

**AN ARCHAEOLOGICAL RECONNAISSANCE OF KUYELLO SITES, BIRNIN
GWARI LOCAL GOVERNMENT AREA, KADUNA STATE,
NIGERIA.**

BY

**Maryam Idris ALIYU
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NIGERIA**

SEPTEMBER, 2014

DECLARATION

I declare that the work in this thesis entitled “An Archaeological Reconnaissance of Kuyello sites, Birnin-Gwari Local Government Area, Kaduna State, Nigeria” has been carried out by me in the department of Archaeology. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this thesis was previously presented for another degree or diploma at this or any other institution.

Maryam Idris ALIYU

Name of Student

Signature


Date

CERTIFICATION

This thesis entitled AN ARCHAEOLOGICAL RECONNAISSANCE OF KUYELLO SITES, BIRNIN GWARI LOCAL GOVERNMENT, KADUNA STATE, NIGERIA by Maryam Idris ALIYU meets the regulations governing the award of the degree of Master in Art of the Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

Dr. (Mrs) B.N Mangut PhD

Chairman Supervisory Committee



SignatureDate

Dr. J.D Ndera PhD

Member Supervisory Committee



SignatureDate

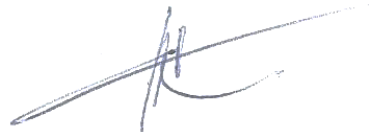
Prof. J.O. Aleru

External Examiner Signature Date



Dr. M.K. Aliyu PhD

Head of Department Signature



Date

Prof. Joshua Adebayo Abiodun

Dean School of Postgraduate Studies

SignatureDate

DEDICATION

I dedicate this work to my beloved family for their support and encouragement.

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ABSTRACT

This research was undertaken with the purpose of studying the settlement sites as well as the iron smelting site in the Kuyello area. The research aimed at documenting the surviving cultural remains being threatened by human activities. The research was geared towards identifying, studying and documenting material remains in the study sites as well as the collection and the documentation of oral tradition from present inhabitants of Kuyello. Historical archaeology was adopted as the theoretical framework of this research.

Methods employed for the research were oral tradition, consultation of documented and written materials, archaeological survey as well as classification and analyses of cultural materials. Information was gathered by interviewing the people of Kuyello, this was done individually and also in groups. Written records in form of archival materials documented by colonial officers were used together with other published materials. Archaeological survey was carried out in order to determine the extent of the sites and the distribution of cultural materials on the sites. Measurements were taken and the distances between them recorded. Classification and analysis was done in order to arrange these cultural materials into groups and attributes for better interpretations.

The research provided evidence of past human occupation in form of fragmented furnaces, iron slag scatters, collapsed defensive walls, ruins of mud structures, potsherds, dye pits, spindle whorl and grinding stones. This evidence showed that the Kuyello site was a well-developed community with central administration where people with different craftsmanship co-existed. And that the people had adequate knowledge of harnessing their environmental resources for sustainable and technological development.

Finally the sites produced new information on the archaeology of Birnin Gwari area and more insight into the communities that existed before the arrival of the Colonial officers. The data collected has helped place Kuyello area on the archaeological map of Nigeria.

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CHAPTER ONE

GENERAL INTRODUCTION

1.1 Introduction

Archaeological researches in Kaduna State seem to be limited to few areas like Old Birnin Gwari, Zaria area and the Nok culture area. This research in Kuyello, Birnin Gwari Local Government Area of Kaduna State is an attempt to bring out the vast archaeological potentials of the area which will help place the area on the archaeological map of Nigeria. The main purpose of this research work is that it will help record and document the archaeological remains found in this area that are threatened by farming activities.

The study area is made up of three distinctive sites namely the Tsohon Kuyello site, the Shado settlement site and the iron smelting site. These sites are separated in relation to their land area and also the distances from one to the other. These sites contain cultural materials in form of collapsed defensive walls, grinding stones, furnaces, iron slag scatter, potsherds and dye pits. Most of these cultural materials have been destroyed and the surviving ones are being threatened by human activities. These sites are located in a plain and are evidence of man's interaction with his immediate environment.

1.2 Statement of Research Problem

The Birnin Gwari area has a rich archaeological formation which can provide information on the cultural history of the area. Since much attention is focused on oral tradition and migration studies, it will be rewarding to concentrate on the cultural development of this area. The only archaeological research carried out in this area is that done by Audi (2011), which was in the old Birnin Gwari. The research in Kuyello is an attempt to explore the archaeological potentials which will in return complement the previous research so as to give holistic information of the Birnin Gwari area. Also no

archaeological research has been carried out in the Kuyello area. When this area is studied in a holistic manner it becomes possible to determine if there is a relationship between Birnin Gwari and other sites studied in the Zaria region in terms of iron smelting culture, furnace types and environmental similarities or differences. Having said this, it becomes important for an archaeological research of this nature to be carried out.

1.3 Aim and Objectives of the Research

The research is intended to answer specific research questions. The basic aim of this research was to document material evidence of past human activities on the sites. This will provide necessary information/ data needed to attempt a reconstruction of the history of the study area and also serve as a foundation for further work in the area. The aim will be accomplished with the following objectives;

1. To identify, study and document material evidence of past human activities in the Study sites.
2. To collect and document oral tradition from the present inhabitants of Kuyello.
3. To carry out a comparative analysis of the settlement sites.

1.4 Scope of the Research

The research entails the study of three different sites which includes the Tsohon Kuyello settlement site, the Tsohon Shado settlement site and the Kuyello smelting site. An archaeological reconnaissance of these sites was carried out; the study was a pioneering/exploratory research preparatory to future more detailed studies. The research identified, studied and documented material evidence of the Kuyello iron smelting which were in form of fragmented furnaces and scattered iron slag. The research also studies the Kuyello and Shado settlements. This was done through a

surface survey by traversing on foot. Features in form of dye pits, collapsed defensive walls, old well, grinding stones were studied in situ. Finds such as spindle whorl and potsherds were collected and analyzed. Oral tradition was conducted and information on site locations, history of the Kuyello area, subsistence economy and migration history. The oral information was obtained from the present Kuyello and Shado settlement. Neither excavation nor dating was carried out.

