen (2006:14) three basic physiographic zones are identified in the Kenya coastal region. First, there is the Nyika zone which lies at 600m above the present sea level and represents the higher ground covered by the Duruma sandstone series. Second, is the Foot Plateau zone that occurs at an elevation of between 140 and 600m above the present sea level. Third, is the Coastal Plain zone within which the Lamu archipelago lies, rises from the sea level to 140m and is characterized by a series of raised sea level terrace complexes (Tychsen, 2006: 16).

The Lamu archipelago comprises Lamu, Manda and Pate islands, and lies at the mouth of three ancient rivers which join to produce a wide bay on the north coast of Kenya just south of the Kenya/Somali border (Kairu, 1997). It falls within the

northern part of the broad East African Coast with ancient settlements, whose inhabitants share a number of cultural features that are now classified as Swahili (Horton, 1996:1). The Swahili communities are found along 3,000 kilometres of coastline from southern Somalia in the north to Mozambique in the south. Off-shore islands found in this region are Pate, on which Siyu is located, Manda and Lamu (Map 3.1).

Siyu covers an area of 22 between Pate and Faza on Pate Island at the following coordinates, 02^0 06'.070" S, 41^0 03'.400" E. As with other island settlements, Siyu is located strategically at the end of a shallow winding creek that provides sea route to Siyu Channel on the west. The creek is only navigable during tidal surge when the volume is high enough to accommodate medium-sized boats. There is an airstrip to the northeast for light aircraft but it is seldom used. The ancient town of Shanga was located 3 kilometres to the south and it is today survived by an elaborate cluster of ruins and two modern villages settled near the ruins, namely, Shanga Ishakani and Shanga Rubu (Horton, 1996:17), as shown in Map 3.2.



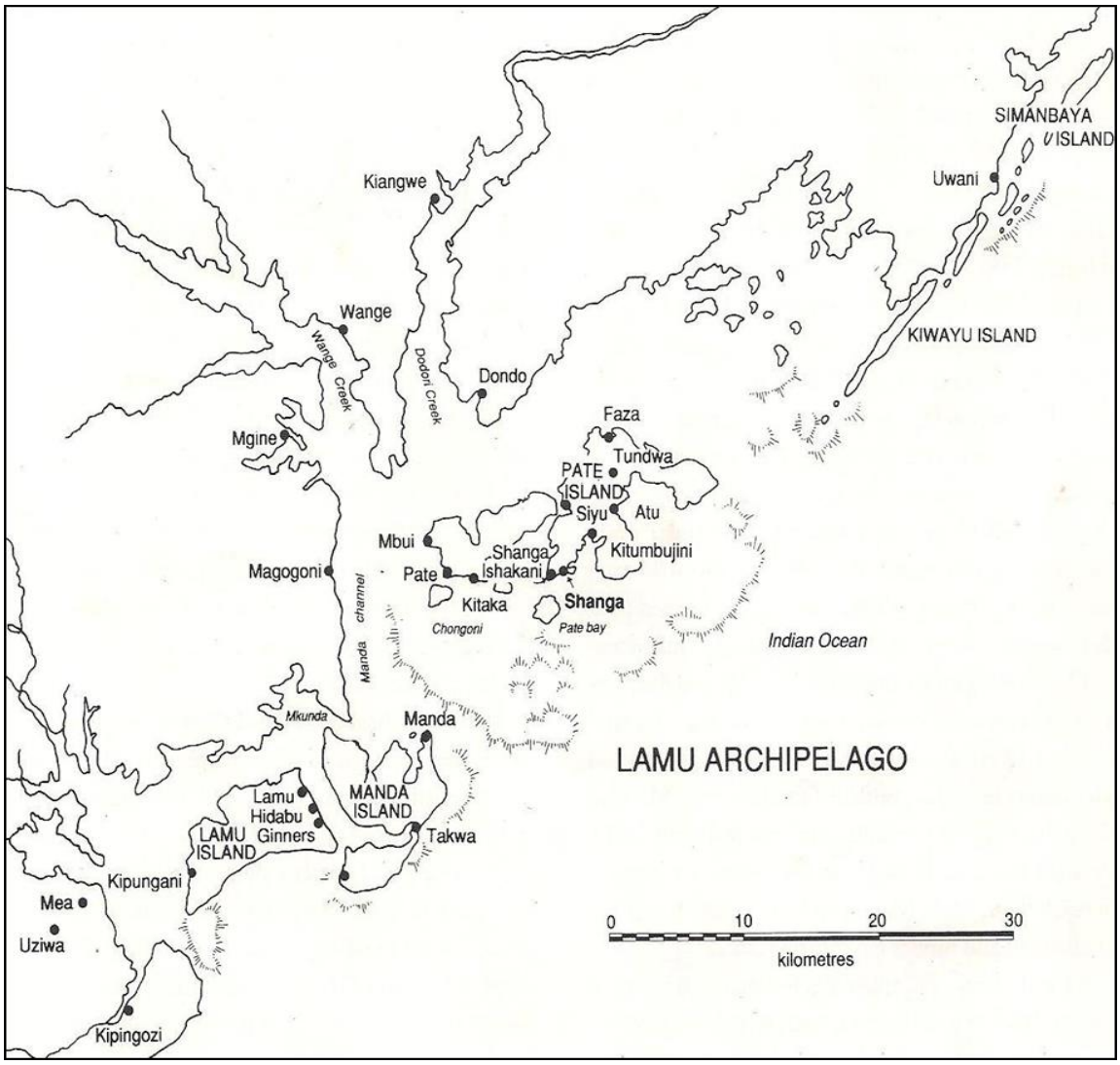
Map 3.1: The East African Coast showing sites mentioned in the text (Source: Horton, 1996:2).

Other islands found on the southern stretch of the Eastern Coast of Africa are Zanzibar, Mafia, Pemba, the Comoros and Madagascar. *The Periplus of the Erythraen Sea* records that this region provided valuable resources that were in demand in Europe and in Asia (Freeman-Grenville, 1975; Huntingford, 1980). It is without doubt that settlements of the East African Coast together with their hinterland counterparts, played an important role in the Trans-Indian Ocean trade that witnessed the growth of stone towns. Large urban sites on the East African Coast were often located at the mouths of creeks or near estuaries, inlets and offshore islands (Middleton, 2004:11).

However, within the hinterlands of these large urban areas were smaller rural village communities that were linked to large settlements across Siyu Channel. Beyond the hinterlands, these cities were connected to a wider eastern, central, and southeastern African forager, agrarian, and pastoral chiefdoms and states through a complex network of interaction spheres (Kusimba and Kusimba, 2005). The movement of people and resources was important for Siyu and other settlements in the Lamu archipelago given their trade orientation.

The topography of Pate Island is generally flat with a rugged terrain in a few places (Personal observation). Poorly developed soils dominate the central regions while sandy plains commonly occur on the fringes of the shoreline. The foreshore area between Pate and Mbui, and between Siyu and Shanga consists of wide low-gradient extensive beaches that submerge during spring tides (personal observation).

The site of Siyu is bound by a shallow creek that circumnavigates the entire northern and western ends of the settlement (Map 3.2). The eastern part of the site is covered in mangrove forest lying between 0 and 3m above sea level. There is a steady increase in altitude from the sea level at the shoreline of Siyu creek to 12m above sea level towards the mid-west and North West of the site.



Map 3.2: Lamu archipelago showing Pate Island and Siyu

(Source: Horton 1996:17).

To the west of Siyu, random coral outcrops are visible and these have poorly developed soil deposits that support a dry coral rag forest, while the shorelines to the south and south-east have sand dunes of the Holocene. It is evident that once the sea had receded after coral formation there was a series of sea level fluctuations that led to deposits of terraces overlain on coral rock (Chami, 1994: 39). These sea level changes are shown in Fig 3.1. As a caution, archaeologists of coastal lands, should note that some of the terraces that are habitable today were under the sea during the last quarter of the first millennium BC and the first half of the first millennium AD, invalidating them as suitable sites for ancient settlements. Thus, some of the settlements of the first millennium AD could have been located some distance beyond the present-day littoral (Chami, 1994: 39).

The area around Mtangawanda at the western tip of Pate Island is generally the most raised in altitude at ca. 24m above sea level (GPS reading at the time of study). There are emergent cliffs on the seaward side overlooking Dodori and Wange creeks. This is because the entire northern Kenyan coastal belt has experienced a rapid fall in sea level since 4,500 years BP exposing morphological steps of sands, also known as terraces and coral reefs in some places (Accordi and Carbone, 2016, see Fig. 3.1). Siyu, like many other coastal city-states in East Africa, is located on such sand dunes that emerged due to the dropping sea level. As more and more sands were exposed due to receding sea level, people settled on the emergent sands where they built houses and embarked on maritime activities in the nearby creek.

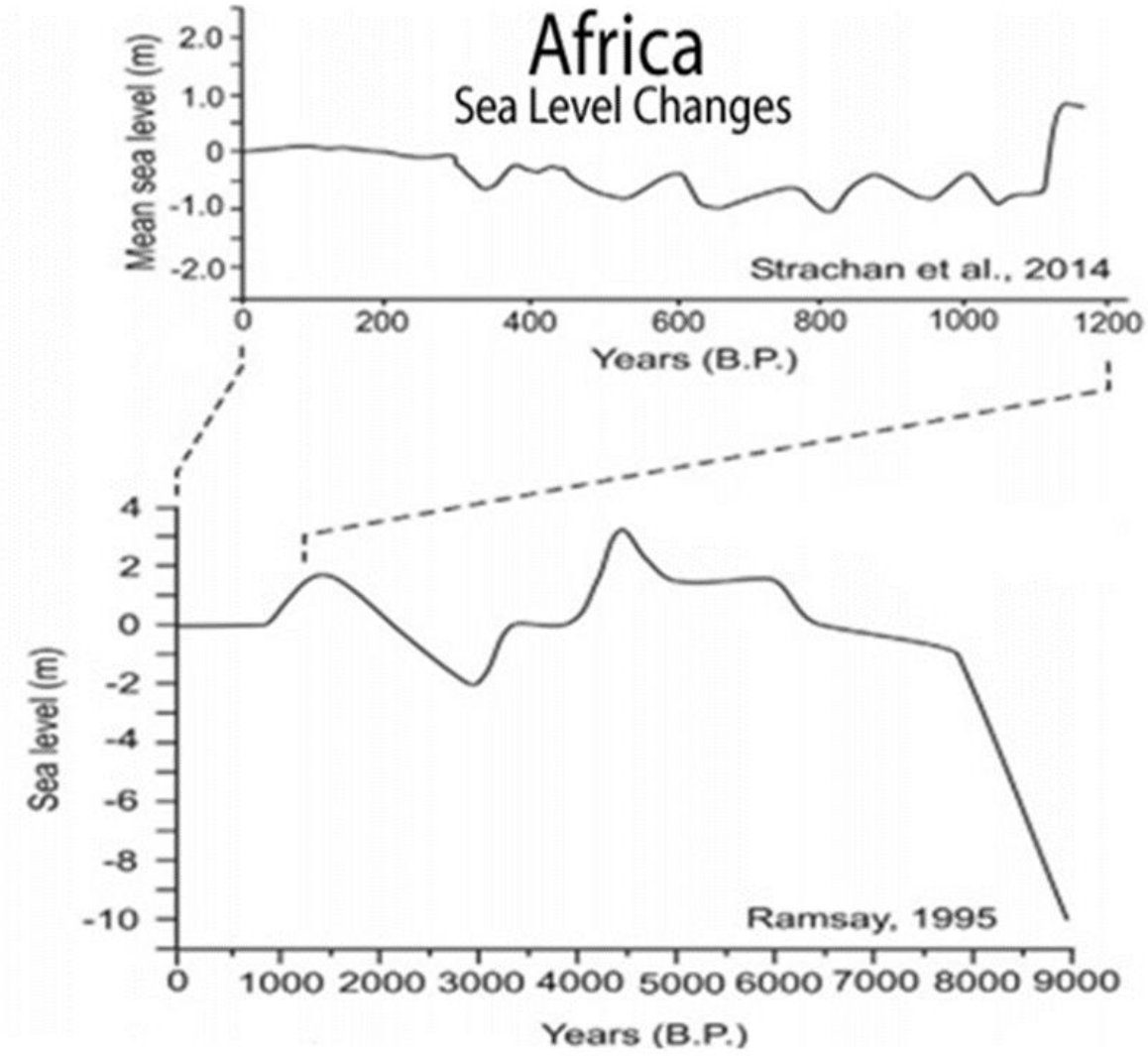
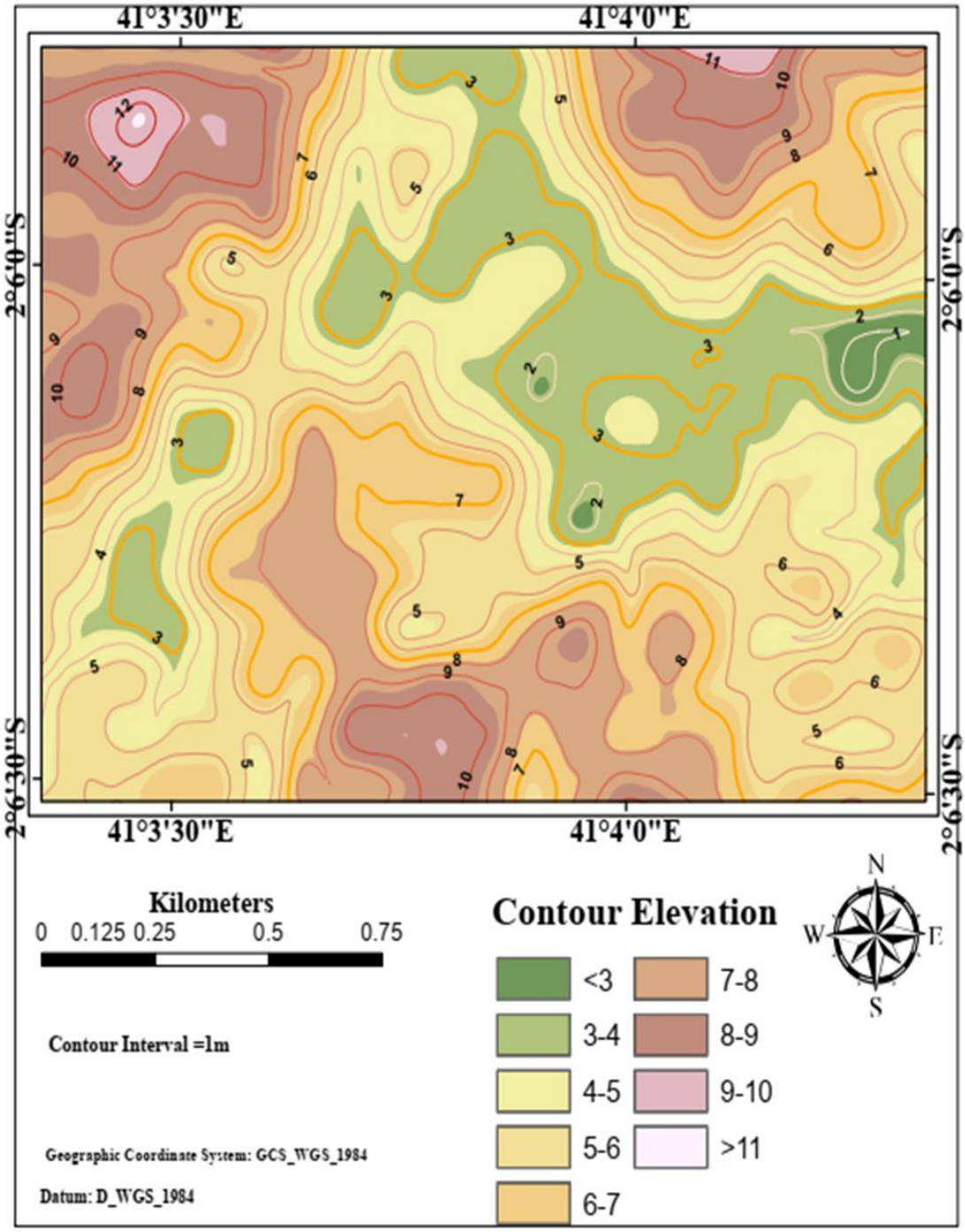


Figure 3. 1: Sea level changes in Africa

(Source: Accordi and Carbone, 2016: 241).

The current topography of the site of Siyu was documented during survey and a contour map produced) See Map 3.3).



Map 3.3: Topography of Siyu.

Source: Field Data (2012)

3.2.1 Geology and palaeoenvironment

As for the geology of Siyu, there is no particular literature that discusses the geology and palaeoenvironment of Siyu. However, Braithwaite (1984) and Abuodho (1992) were useful sources in understanding the general Kenya coastal geology and palaeoenvironment of the Lamu archipelago. The present Kenya coastal geology evolved during the Pleistocene to the Holocene, a period that witnessed numerous sea level changes (Abuodho, 1992; Ochola, 2011).

Coastal geology is dominated by rocks of sedimentary origin which range in age from the Triassic to Recent, with the Duruma sandstones being the oldest formation and represented by the Mariakani and the Mazeras variants (Tychsen, 2006: 14). These are thought to have formed under subaqueous conditions before the Indian Ocean opened up. The Upper Mesozoic is represented by marine limestone and shales. The conglomerates of clay and gravels of Marafa Beds represent the Cenozoic and Recent rocks. In the mid-north coastal region are the Magarini Sands, limestone cemented sands and coral sands representing the Quaternary. Recent unconsolidated river silt, beach sands and some reefs overlie the older units with a variety of depths (Abuodho, 1992: 4). Some of the sand in the Lamu archipelago are thought to be of terrestrial origin deposited by some ancient river system and backed up by wind-blown sand dunes (Tychsen, 2006:14).

The Lamu archipelago lies within an emergent coastline. Different geological features are evidence of marine regression and depositional activity since the Triassic period (Abuodho, 1992: 4). During the Pleistocene, sea level fluctuations associated with

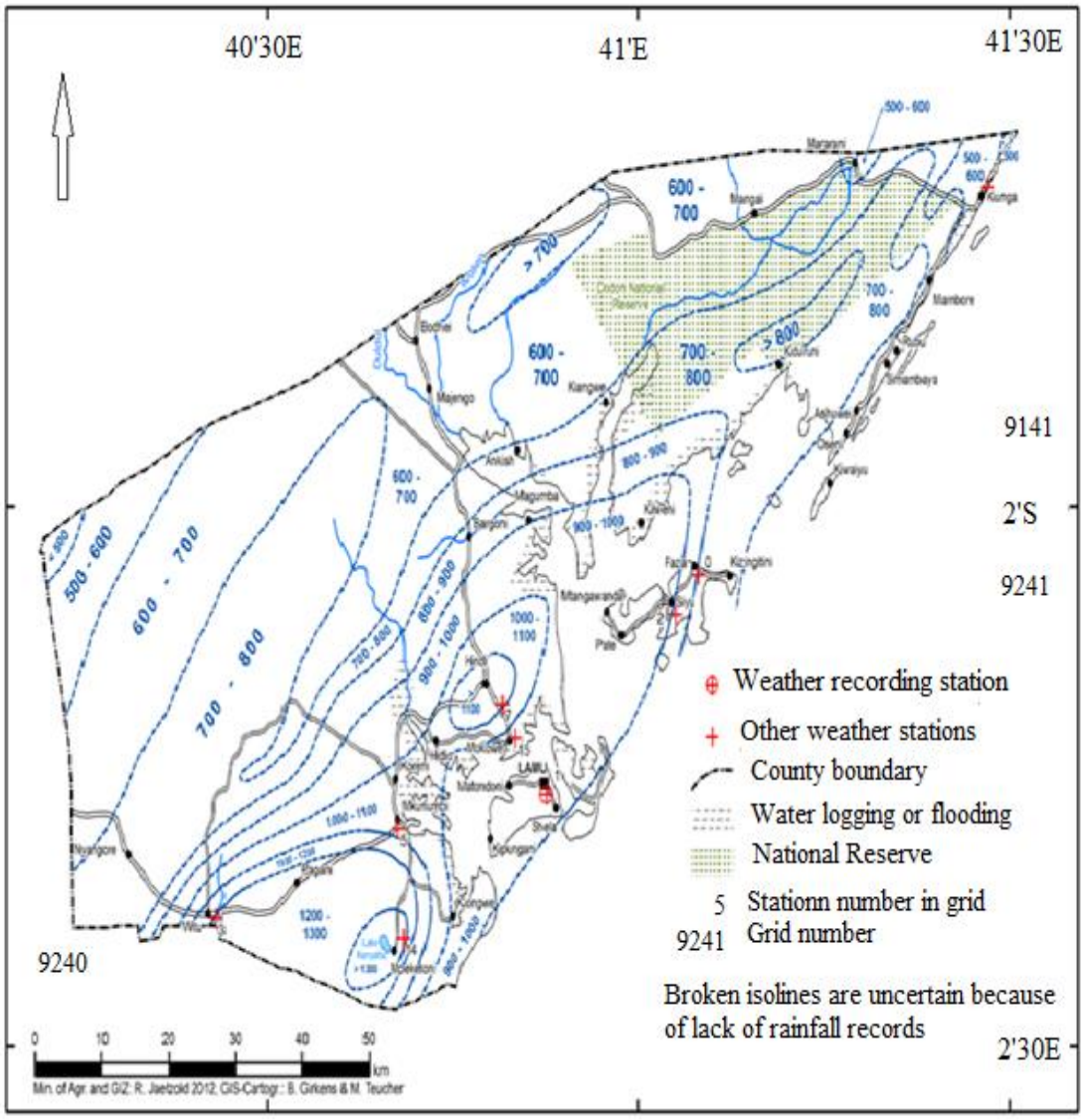
glacial/interglacial phases were responsible for the raised coral reefs and white sands witnessed around the islands and in the offshore regions (Braithwaite, 1984:24). The geology of Pate Island is characterized by an assemblage of aeolian sediments, sandstone pebbles and coral limestone. There are also calcarenites and intercalations of quartz sands, silts and calcareous algae that formed during the late Pleistocene and the Holocene. Underlying these formations are older sandstones of the Pliocene period (Kairu, 1997:10).

3.3 Climate

The climate of the Lamu archipelago is tropical and is highly influenced by the interface of the sea and the landmass. Some of the crucial climatic factors that arise due the interface of the sea and the landmass are the monsoon winds. These winds bring precipitation to the coast throughout the year in varying amounts. The north-east monsoon blows between November and February while the South-east monsoon occurs from May to August. The reversal of the wind direction causes two distinctive rainfall seasons, the high season that occurs from April to June and the low season that occurs from October to December (White, 1983: 111).

It is evident that the amount of rainfall varies considerably with season and distance from the sea. For instance, the amount of rainfall in the first season decreases from the coastal strip of about 10km wide to the hinterland at the rate of about 100mm per 5km. In the second season the rains increase from the coast for the first 10km and then drop to lower levels (Jaetzold and Schmidt, 2012: 392). The average annual rainfall (AAR) of the Lamu archipelago ranges between 800 and 1000mm, which is

slightly higher than the coastal hinterland (AAR) between 500 and 900 mm (see Map 3.4).



Map 3.4: Average annual rainfall of Lamu archipelago and its environments (Source: Jaetzold and Schmidt, 2012:294).

The high rainfall season occurs from April to July with a seasonal average rainfall of 730 mm while the low season occurs from August to December with a seasonal average rainfall of 104mm (Table 3.1). The intermediate rains between the two seasons also occur most frequently, although with very low reliability.

It is also noteworthy that the monsoon winds were an important sustenance for maritime economy. Trans-Indian Ocean trade and fishing expeditions depended on wind-driven vessels such as ships, boats and sometimes canoes (Busolo, 2020: 90). The overseas travellers had to master the operation of these winds between the East African Coast and their localities for effective movement of merchandise (Casson, 1989: 11). Equally, indigenous seafaring communities of the coast had to exploit these winds as they shuttled for fishing and trade between the sea ports on the East African Coast.

Table 3. 1: Rainfall figures from Siyu recording station

(Source: Jaetzold and Schmidt, 2012:293).

Altitude	Name of station	Kind of records	Annual Rainfall in mm	Monthly & seasonal average rainfall in mm											
				J	F	M	A	M	J	J	A	S	O	N	D
9m	Siyu	Average	920	4	3	25	111	299	202	93	43	36	36	40	28
		Reliability	909	0	0	0	67	198	108	69	16	9	10	11	0
		Seas. Av.				730							104		

Temperatures range from 22-34^0 C during the northeast monsoon, dropping to about 19-29^0 C during the southeast monsoon (Abuodho, 1992; White, 1983: 111). The warmer temperatures and saline waters have provided favourable conditions for the growth of polyps and subsequent development of coral reefs (Chami, 1994: 35). The entire coastal zone also exhibits generally high humidity. There are no large wildlife species on the island. Features observed such as burrows and droppings suggest the presence of wild pig, aardvark and a variety of small antelopes.