1.5 Significance of the Study

This research work is significant because it has revealed diverse information on material culture from past human activities from the site studied. It has brought to light iron smelting evidence of the Kuyello area as such this has improved the knowledge of iron working in the Birnin Gwari area ranging from furnace remains, scattered iron slag and in addition this research has added to our knowledge of the archaeology of the Birnin Gwari area. This research has information complementary to the previous research carried out in the Old Birnin Gwari. The research has helped place Kuyello on the archaeological map of Nigeria and also added to the knowledge of Nigerian archaeology (Fig. 13).

1.6 Methods the Research

In carrying out archaeological research it is paramount that a multi-disciplinary approach be adopted. Thus research methods connote the principles that guide any scientific research and experiment. The essence of a methodology is to ensure that research work is organized, efficient and valid (Andrefsky 2001). This research work was primarily concerned with what can be seen visibly on the surface of the earth which indicates human activities in the study area. The following are methods employed in the course of the research work.

1.6.1 Oral Tradition/Information

Oral tradition is information stored in the memory and transmitted through the words of mouth from generation to generation about the history and traditions of a people (Vansina 1981). The history of written records in most parts of Africa and Nigeria is very recent dating to the period of European and Arab contact with Africa. This has led to over reliance on oral tradition and material culture, for periods before contact with the outside world.

Oral tradition can be helpful in the understanding of meaning and uses of aspect of material culture and people's tradition of origin (Vansina 1967). Oral tradition provided information that aided the interpretation of materials recovered in the archaeological context and those that were destroyed but left behind their imprints or marks on the sites. However the use of oral tradition was done with caution because of its inherent limitation of memory loss, exaggeration, limited time depth and lack of absolute dates for events among others.

Oral information was collected directly by interviewing informants, the number of informants interviewed was 25, comprising of 15 males and 10 females. The reason for having more male informants was due to the Islamic setting, where males are not restricted as such the males were able to provide more information on the Tsohon Kuyello. On the other hand the females provided ethnographic information. Group and individual interviews were carried out in order to determine if the informants in groups were more responsive than those interviewed individually, the researcher noticed that the informants that were interviewed individually were more relaxed and forth coming than those in the groups. The informants in groups were skeptical to give information because they were of different age groups. Information collected was on site location,

tradition of origins, iron smelting activities and other areas like settlement pattern, economy of the people, art and craft, religion and day to day activities of the extinct and extant people of the study area. Ward heads, crafts men and women and the elderly of the study area were interviewed, and the medium of communication was Hausa language since that was the major language spoken in the area.

A voice recorder and writing materials like pens, pencils and exercise book were used for the collection of the oral information.

1.6.2 Written Sources

The second method used was documented evidence in form of maps, written and archival materials related to Kuyello area. Written materials were collected from libraries and archives, these had to do with colonial government reports and ethnographic reports by European missionaries. These materials served as background information to the study area. These materials were very important and useful in augmenting oral information collected. This was due to the fact that there was no prior written history on the study area. The libraries visited were housed in Arewa House, History and Archaeology Departments of Ahmadu Bello University. The National Archive Kaduna (NAK) was also visited.

1.6.3 Archaeological Survey

Archaeological survey is the evaluation of archaeological sites in relation to finds and features. (Renfrew and Bahn 1996). It involves the identification and measurement of finds and features in relation to one another and the recording of surface artifacts and features and their relationship with the natural environment.

The basic instruments and equipment used for the survey include ranging poles, global positioning system (GPS), photographic scale, photo camera, measuring tape and artifact bags. A datum point was determined and measurements were taken in relation to the distances between the datum point and cultural materials located on the sites, also the bearing of these cultural materials were determined. Surface finds like potsherds and spindle whorl were collected for classification and analysis, while features that are unmovable were studied and their measurements taken.

Surface collection of archaeological remains in form of potsherds and spindle whorl was done while traversing the sites on foot. They were collected intermittently from the sites. Most of the potsherds were collected from the dye pit clusters because of their abundance in that area. A global positioning system was used to do a mapping of the finds and features located on the sites studied to produce site maps.

1.6.4 Ethnographic Information

The method employed here involves the use of ethnographic data to interpret archaeological data. Ethnography is the study of a present-day society and culture and also societies that are extant. This is important because it is believed by scholars that it is the present that holds the key to the understanding of the past. Through this cultural connection between the past and present inhabitants of Kuyello was determined. The researcher asked questions on subsistence pattern, architecture and pottery making. This was done in order to make proper interpretation of the finds and features studied.

1.6.5 Classification and Analyses

Classification and analysis of data in archaeological research is very important and thus it becomes paramount for it to be employed if a standard and comprehensive result is to

be expected. The main aim of classification is to make meaningful inference from the data collected on the field. Classification involves the ordering of cultural materials into groups on the basis of their sharing of certain characteristics or attributes (Andah and Okpoko 1994). Data that are recorded were analyzed for the purpose of obtaining useful information for archaeological interpretation. Interpretation is the synthesis of all the results of data collected, processed, classified and analyzed in an attempt to answer specific questions (Sharer and Ashmore 1979).

Data collected in the course of the research was classified and analyzed. The analysis of the data collected from the field was carried out in stages. The potsherds were sorted out into types, sizes and even decoration (motifs). The analysis of these remains helped to provide insight into the functions of these remains, the aesthetic values as well as the sources of the raw materials and how they were acquired and how they were discarded.

Other cultural materials like the dye pits, furnaces and grinding stones that were on the field and could not be moved due to their sizes and fragile nature were studied, documented, analyzed and interpreted on the site and further interpretation was done based on existing works by scholars in related field of research.

CHAPTER TWO

LITERATURE REVIEW AND THEORETIC FRAMEWORK

2.1 Literature Review

Archaeological research carried out in the Birnin Gwari area was done by Audi (2011). Audi attempted a documentation of Old Birnin Gwari where he documented remains in form of house foundations, Mosque, collapsed defensive wall and remains of furnaces. Audi also tried to establish a migration history of the people of Birnin Gwari originating from present day Niger State. The iron working industry of Old Birnin Gwari was also studied and documented but no detailed survey was carried out. Evidence for iron smelting abound in several parts of Nigeria include the Nok culture site of Taruga in central Nigeria, Nsukka, Llejja and Umundu from southern Nigeria. Ola Igbi and Laagbe from western Nigeria and lastly, evidence from Taruga, Sukur and the Zaria area from northern Nigeria. In the northeast and the south of Nsukka research carried out by Anozie (1979) have provided information on the several types of furnaces that were used as well as providing information on the types of smelting traditions practiced in Igboland. From his finding we were able to deduce that there were two smelting traditions practiced in Igboland as well as the huge cylindrical slag that were produced from the by-product of the different smelting processes. He also stated that the first tradition used was pit furnace while the second made use of shaft furnace (Anozie 1979).

Other evidence of iron working in Igboland has been provided by Okafor who excavated furnaces and concluded that bloomery iron smelting began there around the 5th century BC based on the two-sigma calibrated dating of 765-120 BC obtained from the area (Okafor 1995; Alpern 2005). Although these sites have revealed some information on iron smelting in Nigeria. Alpern (2005) is of the opinion that many more sites are yet to be discovered and studied. Also researches carried out by Okafor (1995; 2004) have revealed iron smelting evidence from Eastern Nigeria having extensive and more complex technological diversity and ritual practices associated with the smelting. Evidence from Llejja and Umundu in Enugu State in form of slag were said to be larger than any that has been discovered in Africa. Evidence of iron smelting have also come from Western Nigeria where Bellamy(1904) reported that mining of ore which goes through roasting before smelting was seen in Ola Igbi near Oyo State. (Cited from Akinade 2003). William (1973) reported that more than 100 people involved in smelting were sighted by visitors in 1904 at Laagbe in Oyo State. (Cited from Akinjogbin 2004). In Hausaland and central Nigeria, iron smelting furnaces are referred to as large pots (Cline 1937; Sutton 1985 as cited from Abubakar 1987). Different types of furnaces have been identified which are the hearth furnace. In this type of furnace the height is equal or is less than the diameter. This was reported to be in use among the Oka and Birom on the Jos Plateau (Daze 1981). This furnace is characterized by the production of pure iron at a temperature not exceeding 7500C. The other furnace type is the shaft furnace which is a cylindrical mud structure over a shallow pit. This has been reported to be in use in the Lankan district (Daze 1981). This furnace tapers as the height increases. Its use has been reported in several parts of Northern Nigeria especially at Kano, Katsina and Zamfara. It is said to be the most developed and efficient of all traditional smelting furnaces. The other furnace type is

the Calatan furnace associated with an open reduction chamber below the ground with a single tuyere through which draught is forced using bellows. This was reported amongst the Nupe people (Nadel 1942 cited from Abubakar 1987). In this furnace type smelting of iron is carried out between five and six hours. The other furnace type is the Sukur type named after the hill top village of Sukur in north-eastern Nigeria, this type is believed to be common in the hill areas of northern Nigeria. Smelting of iron is believed to take place in the Sukur furnace within an hour (Abubakar 1987). Taruga has provided evidence of iron working in form of ten furnaces associated with tuyeres, iron slag and charcoal dated to the 5th century BC (Fagg 1969; Alpern 2005). The first archaeological investigation of iron smelting in the Zaria area was carried out by Ade Obayemi in 1973 for which he reported the excavation of an iron smelting site at Samaru west and a radio-carbon date that falls within the 7th century AD (Sutton 1976). Other researches were also carried out by Sutton (1976), Effah-Gyamfi (1981), Boachie-Ansah (1983; 2000) at Samaru west, Tsauni and old Kargi. Furnace types were studied as well as the socio-economic and cultural contexts of iron working at these sites. Odofin (2010) carried out researches in Tsauni North and South. The studies were able to establish radiocarbon dates of between first and fourth Centuries AD for the Tsauni iron smelting sites in the Zaria area. Evidence have also emerged from southern Kaduna area in form of numerous abandoned iron smelting furnaces, iron ore mining pits, heaps of iron slag and broken tuyeres. Two furnace types which are the free standing and the imbedded furnaces were identified to have been used (Jemkur 1989). No research of such magnitude has been done in the Kuyello area. This research is an attempt to document the rich iron smelting complex of the Kuyello area so as to add to the knowledge of iron smelting in the northern part of Nigeria.

2.2 Theoretical Framework

The theoretical framework employed for this research is ‘historical archaeology’. Historical archaeology emerged in North America in the 1950s (Hicks and Beaudry 2006). Over the years scholars have had different meaning attached to historical archaeology. Hicks and Beaudry (2006) are of the view that, the presence of literacy or written documents does not define a specific field in archaeological study. Deetz sees historical archaeology as the archaeology of the spread of European cultures throughout the world since the fifteenth century, and the impact of these cultures on the interaction with the cultures of indigenous people (cited from Schmidt 2006). According to Wilkie historical archaeology is ‘documentary archaeology’. It is “an approach to history that brings together diverse source materials related to cultures and societies that peopled the recent past” (2006:13). Wilkie also maintained that documentary archaeology brings about different dimensions to understanding and interpreting the past which would have remained elusive when one dealt with a single line of evidence.

Schmidt (2006:5) is of the view that, “we must come to recognize that the arbitrary idea that only certain forms of historical experience, the modern and colonial European fit within the mission of historical archaeology denies historical practice in other cultures and inhibits us from developing a more fulsome, richer understanding of history making at a global level”. Orser sees historical archaeology as “a research method that rests on the combined use of historical sources and archaeological data” (2004:9). Orser is of the view that, historical archaeology is a multi-disciplinary field having a relationship with anthropology and history. According to him historical archaeology is “a branch of archaeology that frequently use maps, diaries, and government records including cultural anthropologist’s culture histories, ethnographies and insights” (Orser 2004:19). Historical archaeology is not only satisfied with just describing artifacts or

writing archaeological reports that documents the undocumented. It also examines the deeper meaning of these artifacts and the intricate relationship between people and the things around them including buildings and landscape (Orser 2004).