3.4 Vegetation

The vegetation of the East African coastal belt is mainly scrub forest and thicket developed on coral rag (Clarke and Robertson, 1996). On Pate island where Siyu is located, the forest is highly responsive to natural factors such as Oceanic climate and related landscape and part of it is influenced by anthropogenic activities (Busolo, 2005: 45). The vegetation is mainly dry coral rag forest dominated by *Cynometra, Julbernardia* and *Erythrophloeum,* of the legume family associated with *Albizia* and *Newtonia* of the sub-family Mimosoideae (Clarke and Robertson, 1996:85). Shrubs are frequent, mainly the same tree species as the canopy. There are occasional stands of *Terminalia thorningi (local* name, *mwangati),* a common hardwood with a layered canopy towering over shrub line canopy. Acacias are dominated by *Acacia seyal* species (local name, *mkunga*) and *Makhamia lutea spp.*

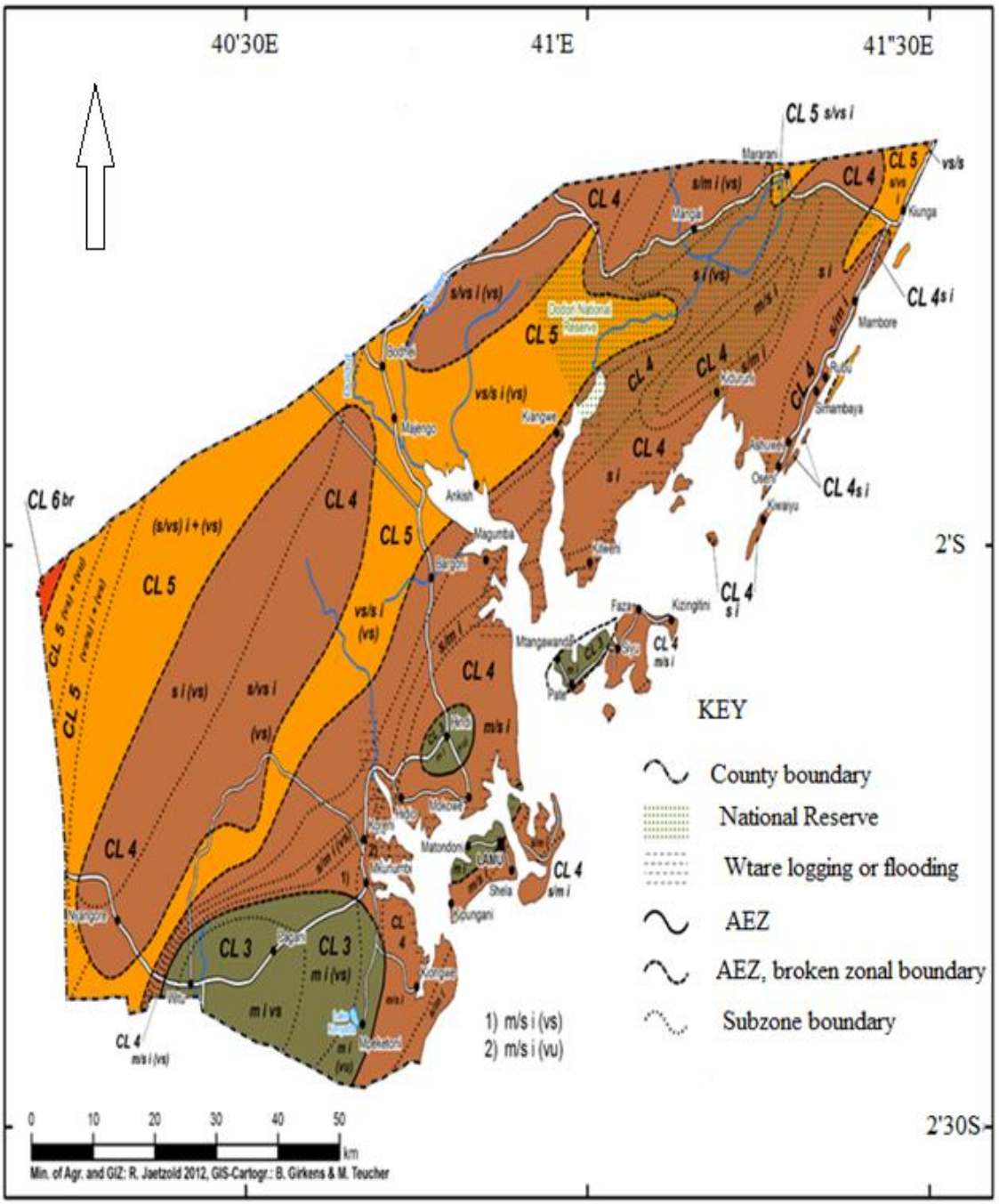
The canopy of the forest near Siyu rises to between 6 and 10m above the ground and has emergent trees of up to 12m high normally associated with pockets of deep soils. There is some vegetation of relatively young scrub forest to the west of Siyu. The

scrub forest is made up of mixed short scrub woodlands and grasses that thrive in rich but shallow loamy sandy soils (White, 1983: 113). Here, the vegetation is partly influenced by marine derived sandy soils, thin loams and red soils overlain on coral (Personal observation, 2012).

Along the creek leading up to Siyu, the vegetation is characterized by no less than three species of mangrove (Clarke and Robertson, 1996). The most common species that occur along Siyu creek, is *Rhizophora mucronata*, followed by *Sonneratia alba* and *Avicennia marina*. The later species is among the earlier colonizers in the ecological succession on primitive substrates especially over the highly saline ones (Busolo, 2020: 91). The *A. marina* species is a primary colonizer in the first row of ever wet and muddy shoreline to the south of the settlement and along Siyu Creek. The stretch of land to the northeast features isolated miniature 'islands' of subclimax grasslands and *Acacia* woodland (Clarke and Robertson, 1996:87). Towards the south on the seaward near Shanga ruins, large emergent trees appear over a dense canopy formed by heath bush of dry coastal scrub forest (Clarke and Robertson, 1996: 90).

The following description of the agro-ecological zones has been abstracted from Jaetzold and Schmidt (2012). The description identifies a number of agro-ecological zones (AEZ) and subzones in the Lamu archipelago based on a combination of existing land-use patterns, amounts of rainfall and soil types. To the west of Siyu, for instance, is a coastal low land zone under coconut and cassava with a medium cropping season as shown in Map 3.5. The soil in this zone is well drained, ranging from very deep to dark red to strong brown and sometimes firm sandy clays to sandy

clays with underlying medium sands to loamy medium sands. The northeast of Siyu is a coastal low land zone under cashew and cassava with a medium to short cropping season (see zone labelled *CL4*). This zone receives very short and weak intermediate rains (*m/si)*. *CL 5* depicts coastal low land with short *(si)* and very short *(v/s) intermediate* rains. There are some cattle and goats which are kept by Siyu residents on a communal basis (Personal observation). The climate is also conducive to the production of sesame, finger-millet and sorghum, as well as modern crops such as pigeon peas, green grams and maize (Jaetzold and Schmidt 2012: 396).



Map 3.5: Agro-ecological zones and subzones of Lamu archipelago and its environments

(Adapted from Jaetzold and Schmidt, 2012: 398).

3.5 The People of Siyu

3.5.1 Ethnic Composition

The coastal people of Kenya are historically identified as Mijikenda, Swahili and Taita (Spear 2000). This is not to mention the presence of non-African identifies such as Indians and Arabs who have been to the coast of East Africa since the early first millennium AD (Huntingford, 1980:31). The Mijikenda appear to be the most dominant in terms of numbers and geographic spread in the coastal hinterland and comprise nine major clans namely; Giriama, Duruma, Chonyi, Digo, Jibana, Ribe, Rabai, Kauma and Kambe. The Swahili are confined in the islands, coastal shoreline and creeks, while the Taita settled in the upper coast region characterized by intermittent highlands. Others are Bajuni and Pokomo who occupy the north coast of Kenya but south of *Uswahilini.* All these people mentioned above speak languages of the Sabaki sub-group of Northeast Coastal Bantu (Spear 2000:56).

These people almost entirely acknowledge identify with one of the earliest traditions, the Shungwaya legend of origin. This tradition describes how the Mijikenda and the Bajuni people lived together at a region by that name, somewhere in southern Somalia or thereabouts and how later moved in a series of migrations to their present day localities (Helm, 2004: 60). The migration was majorly involuntary due to invasions by the Galla and Oromo who forced them southwards to coastal areas and islands stretching between Tana river and Kenya/Tanzania border. Apparently, the Taita had moved out of Shungwaya much earlier as indicated in the variation and less cognates between Kidawida and other coastal languages.

Siyu is inhabited mainly by the Bajuni who are classified in a broad group called the Swahili (Swaleh, 2011: 324). These people are inhabitants of coastal land stretching from the northern islands between Kismayu and the Lamu archipelago and they too have dispersed along the entire coast of Kenya and beyond to northern Tanzania including the island of Zanzibar and Pemba (Busolo *et al.,* 2019: 35; Middleton, 2004: 20). The Bajuni practice a maritime economy comprising fishing, boat construction, trade and agriculture and a little livestock husbandry. Those in Siyu speak Ki-Siyu dialect that is one of the many dialects of Kiswahili. Busolo *et al.*, (2019) identify other dialects that have had influence on *Ki-Siyu* as *Ki-Amu* and *Ki-Pate,* spoken in the neighbouring Lamu and Pate respectively. *Ki-Siyu* just the Kiswahili, has significant cognates with other foreign languages that have impacted on the social life of the people. These are Arabic, Chinese, Portuguese Gujarat and Indonesian.

One feature that stands out about Siyu is that unlike other Swahili settlements, only a small number of Siyu people perceive themselves descendants of emigrants from Arabia. However, the distribution of those who claim Arabic origin is reminiscent of the Swahili people's perception across the East African coast. The majority of them claim decency to the *Hadhrami* of Hadhramaut in Yemen whom according to Middleton (2004) were among the earliest foreigners to arrive at the East African coast in the first century AD. They established trading posts as well as colonial enclaves along the East African coast and became part of the broader Swahili society.

The second clan in importance of Arabic decency is that of the *MaSharifu* (Allen, 1993). This clan is thought to have descended from the Prophet Mohamed and they play a significant religious and social role not only in the Siyu community but in every Swahili community across the Azania coast. It is believed the *MaSharifu* clan has had a conspicuous socio-cultural influence on Siyu people because they are devoted to Islam and have power to bless all (Busolo *et al.*, 2019; Oka, 2018).

Another clan is that of the *Albaury*, descendants of the later Omani Arabs who had emigrated from Arabia and settled in Zanzibar between the mid-eighteenth and the twentieth centuries AD (Middleton 2004:22). According to Middleton (2004 cited in Busolo *et al*., 2019: 35) the Omani Arabs influenced almost all aspects of life among the Islamized Swahili who wanted to be associated with what they considered noble or *Ungwana.* More and more would be willing to be counted as having descended from this so called Waungwana and so it requires diligence and patience conducting a study in this society.

In an interview with some townspeople of Siyu, quite a number of people consider themselves 'Chinese' or *WaChina.* This clan comprise residents with genetic connections to the Chinese ancestry (Kusimba, 2020:54). The *WaChina* of Siyu tend to have some or all of these features associated with the Chinese: flatter faces, smaller noses and wider cheekbones (see figure 3.1 in Kusimba, 2020: 55). Others tend to have epicanthic folds and thin eyes which are some of the physical characteristics of modern Chinese (Zheng *et al.,* 2013). The *WaChina* clan are direct descendants of survivors of a Chinese shipwreck off Pate Bay, more often related in legends but

confirmed by DNA studies. The Chinese expeditions to the East African Coast are well documented to taken place during the Ming Dynasty and at a time when the fortunes of the Swahili civilization were declining (Bita, 2010). The decline was partly due to the impact of the Little Ice Age (1450-1715 CE) that saw drought affect resource-availability and drove coastal communities to tension and conflict (Kusimba, 2020: 53). In one of the expeditions, a Chinese sailor, Zheng He, set off sail to East Africa but one of his ships capsized near Pate in the Lamu archipelago in 1431 and the majority of the crew drowned. The survivors of this episode were accommodated and allowed to settle outside the village of Shanga. They became Islamized and were allowed to marry local Muslim girls. When Shanga was abandoned the remaining population migrated to the neighbouring Siyu which was already occupied by people.

The *WaFamau* is another clan that attracts attention in this discussion. In the current study, oral accounts appear to dispute earlier views that the *WaFamau* clan did not come from Dondo as recorded by Stigand (1913:18) but from Shanga. Busolo *et al.* (2019) have tried to connect this clan to the Chinese owing to their name being linked to the water tragedy. According to Busolo *et al*. (2019: 36), the name *WaFamau* is derived from two words from Siyu-Swahili dialect, 'kufa' which means death and 'mai' or also 'maji' which means water or water body as in sea or ocean. The name *WaFamau* is a compound word with a prefix *'Wa'* referring to 'people' and would therefore mean people who had survived the shipwreck episode. However, oral accounts distinguish between *WaFamau* and *WaChina,* which would suggest that these two clans cannot be one and of the same origin as previously thought.

Another way in which the group could be identified was through a subdivision into three groups such as the *Bumbuweli*, *Urdumila*, and the *Waungwana Ngamia.* Allen (1993) further argues that *WaFamau* refer to other people whose origin was either Portuguese, Chinese or Persian and could not be easily fitted into any other group. The Portuguese connection would make sense considering that *Urdumila*, having no particular meaning in Siyu, was likely derived from a household Portuguese name, de Mello. For instance, Martin Affonso de Mello was one of the Portuguese commandos who attacked the city-states of Siyu and Faza for their role in the Turkish invasions (Strandes, 1961). In most of the Swahili settlements, when people of doubtful origins died of say water tragedy, they could not be buried in public cemeteries but in undignified sites near the shoreline and away from the town. But it is doubtful that any of these three groups were treated as such.

Interestingly, *WaFamau* appear to be a relatively large lineage spread all over the Swahili coast and in every Swahili settlement it is common to come across one or two people who identify themselves as being of *WaFamau lineage*.

Allen (1979:67) reports another subgroup called *WaSegeju*, to have been among the people of Siyu although this study did not find anybody who admitted to belong to this group. The WaSegeju were first described by Father Monclaro in 1569 to have been of mixed Somali-Nyika tribe of pastoral habits (Strandes, 1961: 304). Historical records show that they were among the earliest neighbours of the Bajuni in what was then called '*Uswahilini*' or the Lamu archipelago before the middle of the 16th century (Walsh, 2018: 125). In about 1640 they were reported by the Portuguese to

have bveen in the Malindi area (Strandes, 1961: 141, 304). According to another source, Veran (2013), the *WaSegeju* may have been pushed further south by the *WaGalla* to their present day region between the Kenya/Tanzania border and Tanga.

One very important aspect that this study found out was the recognition of *WaSwahili* as a separate clan among the people of Siyu. Earlier in the chapter, the term *WaSwahili* has been used to refer to all townspeople who are Muslim Swahili speakers whether or not they claim Arab origin. According to Allen (1979), clans that claimed Middle East origin would all in other towns be *WaSwahili* per excellence, which is not the case at Siyu. Current historical and linguistic research into the origin of *WaSwahili* seems to confirm that *WaSwahili* are indeed non-Arabic but of African Bantu speaking group with remarkable Muslim cultural influence including many loan words from Arabic and other languages into Kiswahili language (Karisa, 2011: 39).

It is also noted that a few people in Siyu lay claim to Portuguese and people of Indian ancestry (Busolo et al., 2019). The Portuguese gained control and subjected East African coastal cities to their rule from the 16th century to the mid-eighteen century AD (Strandes, 1961). By the close of eighteenth century the Portuguese had settled in the Swahili towns and established their own enclaves such as Gavana in Mombasa. With such enclaves came also their administrative posts in Lamu, Pate, Faza for the implementation of the levies upon the Swahili city-states. The Portuguese tried to convert many to Christianity but their effort came to naught once they were defeated by the Omani Arab Muslims. The people of Indian origins on the other hand, are

known to have come to the east African coast much earlier than the British period. For instance, earlier in the First century AD, the author of the *Periplus* shows that the Indian Ocean was traversed by merchants between the East African sea ports and the Indian Sub-content (Huntingford, 1980). Some of the Indians settled on the western seaboard of the Indian Ocean as they went about their businesses. Later in the 15th century, Christian Indians were present in Malindi when Vasco da Gama stopped by in 1498 (Freeman-Grenville, 1975: 55). We also know that an Indian pilot navigated da Gama's fleet from Malindi to India attesting that they (Indians) had mastered the sea route across the Indian Ocean for sometimes. They brought with them fashionable merchandise in fabrics and clothing as well as furniture and cookery that today form Swahili ethnographics and life in general (Middleton, 2004: 22). The Indians came from different ethnic backgrounds such as Konkani, Goans, Parsis, Gujarati and Punjabis.

Lastly, there is a population of descendants of ex-slaves. Apparently slave trade was an important economic activity alongside other types of trade throughout the history of Swahili society to the close of the nineteenth century. Coopers (1980 cited in Busolo et al., 2019) notes that the majority of slaves were exported to overseas destinations but some were sold to slave owners within the East African region (Busolo et al., 2019: 40):

> While the majority of slaves were shipped abroad, some were kept as farm workers, domestic servants and craftsmen in the Swahili states. Siyu was one such state that kept slaves as workers on the coconut plantations and as household servants. Following the British abolition of the slave trade in 1897 in Zanzibar and in 1907 in Kenya, freed slaves were allowed to settle as free people but continued to identify themselves with particular patrician lineages.

Each of the Swahili settlements has a unique account of how the two have interacted through time. In the neighbouring Pate, for instance, though living in *Mtaa wa chini,* also known as *Kitokwa,* descendants of ex-slaves maintain an inconspicuous social relationship with the descendants of their masters who live in *Mtaa wa juu,* a preserve of the patrician. As for Siyu, this kind of identity and relationship seems to have fizzled out, probably due to the cosmopolitan nature of its population and that the three settlements namely, *Shindayuwa, Maziwani* and *Pwani* could not be associated with social stratification as it were in other former Swahili city-states.

3.5.2 Economy, Exchange and Subsistence

There is no doubt that Siyu took part in the trans-Indian Ocean economy and trade network that developed during the Early Common Era that peaked around 1300 AD (Oka, 2018). The economy of Siyu is today dominated by marine resources (Middleton, 2004; Busolo, 2005), one of which is the mangrove forest. Lamu archipelago alone has more than 300 km^2 out of a total area of 500 km^2 of mangrove forests on the Kenyan coast (Tychsen, 2006: 25). The mangrove forest that fringes Siyu creek and the shore line at Shanga is a valuable resource that provides hardwood poles for roofing, charcoal, tannin and medicine. It is also used as fuel in burning coral rag and in boat construction (Allen, 1993). The mangrove forest grows in saltwater swamps of mud and sands in the inter-tidal zones of Dodori, Kiangwe and

Siyu Creeks (Busolo, 2005). The trees provide breeding grounds for fish which is one very important source of subsistence and livelihood for the coastal people.

The abandoned reef platforms west of Siyu fort and upstream Siyu Creek are useful sources of coral mortar, known in local dialect as *chanu,* and stone for construction purposes. The coral stones are quarried, dressed and sold for masonry works. Siyu people also own extensive farmlands east and west of the contemporary settlement and on the mainland at Dondo area in Boni forest (Busolo, 2005). They cultivate coconuts, mango trees, cassava, sesame and maize. Small gardens in the backyard of most households grow varieties of vegetables such as peas, beans, egg-plant, pepper and tobacco (Busolo, 2005: 23).

Another important economic activity is livestock keeping which involves rearing cattle, goats and poultry (Chami, *et al.*, 2012). The cattle are the indigenous humped zebu type mainly kept and butchered for food and sometimes sold for ceremonial purposes. The sea and narrow creeks not only permit a closely knit network of sailing routes between Siyu and other island settlements but also with mainland farming settlements.

Road transport has become popular with regular public service vehicles shuttling between Mtangawanda via Pate and Siyu to Rasini and Kizingitini for traders and travellers alike wishing to connect to a cargo- or racing- boat to or from Lamu (Chami *et al*., 2012).

Siyu people live in the town, *muini,* and tend to their farms, *mashamba*, away, within the island and on the mainland (Busolo, 2005: 34). For subsistence purposes, these people cultivate maize, cowpeas, sesame and a variety of vegetables some of which they consume locally while some is sold. One very important area of production is that of artisan construction. Siyu is renowned in Pate Chronicle as a town of craftsmen especially in house construction, ships, craft goods such as leather, clothing, door works, stools and boat making (Stigand, 1913; Tolmacheva, 1993). The town is also dotted with shopkeepers who process and sell such commodities as bread, salt, sesame-oil and coconut besides having a common market where townspeople bring their merchandise such as fish, meat, fruits and coconuts.

3.5.3 Architecture

The houses of Siyu are typical of Swahili architecture, mainly of coral stone bonded in mortar and rectangular with complex internal designs (Allen, 1993: 69). According to Allen (1993), the houses traditionally contained long parallel rooms with avenues leading to ablutions, each normally designed with an internal water cistern. The cistern is filled with water from an external well through some conduits. All houses have a terrace or *baraza* upon which the man of the house will meet his visitors or just take a rest as he chats with peers. The terrace is equally an important part of the architecture since ancient times as captured in the account of Fra Gaspar de Santos Bernardino of Italy who visited Siyu in May 1606 and made this observation "…so many people indeed came to their windows and on to their terraces to see us…" (Freeman-Grenville, 1975: 162).

Storied houses were reported by Stigand in 1913. However, many eighteenth century houses and mosques have since collapsed and modern houses have hardly been of storey design (Busolo, 2005: 35). Ceilings are made of coral mortar with mangrove poles and coconut palm-leaf roofs. Houses are adorned with a double door elaborately carved from indigenous wood. The house's central courtyard is used by household members for general activity and as a playground for children as well as storage for firewood, building materials and extra space for past-time family chats. Like in all other Islamic settlements, mosques are quite significant features in Siyu. About ten mosques are in use today all spread out in the entire settlement that ensures easy access for all town dwellers (Personal observation, 2012). These are built with high skilled masonry that ensure durability. Most of the surviving ruins include elaborately curved and decorated *mihrab* (see Plate 3.1). *Mihrab* is an Arabic word referring to a semicircular niche in the wall of a mosque that indicates the north or *qibla* that is, the direction of the Kaaba in Mecca from East Africa and hence the direction that Muslims should face when praying. The wall in which a *mihrab* appears is thus the "*qibla* wall" or the north wall.

Plate 3.1: The ruined mihrab of Bwana Shee mosque.

3.5.4 Marriage, Property and Inheritance

Marriage is one of the transformative rites of passage that continue to epitomize the Swahili culture. Other transformative rites of passage are birth, initiation and death. The complexity of these rites varies greatly between people of differing social status (Middleton, 2004: 92). Siyu is mainly a matriarchal society where women control family property since they inherit from their fathers. Like in all other Swahili societies, a daughter who is ready for marriage receives the right of residence in either a new house built for her by her father or she may be allocated a specific room in her father's house. On marriage a groom moves into the bride's house where the two will establish a new family. The understanding with all other Swahili is that in

case of divorce or death of one of them the house remains the property of the father's lineage and cannot be disposed off (Middleton, 2004: 97).

Middleton identifies several kinds of marriage between men and women in Swahili society. However, this study was confined to the kind of marriage in Siyu community. The most common kind of marriage in Siyu is the legal Islamic marriage. This is presided over by a Muslim judge witnessed by family members, friends and relatives in line with Islamic law. A groom, normally a close-cousin, pays bride wealth and gives gifts to the bride and her family. Another kind of marriage involves unrelated groom and pride. The groom will still have to move to the bride's house in the fathers' home.

3.5.5 Religion and Customs

Religion, in particular Islam, has been mentioned as one of the major global forces that connected ideology and polity through the activities of Arab merchants and warriors to the East African coast between the 8th and 12/13th centuries (Oka, 2018: 296). However, it is not clear what kind of belief system the early settlers of Siyu had. Speculating from the variety of subgroups that settled on Pate after the initial settlements, it is possible there were quite a number of belief systems that may have characterized early religion and customs. From the archaeological record with evidence of ancient mosques, Siyu had trade connections with the outside world especially with the Muslim centres of Arabia (Allen, 1979; Horton, 1996). People from Arabia had a significant influence on Siyu's religion and customs. One piece of evidence of early Islamic faith in Siyu comes from an antique *minbar* of the Friday

mosque that bears the Muslim date of 928 AH that translates into 1521 AD (Allen, 1979). This antique *minbar* was still in current use in the Friday Mosque (Personal observation, 2012). Minbar is a dais next to the mihrab in the Mosque where the Imam stands to deliver the sermon. Throughout her history, Siyu has remained largely a Muslim town. Among the ruins observed in Siyu are those of five mosques that were used in the past, while a total of ten mosques were in use at the time when this research was done. Like all other Swahili people (Middleton, 2004: 113), the people of Siyu believe that the Quran is the sacred book set down by the Prophet Mohammed on his hearing the words of Allah (Allen, 1993:45). They observe religious rules based on men's attendance at mosques up to five times a day. Only men are allowed to enter most of the mosques while women remain in the outside courtyard or pray in their houses.

According to Middleton (2004: 114), the extent to which Islamic practices are adhered to depend on one's alleged sub-clan of origin as well as personal occupation. It is believed that while the majority of the people are staunch Muslims, a few others mix Islamic faith with the traditional belief system associated with spirits of the sea, forest and sacred cults that are characteristic of their neighbouring communities in the hinterland (Horton and Middleton, 2000; Busolo, 2005: 34).

3.6 Conclusion

This chapter has discussed the setting of the study area covering the physical environment, climate, vegetation and the anthropological component. Under the later, ethnic composition of the people of Siyu is discussed showing the various clans they

claim to belong or come from. Economy and exchange systems that characterize Siyu's current resource base and wealth is also covered. Other aspects of the society that are discussed include architecture, marriage, property ownership as well as religion and customs.

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

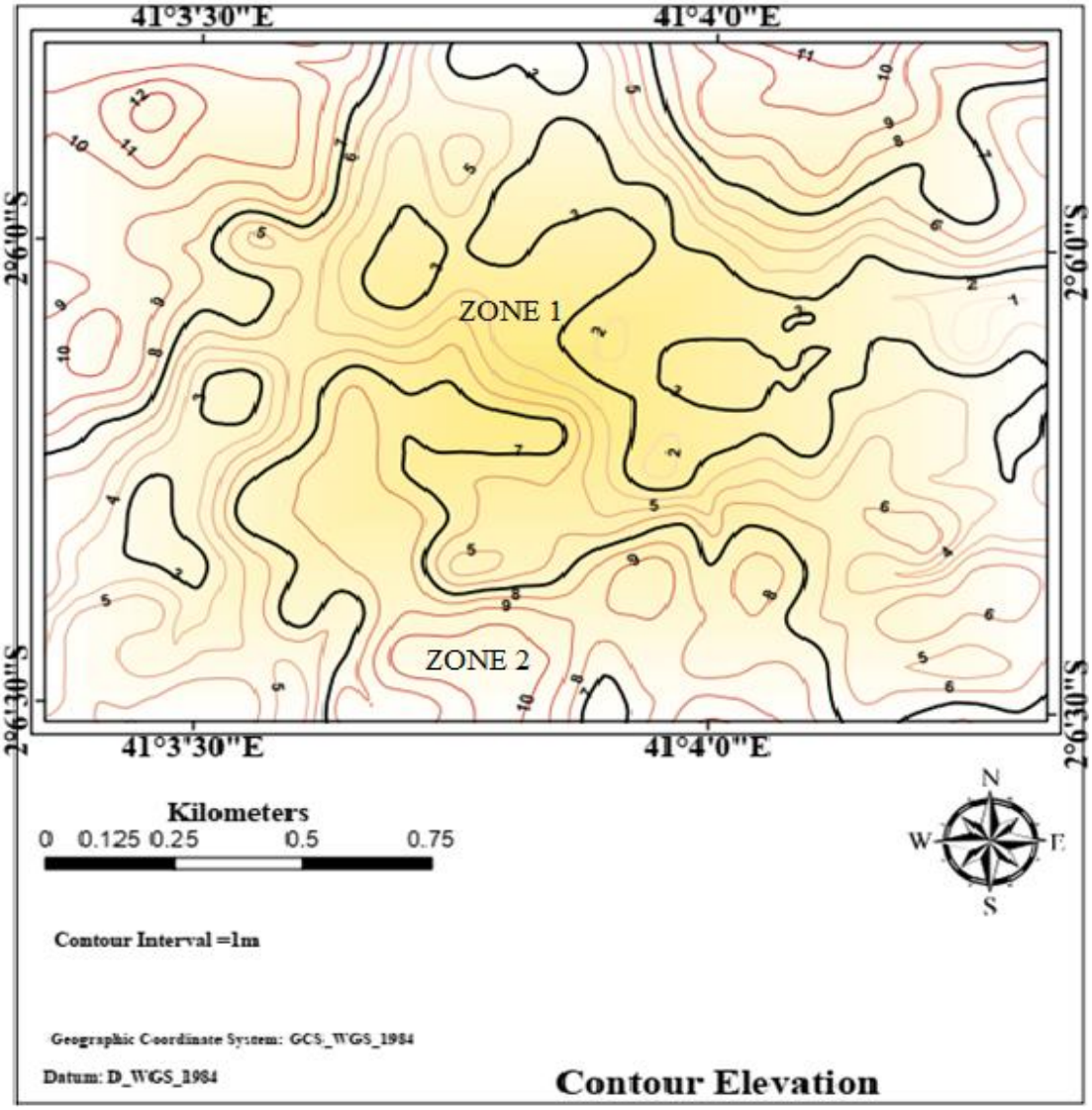
This chapter describes the various methods that were employed to conduct the survey, mapping, excavation and analyses. Surveying and mapping remain some of the most useful tools in presenting spatial data and spatial relationships between the various features observed inside and outside the town wall enclosure. Each of the methods discussed was adopted depending upon the terrain, archaeological features and materials.