Historical archaeology in Africa is of two schools of thought, first is the Euro-centric or Islamic-centric which focuses on the impact of non-African societies, economies and governance on Africans through the use of colonial library and the second school of thought which is an African based perspective emphasizing African- made histories and their material cultures through the use of African knowledge systems (Schmidt 2006).

The second school of thought was more appropriate for this study, as such it was used. African historical archaeology is the study of the African past by means of integration of archaeological data, documentary evidence and oral traditions or histories (Robertshaw 2004). In this research historical archaeology covers the period of written records as well as the period with no written records in the Kuyello area. This involves the combination of written sources and archaeological sources in the reconstruction of past societies. This entails the collection and use of oral, archival and archaeological data. This is meant to add depth to the understanding of past and present life ways of the Kuyello people.

CHAPTER THREE

GEOGRAPHICAL AND HISTORICAL BACKGROUND OF KUYELLO AREA

3.1 Location of the Sites

The knowledge of environmental background of a given area can go a long way to provide information on how man was able to manipulate his environment and also how the environment helped shape man's way of life.

The Kuyello abandoned settlement sites are located near the present day community of Shadounder Kuyello District in Birnin Gwari Local Government Area of Kaduna State. Their geographical co-ordinates are latitude $11^{\circ}12'47.5''N$ and longitude $006^{\circ}54'45.0''E$. The district is bordered in the north by Sabuwa Local Government Area of Katsina State, old Birnin Gwari to the south and Dogon Dawa to the east. (Figs. 1, 2 and 3).

The district is about 64km from Funtua and 135km from Zaria. The Tsohon Kuyello is about 30minutes drive from the Sabon Kuyello due to bad road. (Fig. 4). There are two access roads to the site, one it is that of the north-western flank from Funtua and the second one is the south-eastern flank from Dogon Dawa. Apart from these roads there are several foot paths connecting Kuyello to other Villages.

The first site is the Tsohon Kuyello settlement site located about 4km south east of the Sabon Kuyello and about 1.5 km north of Sabon Shado. Tsohon Kuyello is about 2km south of the Tsohon Shado settlement site. The second site is the Tsohon Shado settlement site located about 5km north-east of Sabon Kuyello and about 1.8km north-east of Sabon Shado. Lastly, the third site is the Kuyello smelting site, this is located east of Sabon Kuyello and it is about 2km from the present day settlement of Kuyello. It is located at the north-west of the Tshohon Kuyello settlement site (Fig.4).

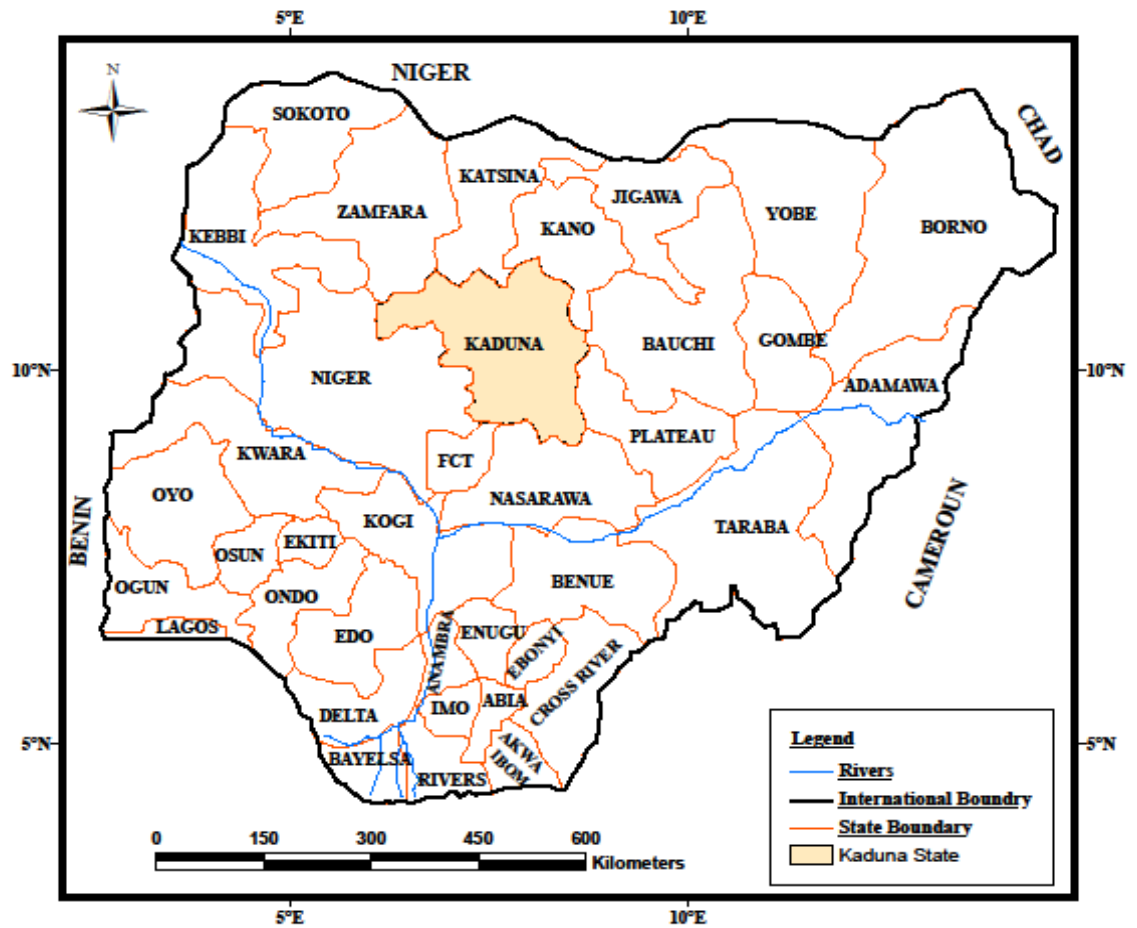


Fig 1: Map of Nigeria Showing Kaduna State
 Source: Federal Ministry of Information (2006)

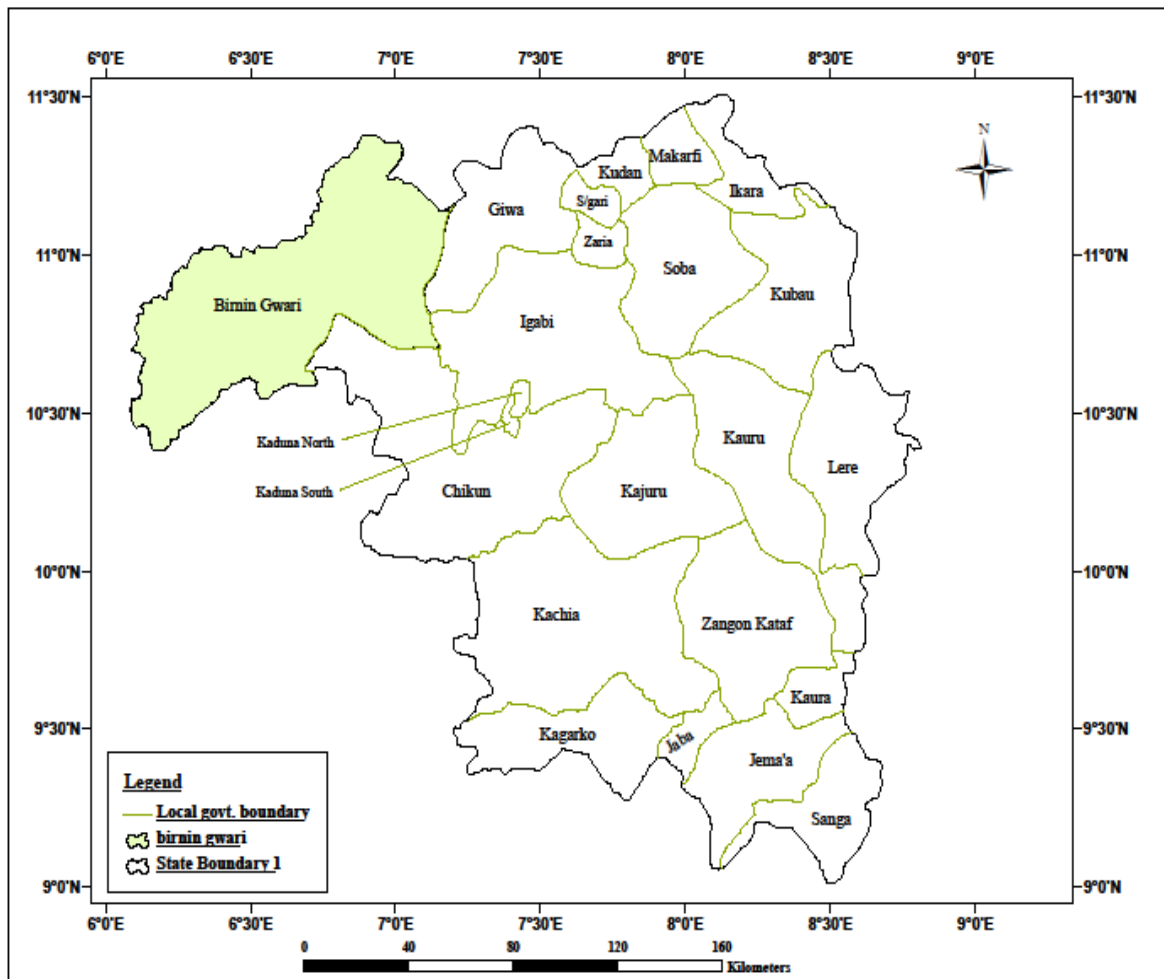


Fig 2: Map of Kaduna State Showing Birnin Gwari LGA
 Source: National Population Commission, 2010