4.2 Sampling

The study employed sampling techniques as a means of choosing the excavation units and collecting samples. A large portion of the town wall enclosure was neglected and overgrown with vegetation, making it difficult to set transects over the site. However, the vegetation cover was cleared from the southern part of the ancient settlement guided by the occurrence of archaeological features and material in more accessible localities. Judgmental sampling was applied select areas in the contemporary settlements that were not physically well planned within the town wall enclosure.

Two zones were mapped out on the basis of altitude above sea. First, zone 1 was at an elevation 3 and 7m above sea level, within which Trenches 1 and 2 were located. Second, zone 2 was mainly in the central part of the ancient settlement with an elevation of 7m but not higher than 12m above sea level. In this zone were located Trenches 3 and 4. The occurrence and distribution of surface artefacts were useful in determining the excavation units. Zone 1 was crucial for this study due to the overlap

of modern and ancient settlement now in ruins. There was a challenge of dealing with surface materials from different time periods apparently mixed during cultivation. The majority of the ruins of the ancient settlement were located in the region with an altitude of between 7m and 10m above sea level, where there was a high concentration of much older archaeological materials and site abandoned earlier. (see Map 4.1).



Map 4.1: Contour map (Adopted from Busolo et al, 2019: 20).

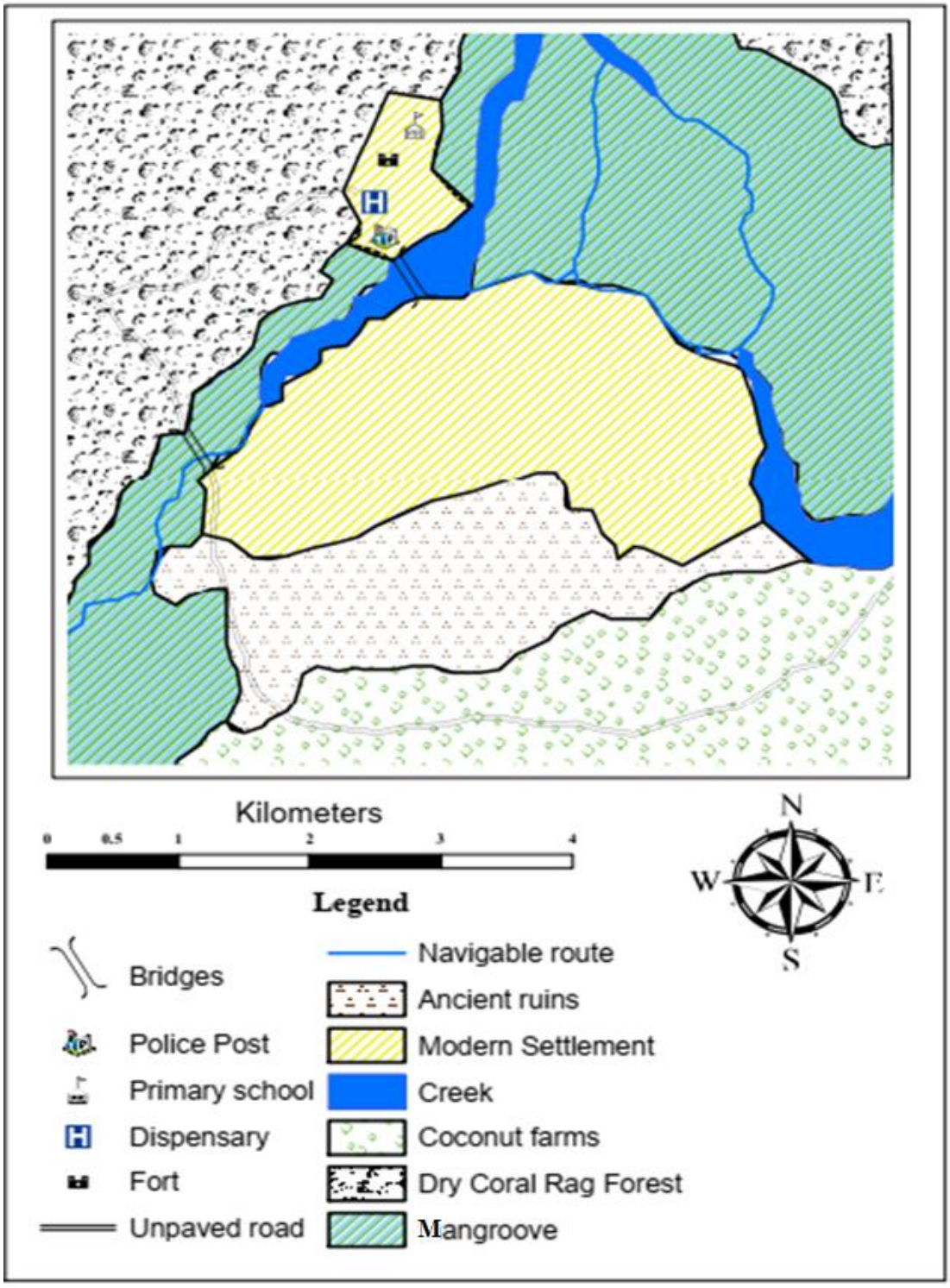
In trench 4 a grid system of squares measuring 1 m x 1m was designed with the following squares marked out: A, B, C, D, E, F, G, H, I, J, K, L, M, N and O. Out of these, squares C, K and M were randomly selected for excavation to sterile levels. Other squares were excavated as extensions to trace and record the occurrence of archaeological features (see Table 4.1).

Table 4.1: Organization of excavation

	TRENCH	SQUARE UNITS	
ZONE 1		Excavated squares	Extended excavations
	1	A	B
	2	A	B
ZONE 2	3	A	B, C, D, E, F and X
	4	C, K, M	A, B, D, E, F, G, H, I, J, L, N and O

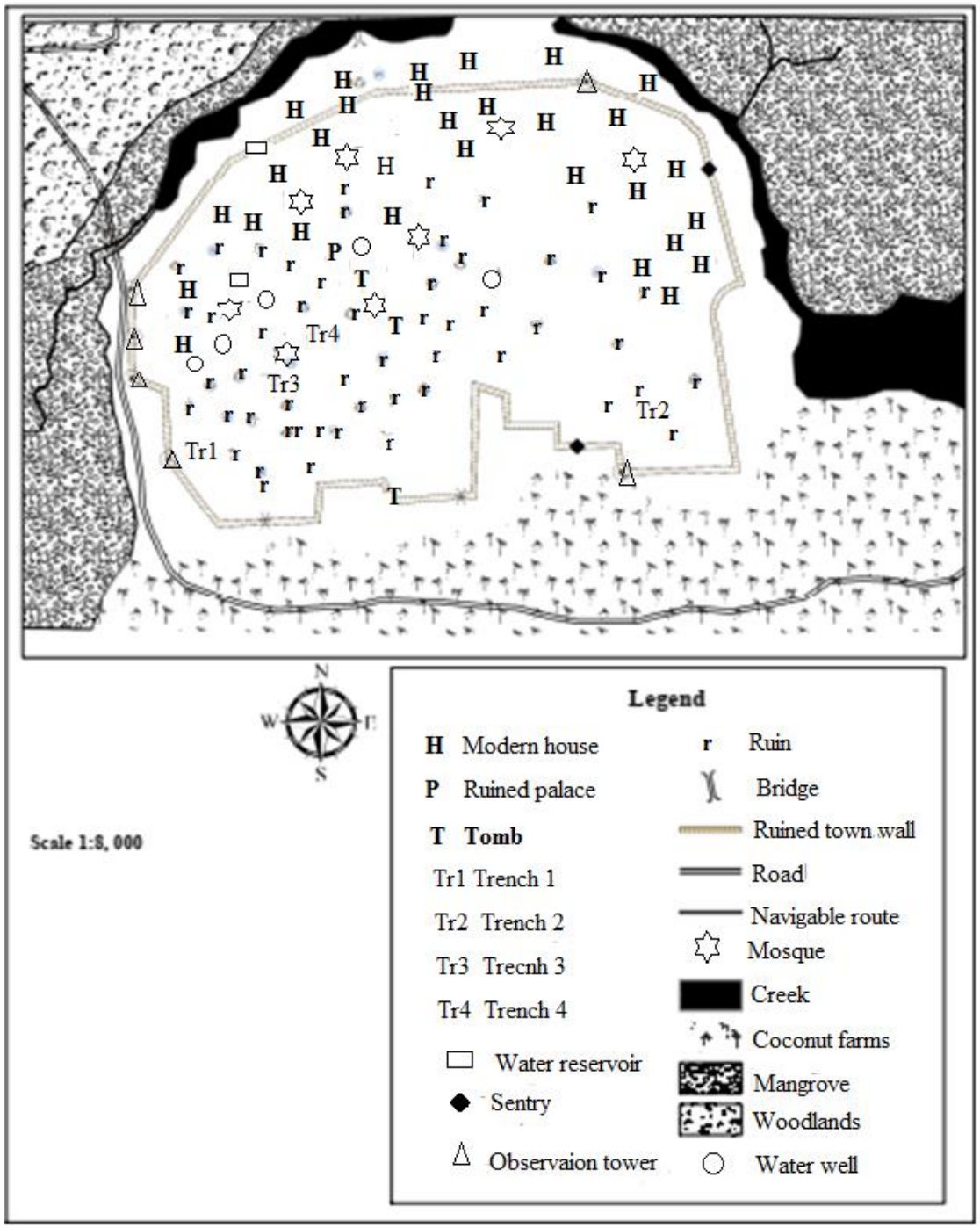
4.3 Survey and Mapping

Archaeological survey enabled collection of data for the drawing a site map capturing major features and localities at the site. Natural features such creek, mangrove forest, settlements, ruined houses and mosques were plotted. The setting of the site of the settlement is clearly presented in this map (see Map 4.2).



Map 4.2: Siyu site. (Adopted from Busolo et al., 2019: 31)

The town wall enclosed an area of 22ha of settlement area with ruins of ancient and modern domiciliary structures. The visible ruins are mainly mosques, houses, boreholes, cisterns and tombs. There are burial sites to the north of every ancient mosque. However, a number of tombs, including the tomb of a revered 18th Century Poetess, Mwana Kupona, were observed in designated cemeteries away from the mosques. Six observation towers (OTs) and two sentries were positioned at strategic localities along the town wall. One sentry was located beside the main gate to Shanga, while another overlooked the creek to the east. A small midden in the southeast rises to an altitude of 7m above sea level. Contemporary houses are concentrated in the north and in areas between 3 and 7m above sea level (see Map 4.3).



Map 4.3: The town wall and distribution of ruins (Adopted from Busolo et al., 2019: 32).

There is an overlap area between the ancient and the modern settlement, which could indicate that the occupations oscillated within the enclosed city-settlement through time, as people re-used coral materials from older houses for new constructions and cultivated crops in the abandoned areas. There is minimal cultivation within the town wall enclosure with about seven agricultural zones identified, five of which are located within the ruins of the ancient settlement while the remaining two are located within the modern settlement. However, major agricultural activities take place outside the town wall and to the south of the settlement. Natural vegetation cover and the current land use were delimited as well as contemporary houses and structures.

4.4 Excavation

The excavation was done using a selection of tools to remove soils or spits at an interval of 10cm. The vertical dimensions and depth of the spits were controlled by the use of a datum point fixed at a designated locale on the site. The spits were thus labelled serially from levels 1 through to level 33. The excavation progressed with the removal of soils together with archaeological materials from arbitrary levels of 10cm depth using trowels, brushes and geological picks. The soil was then sieved through a 5mm wire mesh that allowed collection of artefacts and faunal materials. The colour of soil was determined using the Munsell Soil Chart. A complete record of all archaeological materials, their association, provenience and context maintained throughout the excavation. Stratigraphic profiles were drawn based on soil colour, texture and cultural materials that occurred in every stratum. The excavation of the trenches is discussed in the proceeding sections.

4.4.1 Trench 1

Trench 1 was besides a bastion on the South west of the settlement (Figure 4.1). Grid squares A and B were plotted each square measuring 1m by 1m, set next to the northern wall of the bastion marked X. The centre of the bastion appear to have been back filled with coral debris overlaid with gravel and sand is sequence. A flight of steps could be seen to the right that enabled people to climb up the tower. The walls of the tower measured between 50 and 55cm wide with internal diameter measuring 490 cm while the town wall around the settlement measured 60cm wide. Plate 4.1 shows a section of one the observation towers along the southern town wall.

Plate 4. 1: A section of the bastion along the southern town wall.

The surface materials in square A were mainly debris from the ruins of the southern bastion. In the top most level 1 at a depth between 30 and 40cm, light yellowish brown sandy soils (2.5Y/6/3) dominated with coral boulders and fragments of white wall plaster. Assortments of local pottery and few imported pottery as well as faunal remains were excavated. In levels 2 and 3 the soil colour was consistent with that in level I except that there were tiny shinny fragments of silts, and a reduced number of coral boulders.

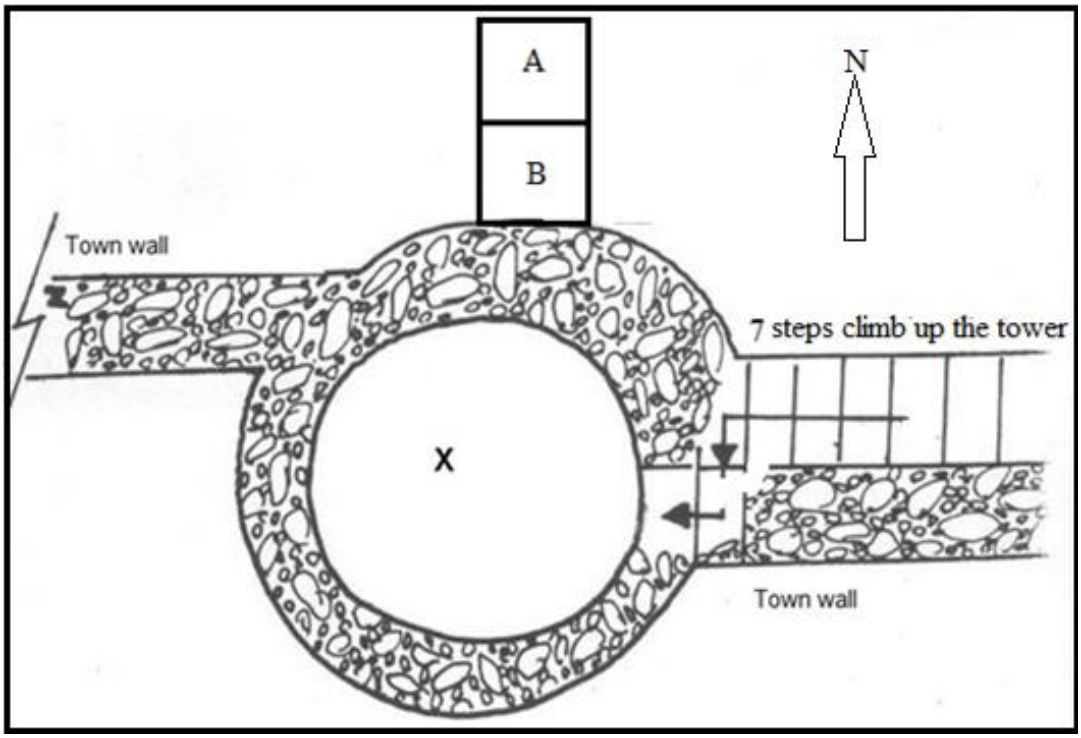


Figure 4.1: Schematic plan of trench 1.

However, colour change was noticed in levels 4 and 5 with the appearance of light greyish sands (2.5Y7/1)) at the close of 80 cm below datum point. Loose reddish brown soils (2.5YR4/3) appeared I level 6 between 80 and 90cm with burnt lime extending down to level 7. Between levels 7 (90-100cm) and 8 (110-120cm) a deposit

of limestone stretched along one section of the trench. A posthole measuring approximately 17 cm in diameter was discovered in one section of the trench. A pale brownish deposits filled the hole with no other organic matter nor coral.

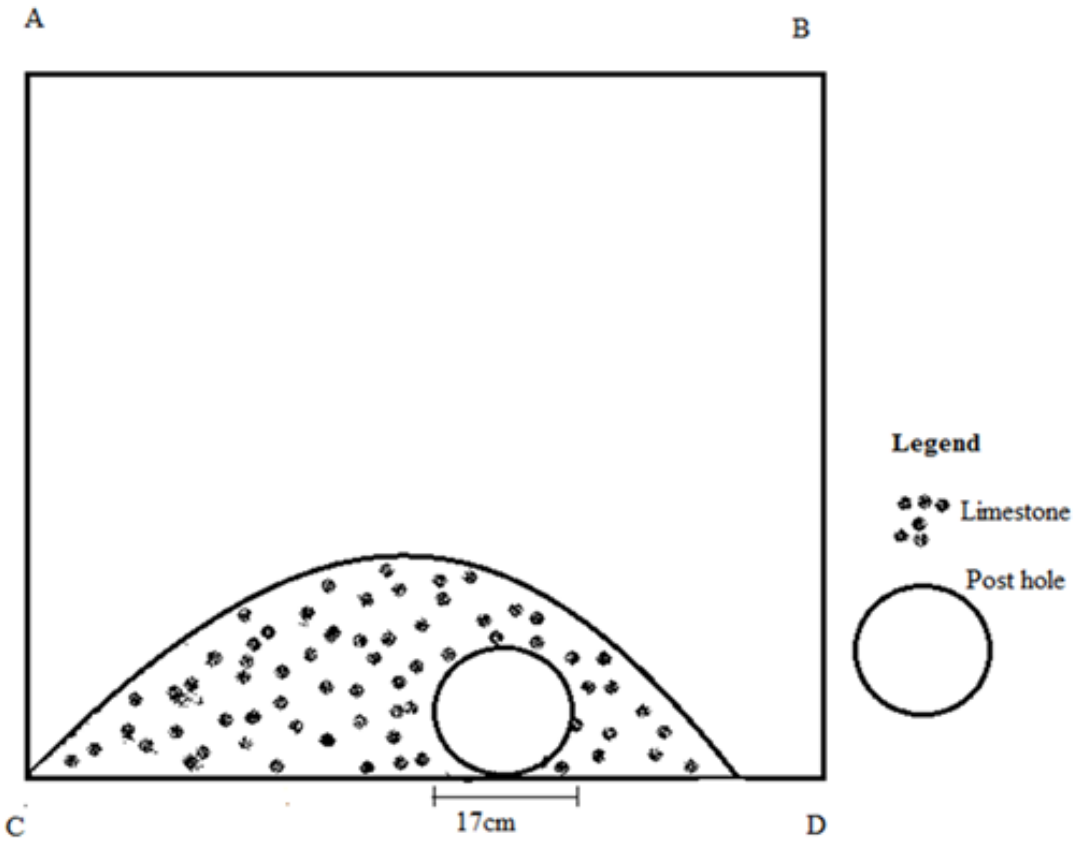


Figure 4. 2: Limestone and post hole between levels 7 and 8 of trench

At a depth of between 110 and 120cm sandy soils with high moisture content were excavated together with charcoal fragments, glassware, a single sherd of imported ware, wheel-drawn potteries and numerous local pottery. Rodent mandible with incisor and premolar teeth were also excavated. Loose grayish sands (2.5Y6/1) were noticed in level 10 (120-130cm) mixed with ash deposits. Some of the material finds included a glass bead and Chinese porcelain associated with a high concentration of charcoal fragments extending down to level 11 and level 12. In level 15 light

yellowish brown soil (2.5Y6/3) was encountered, with numerous charcoal fragments down through levels 16 and 17 to level 18. Reused pottery ware, palm seeds, clay and metal ware were among the excavated materials from these levels.

Significant colour changes in the soil occurred in level 22, where with pale yellowish sands soils (2.5Y7/3 were encountered throughout levels down to level 23. Light yellowish brown clay (2.5Y6/3) occurred in level 24 with some charcoal fragments. Postholes similar to the one encountered in level 7 were noticed at level 24 |(Fig. 4.3). The postholes were associated with ash, charcoal and burned palm seeds. Other materials included ivory and copper ware. Yellowish brown clay appears in level 25 (260-270cm) with a reduced amounts of local pottery. Burned palm seeds and iron slug were among the finds. The excavation terminated at 330cm below datum point. Pottery occurrence was minimal. This prompted discontinuation of the excavation.

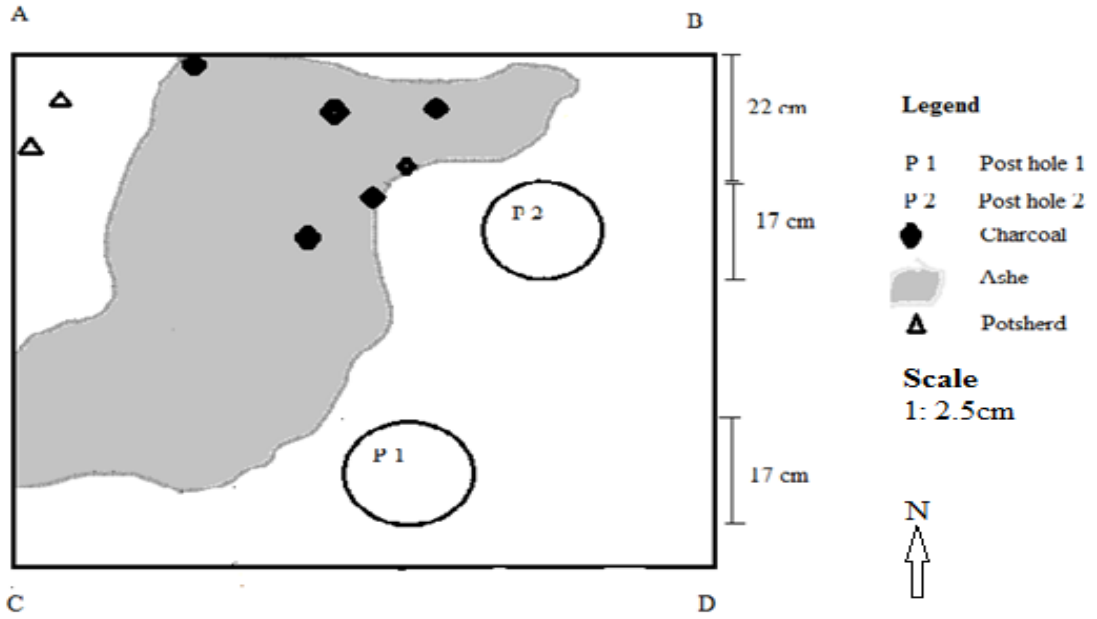


Figure 4. 3: Post holes at level 24 of trench 1 square A.

The figure below (Fig 4.4) below shows stratigraphy as a representation of the proceedings of the field activity at Trench 1.

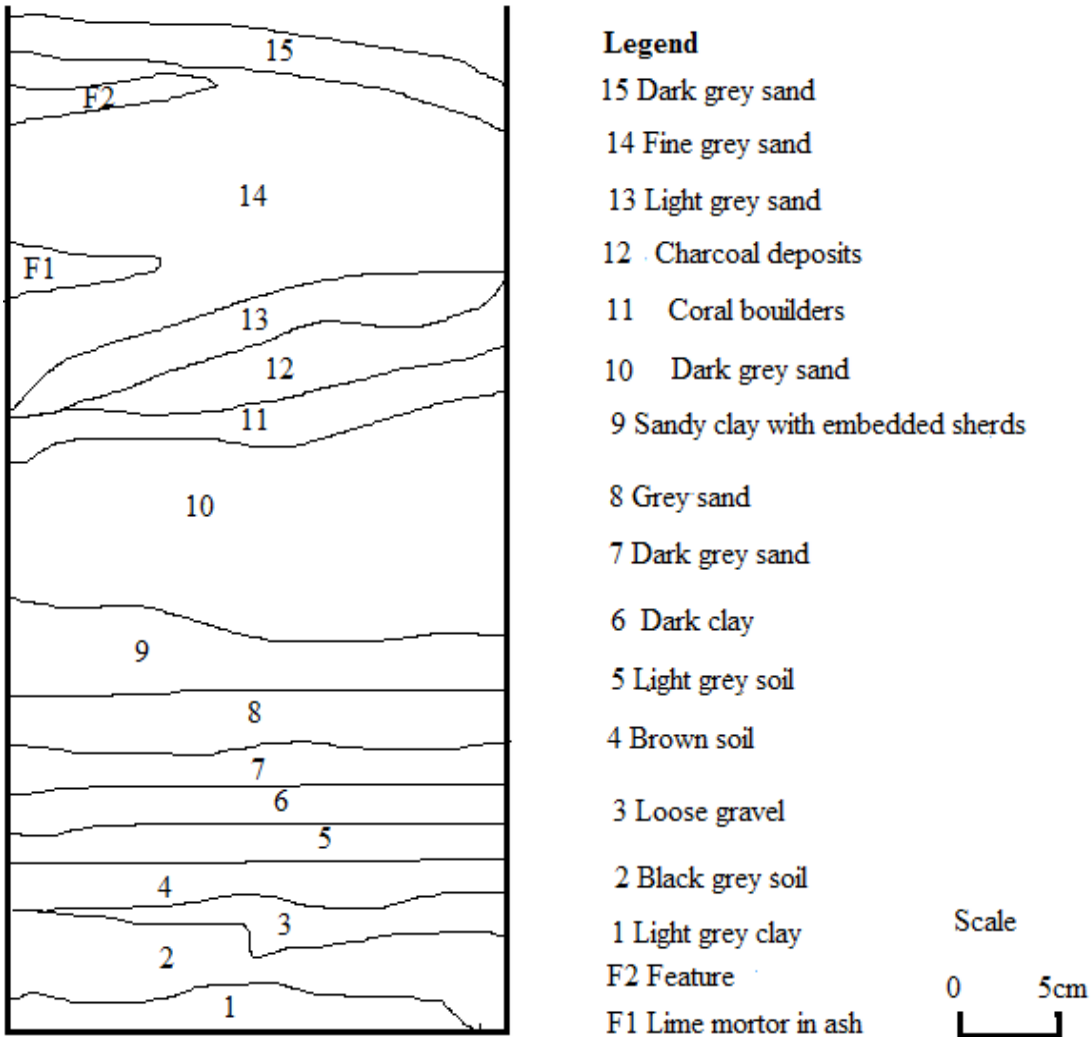


Figure 4.4: Stratigraphic profile of square A, Trench 1.