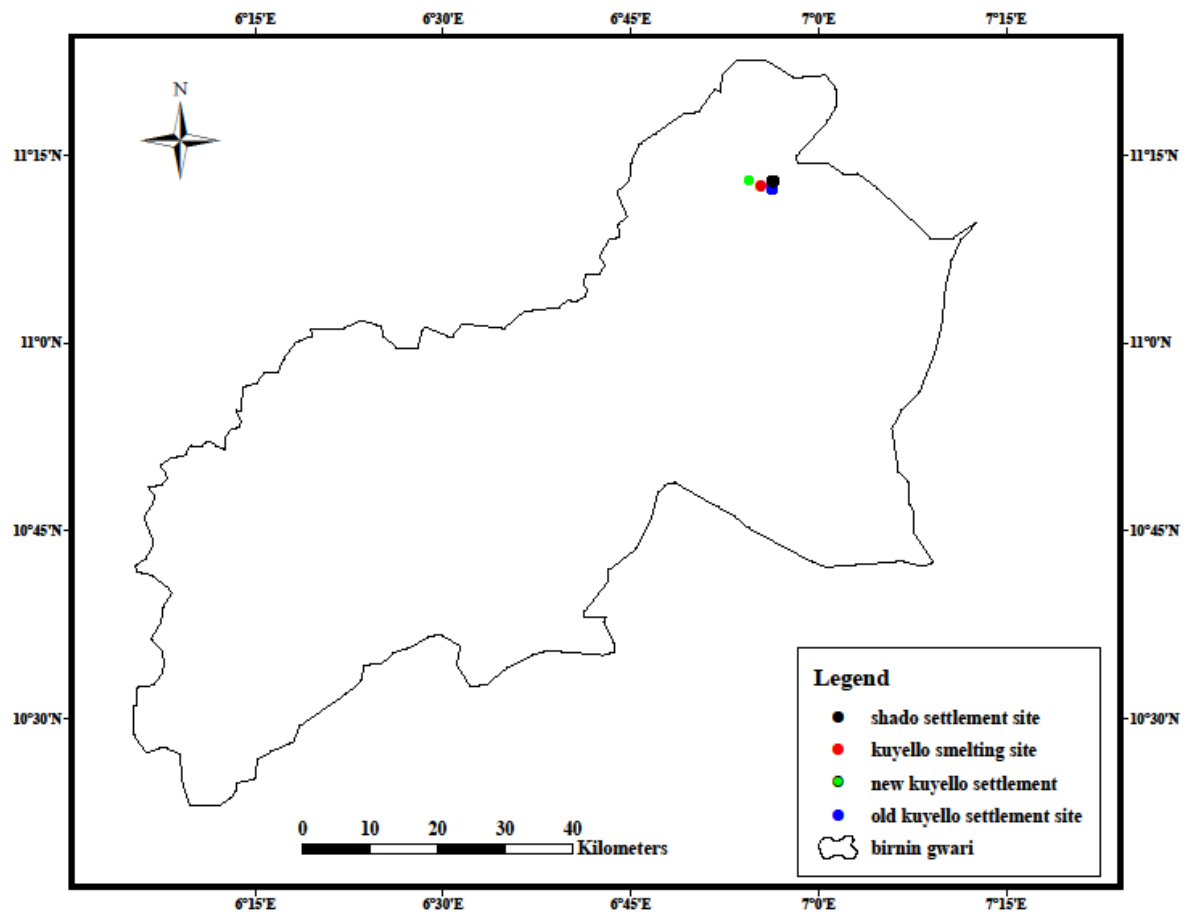


Fig 3: Map of Birnin Gwari Showing the Study Area (Kuyello)

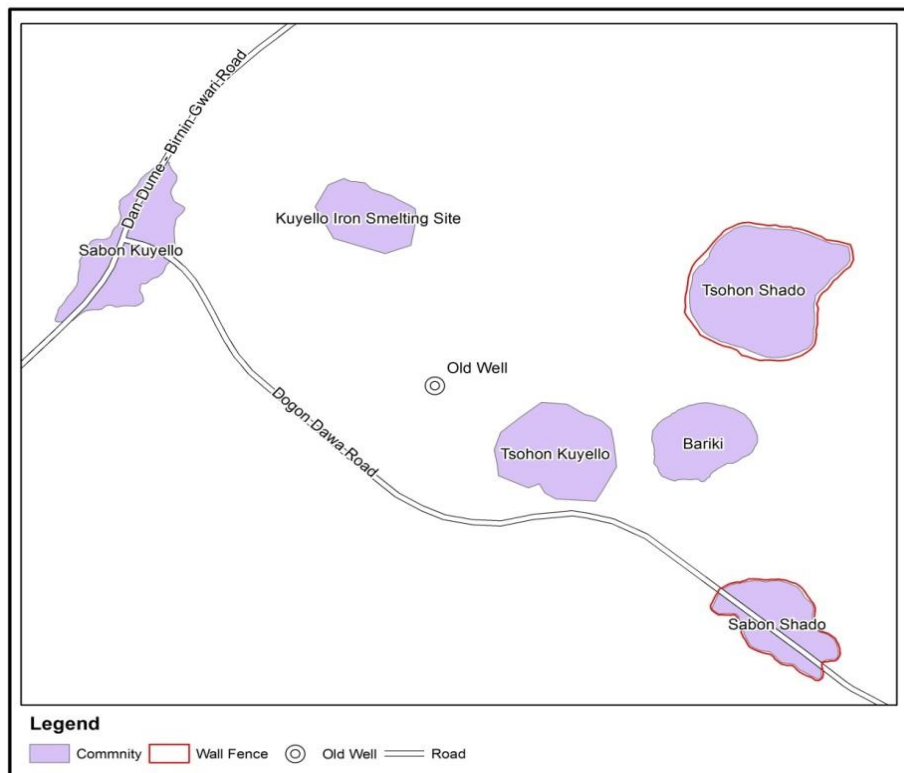


Fig. 4: Sketch Map of Kuyello Area

3.2 Climate

The climatic condition of any area plays a major role on how the cultural history of a people is shaped. Thus information on its patterns and variability over time and space can be paramount for survival of the inhabitants of that area. Kuyello enjoys a wet and dry climate, which is strongly characterized by seasonality of rainfall and temperature distribution with six months dryness. Kuyello is an area of perpetual high temperature throughout the year. This area is influenced by two prevailing winds that blow from north-east and south west depending on the season of the year. The first is the tropical continental air mass. This is a warm dry and dusty air-mass formed over the Sahara desert and known when on the move as the harmattan. The other wind is a warm and humid air mass known as the tropical maritime air mass which extends in July and August over West Africa giving rise to the convectional activities that brings rainfall. This lasts from March – August (Shaw 1981).

However, with yearly variation on the numbers of rainy days there appears to be a long term average of 92 days for the area. The mean annual rainfall despite its variability is about 1000mm on a long term average (Hore 1970). The mean monthly temperature is about 27⁰C. Temperature can varies and has its highest between the months of March – May which represent a hot and dry period. It's lowest is in December/January reaching 22⁰C. However the mean minimum monthly temperature vary greatly from year to year. The mean daily temperatures show a peak of 39⁰C in October, daily maximum temperature attain a peak of 29⁰C in August and rises to its secondary peak in October with 32⁰C mean minimum temperature rise from lowest of 7⁰C – 8⁰C in December and January respectively and attain its highest in July with 11⁰C and August with 11.2⁰C (Hore 1970).

The people of Kuyello are involved in different economic activities depending on the season and time of the year, thus the knowledge of climatic conditions has helped in shaping the economic importance/achievement of the area. This is evident in such a way that during the raining season which is the busiest time of the year, the people partake in farming activities thus leaving no time for crafts work but during the dry season the people partake in art and crafts and also few of them practice dry season farming. While others clear their farmlands for the beginning of a new farming season. In Kuyello five distinctive periods are used in classifying the seasons of the area, they are;

Bazara: This is the period in which the wind is so severe preparing for the arrival of the rainy season with high temperatures. This occurs usually in the month of April but could extend to May depending on the onset of the rains.