Square B

The purpose of excavating square B was twofold. First, was to understand the depth of the bastion foundation and, second, to expose the feature of the limestone heap that

occurred between levels 6 and 8 of Square A. The upper section of the square was mainly of fallen rubble.

4.4.2 Trench 2

Level 1 (30-40cm) was characterized by hard and compact greyish sandy soils (5Y6/1) with white spots of coral or limestone. Towards the close of the level, soil colour changed to reddish brown. Level 2 (40-50cm) exhibited hard and compact reddish brown soils. White lumps of limestone indicating rubble of an ancient built structure were observed. Among the material finds were potsherds of wheel-drawn Indian ware and Chinese celadon. In level 3 (50-60 cm), the soil was hard to excavate and this necessitated addition of water to soften the ground. Plant roots and insect burrows were common in this level of the square.

The ground was compact at level 4 (60-70cm) but relatively easy to excavate due to the addition of water. The soils were black loams with fine sand particles. A small quantity of potsherds was recovered in level 4. Level 5 (70-80cm) yielded hard grayish soils (2.5Y6/) with fragments of charcoal and numerous potsherds of local and imported pottery.

At level 6 (80-90cm), loose yellowish brown soils appeared while towards the middle of the square some scattered coral boulders were encountered. Level 7 (90-100cm) was dominated by loam soils with embedded pebble granules. Other parts of level 7 exhibited yellowish brown clays. Towards the closure of level 7 a local pot was excavated adjacent to coral rubbles. Level 8 (100-110cm) was dominated by reddish brown soils with deposits of ash. Charcoal fragments were collected in aluminium

foils. Level 9 (110-120cm) was made up of hard darkish brown soils with ash and charcoal fragments. A half of the level was covered in loose fragments of coral boulders probably from a fallen house.

In level 10 (110-120cm) the ground was hard with yellowish grey soils and only a few pottery materials were recovered. The excavation of square B ended with level 11 (120-130cm), when cultural materials declined. Initially, the soils were loose yellowish sands with a few patches of black clay soils and spots of charcoal across the level. The stratigraphic profile of Trench 2 (Fig.4.5) shows six occupational layers represented by six horizons. Loose boulders bounded by lime mortar were found on the bottom right corner of the square. The rubble from a fallen house is likely to predate the lower-most horizon of yellowish brown soils.

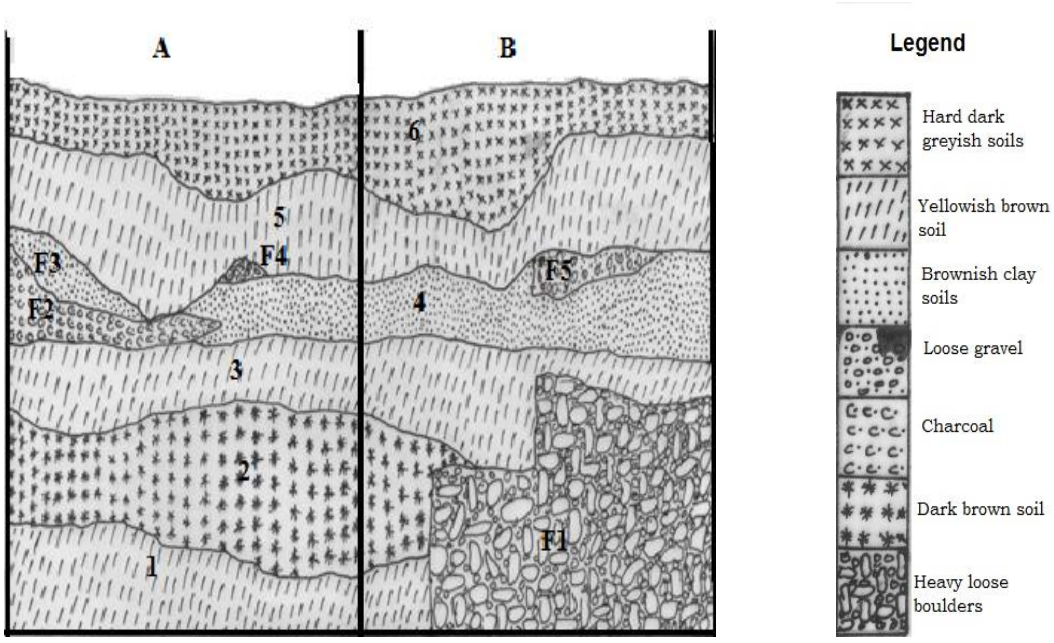


Figure 4.5: Stratigraphic profile of Trench 2.

4.4.3 Trench 3

Trench 3 (3m x 4m) was located in the centre of the ancient settlement near a ruined house. A grid of squares labelled A, B, C, D E F and X was created (Fig.4.6). Square A was excavated stratigraphically to sterile depths while the remaining squares were opened as extensions to expose the plan of the ruined house.

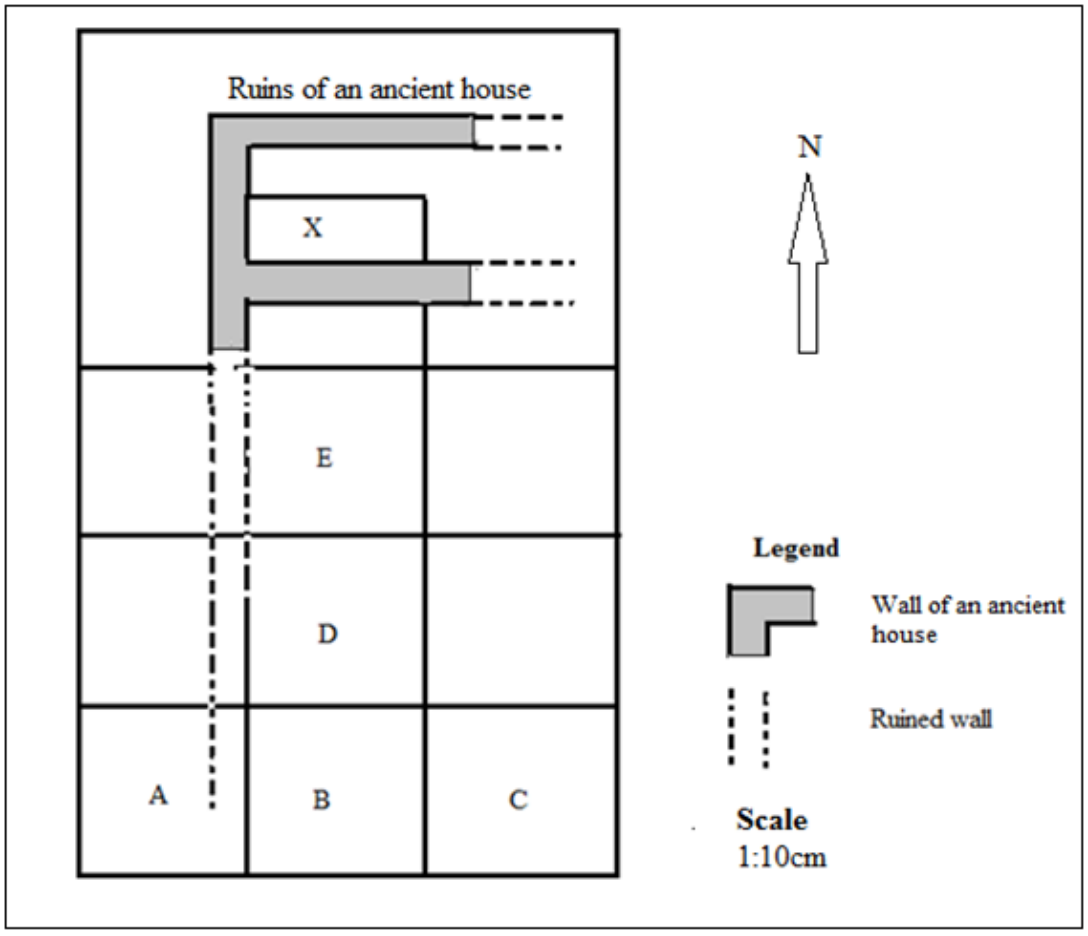


Figure 4. 6: Plan of Trench 3.

Square A

Level 1 (30-40cm) contained loose light brownish grey soils (2.5Y6/2) with coral boulders. Plant roots and insect burrows were common. The soil appeared cultivated

in the recent past as it featured very fragmentary potsherds and coral boulders from a house. Level 2 (40-50cm) was dominated by reddish brown (2.5YR4/3) soils with coral boulders coated with wall plaster. Low amounts of pottery were recovered. In level 3 (50-60cm) depicted some grayish ash and coral boulders with plaster from walls of fallen houses. Very few cultural materials were recovered. A thin layer (~2.54cm) of yellowish brown sandy soils (2.5Y6/3) appeared at level 4 (60- 70cm) as well as patches of coarse reddish brown gravel (2.5YR4/3). This was a floor filling of an ancient house. The eastern side of the square featured a heap of coral rubble probably from a collapsed wall. One piece of iron slag was among local and imported pottery wares that were recovered from this level. The upper section of level 5 (70-80 cm) contained white lime (7.5YR8/1) followed by a layer of hard compact but coarse gravel. Level 6 (80-90 cm) contained a high content of ash deposits and fragments of charcoal. Coarse gravel was observed with limestone rubble probably from the wall of a fallen house. A clay bead glazed with red wash was also encountered for the first time.

Between level 7 and 13 cultural materials were relatively fewer than in the previous levels. However, metacarpals of a small bovid (?ovi/caprine) were collected. Levels 14 and 15 (160-180cm) were characterized by very loose soils that made it difficult to maintain a 10-cm spit. The soils were sandy silts with a small count of coral boulders. Bone fragments and local pottery were also excavated. The lower section of the levels featured a high concentration of charcoal fragments and ash. Level 16 (180-190cm) contained dark grayish soil with low sand content and some charcoal fragments.

In level 17 (190-200cm) loose dark grayish soils were encountered with fragments of wall plaster. The lower sections of the level were characterized by compact darkish grey soils with a few counts of coral debris. Local pottery and imported wares were among the cultural materials recovered. In level 18 (200-210cm), dark grayish sandy soil (7.5YR3/1) dominated through down to level 19 (210-220cm) where shiny silts dominated. Wall plaster and local pottery also occurred at this level.

Level 20 (220-230cm) featured dark grayish sandy soils with high moisture content. Coral rubbles were numerous as were wall plaster fragments. Among the finds was a green glazed glass bead. There were also bone fragments and potsherds. A posthole occurred towards the lower section of the level at the centre of the square and measured 16 cm in diameter.

Towards the close of level 23 the soils were light grayish sands (7.5YR7/1). Moisture content appeared to increase and the cultural materials recovered included local pottery and bone fragments from fish and bovid. Light grayish sandy soils continued to dominate levels 24 (260-270cm) and 25 (270-280cm). Among the finds was a large bovid mandible with a molar tooth. Level 25 exhibited relatively moist sands with silts compared to the previous levels.

A second bovid mandible with two molar teeth was found in level 26 (280-290cm). In level 27 (290-300cm) coral boulders appeared in this level embedded in moist silts. Besides coral boulders other cultural materials recovered from level 27 included fragments of bones well preserved in the sandy context, potsherds, a piece of broken black glassy bead and some cowry shells. Level 28 (300-310cm) contained, among

other materials, a sherd of sgraffiato pottery and numerous local potsherds. One potsherd was found to have been worked into circular shape of 10 cm in diameter and a hole at the middle suggesting reuse broken pottery. Also found in level 28 was one worked-fish vertebra.

A piece of daub with pole impression was excavated in level 29 (310-320cm). The daub and pole impression indicate a change from mud and thatch to stone houses in the previous levels in which stone masonry tended to dominate. Two counters made from local potsherds were recovered. In addition, bone fragments of fish and cattle and goat/sheep occurred in this level. Level 30 (320-330cm) featured grayish sand with loose corals and lime. Excavation of level 31 (330-340 cm) revealed loose yellowish brown soils (2.5Y6/3). White sands in level 33 appeared to continue down to the upper sections of level 34 (360-370cm). The lower section of level 34 exhibited a high deposit of fine white sands (2.5Y8/1) with minimal cultural material. Further excavation revealed a deep deposit of white sands and few cultural remains. Consequently, the excavation of square A was closed at the depth of 360 cm below datum point and a stratigraphic profile drawn (Figure 4.7).

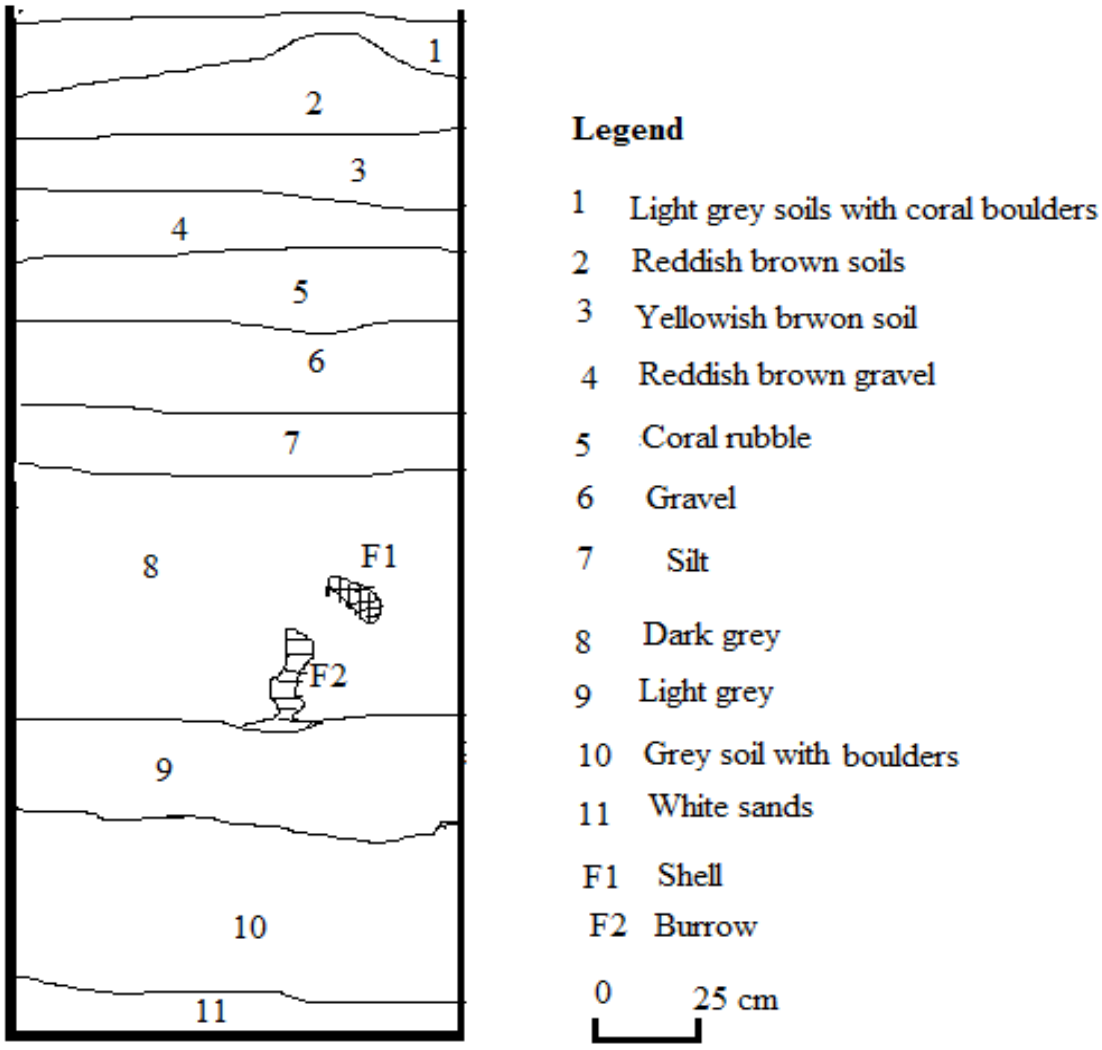


Figure 4. 7: Stratigraphic profile of Trench 3.

Squares B, C, D, E and X were excavated as extensions to understand the occurrence of house foundations observed in Square A. Level 1 (30-40cm) featured hard compacted dark grayish soils (7.5YR4/1) with high amounts of coral boulders. A range of pottery from China, the Arabian Peninsula, Europe, the Indian subcontinent and those made locally, was recovered as well as numerous bone remains. Iron slag was also recovered. Farther down to level 2 (40-50cm) coral boulders and a few pottery materials were recovered. The boulders appeared to be coated with white

plaster from burnt coral lime. Level 3 (50-60cm) featured loose yellowish sandy silts. There were large pieces of coral boulders (>50cm). A single sherd of imported ware was recovered together with other locally made pottery wares and fish bones.

In level 4 (60-70cm), two adjoining walls of a house were excavated on the western and northern sides. A depth of 5cm of excavation into the level revealed a section of reddish brown gravel (2.3YR4/4) which was part of the floor of a house encountered at the same depth in square A. The occurrence of the features of a foundation necessitated the opening of squares C, D, E, F and X to expose the floor plan of the house. No attempt was made to excavate beyond level 6 in these squares.

Below the foundation of the house was a layer of ash and another layer of reddish brown (2.3YR4/4) gravel revealed in level 5 (70-80cm). The ash was sandwiched between two deposits of gravel. Low amounts of cultural material were recovered. Level 6 (80-90 cm) contained some ash and fragments of charcoal. A layer of coarse rubble is overlain on some ash deposit. The excavation of squares B, C, D, E and X was discontinued at 90 cm below datum point once the entire floor plan of the house had been revealed.

4.4.4 Trench 4

Trench 4 measuring 3mx5m, was located in a flat fallow land north of the southern bastion. The trench was excavated stratigraphically from levels 1 throughout levels to 30. Excavated materials cut across all categories including various ceramics types faunal remains including fish bones, mammalian bone fragments cowry shells. Plate 4.2 shows the excavation of trench 4 in progress. The materials were very fragmented

due to the agrarian activities around the site. Coral rubble with plaster were numerous. Between levels 2 and 5 a built bore-hole, 130cm in diameter was encountered (see Plates 4.3 and 4.4). Further excavation revealed a near complete water jar in *situ*, seated on an ashy floor. The fragments were all collected for future reconstruction

Plate 4.2: Excavation of Trench 4 in progress.

Plate 4.3: Partially excavated Trench 4, a built bore-hole and a water jar in the left background.

Archaeological finds retrieved around the water jar included mammalian, fish bone and one decorated potsherd. The pot extended down to level 5 and it became necessary to excavate all soil from the square before the pot could be retrieved. Further excavation revealed a foundation that appeared to cover the entire trench.

Plate 4.4: Excavated borehole, to the right is a water jar (Adopted from Busolo et al, 2019: 34).

Level 6 (80-90cm) featured loose greyish soil (2.5Y6/1) with patches of ash and a high concentration of charcoal fragments. A high concentration of decorated as well as undecorated pottery and daub was encountered. Change of soil colour from grey to dark grey (2.5Y4/1) was observed in level 7 (90-100cm) in which a bluish glass bead appeared for the first time in the excavation of this square.

Level 8 (100-110cm) contained loose dark grey sandy soils (2.5Y4/1) and random coral boulders were common. Charcoal fragments continued to appear in this level. Among the materials excavated were potsherds with a repair hole, Islamic

monochrome and one Chinese ware. Others were faunal remains such as bovid and fish bone fragments.

The dark grayish soils (2.5Y4/1) were gradually replaced by loose reddish brown soils in level 9 (110-120cm). The excavation of level 9 yielded charcoal fragments daub and some local pottery. Another colour change from reddish brown to yellowish brown was observed in levels10 and 11(120-140cm) with a decline in the concentration of charcoal fragments. Besides local pottery, imported pottery was also represented.

Levels 12 (140-150cm) and 13 (150- 160cm) exhibited loose black soil (10YR2/1) with minimal pottery. The soil was easy to excavate but with numerous coral boulders. A pit filled with olive brown soil (2.5Y4/4) appeared in one section of the square. A high concentration of charcoal was recorded. Loose dark olive brown soil (2.5Y3/3) with charcoal deposits occurred between levels14 and 24 with cultural materials similar to those from level 13. The moisture content appeared to increase as the excavation progressed through levels 25, 26 and 27. Charcoal fragments re-appeared but in a very fragmentary state due to the high moisture content in the soil. Scattered lumps of reddish yellow clay soils were observed, and plain potsherds of local wares were recovered. Other findings included two sherds of imported wares, ostrich egg-shell, marine shell and pieces of daub.

Levels 28 and 29 (310-330cm) were hard to excavate due to the sticky nature of the clay soils. In the upper section of the level, dark greyish soil (7.5YR4/1) dominated but later this was replaced by light yellowish brown soil (2.5Y6/3) in the lower

section (see Plate 4.5). Scatters of coral fragments were encountered in these levels and appeared highly worn-out, probably due to marine action. A detailed stratigraphic profile of Trench 4 is shown in Figure 4.8.

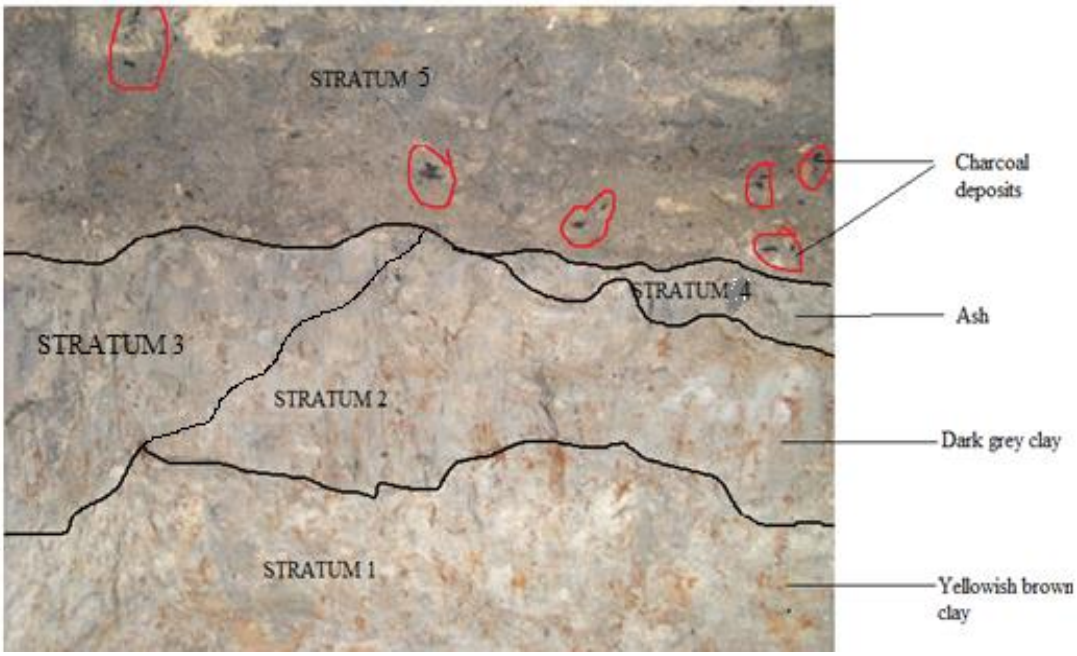


Plate 4.5: Fragments of charcoal and ash overlain on clay strata (Adopted from 2019: 35).

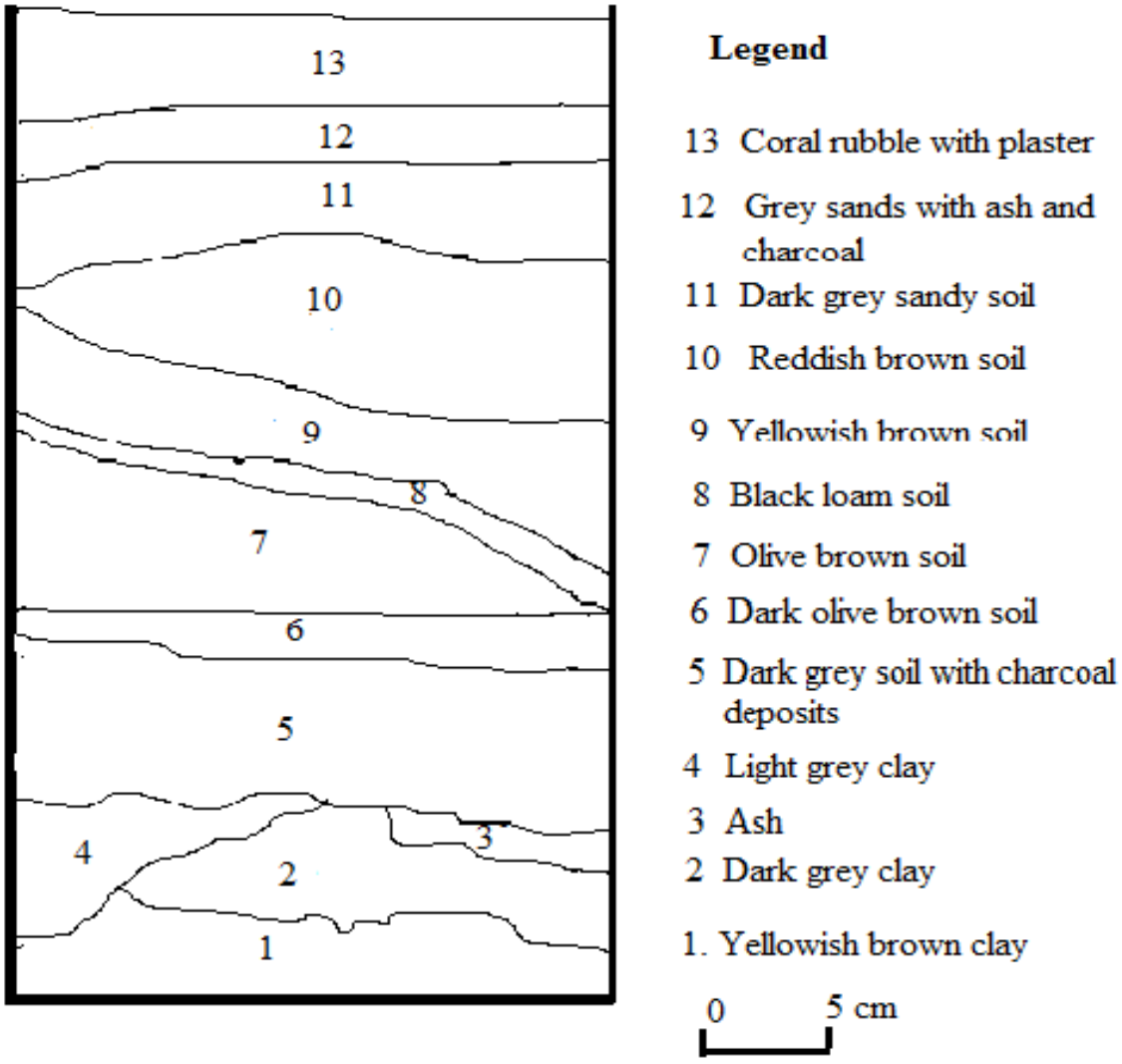


Figure 4.8: Stratigraphic profile of Trench 4.

The amount of cultural material was minimal except for ash and charcoal fragments (see strata 3 and 4 in Plate 4.5). Moist yellowish brown clay (2.5Y6/3) with a high sand content was dominant down to 330cm. The On the other hand, imported pottery included those wares that came from China, the Persian Gulf and Europe, together with range of other ceramic wares and glass represent trade and exchange networks the ancient settlement of Siyu was involved in. On the other hand, imported pottery included those wares that came from China, the Persian Gulf and Europe, together

with range of other ceramic wares and glass represent trade and exchange networks the ancient settlement of Siyu was involved in. excavation was extended down to 340 cm below datum point where sterile layers of dark grey and yellowish brown were exposed. This translates into 320cm depth below the ground surface. Plate 4.3 shows a cultural layer dotted with charcoal fragments and ash deposits above two clay strata.

4.5 Data Processing and Analysis

The processing of data followed a systematic quantification and classification of materials by level and raw material. This process was conducted alongside the excavation process top minimize costs. This initial process involved creating exclusive categories such as faunal materials, local pottery, imported pottery beads, iron slags, charcoal and reused sherds.

Typological or attribute analysis was useful in identifying similarities in pottery types. Three main types of pottery analysis were used in this research to investigate the significance of exchange networks in the early settlement of Siyu. First, were descriptive types which involved describing the form, shape and physical features seen on the potsherds. Second, were chronological types whose physical features and decorative techniques and motifs are known and are accepted as time indicators because they are based on attributes that show change over time. Finally, functional types were created on the basis of cultural use or role intended by the makers of the pottery. Their study identified attributes such as shape and thickness of vessels that reflect function so that some of them were classed as cooking pots, bowls, storage jars

and special or general purpose pots. Typological comparisons of pottery types were useful in investigating the exchange networks between Siyu and other sites.

Another important approach to pottery analysis was through the application of ethno-archaeological techniques. There was an effort to determine the presence of potters in Siyu today, the type of pots they make and where they obtain the clay and temper for pottery production. In other words, this method assisted in identifying the elements of cultural continuity, similarities and exchange by analysing the pottery that was made locally at Siyu or elsewhere in the East African region. This study distinguished between two categories of pottery on the basis of origin, local pottery and imported pottery. Local pottery referred to the wares made in the East African coast or hinterland with relatively similar fabric and surface treatment (Chami, 1994). For instance, pottery from the Tana tradition sites in Eastern Africa was useful for comparative analysis because the affinities of Tana tradition occur on Siyu pottery. Elsewhere, Chami (1994) has referred to this type of pottery as Triangular Incised Ware (TIW) to delink a geographical phenomenon from typologies. Whether one is describing the TT or TIW pottery they both refer to a tradition that replaces the preceding Early Iron Age pottery across the entire East African littoral although variants are not uncommon.

All the local potteries were counted and weighed at the site before they were sorted into diagnostic and undiagnostic potsherds. Diagnostic potsherds were those which had descriptive attributes that could assist the researcher to make comparisons with other known pottery in line with the set objectives. The attributes included, but were

not limited to, rim morphology, neck, shoulder, base, decorative elements, motifs and their placement on the vessel. The lack of such attributes on a potsherd led it to being classified as undiagnostic.

The analysis of structural shapes and vessel forms was used successfully by Soper (1971b), Wandibba (1977, 1990), Sinclair (1987) and Chami (1994). Others are Jama (1996), Radimilahy (1998) and Juma (2004) in the analyses of pottery from Mogadishu, Mahilaka and Zanzibar, respectively. The above scholars have variously used and modified structural shape categories in analysing pottery and also allowed inclusion of thickness, surface treatment, weight, colour, motif placement, rim morphology and fabric of pottery types. In particular, Chami (1994) used decorative elements, shapes and rim morphology in classifying the Swahili pottery.

Besides the identifiable vessel parts, diagnostic potsherds had other attributes such as decorative techniques and motifs. Rims, shoulders and bodies were further analysed in detail to record the decorative techniques and motifs. Impressions and burnishing were some of the surface treatments made on the pots. Impressions represent pressure on the clay before the pot is fired, while incised lines involve incisions made by a sharp or blunt instrument.

Decorative structures on local pottery have been useful in identifying these wares and have taken varying terminologies such as motifs (Collett and Robertshaw, 1983), decorative patterns (Nordstrom, 1972:77), structure of design (Hulthen, 1974:25), and decorative format (Sinclair, 1987:164). It is, however, agreed that these terms refer to independent impressions or incisions that can be either single or in bands or both in

combination. Hulthen (1974:26) identifies some of these as elements comprising horizontal, zigzag line and vertical, rectilinear band filled with a rhombic checkered pattern. In this study the term decorative element is used.

This study sought to establish the relationship between the placement of decorative elements and vessel forms, that is, whether the vessel forms of Siyu pottery determined the location of decorative elements on the pot. While in archaeology we deal with physical objects such as artefacts, the vessel forms and decorative elements are a function of human behaviour which can be predicted using a statistical tool such as the Pearson correlation coefficient. This was used to measure the strength of association and relationship between vessel form and placement of decorative elements.

This study sort to establish the relationship between the placement of decorative elements and the vessel forms. That is, whether the vessel forms of Siyu pottery determined the place for decorative elements. While in archaeology we deal with physical objects such as artefacts, the vessel forms and decorative elements on pottery are a function of human behaviour which can be predicted using a statistical tool such as the Pearson correlation coefficient. This was used to measure the strength of association and relationship between vessel form and placement of decorative elements. The Pearson correlation coefficient value (r) was computed using the following formula derived by Karl Pearson (Vanpool and Leonard, 2011: 22);

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[\, n\sum x^2 - (\sum x)^2 \,][\, n\sum y^2 - (\sum y)^2 \,]}}$$

where,

n = number of paired scores

$\sum xy$ = sum of the product of paired scores

$\sum x$ = sum of independent variables (vessel forms)

$\sum y$ = sum of dependent variables (placement of decorative elements)

$\sum x^2$ = sum of squared x values

$\sum y^2$ = sum of squared y value

(Sources: Vanpool and Leonard, 2011: 22)

According to this test, r could have values ranging from +1 to -1. A value of 0 shows that there is no relationship between the variables being compared. A value higher than 0 means that there is a positive relationship; such that, as the value of one (independent) variable increases, so does value of the other (dependent) variable.

A more specialized analysis was conducted and this involved a comparative petrology of samples of clay and sherds obtained from excavation. This was to help trace the mobility of clays or finished pottery products from sources or manufacturing points to places of utility. Interest in exchange networks led the author to seek the application of atomic absorption spectrometry of potsherds and clay samples as a means of tracing sources of clay for pottery manufacture and exchange routes. Mass spectrometry is the generation, separation and characterization of gas phase ions according to their relative mass as a function of charge (Dougherty, 1981). The

procedure for atomic mass spectrometry of potsherds and clay is described in the following steps: First, each sample sherd and clay are crashed into powder form and dissolved in methane to form a solution. Second, sample molecules in an ionization chamber are subjected to a high energy beam of electrons converting some of them into ions. Third, as the ions are accelerated in an electric field, they separate according to mass-to-charge ratio. Finally, each separated population of ions is then detected and quantified by the spectrometer (Fig. 4.9).

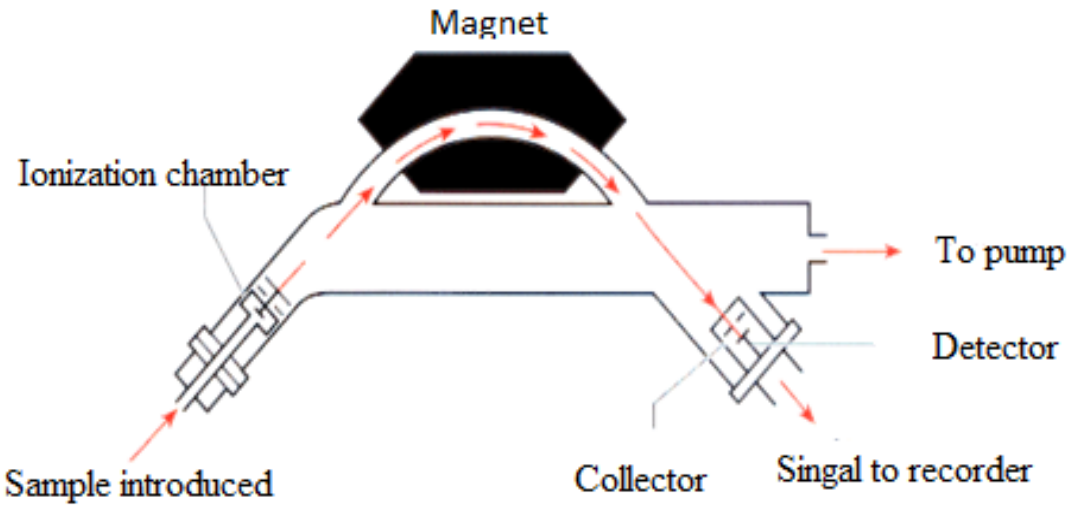


Figure 4.9: Simplified illustration of an atomic mass spectrometry (Source: Dougherty, 1981:287).

Imported pottery was analysed using published data on known wares from previous researches. This pottery was imported from overseas localities such as China, India, the Arabian Peninsula, Persia, and Indonesia where more or less established ceramic kilns produced distinct pottery at known dates. Some of the pottery wares were chronologically identified and were named after the places of origin.

The analysis of faunal materials endeavoured to establish the minimum number of identified species (NISP). First, all faunal materials were weighed and undiagnostic bone fragments separated from the diagnostic pieces. The second step was to sort the diagnostic bone fragments into the main classes of fish, bird and mammal. Using osteological materials in the Nairobi National Museum laboratory, the bird and mammal categories were further analysed to identify domesticated fauna from wild fauna and the categories identified included *bovid*, *equid* and *canis*. However, faunal analysis was limited to quantitative data especially that of identified specimens. Using a hand lens, it was possible to identify taphonomic processes that took place on the bones during and after deposition.

4.6 Legal and Ethical Issues

Principal researchers in archaeological activity are normally expected to meet their statutory/institutional obligations, the local community and the site under investigations. All necessary permits and licenses were obtained from the National Council of Science and Technology (NCST) (Appendix 2) and National Museums of Kenya. The National Museums of Kenya issued a Research Affiliation Status certificate (Appendix 3). As well as exploratory license for the researcher to be able to conduct excavations on sites (Appendix 4).

The researcher also went out of his way to request for admission to private land to be able to conduct excavations on such land. Besides, seminars were held to create awareness and involvement of local community in the project. Public awareness programmes were organized to sensitize the local people about this study and the

methodology used. Local men and women were enlisted, trained and given work on casual basis during the fieldwork. There was a good working relationship with the local community and an endeavour to preserve the integrity of the site. All trenches were backfilled with excess pottery and sands as was professionally acceptable. A few samples were taken for destructive analysis while some were kept for posterity at Fort Jesus Museum in Mombasa. The project enabled in-house management of materials at the host museum and further equipped participant students field skills in survey, mapping, excavation and drawing of stratigraphic profiles.

4.7 Conclusion

This chapter has described all the methodologies employed in the collection of data. First, sampling as well as surveying and mapping of the site has been discussed. Second, the chapter has discussed the excavation procedure, stratigraphic profiles indicating changes in the soil colour and cultural materials in every level. Third, the chapter has presented a summary of methodologies applied in data processing and analysis. Finally, the chapter has highlighted the legal and ethical obligations by the researcher at the site and towards management of excavated materials.

CHAPTER FIVE

THE FINDINGS

5.1 Introduction

This chapter presents and discusses the research findings. A range of archaeological materials from the excavation of each of the four trenches is presented in tabular format, indicating quantities of identified basic categories such as local pottery, imported pottery, beads, fauna, stoneware, daub, charcoal, iron and spindle whorls.

5.2 Archaeological Materials

In Trench 1 excavated materials local pottery were 8,128 sherds (see Table 5.1). Imported pottery featured evenly throughout the trench with notable scarcity between levels 26 and 27. Faunal materials and marine shells classified separately from other faunal finds totalled 26 and 20 respectively. Table 5.2 shows quantities of excavated materials from trench 2. Local pottery was at 2,111 sherds, faunal materials at 654 fragments. Imported pottery totaled 156 sherds. Other finds were 10 samples.

Table 5.1: Excavated materials from trench 1.

Tr	Sq	Lv	Lp	Ip	st	sh	fn	mt	is	ch	bd	du	wp	ro	ds	sp
1	**A**	**mixed**	15	2		2	2					4				
"	"	**1**	246	4		3		1								
"	"	**2**	130	6			5									
"	"	**3**	167	10		5	2		1					1		
"	"	**4**	228	5					1		1			2		
"	"	**5**	85	1	1										1	
"	"	**6**	398	10	1	3	1				1					
"	"	**7**	195	1	2									1		1
"	"	**8**	555	4	2	2									1	
"	"	**9**	192	2		1				1	1					
"	"	**10**	520	5	2		1				1					
"	"	**11**	514	3			6			1				1		1
"	"	**12**	460	7												
"	"	**13**	546	5	1						1			1		
"	"	**14**	326	2			1				2					
"	"	**15**	277	1			2	1		1				4		1
"	"	**16**	207	2			2		1							
"	"	**17**	405	4	1				2							
"	"	**18**	353	1		1			1	1	1					
"	"	**19**	463	1			1			1	1					
"	"	**20**	405	2		2	2			1			2			
"	"	**21**	253	1	1	1	1		1	1						
"	"	**22**	231	4												
"	"	**23**	162													
"	"	**24**	322	2				1								1
"	"	**25**	322	3					1	1						
"	"	**26**	106													
"	"	**27**	45													
	TOTAL		**8128**	**88**	**11**	**20**	**26**	**3**	**8**	**8**	**9**	**4**	**2**	**10**	**2**	**4**

Abbreviations used in Table 5.1: Tr= trench, Sq=square, Lv=level, Lp=Local pottery, Ip=imported pottery, st=stoneware, sh=shell, fn=fauna other than shell, mt=metal, is=iron slag, ch=charcoal, bd=bead, db=daub, wp=wall plaster, ro=red ocher, ds=seed, sp=spindle whorl.

Table 5.2: Excavated materials from trench 2.

Tr	Sq	Lv	Lp	Ip	st	sh	fn	mt	is	ch	bd	du	ro	ds
2	**A**	**surface**	4	0										
"	"	**1**	0	17			52	1	1	1				
"	"	**2**	46	20	1	1	45	2			1			1
"	"	**3**	78	7		1	5				1			
"	"	**4**	20	2		2	21							1
"	"	**5**	126	16			43			1	4			
"	"	**6**	101	3		3	21						4	
"	"	**7**	241	2	2		11	2	1			3		
"	"	**8**	163	4	1	2	44	2		1		1		
"	"	**9**	67	6	1		28				2			
"	"	**10**	77	12			17		3					
"	"	**11**	36	0							1			
2	**B**	**1**	29	17			6							
"	"	**2**	255	16		1	82	11	1	1				
"	"	**3**	107	2			21	1						
"	"	**4**	225	14			52	5		1				1
"	"	**5**	132	5			49		1	1	1			
"	"	**6**	55	4	1		13		3	1	1			1
"	"	**7**	68	2			23	1						
"	"	**8**	107	5			67							
"	"	**9**	98	1	1		35	1						
"	"	**10**	64	1			19							1
"	"	**11**	12											
TOTAL	"		**2,111**	**156**	**7**	**10**	**654**	**26**	**10**	**6**	**12**	**4**	**4**	**5**

Abbreviations used in Table 5.2: Tr= trench, Sq=square, Lv=level, Lp=Local pottery, Ip=imported pottery, st=stoneware, sh=shell, fn=fauna other than shell, mt=metal, is=iron slag, ch=charcoal, bd=bead, db=daub, ds=date palm seed, ro=red ocher.

A wide range of materials were excavated in Trench 3 with a notable absence of spindle whorls and red ochre (Table 5.3). Local pottery totalled 6,105 sherds with alternating highs and lows in certain depths while imported pottery was 102 sherds showing a similar pattern to that of local pottery in the previous trenches. Shells and other faunal materials totalled 155 and 1,663 respectively. Twenty-eight pieces of daub were encountered in the lower levels between levels 24 and 34. Wall-plaster on the other hand occurred between levels 17 and 24.

Table 5.3: Excavated materials from trench 3.

Tr	Sq	Lv	Lp	Ip	st	sh	fn	mt	is	ch	bd	du	wp	ds
3	**A**	**surface**	**4**		1									
"	"	**mixed**	44				11							
"	"	**1**	452	19	1	4	61			1				3
"	"	**2**	12	2		1								
"	"	**3**									1			
"	"	**4**	19											
"	"	**5**	28	2			9							
"	"	**6**	48	2		1	30				2			
"	"	**7**	55	1		2	46							
"	"	**8**	68				48	1						
"	"	**9**	88	1		2	74							
"	"	**10**	39			2	25							
"	"	**11**	16			1	14							
"	"	**12**	45			1	57	1		1				
"	"	**13**	79			2	31	1						
"	"	**14**	178		1		40			1				
"	"	**15**												
"	"	**16**	72			3	53							
"	"	**17**	115	2		12	39						3	
"	"	**18**	24	3			18						8	
"	"	**19**	29	2									2	
"	"	**20**	63			6	31				1		2	
"	"	**21**	54	1		2	24							
"	"	**22**	67		1	1	21	2					1	
"	"	**23**	236	5	1	5	80			1	1			
"	"	**24**	195	2		3	101			1		1	1	
"	"	**25**	303	4		5	58		2	1				
"	"	**26**	390	2	5	2	55							
"	"	**27**	320	3	1	29	41			1	1			
"	"	**28**	462	5	5	20	125	2			1			
"	"	**29**	631	4		7	106					1		
"	"	**30**	445	6	2	13	138	1						
"	"	**31**	411	9		7	76					3		
"	"	**32**	614	17		14	114					4		
"	"	**33**	170	5		8	35	1		1	1	5		
"	"	**34**	231	5		2	102			1		14		
TOTAL			**6007**	**102**	**18**	**155**	**1663**	**9**	**2**	**9**	**11**	**28**	**17**	**3**

Trench 4 was excavated to a maximum depth of 3.3m. See Table 5.4 for a summary of excavated materials. The materials recovered were as follows: local pottery 3,206 sherds, imported pottery 61 sherds, stoneware, 12 pieces, faunal finds totalled 289 fragments, 1 piece each of metal ware and iron slag. Twenty-four charcoal fragments and 41 lumps of daub.

Table 5.4: Excavated materials from trench 4.

Tr	Sq	Lv	Lp	Ip	st	fn	mt	is	ch	bd	du	gl
4	**C**	**1**										
"	"	**2**	67	3						1		
"	"	**3**	21	2		12					3	
"	"	**4**	70	5		7				1		
"	"	**5**	114	3		10						
"	"	**6**	268	6					1		3	
"	"	**7**	223	1		8					12	
"	"	**8**	280	4		11			2			
"	"	**9**	256			5			7			
"	"	**10**	210	1								
"	"	**11**	140	2								
"	"	**12**	214									
"	"	**13**	276	2	6	35					7	
"	"	**14**	53			14			3		2	
"	"	**15**	44									
"	"	**16**	144	1		25						
"	"	**17**	212	4			1					2
"	"	**18**	130	1								1
"	"	**19**	133			20		1	2			
"	"	**20**	139	9							1	1
"	"	**21**	66	1		25						
"	"	**22**	61	2	1				2			
"	"	**23**										
"	"	**24**	58	4		14					6	
"	"	**25**	86	5		27			3			
"	"	**26**	186	2	2	18					3	
"	"	**27**	116	3		36					2	
"	"	**28**	39		2	17			2		2	
"	"	**29**	4		1	5			2			
Total			**3,206**	**61**	**12**	**289**	**1**	**1**	**24**	**2**	**41**	**4**

Abbreviations used in Table 5.4: Tr= trench, Sq=square, Lv=level, Lp=Local pottery, Ip=imported pottery, st=stoneware, sh=shell, fn=fauna other than shell, mt=metal, is=iron slag, ch=charcoal, bd=bead, du=daub, gl=glass.

5.2.1 Pottery

The total pottery assemblage was 19, 957 sherds. Local pottery was represented by 19,550 sherds while imported pottery was represented by 407 sherds (Table 5.5).

Table 5.5: Total pottery assemblage

	Square	**Imported pottery**	**Local pottery**	**Total**
1	A	88	8,128	8,216
2	A & B	156	2,111	2,267
3	A	102	6,007	6,207
4	C	61	3,206	3,267
Total		**407**	**19,550**	**19,957**

This data can help the reader appreciate the proportion of imported pottery in the entire ceramic assemblage. Imported pottery accounted for about 2% while local pottery accounted for 98%. The data shows a ratio of imported pottery to local pottery as 1:49, suggesting that only a small amount of imported pottery was in circulation at the time and was probably limited to the elite economic group or ruling class. Due to logistical challenge, materials from trench 2 were not included in the analysis. But such materials are stored in the National Museum laboratory for posterity. Should upcoming researchers have interest in a studying them they should be able to access them.

Table 5.6: Diagnostic and undiagnostic local pottery

Trench	Diagnostic pottery	Undiagnostic pottery	Total
1	1,887	6,242	8,129
3	979	5,028	6,107
4	794	2,509	3,203
Total	3,660	13,779	17,439

Different attributes have been used to analyze pottery by different scholars depending on the problems under investigation (Chami, 1994; Collett and Robertshaw, 1983; Hulthen, 1974; Nordstrom, 1972). This study utilized shape, decoration, placement of decorative element and fabric. In view of the exchange systems approach, these attributes were chosen to assist in tracing possible movement of ideas and materials between Siyu and other places.

In determining the shapes of pottery vessels, Shepard (1963) developed a model that recognizes two categories of restricted and unrestricted vessels, either pots or bowls. The contours of the various parts of the vessel are important determinants of the category pottery vessel should be included. Another model involves identification of shapes such as necked pot, narrow-mouthed, globular, rough, open bowls, carinated forms from pottery fragments (Collett and Robertshaw, 1983:109; Chami, 1994: 77). The total sample population from trenches 1, 3 and 4 was 3,660 diagnostic sherds, out of which 366 (10%) sherds were selected by simple random sampling.

The undiagnostic pottery comprised plain body sherds that included highly fragmented sherds of less than 3cm width and others as wide as 10cm yet did not have attributes necessary for this study. Diagnostic potsherds are those that featured structural shapes of vessel parts on the basis of profiles or contours such as rim (R), neck (N), shoulder (S), decorated body (Bd) and base (Bs). The categories were useful in identifying two general types of vessels, restricted and unrestricted mouth vessels. Seven structural shapes were identified with the majority of sherds falling in category 1 with 190 cases. The lowest of all categories was category 7 with 21 cases (see Table 5.7). Categories 2, 3,4,5,6 and 7 were useful in comparing the various types of pottery. These categories each have different capacities in distinguishing ceramic vessel shapes. For instance, category 1 could be derived from any vessel shape hence less informative since all the types of vessels must have all the three parts, rims, bodies and bases and, may be, necks for some.

Table 5.7: Frequencies of vessel categories

Shape categories		**Frequency**	**Percentage**
1	R, Bo/Ba, Bo, Ba	190	51.9
2	R/S/Bo/Ba, R/S/Bo,R/S	36	9.8
3	R/N, N	34	9.3
4	R/N/Bo/Ba, R/N/Bo, N/Bo/Ba, N/Bo	24	6.6
5	R/Bo/Ba, R/Bo	22	6.0
6	S, S/Bo, S/Bo/Ba	21	5.7
7	R/N/S/Bo/Ba, R/N/S/Bo, R/N/S, N/S/Bo/Ba, N/S/Bo,N/S	39	10.7
	Total	**366**	**100.0**

It was also necessary to analyse morphology or shapes of rims of the pottery vessels. For the three trenches a total of 9 categories of rim morphology were identified as follows: round-concave rims, flat-concave rim, round-straight rims and round-convex rims. Other shapes identified were flat-convex rims, flat-straight rims, sloping-straight and flat-trumpeted rims.

Trench 1 had the following distribution of rim morphology: round-concave on138 (73.0%) sherds being the highest representation, round-convex on 4 (2.1%) sherds, round-straight on 8 (4.2 %) sherds, sloping-concave on 7 (3.7%) sherds, sloping-straight on 1 (0.5%) sherd and flat-concave rim on 6 (3.2%) sherds. Other shapes identified were flat-convex on 1 (0.5%) sherd, flat straight on 1 (0.5) % sherd and flat-trumpeted on 3 (1.6%) sherds. Twenty or 10.6 % of the sherds had worn-out rims and therefore could not be placed in any of the 9 morphological categories (Table 5.8a).

Table 5.8a: Frequencies and percentages of Rim Morphology, trench 1.

Rim morphology	Frequency	Percentage
Round-concave	138	73.0
Indefinable	20	10.6
Round-straight	8	4.2
Sloping-concave	7	3.7
Flat-concave	6	3.2
Round-convex	4	2.1
Flat-trumpeted	3	1.6
Sloping-straight	1	0.5
Flat-convex	1	0.5
Flat-straight	1	0.5
Total	**189**	**100.0**

Table 5.8b shows frequencies and percentages of rim morphology on pottery rom trench 3. The highest represented rim morphology is round concave appearing on 56 (57.1 %) sherds followed by round-convex on 5 (5.1%) sherds, round-straight on 4 (4.1%) sherds and flat-straight on 4 (4.1%) sherds. Flat-trumpeted and sloping-concave are each represented by 2 (2.0%) sherds. The remaining rim morphologies of sloping-straight, flat-concave and flat-convex are represented by at least one sherd each. A total of 22 sherds had worn-out rims that made it difficult to be placed in any of the 9 morphological rim categories.

Table 5.8b: Frequencies and percentages of rim morphology, trench 3.