Damina: This is the wet period which begins in April to October. This period correspond to the wet season as classified by Hore (1970).

Kaka'a: This is the period for harvesting farm produce which last from October to December. This corresponds with the transitional period when normally the wet season ends and the dry season begins.

Hunturu: This is the hazy time of the year also known as the harmattan or cold period with low temperatures in the mornings and at nights. It lasts from November to February. This period correspond with the dry season.

Rani: This is the dry period with very hot air and high temperatures which lasts from March – April. Alhaji Danmusa(Personal communication, March 15, 2013). This period falls within the range of the hot season (Hore 1970).

3.3 Geology and Soil

Northern Nigerian rocks are predominantly those of the Precambrian basement complex with crystalline rocks. The underlying granites appear on the surface in the form of inselbergs (Grant 1978). The regional geological setting of the area is divided into the basement complex and that of the Schist belts (Grant 1978). The basement complexes rocks consist of crystallize gneisses, schist, quartzite, ferruginous quartzite and banded iron stones. The Kuyello area fallwithin Kushaka schist formation with extensive quartzite that are widely ferruginous (Grant 1978; Truswell and Cope 1963). They belong to the period ranging from late Proterozoic to late Cambrian (Grant 1978). The Kuyello area is made up of hilly scattered rocks over the surface of the landscape. These hills include granites inselbergs and flat topped hills (Grant 1978). Over the years these hills have served the purpose of natural fortification (Plate I).



Plate I: Granitic outcrops at Tsohon Kuyello

Soil is very important in archaeological researches, it provides information about past climate, vegetation and animals that were available to man over the years. And also it serves as a means for the preservation of archaeological data in form of artifacts, features and ecofacts. The soil here is predominantly sandy and consequently low in nutrients. The sandy nature of the soil being non-sticky and plastic when wet makes it friable as a result they are physically mobile and therefore prone to erosion. The fertile soils in the Kuyello area are mostly found along the flood plains known as *Fadama* soil. The soils are useful for dry season farming, mostly for the cultivation of vegetables (Kowal and Kassam 1978).

3.4 Vegetation

Vegetation is referred to as the plant cover of the earth consisting of assemblages of plants. Vegetation expresses and reflects environmental conditions in West Africa, six major climatic and vegetation zones are identified; these zones include the sahel, sudanic savannah, guinea savannah, the rainforest, the mangrove and deltaic swamp forest (Ogundiran 2006). Vegetation is a reflection of the distribution of rainfall as it is

determined by the interactions between two air masses, which are the dry north east continental wind from across the Sahara and the cool humid south-westerly Atlantic air masses (Sowunmi 1981). (Plate II).



Plate II: An aspect of the scanty vegetation of Kuyello settlement site

The vegetation in the Kuyello area is dominated by large trees, smaller trees and shrubs. The area is also characterized by economic trees like: *Adansonia digitata* (Baobab/*kuka*) which serve different purposes ranging from food to medicinal uses. *Butyrospermum parkii* (Shea butter), *Acacia implexa* (Acacia/*kiry*), *Propolis Africana* (Moringa/*zoga*) for soup and medicinal purposes, *Tamarinus indica* (Tamarind/*tsamiya*) for drinks, *psidium guajara* (Guava/*gwava*), *Magnifera indica* (Mango/*mangoro*) as fruits, *Parkia biglobosa* (Locust bean/*dadawa*) as soup seasoning (Jones, 1963), *Vitex Doniana* (*Dinya*) as a fruit for food.

Plant crops include legumes and root crops such as;

Pennisetum glaucum (Millet/*gero*), *Zea mays* (Maize/*masara*), *Sorghum bicolor* (Guinea corn/ *dawa*), *Allium cepa* (Onions/*albasa*), *Ipomoeabatata* (Sweet potatoes/*dankali* Hausa), *Saccharum officinarum* (Sugarcane/*rake*), *Oriza*

sativa(Rice/*shinkafa*), *Lycopersicon esculentum* (Tomatoes/*tomatiri*), *Capsicum annum* (Pepper/*atarugu*), *Phaseolus* (Beans/*wake*), *Brassica spp* (Cabbage/*cabeji*), *Amarantius spp* (Spinach/*alaiyahu*), *Abelmoschus esculentus* (Okro/*kubewa*), *Solanum tuberosum* (Irish potato/ *dankalin turawa*), *Lactuca sativa varicapitata* (Lettuce/*latex*, Jones 1963).

3.5 Economy

The economy in the Kuyello area is based on the availability of land resources that are been used for the cultivation of food and also the availability of resources endowed on the area. And how man over the years use the natural resources in a given area for his personal prosperity. The people of Kuyello are mostly farmers who practice mixed farming as well as the dry season farming known in Hausa as *Noman rani*. The dry season farming is usually carried out in areas close to water sources such as rivers, lakes and ponds. The dry season farming is possible as a result of the use of irrigation which then serves as a source of water for the cultivation of crops. The choices of land for farming activities depend on how good the land is and how well can it accommodate high intensive farming and animal grazing. The people of Kuyello cultivate legumes and root crops. Apart from their agrarian economy they also participated in hunting of animals like antelopes, wild birds and deer which provided the needed protein in their diets. Animals like goats, sheep, cows, donkey and horses are reared. These animals provide the people with products like meat and milk. They also serve as source of income when sold for money as well as beasts of burden. Birds like chickens, ducks, and pigeons are kept in most of the household for either consumption or used for commercial trade. Most households keep animals in their homes because of the belief that if any evil is to befall the owner it will be redirected to the animals, this is a widespread belief in Hausaland.

The people of Kuyello use the dry season period to engage in other crafts like pottery, blacksmithing, masonry work and also trading of the harvested crops, butchering, Islamic scholarship, and other manual jobs.