Rim morphology	**Frequency**	**Percentage**
Indefinable	56	57.1
Round-concave	22	22.4
Round-straight	5	5.1
Sloping-concave	4	4.1
Flat-convex	4	4.1
Flat-concave	2	2.0
Flat-straight	2	2.0
Round-convex	1	1.0
Flat-trumpeted	1	1.0
Sloping-straight	1	1.0
Total	**98**	**100.0**

Trench 4 displays a slightly different trend in the occurrence of rim morphology. While round-concave shapes appear on the highest number of sherds, a trend reminiscent of rim shapes in trench 1 and 3, three other categories do not appear at all on the pottery samples in trench 4. Flat-convex, flat-straight and flat-trumpeted

shapes were not represented on potteries in trench 4. Fifteen (19.0%) rim sherds had worn-out surfaces and therefore could not be classified (see Table 5.8c).

Table 5.8c: Frequencies and percentages of rim morphology, trench 4.

Rim morphology	**Frequency**	**Percentage**
Indefinable	17	21.5
Round-concave	15	19.0
Round-straight	15	19.0
Sloping-concave	10	12.7
Flat-convex	8	10.1
Flat-concave	8	10.1
Flat-straight	6	7.6
Round-convex	0	0.0
Flat-trumpeted	0	0.0
Sloping-straight	0	0.0
Total	**79**	**100.0**

The main vessel forms are identified as pots, bowls and jars (Table 5.9a-c). The pots were further classified into various categories such as open-mouthed pots, restricted-mouthed pots, hole-mouthed pots, globular pots and spherical pots with short neck. Two other categories were jar and carinated pot. Bowls were identified as either plain or carinated bowls. In trench 1 open-mouthed pots were represented by 46 sherds accounting for 24.3% of the total sample of 189. Spherical pots with short neck, restricted mouthed pots and carinated pots were represented by 1 sherd each. Jars and hole-mouthed pots were represented by 3 sherds each. Plain bowls were represented by 121 sherds accounting for 64.0% while carinated bowls were represented by 1 sherd only.

Table 5.9a: Vessel forms of potteries from trench 1.

Vessel form	**Frequency**	**Percentage**
Plain bowl	121	64.0
Open mouth pot	46	24.3
Indefinable	12	6.3
Jars	3	1.6
Hole mouth pot	3	1.6
Spherical pots with short neck	1	0.5
Restricted mouth pot	1	0.5
Carinated pot	1	0.5
Carinated bowl	1	0.5
Globular pot	0	0.0
Total	**189**	**100.0**

The potteries in trench 3 display a similar pattern with plain bowls ranking high at 59.2 % and open mouthed pots at 24.5%. Jars are represented by 4 (4.1 %) potsherds and carinated pot with only 1 (1.0%.) sherd (see Table 5.5b).

Table 5.9b: Vessel forms of potteries from trench 3.

Form	**Frequency**	**Percentage**
Plain bowls	58	59.2
Open mouth pot	24	24.5
Indefinable	10	10.2
Jars	4	4.1
Spherical pot with short neck	1	1.0
Carinated bowl	1	1.0
Restricted mouth pot	0	0.0
Carinated pot	0	0.0
Hole mouth pot	0	0.0
Globular pot	0	0.0
Total	**98**	**100.0**

In trench 4, open mouthed pots were represented by 40 (50.0%) sherds, plain bowl had 6 (7.6 %) sherds and carinated bowl had 5 (5.3%) sherds. The rest of vessel forms do occur at less than 5.1 %.

Table 5.9c: Vessel forms of potteries from trench 4

Form	**Frequency**	**Percentage**
Open mouth pot	40	50.6
Indefinable	11	13.9
Plain bowl	6	7.6
Carinated pot	5	6.3
Jar	4	5.1
Carinated bowl	3	3.8
Hole mouth pot	3	3.8
Globular pot	3	3.8
Spherical pot with short neck	2	2.5
Restricted mouth pot	2	2.5
Total	**79**	**100.0**

Cross-tabulation of rim morphology and vessel form shows that the majority of vessels (263) were plain bowls with round concave rims (see Table 5.9d). Vessels with flat convex and flat straight rims were rare at this site. Round straight, sloping concave and flat concave vessels were rare in all categories except for plain bowls and open-mouthed bowls.

Table 5.9d: Cross-tabulation of rim morphology and vessel form

	Indefinable	**Open mouthed pot**	**Spherical pot with short**	**Restricted mouthed pot**	**Carrinated**	**Carrinated bowl**	**Plain bowl**	**Jar**	**Hole-mouthed pot**	**Globular pot**	**Total**
Round, concave	14	91	1	3	1	3	141	5	3	1	**263**
Indefinable	21	7	0	0	0	0	14	4	0	0	**46**
Flat, concave	2	3	0	0	0	0	12	0	0	0	**17**
Round, straight	4	2	0	0	0	0	5	4	0	0	**15**
Sloping, concave	1	2	0	0	0	1	6	0	0	1	**11**
Round, convex	0	3	1	0	0	0	1	2	0	0	**7**
Flat , trumpeted	0	0	0	0	0	0	3	0	0	0	**3**
Sloping, straight	0	1	0	0	0	0	1	0	0	0	**2**
Flat, convex	0	0	0	0	0	0	0	1	0	0	**1**
Flat, straight	0	0	0	0	0	0	1	0	0	0	**1**
Total	**42**	**109**	**2**	**3**	**1**	**4**	**184**	**16**	**3**	2	**366**

Another attribute that was considered for analysis was decoration**.** A total of 14 decorative elements on local pottery were identified and are illustrated in Figure 5.1.

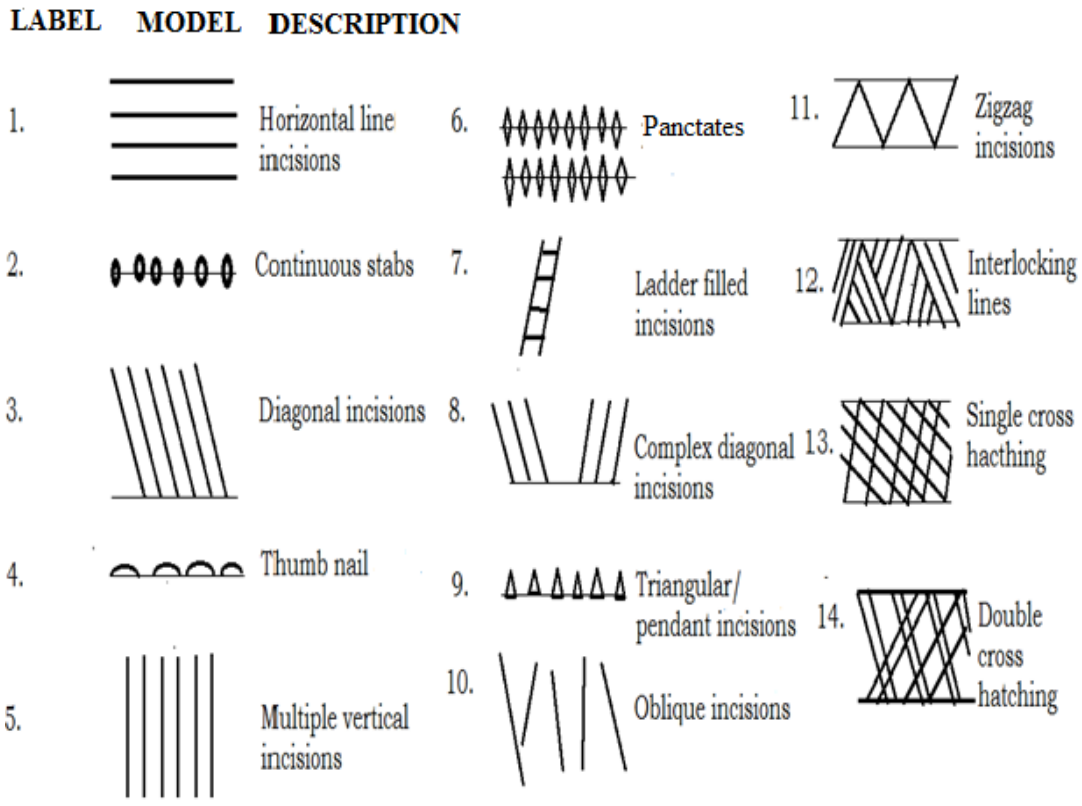


Figure 5.1: Decorative elements on Siyu pottery (Adopted from: Busolo et al, 2019: 37).

According to Busolo et al (2019) decorative element 1 appears to dominate in Swahili sites and has been described as being both Tana Tradition (T/T) and Early Iron Ware (EIW) design. It is also suggested that those occurring in EIW designs normally combined with other designs (see Figure 5.2-5.13). The number in bracket represents the accession number of the sherd.

Figure 5.2 (462): Jar-hard brown fabric, plain and smooth on both interior and exterior surfaces, round straight rim with horizontal incisions below rim.

Figure 5. 3 (110): Short necked pot in hard brown fabric, plain and rough on interior and exterior, with continuous stabs below the rim.

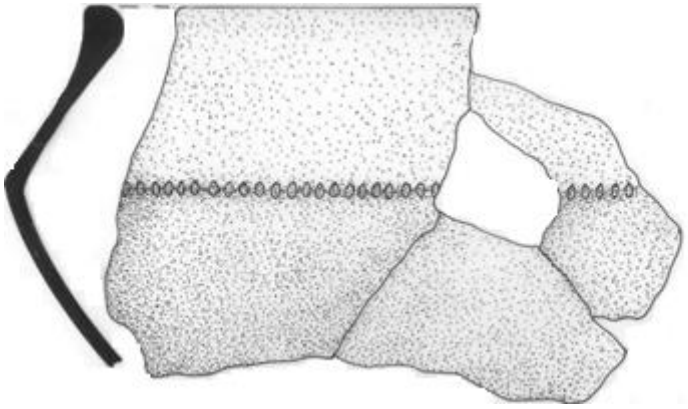


Figure5. 4 (162): Carinated bowl- reddish brown fabric, plain smooth interior, plain rough exterior, round concave with continuous stabs along the carination.

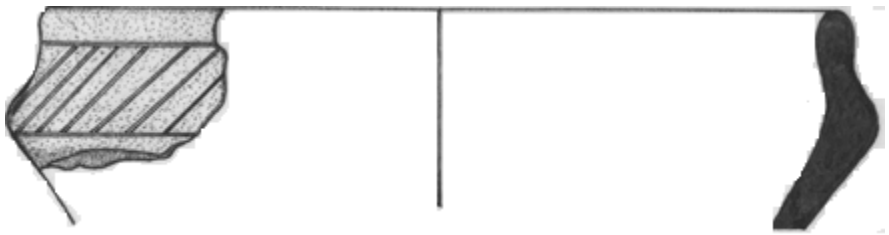


Figure 5.5 (467): Simple carinated bowl- soft reddish brown fabric, plain smooth on both interior and exterior, round straight rim with diagonal incisions bound by horizontal lines.

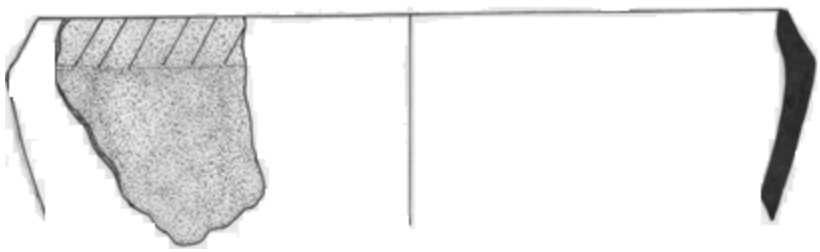


Figure 5.6 (469): Carinated bowl- brick reddish brown fabric, plain smooth interior, plain rough exterior, round sloping concave rim with diagonal incisions below the rim.

Figure 5.7 (252): Simple bowl in hard red fabric, plain smooth interior, plain smooth exterior, round concave rim decorated with a combination of short oblique incisions, arrow incisions and thumb stabs on body.

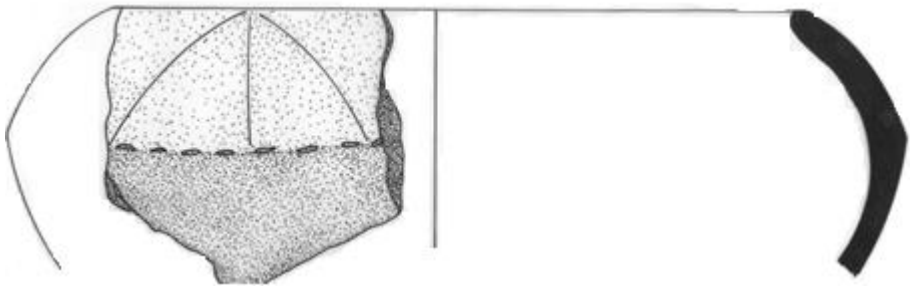


Figure 5.8 (299): Simple bowl in hard red fabric, plain smooth interior, plain smooth exterior, round concave rim decorated with a combination of standing triangle with a single vertical incision and continuous thumb nail on a slight carination.

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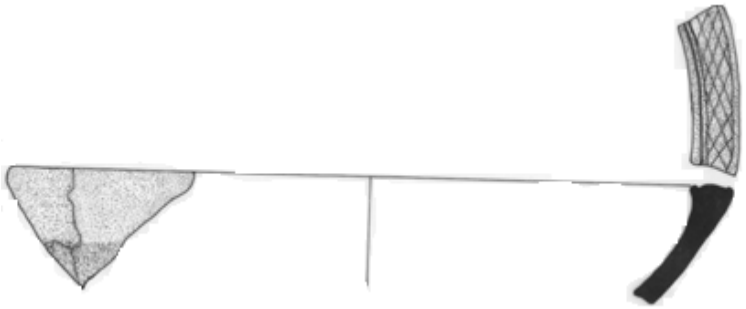

Figure 5.9 (361): A shallow bowl in hard reddish brown fabric, plain smooth on both interior and exterior surfaces, with single cross hatching on a flat expanded rim.

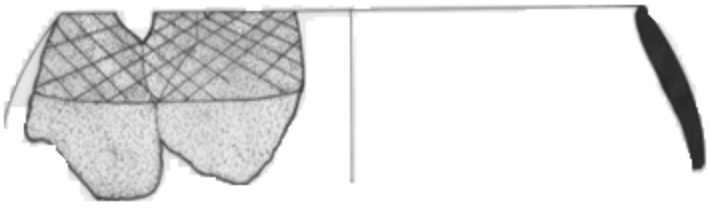

Figure 5.10 (464): Hole mouthed jar in grayish brown fabric, plain smooth interior, plain smooth exterior, round concave slightly out-turned rim, with single cross-hatching delimited by a horizontal incision below the rim.

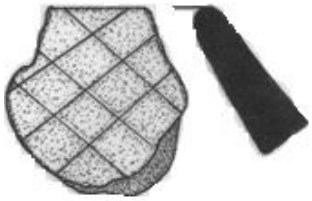

Figure 5.11 (461): Spherical pot in hard brown fabric, red wash interior, plain exterior round concave rim, single cross hatching below rim.

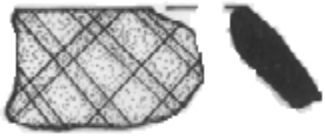

Figure 5.12 (476): Spherical pot in hard pale red fabric, plain smooth interior and exterior, double cross-hatching.

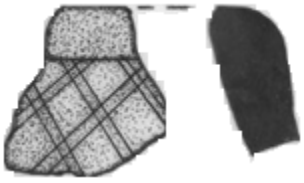

Figure 5.13 (475): Necked pot in hard pale red fabric, orange burnish on interior, plain smooth on exterior with double cross-hatching below the neck. Additional illustrations are appended as Appendix 1 for reference.

It was also necessary to determine the location of the various decorative elements on the vessels and whether this varied with vessel form. Frequencies and percentages of placement of decorative motifs are presented in Table 5.10. A total of 248 sherds were plain with no decoration, 27 sherds had decorative element along rim and 27 sherds were decorated on neck. Twenty-five sherds were decorated on shoulder, 20 potsherds on body and 19 sherds had decorative motif on carination.

Table 5.9e: Cross-tabulation of the levels and decorative elements

LEVEL	None	Horizontal line	Continuous stabs	Diagonal incisions	Thumb nail stabs	Multiple vertical incisions	Row of punctates	Ladder filled	Complex diagonal incisions	Triangular	Oblique incisions	Interlocking zigzag incisions	Cross-hatched incisions	Double cross-hatches	TOTAL
1	11	2	0	0	2	0	0	0	0	0	0	0	0	0	15
2	6	1	0	0	0	0	0	0	0	0	0	0	0	0	7
3	15	1	2	0	0	0	0	0	0	0	0	0	0	0	18
4	15	3	6	2	0	0	3	0	1	0	0	0	0	0	30
5	17	0	1	0	0	0	0	0	0	0	0	0	0	0	18
6	9	2	1	1	0	0	1	0	0	0	0	0	0	0	14
7	4	1	1	0	2	0	0	0	1	1	1	0	0	0	11
8	12	3	1	0	1	0	0	0	0	0	0	0	0	0	17
9	10	1	0	0	0	0	0	0	0	0	0	0	0	0	11
10	8	1	0	0	0	0	0	0	0	1	0	1	0	0	11
11	20	2	1	0	0	0	0	1	0	2	0	0	0	0	26
12	11	0	2	0	2	0	0	1	2	0	0	1	0	0	19
13	14	0	0	0	0	0	2	0	0	0	0	0	0	0	16
14	7	0	0	0	0	0	0	0	0	0	0	0	0	1	8
15	13	1	1	0	2	0	1	0	0	0	0	0	0	0	18
16	5	1	1	0	0	0	0	0	0	0	1	0	0	0	8
17	7	0	1	0	0	0	0	0	0	1	0	0	1	0	10
18	4	1	2	0	0	0	1	0	0	0	0	0	0	0	8
19	5	1	0	1	0	0	0	0	0	0	0	0	0	0	7
20	6	2	1	0	0	1	0	0	0	0	0	1	0	0	11
21	6	1	2	0	1	0	0	0	0	0	0	0	0	0	10
22	8	0	0	0	1	0	0	0	0	0	0	0	0	0	9
23	8	1	0	0	1	0	0	0	0	0	0	0	1	0	11
24	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
25	4	0	0	1	1	1	1	0	0	0	0	0	0	0	8
26	10	0	0	1	0	0	0	0	0	0	1	0	0	0	12
27	2	0	4	0	0	0	0	2	0	0	0	1	0	0	9
28	7	2	3	1	2	0	1	3	0	0	0	0	1	0	20
29	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	**248**	**27**	**30**	**7**	**15**	**2**	**10**	**7**	**4**	**5**	**3**	**4**	**3**	**1**	**366**

Table 5.10: Frequencies and percentages of location of decorative motifs.

Location	**Frequency**	**Percentage**
None (sherds with no decoration)	248	67.8
Along rim	27	7.4
Neck	27	7.4
Shoulder	25	6.8
Body	20	5.5
On carination	19	5.1
Total	**366**	**100.0**

There was need to check whether or not there was a relationship between the placement of decorative element and vessel form. The researcher wanted to find out whether the vessel form influenced the location for a decorative element as was the case in some TIW sites (Chami: 1994:80). Using Pearson correlation analysis, a coefficient (r) value of 0.041 was generated. This value was not significant since it was below the significance level of 0.05 (Table 5.11).

Table 5.11: Correlation of decorative motif and vessel form.

Correlations		**Vessel form**	**Location of decorative motif**
Vessel form	Pearson correlation	1	.041
	Sig. (2-tailed)		.433
	N	366	366
Location of decorative motif	Pearson Correlation	.041	1
	Sig. (2-tailed)	.433	
	Sig. (2-tailed)	.433	

5.2.2 Texture of Pottery Fabrics and Temper

A description of the texture of pottery material was also thought to be important. Pottery material includes clay and temper. Texture was categorized as soft, hard and crumbly. In addition, a few sherds described as hard with air-holes. A sherd with soft fabric could easily be scratched with a thumb nail. Hard fabric was mainly from very fine clay that was well fired, and pottery of this kind of fabric could not be scratched easily with a thumbnail but by use of a metal object such as a pocket knife. Table 5.8 shows the frequencies of each type of fabric. A total of 291 (79.5%) sherds were of hard fabric, 44 (12 %) sherds were of soft fabric while 21(5.7%) sherds were characterized as crumbly. The remaining 10 (2.7 %) were of hard fabric with air-holes. Some of the potteries were tempered using varying materials (Table 5.12).

Table 5.12: Texture of pottery fabric.

Texture	**Frequency**	**Percentage**
Hard	291	79.5
Soft	44	12.0
Crumbly	21	5.7
Hard with air-holes	10	2.7
Total	**366**	**100.0**

The raw materials for temper were identified using a light microscope (x10) and a hand lens of x5 magnification. The main tempering materials were quartz, limestone, mica, pebble grit, gravel and some were a combination of two or more of these. Charcoal and shell were uncommon sources of temper for Siyu pottery except where these were used in combination with other inclusions. Quartz and a combination of it with limestone and with gravel were the most dominant raw materials for temper

(Table 5.13). Quartz alone was identified in 56 (15.3 %) sherds, followed by fine sands identified in 20 (5.5%) sherds while mica particles were identified in 18 (4.9 %) sherds. A combination of quartz and limestone was identified in 96 (26.2 %) sherds while quartz and unspecified shiny particles occur in 84 (22.0 %) sherds. Quartz and charcoal grits occur in 8 sherds. Other raw materials identified in the pottery were gravel, mica and pebbles. Quartz and plant materials were also identified in 5 sherds.

Table 5.13: Frequencies of tempering material

Tempering materials	**Frequency**	**Percent**
Quartz and limestone	96	26.2
Quartz and unspecified shinny mineral	84	22.0
Quartz	56	15.3
Gravel and quartz	22	6.0
Fine sands	20	5.5
Indefinable	18	4.9
Mica	18	4.9
Quartz and charcoal	9	2.5
Gravel	8	2.2
Quartz and sand	6	1.6
Quartz and fine sand	5	1.4
Quartz and plant materials	5	1.4
Limestone	3	0.8
Coarse sand	3	0.8
Pebbles and quartz	3	0.8
Gravel and limestone	3	0.8
Fine sand and gravel	3	0.8
Charcoal	1	0.3
Pebbles	1	0.3
Unspecified shinny mineral particles	1	0.3
Limestone and white dull pieces	1	0.3
Total	**366**	**100.0**

5.2.3. Petrology of Potsherds and Clay

Petrological analysis of a selected sample of sherds and clay was done at the National Department of Geology and Mines (NDGM), Nairobi, using atomic absorption

spectroscopy (AAS) to determine possible compositional elements in the potsherds and clay (Table 5.14). One category of samples included four specimens of potsherds and another category included two samples of clay. The four samples of potsherds were selected as follows: Two potsherds from a depth of 192cm below datum point and assigned laboratory numbers (Lab no.) 91/13 and 92/13. One potsherd from a depth of 246cm below datum point was assigned Lab no. 93/13 while another one potsherd from a depth of 324 cm was assigned Lab no. 94/13. The specimens, Lab. Nos./13, 4992/13, 93/13, 94/13 contain 67.16 %, 66.51%, 65.35% and 66.88% of silicon dioxide (SiO_2), respectively, compared to 68.66 % of SiO_2 in a specimen of clay (Lab no. 01/13) from Siyu. Specimen 01/13 contained a relatively low percentage of aluminium oxide (Al_2O_3) at 10.77% compared to 13.16%, 15.69%, 15.72% and 16.89% in the four specimens of potsherds above. Specimen 01/13 contains a relatively high percentage of ferrous oxide (Fe_2O_3) at 7.00% compared to 2.91%, 3.46%, 3.83%, and 3.63% in the four specimens of potsherds above.

The second raw clay specimen, Lab no. 02/13, was obtained from a known source of clay at Kiangwe on the shores of Dodori creek about 20km from Siyu. All specimens were fired at high temperatures with the objective of measuring the amount of mass loss-on-ignition (LOI). LOI is a test used in analyzing minerals where a sample is ignited at high temperatures allowing all organic components to escape until its mass stabilizes (Veres, 2002: 172). LOI was used to determine the amount of organic matter in the clay. The LOI results indicated a large variation between organic matter in the specimens of potsherds and those of raw clay. The pottery specimens had LOI

values ranging between 4.92 and 5.67% compared to the clay specimens with LOI of 8.92 and 16.21%.

Table 5.14: Mineralogy of potsherds and clay

Sherd/Lab. No.	**Ref: code**	**SiO_2 (%)**	**Al_2O_3 (%)**	**CaO (%)**	**MgO (%)**	**Na_2O (%)**	**K_2O (%)**	**TiO (%)**	**Mno (%)**	**Fe_2O_3 (%)**	**LOI (%)**
91/13	192a	67.16	13.16	1.20	3.10	2.59	0.90	0.45	0.08	2.91	5.14
92/13	192b	66.51	15.69	1.01	3.20	2.52	1.10	0.39	0.06	3.46	5.19
93/13	246	65.35	15.72	1.62	2.70	1.84	0.90	0.21	0.10	3.83	5.67
94/13	324	66.88	16.89	0.67	0.26	3.19	1.70	0.94	0.05	3.63	4.92
Clay/Lab. No											
01/13	S1-1	68.66	10.77	0.32	0.05	0.56	0.79	0.32	0.40	7.00	8.92
02/13	K1-1	45.17	15.66	8.50	5.10	1.23	1.82	0.91	0.40	5.46	16.21
Rock/Lab. No											
03/13	R1-1	40.23	15.71	6.34	4.98	0.67	1.98	0.34	0.45	5.67	9.34
04/13	R1-2	35.09	16.23	10.96	5.32	1.45	1.56	0.91	0.42	7.12	8.45
05/13	R1-3	36.89	15.67	8.34	6.06	2.09	1.87	0.56	0.56	6.23	10.89
06/13	R1-4	49.01	14.50	7.06	2.48	0.45	1.78	0.43	0.60	5.75	11.01

5.2.4 Imported Pottery

As for the imported pottery a total of eight decorative motifs were identified as follows: blue and white floral, chrysanthemum floral, green linear motif, curvilinear, polychrome hand painted, blue-on-white monochrome, greenish brown and, finally, light green floral motif. The majority of the imported wares were coated with a glaze of some sort as seen in Plates 5.1-5.8. The number in brackets indicates the accession number of the sherd.

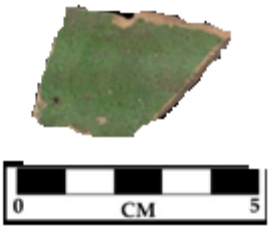

Plate 5.1(513): 11th-13th century late sgraffiato with dark green glaze on the interior.

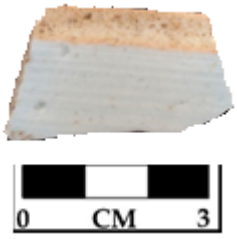

Plate 5.2 (345): 14th century Chinese porcelain.

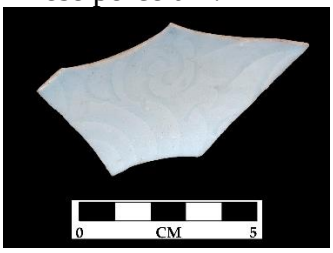

Plate 5.3 (571): 11thcentury White Chinese porcelain.

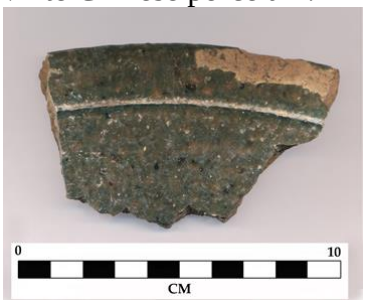

Plate 5.4 (552): Mid 15th -16th century rim of a shallow ledged standard Islamic monochrome bowl with a blue to green-blue under glaze. See also Plate 5.7 (580).

Plate 5.5 (589):13th-14th century worn out piece of black-on-yellow ware, decorated with thin black or brown lines.

Plate 5.6 (604):13th-14th century worn out black-on-yellow Islamic potsherd.

Plate 5.7 (620): Assorted imported pottery. *Left*. Late15th-16th century Chinese blue-and–white glazed sherd; *Middle* (536) 9th-12 th century unglazed Islamic ware in coarse cream white fabric; *Right* (580) Mid 15th-16th century standard Islamic monochrome bowl in pink fabric, green glaze on both sides.

Plate 5.8(568): Assorted imported pottery from the Far East.

Left: Chinese blue-and –white glazed sherd. The second is likely a flake from? Chinese celadon.*Top*: Unidentified sherd with thick yellowish paste and a worn-out brown glaze. *Extreme right:* Green glazed Chinese stoneware? Dated 9^{th}-10^{th} cnetury. This pottery was also reported at Manda (Chittick, 1984).

The findings on imported pottery indicated that Siyu, like other coastal cities, had access to the pottery from the Arabian Peninsula and China. Table 5.15 shows frequencies of diagnostic imported pottery.

Table 5.15: Frequencies and percentages of imported pottery wares

Ware	**Frequency**	**Percentage**
Standard Islamic monochrome	46	41.8
Chines blue and white	33	30.0
Black-on-yellow Islamic	6	5.5
Longquan green glazed	5	4.5
Thin glazed earthenware	5	4.5
Late sgraffiato	3	2.7
Persian blue and White	3	2.7
White Chinese porcelain	3	2.7
Unglazed Islamic ware	2	1.8
Marco Polo (De Hua)	2	1.8
Portuguese glazed ware	2	1.8

Pottery wares were cross-tabulated with levels as indicated in Table 5.16. This was done to determine which wares occur in which level and at what depth. Since the stratigraphy of the three trenches does not exhibit Pottery wares were cross-tabulated with levels as indicated in Table 5.16. This was done to determine which wares occur in which level and at what depth. Since the stratigraphy of the three trenches does not exhibit any disconformities, the order of materials is assumed to be in sequence, from the oldest to the youngest.

Table 5.16: Cross tabulation of level and imported pottery wares

LEVEL	Late sgraffiato	Longquan green	Standard Islamic	Black -on - yellow Islamic	Unglazed Islamic	Persian blue and	Blue –n- white	Thin glazed	White Chinese	Portuguese	Marco Polo
1	0	0	0	0	0	0	1	0	0	0	0
2	0	0	17	0	0	0	1	0	0	0	0
3	0	0	14	0	0	0	0	1	0	0	0
4	0	0	1	0	0	0	1	0	0	0	0
5	0	0	0	0	0	0	0	1	0	0	0
6	0	0	10	0	0	0	1	1	0	0	0
7	0	0	0	0	0	0	1	0	0	1	0
8	0	0	0	0	0	0	1	1	0	0	0
9	0	0	1	0	0	0	1	0	0	1	0
10	0	0	0	0	0	1	0	0	1	0	0
11	0	0	1	0	0	1	5	1	0	0	0
12	0	0	2	1	0	0	1	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	4	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	13	0	0	0	0
16	0	0	0	0	0	0	1	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	2	0	1	2	0	0	0	0
19	0	1	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	1	0	0	0	0
22	0	2	0	0	0	0	0	0	0	0	0
23	0	1	0	2	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0
25	0	1	0	1	0	0	0	0	0	0	1
26	1	0	0	0	0	0	0	0	1	0	0
27	1	0	0	0	0	0	0	0	0	0	1
28	1	0	0	0	0	0	0	0	1	0	0
29	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	1	0	0	0	0	0	0
33	0	0	0	0	1	0	0	0	0	0	0
34	0	0	0	0	0	0	1	0	0	0	0
Total	3	5	46	6	2	3	33	5	3	2	2

5.2.5 Imported Beads

Beads of two categories were found at Siyu. One category was of beads made from shells. Associated with the shell beads were numerous bead grinders made from pumice or coral. Another category was that of imported glass beads. In this study, only wound beads were recovered, mainly green, blue, turquoise, yellow, red, white and black (See Plate 5.9). One is cream and another has a worn-out colour. All the beads were recorded from upper levels except one yellow glass wound bead which came from a depth of 330cm.

Plate 5.9: Assorted imported beads from Siyu.

Top left to *right*: First two beads, glass spheroid, wound opaque turquoise, diameter 4mm; glass wound spheroid opaque turquoise, diameter 3mm (Trench 3). Fourth is a bead shell disc, diameter 5mm (Trench 3), terracotta bicone reddish brown opaque, diameter 8mm. *Top right*: Glass wound spheroid opaque white, diameter 8mm. *Bottom left* to *right:* Glass wound lenticular, tapered with notches on edge, opaque yellow, diameter 6mm (Trench 3); glass wound spheroid black, diameter 10mm and a

flat piece of worked pottery with a hole at the middle. *Bottom right*: a broken piece of glass wound spheroid black, diameter 10 mm (Horton 1996: 324-325).

5.3 Conclusion

In the foregoing chapter research findings have been presented in tabular form indicating quantifies and frequencies of archaeological materials. A detailed presentation of results in frequencies and percentages for shapes has been done as well as decorative techniques, texture of pottery fabric and temper. The petrology of sherds and clay has been presented showing mineral components of selected sherds and clay samples.

CHAPTER SIX

FUANAL REMAINS

6.1 Introduction

This chapter presents the analysis of faunal remains, giving a summary of all faunal assemblage at the site. Also presented are the taphonomic processes that affected the faunal remains prior to deposition. Special attention was paid to the type of marks that occurred on the bones in an effort to identify the type of animals that chewed on the bones after disposal.

6.2 Faunal assemblage

The analysis of faunal remains began by separating diagnostic elements from non-diagnostic fragments of bones, teeth, horny-parts and shells. The faunal assemblage comprised a total of 2,817 specimens out of which 2,620 and 185 were from fish and an unidentified marine shell, respectively (Table 5.18). The remaining 22 specimens belonged to terrestrial fauna. Also considered were the taphonomic processes that took place during and after deposition. The analysis included identifying specimens from terrestrial and aquatic animals. The terrestrial animal families represented ranged from very small bovine, *Neotragini*, through small *Caprini*, and medium to large *Bovini*. Others were *Equidae, Canidae* and *Phansianidae.* The aquatic specimens were fish and shellfish. Fish bones are distinct from other types of bones due to their flat and thin nature. Shellfish was evident by the spiral nature of the shell.

Table 6.1: Summary of faunal assemblage

Trench	**Aquatic (shellfish)**	**Aquatic (Fish)**	**Terrestrial fauna**	**Total**
1	20	23	3	46
2	10	648	6	654
3	155	1653	10	1663
4	-	286	3	289
Total	**185**	**2,610**	**22**	**2,817**

6.3. Taphonomic and subsistence processes

All the diagnostic bones were identified to element, portion, side and taxon using the osteological reference collection at the Nairobi National Museum's Osteology section. Other important attributes that were observed and recorded were the presence or absence of cut-marks, charring and fractures. A large number of bones were fragmentary accounting for the large number of undiagnostic specimens.

Table 6.2: Taphonomic processes

Family	**Element**	**Portion**	**Side**	**Taphonomy**	**Number**	**NISP**	**MNI**
Very small bovidae	T	Px	R	Ca, Vc, Vf	1		
	Fe	Ds	L	Ca, Vc, Rt, Vf	1		
	LV	CO		Ca, Rt, Ct	1		
						3	1
Small bovidae	Fe	Px	L	Ca, Vc, Rt, Vf	2		
	T	Ds	R	Ca, Vc, Rt, Vf	2		
						4	2
Medium bovidae	Fe	Ds	1	Ca, Vc, Rt,	1		
	C		L	Ex, Rt			
	As		R	Ex, Rt	1		1
						2	
Large bovidae	Ma		L	Ca, Vc, Rt, Ct	1		
	H	Ds	R	Vc, Rt, Ct, Vf	1		
						1	2
Canidae	To		U, r	Ex, Rt	1		
	P		L	Ex, Rt	1		1
						2	
Equidae	Fe	CO	R	Ex, Rt, Ct, Vc*	1		
	FP	CO	l	Ex, Rt, Ct	2		
	FP	CO	R	Ex, Rt, Ct	1		1
						4	
Suidae	FP	Px	L	Ca, Rt, Ct	1		
						1	1
Phasianidae	Fe	Ds	R	Rt, Ct	2		
	T	Ds	R	Rt, Ct	1		
	F	Px	L	Rt, Ct	2		
						5	2
						22	**11**

Abbreviations used in faunal analysis; H=Humerus, LV =Lumbar Vertebrae, P=Parietal bone,

C=Calcenium, As=Astragalus, T=Tibia, F= Fibula Fe=Femur, Ri=Rib, r=right, l=left,
Px=Proximal, Ds=Distal, Ma=Mandible, Ax=Axis, CO=Complete, FP=First Phalanges, Ex=Exfoliated, Ca=Carbonized, Vc=Human cut-marks, Vf =Very fragmented, Rt= Rodent tooth-marks, Ct=Carnivores tooth-marks, NISP=Number of Identified Specimens, MNI=Minimum Number of Individuals.

Table 6.2 above shows that the minimum number of identified specimens (NISP) from the excavation is 22. The very small bovidae is represented by three elements, one right tibia (rT), one left femur (lFe) and one complete lumbar vertebrae (COLV). Small bovidae (*Ovi/caprini),* is represented by 2 proximal pieces of lFe and 2 distal pieces of lT. Cattle are represented under the large *bovidae* family by one fragment of mandible (l Ma) and one piece of right humerus (rH). Most of the bones in the assemblage were fragmentary mainly due to food processing and post-depositional conditions.

Humans are known to break and cut bones to extract bone-marrow (Mutoro, 1987). It is known from other studies that humans as well as rodents and carnivores alike prefer chewing the articular ends of bones which are spongy with tendons (Busolo, 2007:119). Once the meat is removed from long bones, the articular ends of the bones continue to attract carnivores and rodents long after deposition. Using a hand lens, it was possible to identify various cut-marks inflicted on the bones by different agents including humans. Rodents make two-square shaped grooves on the bones using their lower incisors. All the 22 bones examined exhibited this kind of chew marks recorded as Rt. Once discarded by humans, bones will be gnawed and chewed upon a number of times by rodents and carnivores, respectively.

Humans, on other hand, inflict straight V-shaped cut-marks on bones using iron tools such as knives and axes, besides chewing. Eight bones indicated V-shaped cut-marks made by humans, one of which had post-depositional cut-marks not related to butchery. It is important to note that among the remaining 15 bones are complete bone elements of the *Equidae* family, to which belongs the common donkey. In Siyu, people keep donkeys for farm activity and not for subsistence. Culturally, the people here have a close attachment to the donkey and once it dies owners discard the carcass without dismembering it. The carcass is allowed to decay away under physical conditions where, post-depositional marks are limited to exfoliation and probably teeth marks from carnivores and rodents.

Carnivore tooth-marks (Ct) occur as U-shaped grooves on as many as 20 bone elements. The structure of the U-shaped grooves observed on the bones showed variations in size meaning that there was more than one variety of carnivores other than the *Canidae* family present in the archaeological record. It was not easy to identify depositional marks on fish bones due to their fragmentary and delicate nature. However, most of the fish bones were carbonized probably due to food processing or sometimes due to external fires not related to subsistence. The minimum number of individuals (MNI) represented in the Siyu faunal assemblage is 11, fish not included.

6.4 Conclusion

The summary of total faunal assemblage at the site has been presented in tabular form. Post depositional processes and features caused by physical forces as well those

caused by wildlife and humans have been presented. Farther, it is now clear from the analysis the minimum number of individuals as well as the number of identified specimens represented at the site.

CHAPTER SEVEN

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

The chapter discusses results of the study. The discussion focuses on the variety of pottery, beads and mineralogical compositions of sherds and clay. Discussion is made on the implication of the data in understanding the factors that premediated early settlements, items of exchange, both local and imported, as well as the exchange systems and resources of Siyu. Periods of occupation and the main settlement activities are also discussed. Conclusions and recommendations are made based on the findings of the study.

7.2 Discussion

The results of local pottery analysis show a complete contrast from other TIW sites especially those on the coast of Tanzania in which Chami reports a higher frequency of pots against a low frequency of bowls (Table 15 in Chami, 1994:79). This would imply a noticeable difference between TIW sites regarding the types of vessels in use at a particular time. Cross-tabulation of rim morphology and vessel form shows that the majority of vessels (263) were plain bowls with round concave rims (see Table 5.9d). Vessels with flat convex and flat straight rims were rare at this site. Round straight, sloping concave and flat concave vessels were rare in all categories except for plain bowls and open-mouthed bowls. Cross-tabulation of the levels and decorative elements across the three trenches confirms the existence of pottery traditions with both EIW and TT/TIW designs (see Table 5.5e). The presence of sherds with cross-hatched incisions delimited by horizontal lines, typical of EIW and

sherds with ladder and oblique incisions within the same depth range indicate a transitional period from EIW to TT/TIW. Continuous stabs and horizontal incisions which feature dominantly in sites with transitional traditions from EIW and TT/TIW also appear to have been retained throughout Siyu's occupation with occasional breaks as observed in the stratigraphy. Other elements such as thumb nail stabs and punctuates make a significant occurrence throughout the levels at frequencies of 15 and 10, respectively, indicating that some of the EIW designs were retained more in the northern Swahili sites. As seen from the illustrated samples in figures 5.8 and 5.9 above, there is a combination of decorative elements on a single vessel as is typical with most TT/TIW pottery (Chami, 1994:71). As shown in Table 5.9e, typical EIW elements become rare and fade out giving way to fully developed TT/TIW elements in upper levels.

Further to this, horizontal incisions are quite common decorative elements on potteries in Swahili sites and have been described as being inevitable elements in Tana Tradition (TT)/Triangular Incised Ware (TIW) and Early Iron Ware (EIW) designs. More often than not those occurring in EIW designs combine with other elements such as vertical or triangular incisions (Chami, 1994:74) (see Figure 5.3-5.14). Continuous stabs are also common to both TT/TIW and EIA short necked jars, pots and carinated bowls.

Decorative element 3 represents diagonal incisions delimited by horizontal lines (EIW design) as illustrated in Figures 5.6 and 5.7. Two types of cross-hatching decorations typical of the EIW as also represented at Siyu ceramic assemblage. This

design appears as a band of crisscrossing lines with or without horizontal delimiting lines usually incised but occasionally comb-stamped as described by Soper (1971:18). For instance, a single cross-hatching decoration was observed on a flat expanded rim of a shallow bowl. This type of decoration was also reported as a Mature TT pottery dated to 1060AD+/-110 (Horton, 1996 cited in Busolo et al., 2019).

Beside the cultural aspects of pottery, the following discussion examines the chemical composition of the sherds and raw clay. The mineralogy of specimens showed a great variation in chemical compounds such as SiO_2, CaO, MgO, MnO and Fe_2O_3 compared to the four specimens of potsherds. This suggests that the clay used in the manufacture of Siyu pottery was not sourced from within Siyu locality. With no traces of clay sources or even kilns at Siyu, it is certain that actual pots were brought into Siyu from other sites. More work needs to be done at Mbui which is thought to have been a production site on Pate Island (Chami *et al*., 2012).

The results of loss on ignition (LOI) suggest that the clay in the potsherd had less organic matter compared to the raw clay from nearby sources. This is explained in three perspectives. First, there is variation in the amount of organic matter in the raw clay and the clay in the potsherds because they come from different sources. Different sources of clay are exposed to varied organic matter and this can be seen in the variation of LOI between the samples. Second, the addition of temper materials to improve plasticity of clay during production reduces overall amount of organic matter present in the pottery. For instance, in preparing the clay, potters could mix together two clay types or add some tempering materials to not only improve plasticity by

increasing certain chemical compounds in the final potting clay but also reduce the effect of organic matter (Tite, 2008). Third, a substantial amount of energy was already lost during the firing technique applied on finished pots during manufacture. Further, potential changes in the chemical composition of pottery may occur during deposition (Freeth, 1967). For example, major or minor elements such as sodium, potassium, magnesium and calcium can be readily leached from or deposited within pottery during a range of environmental conditions (Freeth, 1967:112). Exposure of pottery to intense heat may alter the initial chemical composition. For instance, exposing functional cooking pots to intense heat during utility, or exposing discarded potsherds to wild fires may also alter the levels of chemical compounds. The current work provides baseline data for future research that may add more knowledge on the question of clay sources.

In addition, the findings of this study show that a number of decorative elements present in Siyu pottery are comparable to those in other Swahili pottery. The pottery and their decorative designs are chronological and show ideological and or cultural link to TT/TIW and EIW traditions. It is with no doubt that Siyu is a Swahili settlement with an exchange network that linked it to other cities.

The analysis of imported pottery indicate that the pottery came from two main geographical areas, the Arabian Peninsula and the Far East. It was evident from cross-tabulations that potteries from the Arabian Peninsula and those from the Far East arrived in Siyu almost at the same time. Europe was a third source of imported pottery and this features in the later occupation period.

From the findings, the majority of imported pottery were sourced from the Arabia Penisula and Persia. One pottery that makes a strong presence at Siyu from these sources is the late sgraffiato. This potterry is of Iranian origin from a place known as Siraf where it is described as style 3 sgraffiato and from the inland town of Sirjan and dated to between 950 and 1050AD (Morgan and Letherby, 1987: 52). This may have remained in circulation alongside other variants up to the 13th century, the time when this pottery is reported in Kilwa, Shanga and Manda (Horton, 1996; Chittick, 1984).

The late sgraffiato pottery cames from levels 27, 28 and 29 of trench 3 and above unglazed Islamic ware. This type of pottery has a pale orange-pink paste fabric with a fine sand temper, a few air holes and occassional white specks. Sometimes it was decorated with a flowery or lineal motifs on or over a layer of lead and sometimes involoved painting with slip clay water suspension (Kusimba, 1999a). Mending holes were common in the late sgraffiato pottery group, suggestsing that it was valued, even after breakage the sherds would find other uses. At Shanga the late sgraffiato occurs in stratified levels above white glazed wares with a date of 1000 AD or later (Horton, 1996:15). A similar pottery was reported at Mbui (Chami *et al*., 2012) and at Kilwa Period II (Chittick, 1974).

While at Mbui site, located less than 10 km west of Siyu, Chami *et al.* (2012) report late sgraffiato pottery in strata 2, 4 and 5. In stratum 2 one potsherd was associated with two Sassanian-Islamic pottery and two pieces of daub suggesting a much earlier date for Mbui's contact with the outside world than Siyu. Other varieties of sgraffiato pottery that were exported to the East African coast include champlevé sgraffiato

dated to between the 11th and 12th century, and the simple and late green sgraffiato dated to the 13th century (Chittick, 1984: 79).

Another type of pottery from the Arbian peninsular to be excavated at Siyu is unglazed Islamic ware. Potsherds from this type of pottery are characterized by a coarse cream to pink sandy fabric, and a worn-out red slip on the exterior excavated from levels 34 and 33 of trench 3. Another imported pottery that occurs is black–on-yellow Islamic ware dated between the 13th and 14th centuries in levels 19, 24 and 26 of trench 3. The black-on-yellow pottery is very common on the East African coast. The basic forms are: bowls with plain rim and ring base, and medium bowls with ledged rims with flat bases. The pottery is named by its typical decoration of a thin black line or very dark green lines over a yellow glaze. The likely source are the kilns of Khanfur near Aden in southern Arabia manufactured between 1200 and 1300 AD. At the nearby site of Shanga, this type of pottery probably arrived c. 1250 and remained in circulation for more than a century (Horton, 1996:291).

Two types of standard Islamic monochrome were identfied and represented by 46 sherds thought to be part of a bowl with pronounced ledges and another by a ring base. The majority of these were in the upper levels of trench 1 but not lower than level 12. These pottery types are also represented in the other trenches. The standard Islamic monochrome depicted a blue monochrome ware with soft red to pink paste decorated with a blue to green-blue underglaze, while the ring base was a green monochrome ware with soft pinkish-grey to pale-pink buff paste.

Persian blue-and-white also occurs at Siyu below the earlier standard Islamic monochrome with one of the three sherds occuring in level 19 of trench 1. It is not uncommon to find young materials below older pottery in Swahili sites. The tendency to dig boreholes in the Swahili settlements unearths deeply buried materials to the surface that eventually mixing potteries of different dates. The Persian blue-and-white ware was produced in Persia during the Safavid period between the 16th and 17th century AD. The designs of this ware imitated those of Chinese porcelain but with more subtle shades.

From the Far East, the main source of pottery was China. Among the most common ones is the white Chinese porcelain produced in the Tang and the Song Dynasty (Zhu and Kusimba, 2020). Though not a very common pottery in the east African sites, its occurrence at Siyu is significant for the chronology of the site. This type of pottery is dated between 10th and 11th centuy AD. It is represented by three sherds (see Plate 5.3), depicting a white fabric with a clear overglaze, excavated from levels 27 and 29 of trench 3. This was produced either in the Ding or Liao kilns of the northern Song dynasty (Zhu and Kusimba, 2020:125).

Another notable pottery from China is the 12th to mid-13th century pottery known as *Macro Polo,* named after a voyager by that name, who brought back to Italy a bowl from his voyage of the East. Also known as De Hua after a production centre in Fujian province with 180 kilns, this pottery was moulded bowls in creamy white paste with a cream overglaze. Chinese blue-and-white is one of the most common imported pottery in the Swahili sites. The blue-and-white was found in all the three trenches

but not lower than level 22 and above its contemporary, black-on-yellow ware from the Arabian Peninsula. This was produced during the Yuan dynasty between 1280 and 1368 AD. The pottery was decorated with an underglaze of blue pigment, usually cobalt oxide. Underglaze technique is a method of decorating pottery in which painted design or pattern is applied to the surface of a vessel before it is covered with a transparent glaze and fired in a kiln at high temperatures of between 1,200 and $1,400^0$ C (Kusimba, 2020; Finlay, 2010).

Longquan green glazed ware is another pottery that was imported to Siyu from China. The earliest variant of this pottery was produced during the Yuan dynasty (970-1279 AD) in kilns located in Lishui Prefecture in central China (Vainker, 1991). Another variant reached the Western Indian Ocean coast as a result of the development of the port of Quanzhou (Horton, 1996: 307). This pottery was manufactured during the Song dynasty in the 13^{th} century but may have remained in circulation for a century or so. Further, Lonquan celadons with brown or yellow glaze were produced at Zhejiang during the Ming dynasty between the 14^{th} and 15^{th} centuries (Zhu and Kusimba, 2020:127).

Two types of European wares are represented in the Siyu pottery assemblage. First, is thin glazed earthen ware represented by two sherds in level 9 of trench 1, probably of a large bowl with red-white floral decoration. Second, were two sherds with worn-out yellow-brown glaze over a pinkish fabric probably a Portuguese glazed ware dated to the 17^{th} century. Similar pottery was found in Pate in the 17^{th}-18^{th} century levels (Wilson & Omar, 1997:57).

From the above analysis, a total of eleven imported wares are represented. Five wares from the Arabian Peninsular and Persia, 4 wares from China and 2 wares from Europe (see Table 7.1).

Table 7.1: Summary of ware and date of manufacture of imported pottery.

Ware	**Date of manufacture**								
	9th - 10thC	11thC	12thC	13thC	14thC	15thC	16thC	17thC	18thC
Unglazed Islamic									
White Chinese porcelain									
Late sgraffiato									
De Hua (Marco Polo Ware)									
Longquan green Chinese									
Blue and white Chinese									
Black –on- yellow Islamic									
Standard Islamic Monochrome									
Persian blue and white									
Thin glazed European ware									
Portuguese ware?									

It is important to note that among the imported potteries, namely, unglazed Islamic ware, white Chinese porcelain and late sgraffiato are found in association with EIW and TT potteries. This provides ground for them to be treated as contemporaries in determine the chronology of the site.

According to Horton, (1996: 329), glass beads were rare on the East African coast before c. 1000AD. However, thr situstion changed by the 11th century AD, such that an enhanced trade with the region brought in a larger number of other merchandize , among them beads (Wood (2011). Archaeological evidence indicates that glass

wound beads made in Egypt or other areas in the eastern Mediterrenean were traded into East Africa. Wood (2011:33) thinks that after the 14th century when commercial activity shifted from Zanzibar northwards to Mombasa, Malindi and Pate, more glass beads were brought into the East African ports. Arab and Indian merchants traded commodites in these ports. Horton suggests that due to the low number of beads in these sites, beads were exchanged as gifts to cement relations between merchants and local people rather than as items of trade (Horton, 1996: 329). The beads found at Siyu compare well with those recorded at Manda and Kilwa (See Chittick 1984), with samples of green, yellow, black, blue and turquoise types. Wound types are common.

7.2.1 Early Settlements

One objective of this study was to examine strategic factors that influenced initial settlements at Siyu. The findings indicate that the early settlement of Siyu was influenced by its strategic location not only on the landward side of Pate Island but also on the inner shoreline of a winding Siyu Creek. The presence of a navigable creek from Siyu channel that separates Pate Island from the mainland enabled individual fishers or groups of fishermen to sail to the site of Siyu, which was then a beach on the north-western inner shoreline of Pate Island. This strategic location ensured protection of the settlement from two major threats. One of these threats was that of strong oceanic waves that could put anchored vessels and fishing activities at risk. Another threat was naval military invasion by rival-city states with ambition to expand territorially. In later periods when Siyu had grown into an important

settlement, political insecurity was anticipated from as far as Zanzibar, besides threats from close neighbouring city-states such as Shanga, Pate and Faza.

The settlement was accessible by sea through the creek that was, and still is, navigable today. The creek grew in importance for navigation to the extent that it could anchor relatively large cargo and passenger vessels during high tide. Siyu could also be accessed by foot from the neighbouring Shanga, Pate and Faza settlements.

The second objective of this study was to determine the exchange systems and resource base of Siyu settlement. The rich marine resources in the form of fish and mangrove forest were important items of exchange at the initial stage of occupation. Fish bones formed a major proportion of faunal remains in the excavation. Perennial fishermen used the site as a stopover beach and seasonal camp with minimal settled activities. Erratic fish bone remains in the lower strata indicate that cultural activities in the initial settlement were limited to preservation of fish caught for later transfer to mainland localities. This is still in practice by contemporary fishermen who camp on sites such as Parsalia rocks off Shanga (Personal communication: Bwana Heri Mmaka, 2012). Impermanent mud and straw huts were constructed to provide *ad hoc* shelter whenever fishermen anchored their boats on the island. Evidence of cultural activities at the site is indicated by the occurrence of daub, charcoal, fish bones, shells, and other faunal materials totalling up to 327 faunal remains. Most of these come from Trench 3 at a depth of 340cm in level 34. The three main domesticates, cattle, goat/sheep and donkey, appear to have been brought to Siyu quite early to supplement fish resources and also because the settlements had become more

permanent. The settlers seem to have hunted wild game of *Madiqua/Neotragus sp*. from the nearby forest to supplement earlier subsistence.

Mangrove forests grow in marine swamps and are an important source of hard wood poles used for construction of houses as well as charcoal and tannin, among other uses (Middleton, 2004:13). The research findings reveal that Siyu is endowed with a rich and mature mangrove forest on the north-eastern shoreline. Poles harnessed from the mangrove forest have been traded for a long time between cities on the East African coast, the Arabian Peninsula and Europe. For instance, poles from Siyu were transported in dhows to Zanzibar and Yemen via Lamu port (Middleton, 2004:81). Archaeological evidence reveals that mangrove poles were used locally for construction of mud and thatch houses. There were efforts to construct housing structures at Siyu to accommodate seasonal fishing activities.

Another item of exchange was pottery. Seven pottery types with EIW and TT/TIW affinities were recovered from lower levels. The occurrence of these potteries suggest that some form of procurement was done, albeit on a small scale, going by the amount of potsherds at a depth lower than 270cm.The decorative elements found on Siyu pottery also make significant appearances at Shanga and are identified as mature Tana tradition (Horton, 1996: 253). For instance, diagonal incisions bounded by horizontal incisions on either side on flat expanded rims form part of what is known as phase B pottery by Horton (1996: 261). Cross-hatches on flat expanded rims of shallow bowls are also reported at Mbui (Chami *et al*., 2012:40).

Horizontal incisions, diagonal incisions and a pattern of punctuates and thumb nail stabs below the rim or on the shoulder are common types of decoration on Siyu pottery. The large amounts of pottery in upper levels, presuppose a more elaborate exchange system between the early settlers of Siyu and potters from the mainland. Petrology of a sample of potsherds revealed no evidence that the clay used in the Siyu pottery was sourced from any locally known site within Siyu and its environments. No archaeological evidence of pottery kilns has been located at Siyu and this suggests that the inhabitants were connected to a wider exchange network that enabled them access some of the highly valued ceramics alongside developing a sophisticated society that grew into an important centre.

The early connection of Siyu to the larger international exchange system beyond the East African coast is confirmed by the occurrence of notable imported pottery from the Arabian Peninsula, the Far East and even Europe. This suggests that Siyu was connected to the world's renown civilizations of the time. Among the potteries imported into Siyu include unglazed Islamic ware, late sgraffiato potsherds, black-on-yellow, standard Islamic monochrome and Persian blue and white.

The findings suggest that Siyu has had a linked network of exchange that enabled her gain access to imports of pottery and beads among other items from the Arabian Peninsula, Persia and China. These imports were procured directly from overseas centres or indirectly through other city-states such as Pate and Shanga punctuated by periods of harmony and conflict between them. The third objective of this study involved reconstructing sequence of occupations as discussed under periodization.

7.2.2 Periodization

To arrive at the periodization of the occupation of Siyu the study applied cross-dating. The cross-dating technique is based on the occurrence of archeological finds in association with dated objects such as pottery types whose ages are known in the localities of ultimate origin. Such items as Chinese porcelain and Islamic pottery were merchandize traded and exchanged widely throughout the East African coast. The dates of styles of pottery changing according to fashion dictates are firmly established in historical records. Because the date of import is known at its source, a settlement in which it is found can be relatively dated to a period contemporary with, or younger than the exotic object of a known age.

From the study findings, the settlement of Siyu took place in about four periods. Period I lasted from the 9^{th} to the 11^{th} century. This period is marked by fine (white) sand dunes overlain on a deep coral. The sand dunes are characteristic of an active inter-tidal zone at a time when the sea level was higher than it is at the time of this research. Burnt clay and ashes overlay the sand dunes, thereby marking the first evidence of human activities at the site. Charcoal deposits in association with fish bones occur in trenches 3 and 4 at levels 28, 29, 33 and 34 which lie in Stratum I of the settlement. The charcoal deposits indicate the use of fire in food processing sites such as roasting of fish for the campsite fishermen and as a supplement to the sun-drying of fish. The terminal part of Period I witnessed intense use of mud-and-thatch shelters especially at the centre of the settlement. Potsherds of local pottery with Tana tradition attributes were found in the earlier levels of Trench 3 and 4. The period coincides with the last half of what Horton (1996:256) termed mature Tana tradition

at Shanga that lasted from c. 920-1050 AD. The earliest imported pottery to occur in Period I is the White Chinese porcelain produced in the 11th century though earlier phases may have been produced earlier in the 10th century (Horton, 1996: 310). These reached the East African coast between the late 11th and mid-13th centuries.

Period II lasted from the11thto the 13th century and features a substantial layer of red loam soils mixed with ashes, charcoal and numerous fish bones and marine shells as well as bovid bones. This was a phase of settled community subsisting mainly on fish and other marine foods and goat/sheep. Daub with wood-pole impressions dominate while wall plaster is sparse. A post hole was excavated in Trench 1 at a depth of between 70 and 80 cm depth in association with a heap of unused coral mortar. This suggests that during Period II permanent settlements comprising mud and thatch houses were established. A small number of houses built of stone in limestone mortar and finished with wall plaster on both interior and exterior surfaces were built alongside.

Period III lasted from the 13th to the 16th century. This period is probably the industrial age that saw Siyu expand her economic base and political power. Documentary accounts show that the textile industry was already established in cities along the Eastern African coast by the 16th century or earlier (Horton, 1996: 337). Horton discusses in chapter 16 the various types of spindle whorls and their use in textile working at Shanga to the south. Evidence for textile working in Siyu is provided by spindle whorls from trench 1. One type was made from sherds of broken sgraffiato pottery and another type from ivory. Portuguese sources allude to the

production and export of fine silk from Pate in exchange for ironworks, beads and cotton cloth (Freeman-Grenville, 1975:142).

Intensive stone masonry can be seen in the massive town wall with strategic watch towers and construction of stone mosques and houses most of which survive in ruins, numerous coral rubbles, wall plaster and coral *Porites* and abandoned built wells. Elaborate woodworking is thought to have developed during Period III. Some ethnographic evidence for elaborate woodworking include a wooden *minbar* of the Friday mosque dated to 1521 and a number of carved doors that are still in use to this day. Siyu is also known to be the origin of the carpentry of carved doors that has since spread to other coastal towns. Further, Period III witnessed an enhanced contact with the outside world with merchants increasing their activities that saw the appearance of more pottery at the site.

The beginning of Period IV is marked by numerous mosques and stone houses during the late 16th century. One Portuguese traveller, Gasper de Santos Bernados, wrote in 1606 that Siyu was probably not only the largest and most populated at the time, but also well-organized town on Pate Island (Freeman Grenville, 1975:150). This period, which lasted until the end of the 19th century, attracted foreign political powers that desired to control the wealth of Siyu. Documentary evidence indicates the coming of the Portuguese and Turkish invasions between 1585 and 1590 (Kirkman, 1964:18). The Portuguese intimidated the Sultan of Siyu by compelling him to witness the execution of the Sultan of Lamu in 1590 as punishment for collaborating with the Turkish intruders (Horton, 1984: 72). Perhaps one symbolic action by the Portuguese

against Siyu was the total destruction of the town wall in 1637. It is not clear whether or not the town wall was rebuilt after the destruction. With the town wall collapsed, the city-state of Siyu was vulnerable to her enemies. Her trade, wealth and political power were gone. Archaeological evidence for these events includes a ruined town wall with its 7 watch towers and guardrooms. There was a marked increase of mud and thatch houses against decreasing stone houses, probably due to the plundered wealth by the foreign powers. Between 1837 and 1860, a third political power from the south, Zanzibar, took control of Siyu from the Portuguese and built a fortress, north of the ancient settlement but strategically positioned to provide sentry against naval attacks that were very much anticipated from Siyu creek. The wealth, political power and population of Siyu declined as people migrated to other towns. It was observed during this study that the majority of stone houses are vacant and many are collapsing due to continued disuse. Interviews with town's people revealed that the majority of the people abandoned their houses and migrated to Zanzibar in search of better business prospects.

7.3 Conclusion

In conclusion, this study has shown that Siyu is one of the few ancient towns that have experienced continuous occupation since the 9th century AD to date. Siyu has never been abandoned by its inhabitants as seen in the interpretation of the sequence of archaeological materials and the stratigraphy. This study has established that the occupation of Siyu has been very much a function of the interplay between marine dynamics and evolution of landscape at the site. Earlier occupations took place in the higher area of approximately 7 and 11 m above sea level. This is an area that was

habitable then with the nearby areas occasionally submerged due to tidal changes. With the gradual recession of the sea level more land was reclaimed through time hence allowing more settlements in lower altitude areas between 3 and 7m above sea.

It is evident from the study that Siyu was first visited by seasonal fishermen who used the site as a stopover camp for their fishing activities. The strategic factors that influenced the initial settlement at the site included marine resources such as fish, mangroves and a navigable creek that enabled them access to the island and the sea. The receding sea level that left more sand dunes exposed encouraged permanent settlements with more specialized activities.

The study has also shown that Siyu did not make her own local pottery but rather procured finished pottery from other sites by way of exchange. Local pottery with EIW and TT affinities indicate an exchange network that linked Siyu to known centres on Pate Island such as Shanga. It is now established that Siyu was linked to an international exchange system that brought in imported merchandise from China, Arabia, India and Europe in exchange for items such as mangroves, ivory and animal products.

This study has made it possible to determine using archaeological evidence the four periods of occupation at Siyu. Period I lasted between the 9th and 11th centuries and was characterized by seasonal fishing activities. Period II lasted between the 11th and 13th centuries. Mud and thatch houses were introduced as well as stone houses towards the close of that period. Goat/sheep, cattle and donkey were brought to Siyu during this period. Period III lasted between the 13th and 16th centuries. This is the

industrial age that saw Siyu's wealth thrive through her textile industry, masonry and carpentry. Finally, Period IV is the period of decline that is associated with the coming of foreign political powers. For instance, Turkey, Portugal and Zanzibar orchestrated the decline of Siyu's political power, wealth and population at the close of the 19th century.

Throughout her occupation, Siyu's subsistence economy was dominated by fish resources from the nearby Siyu creek. The creek gave the fishermen access to greater marine resources from the sea. Fish was caught directly by local fishermen or indirectly through social exchange networks. Through social exchange networks, it is not uncommon for relatives and friends to carry fish to Siyu from other towns whenever they visit. It is therefore possible that fish bones at Siyu represent not only the fish sourced directly from the nearby sea, but also the fish that would have been caught anywhere else along the coast between Siyu and Mombasa.

Cattle and goat/sheep supplemented fish resources for meat. The highly fragmentary nature of cattle and goat/sheep bones is evidence of subsistence. The cattle bones occur in the lower stratum beginning with stratum 2 in trench 4. Stratigraphic sequence also shows that there has been continuous occupation of the site since the 10th through to the 19th century. Besides, Lamu and Pate, Siyu is one of the longest continuously occupied Swahili sites along the East African coast.

7.4 Recommendations

This study makes the following recommendations.

1. Chronometric dating could be done on samples of charcoal and potsherds from the site to validate the suggested periodization.
2. Further survey of the hinterland sites will be necessary to discover precise provenance of clay that was used in the production of pottery found at Siyu and the surrounding sites.
3. The buffer zone around the Lamu World Heritage Site should be extended to include Siyu as a conservation area.

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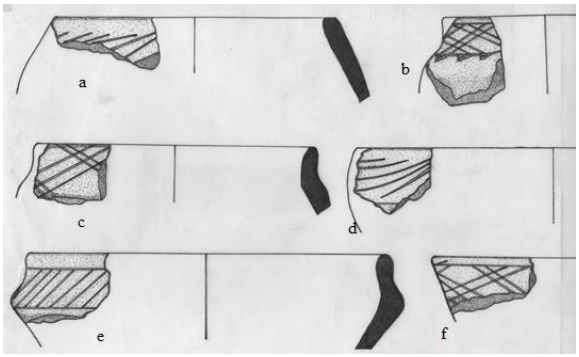
APPENDICES
APPENDIX 1: ILLUSTRATION OF DECORATIVE ELEMENTS AND VESSEL SHAPES



Diagonal (e), irregular line incisions (a, d) and irregular cross-hatches (b, c and f) on carinated bowls from trench 1.

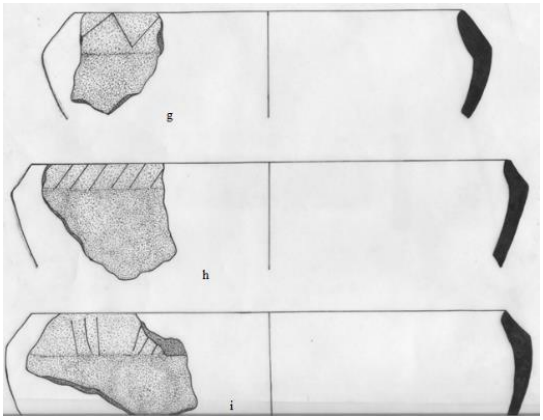


Figure 6.2. Decorative elements featuring zigzag (g), diagonal (h) and irregular line incisions (i) on simple carinated bowls from trench 1.

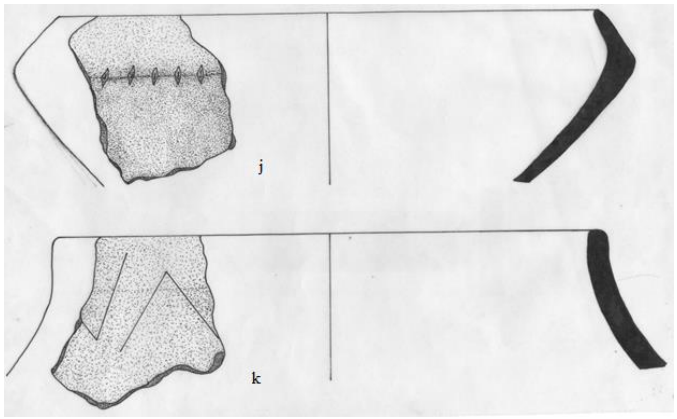


Figure 6.3. Decorative elements featuring punctuates on carinated bowl (j) and line incisions (k) on vessel shapes from trench 2.

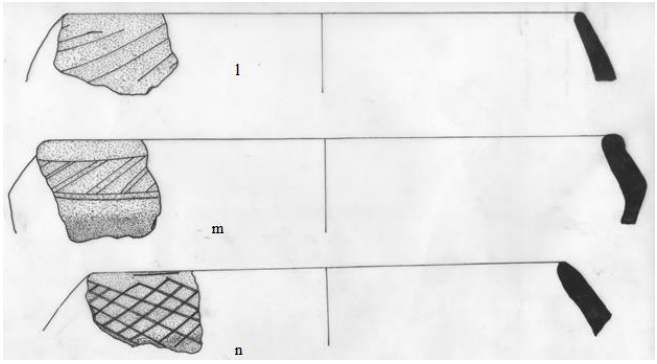


Figure 6.4. Decorative elements and vessel shapes (l, m, n) from trench 3.

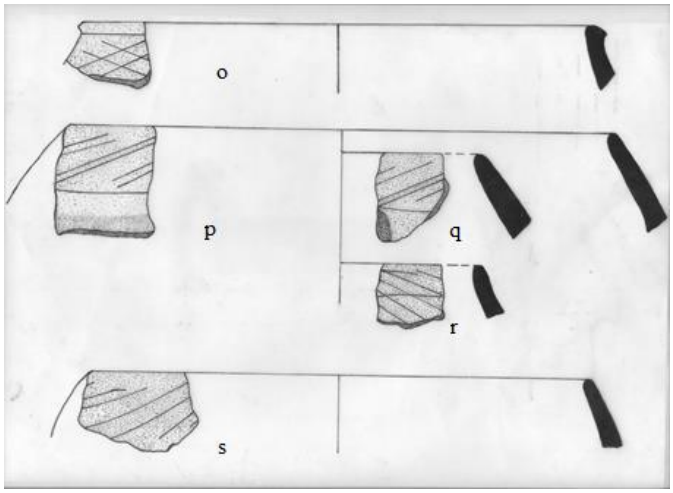


Figure 6.5. Decorative elements (o-s) and vessel shapes from trench 1.

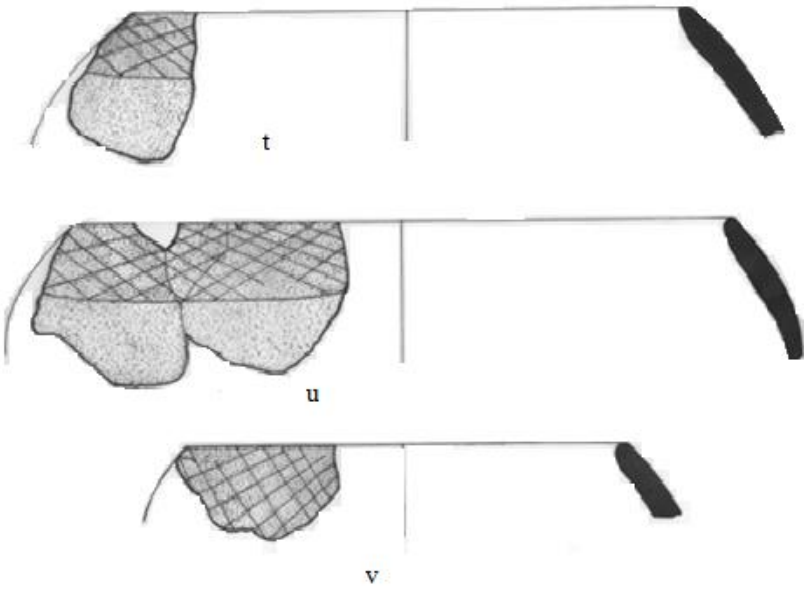


Figure 6.6. Decorative elements featuring single cross-hatches and vessel shapes (t,u,v) from trench 4.

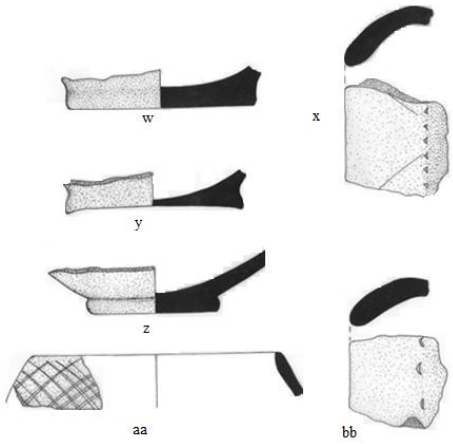


Figure 6.7. *From left to right*: Vessel bases of bowls (w is a flat pedestal base, y is a shallow ring-base, and z is a solid pedestal base), punctuates (x), double cross-hatches (aa)and thumb nail decorations (bb) from trench 1.

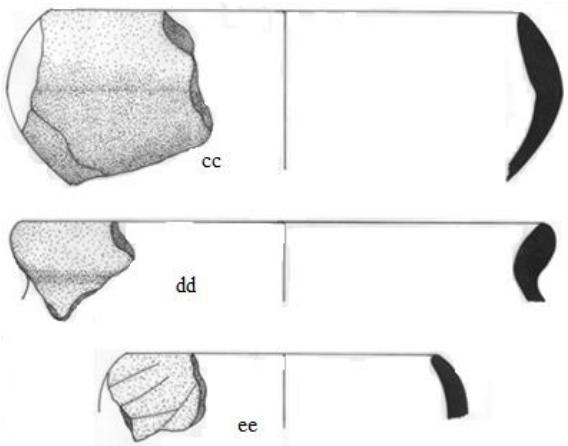


Figure 6.8. Plain deep bowl, (cc) short necked pot with out-turned rim (dd) and a small deep bowl with concave rim (ee) from trench 1.

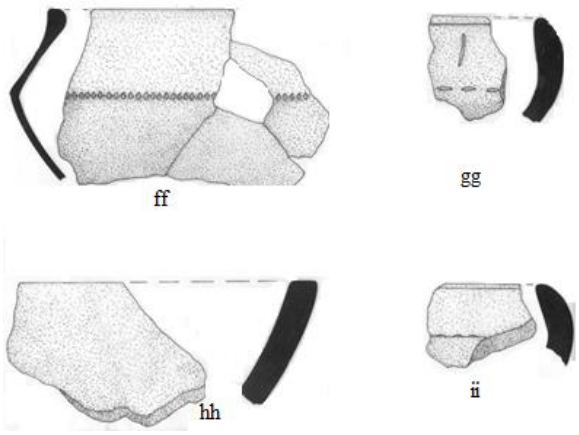


Figure 6.9. *From left to right*: Carinated bowl with notches on carination (ff), small deep bowl with thumb nail incision, and potter's mark below rim (gg). Also illustrated is a plain open mouth bowl with flat rim (hh) and a deep bowl with continuous index nail stabs (ii), from trench 3.

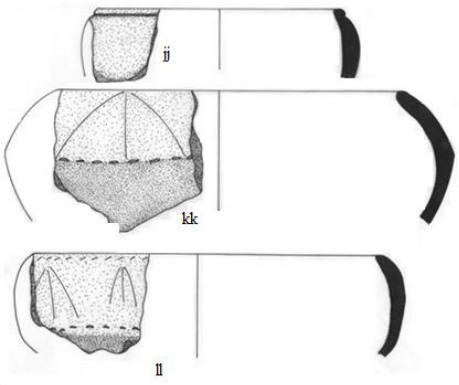


Figure 6.10. Deep bowls with notches on carination (jj), deep bowl with thumb stabs, from trench 4.

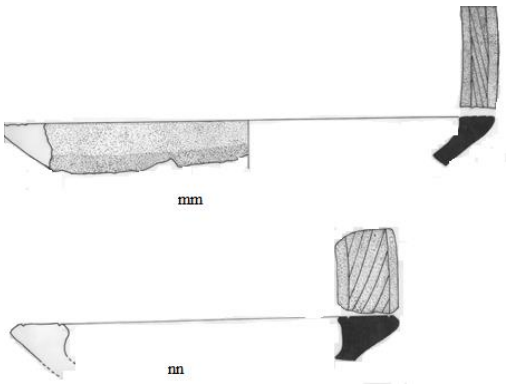


Figure 6.11. Shallow bowls with expanded rim and diagonal incisions on rim, from trench 3.

APPENDIX 2: RESEARCG AUTHIRZTION FROM THE NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

REPUBLIC OF KENYA

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Telephone: 254-020-2213471, 2241349
254-020-310571, 2213123, 2219420
Fax: 254-020-318245, 318249
When replying please quote
secretary@ncst.go.ke

P.O. Box 30623-00100
NAIROBI-KENYA
Website: www.ncst.go.ke

Our Ref: **NCST/RCD/14/012/937**

Date: **6th July 2012**

Ibrahim Busolo Namunaba
University of Nairobi
P.O. Box 30197
Nairobi

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"An archeological investigation of ancient settlements and subsequent development of Siyu Old Town of North Coast of Kenya up to the 15th Century AD"*** I am pleased to inform you that you have been authorized to undertake research in **Lamu District** for a period ending **31st July 2013.**

You are advised to report to **the District Commissioner and the District Education Officer, Lamu District** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR. M. K. RUGUTT, PhD, HSC.
DEPUTY COUNCIL SECRETARY

Copy to:
District Commissioner
District Education Officer
Lamu District

APPENDIX 3: RESEARCH AFFILIATION STATUS FROM THE NATIONAL MUSEUMS OF KENYA

NATIONAL MUSEUMS OF KENYA

WHERE HERITAGE LIVES ON

Ref: NMK/ESC/n/VOL.1

10th July 2012

Ibrahim Namunaba

Thro' Assistant Director - Coastal Region

Dear Mr. Namunaba,

RE: RENEWAL OF RESEARCH AFFILIATION TO THE NATIONAL MUSEUMS OF KENYA

This is in reference to your request for renewal of research affiliation and Exploration/Excavation Permit, with the National Museums of Kenya to enable you continue with your field research for your PhD Thesis titled; **An archaeological study of ancient settlements and subsequent development of urbanism of Siyu of North of Kenya up to 1500 AD.**

I am pleased to inform you that you have been offered affiliation with the NMK. You will be affiliated to the Archaeology Section, Fort Jesus Museum, upon payment of $200 affiliation fee to the NMK's Accounts Department. This affiliation will be for a period of ONE year (1) from 1st July 2012 up to 30th June 2013. During this period, you will be expected to conform to all institutional requirements as far as this affiliation, use of facilities and collections are concerned. You will also be expected to forward to my office through the Assistant Director, Coastal Region, whenever necessary, any reports on your present and future activities.

This research affiliation does not exonerate you from abiding to the National Council of Science and Technology requirements.

Yours sincerely,

DR. GEOFFREY MWACHALA
For: DIRECTOR-GENERAL

cc: Assistant Director, Coastal Region
ection, Coastal Archaeology

1910-2010
CELEBRATING A CENTURY OF HERITAGE MANAGEMENT

APPENDIX 4: EXCAVATION/ EXPLORATION LICENCE FROM THE NATIONAL MUSEUMS OF KENYA

NATIONAL MUSEUMS OF KENYA

WHERE HERITAGE LIVES ON

Ref: NMK/ACL/RSC/095

11th July, 2012

TO WHOM IT MAY CONCERN

RE: EXCAVATION/EXPLORATION LICENCE

This is to confirm that **Ibrahim Namunaba** who is a research affiliate with the National Museums of Kenya has formally applied for an excavation / exploration license through the National Museums of Kenya for the period up to **12th June, 2013.**

This is in accordance with the conditions provided for in the National Museums and Heritage Act No. 6 of 2006.

Kindly allow him to carry out research in **Siyu in Lamu Archipelago.** The findings of this research will be beneficial to this institution and will further its international recognition as a leading research center.

Any assistance and cooperation given will be highly appreciated.

Yours sincerely,

Dr. Geoffrey Mwachala,
For: Director General.