3.6 Settlement Pattern

Settlement pattern is very important in archaeological studies because of the ample information that can be recovered from settlement whether presently occupied or abandoned. The information can be in form of settlement history and house arrangements. Settlements in Hausa land over the years have shared similar characteristics.

Before the colonial era, the entire city (*birni*) or town (*gari*) was always surrounded by a defensive wall (*ganuwa*). The settlement of the Kuyello is like any other settlement found in the Northern Nigeria area before the coming of the Europeans and thus share similar features. A walled city or town was not only a center of population but also of religion, governance, the military, industry and commerce as well as art and architecture (Sa'ad 1981). Physically, Hausa cities were radically concentric with roads or foot paths radiating out from the central market and leading to various gates. The market was the economic nucleus of the city where technical manufacturers, traders and craftsmen produced or exchanged various kinds of goods (Sa'ad 1981). The walled city (*ganuwa*) gave a sense of security, unity to the insiders, in addition to its symbolic significance as the stronghold of traditional institutions that have survived the colonial and post-colonial pressure for change.

Inside the walled cities there are markets, palace (*fada*) and mosque (*massalanci*). People sharing the same traditional values are all housed within the *ganuwa* (defensive walls). Adjacent to the *birni* (city) but outside the walled town is a settlement usually inhabited by people who have cultural affinity with the city dwellers often Hausas from

other areas who have come to settle or non-Hausas who have religious affinity and share cultural institutions with the other dwellers. This zone acts as a buffer region between the familiar world outside the city and the alien world of strangers that exists beyond the open space (Sa'ad 1981). The third component of the town is often known as the *Sabon Gari* (new town) this is the abode of recently arriving migrants who do not share cultural institutions with the dwellers of the *birni*(walled city). In addition to the above physical and social divisions of the *gari*, there is the government reserved area known as the *Bariki*(Barracks) in Hausa. This in the past was an exclusively European residential area inhabited by colonial officials and company executives. This zone tends to be the furthest from the *birni* in a more open domain with plenty of trees to provide shade (Sa'ad 1981).

In the Kuyello area the settlement type consists of both the sparse and nucleated settlement type. A typical household (*gida*) consists predominantly of rectangular or circular shaped rooms with conical thatch roofs made of straws and grasses. These households consist of the following:

Zaure: This is the entrance to the house

Dakin Barci: These are sleeping rooms, the male or head of the family has his room nearer to the entrance while those of the females are further inside the compound.

Dakin Girki: This is a room which serves as a kitchen.

Bayan Gida: This is the bathing area of the compound. This part of the house is the last in the compound away from the rest of the rooms to prevent offensive smell. There are two forms of settlement arrangements in the Kuyello area, the clustered or dispersed pattern. The clustered settlement consists of dwellings around a centralized authority. The dwellings consist of compound and each compound can have as many families as it can contain. In the Hausa setting, a compound can have upto four sons living with their

wives and children at the same time as their father (Ibrahim Mairina personal communication, March 15, 2013). The Tsohon Kuyello and Shado had no evidence of house foundations nor granary foundations as such the exact settlement pattern could not be ascertained.

3.7 Historical Background

The earliest source of information about the Kuyello area comes mostly from oral tradition and writings of colonial administrators, one of the major documentation were compiled by colonial officers.

Origin

The settlement history of the present-day Kuyello shows that the Kuyello people evolved from different groups who migrated to the Kuyello area through Dogon Dawa (Mallam Audu personal communication, March 15, 2013). The first people that settled at Dogon Dawa was Mallam Usman, who migrated from Birnin Gwari during the reign of Sarkin Gwari Ali who ruled from 1838-1882 (Hyne 1924; Maund 1926). He migrated with his family and 120 slaves to a new settlement in search of arable land for extensive farming. After two years of his arrival the farm yielded about 1000 bundles of guinea corn (Maund 1926). This new settlement was at a junction between Fatika and Birnin Gwari. It thus served as a stopoverpoint for traders and caravans and the name Dogon Dawa was given to the new settlement meaning fields of guinea corn. After sometimes the news of this new settlement spread to neighbouring towns and people in mass started flocking into the area and started occupying the area surrounding this new settlement. People migrated from Katsina, Sokoto, Zaria and other parts of Birnin Gwari in search of farmland (Hyne 1924; Maund 1926; Mallam Audu personal communication, April 3, 2012).

Kuyello was among such other settlements occupied by these migrants, Kuyello was the second largest settlement after Dogon Dawa to be occupied. The settlement was founded by Maguzawa Katsina (Maund 1926; Mallam Audu personal communication, March 15, 2013). The settlement was also occupied by migrants from the Zaria, Sokoto and Zamfara area as well (Alhaji Idi personal communication, April 3, 2012).

These people settled and dwelled together under an organized central authority. By the late eighteenth century AD, the defensive wall was built as a result of the raids of Umar Nagwamaste and his successor Ibrahim known as Sarkin Sudan (Mallam Audu personal communication, March 15, 2013). They raided the area for guinea corn and slaves. During the period of the raids most people fled the area. Those that remained were either killed or captured as slaves. In 1897 peace and tranquility returned to the area and the previously abandoned settlements were repopulated again.

In 1910 during the British occupation, the Birnin Gwari district was administered under the old Kwongoma division of Niger province. The district was divided into sub-districts, with each sub-district having its own head. This was done to make tax collection easier. In 1924 the district was transferred to the Zaria province and administered from Zaria. During the old Kwongoma administration the district was divided into four sub-districts namely Gwarawa, Dogondawa, Kamuku and Kuki sub-districts but in 1932 the district was reduced to form two sub-districts which are Gwarawa sub-district and Kamuku sub-district (Maund 1926). Kuyello was classified under the Gwarawa sub-district with a village head to maintain peace and easy collection of taxes. During the colonial occupation mud bricked houses were built adjacent to the walled community known as *bariki* (barracks) where native authority personnel lodged when they came to discuss issues pertaining to tax collection and

administration of the community. There was a title attached to the person in-charge of the *bariki* known as *Sarkin bariki* (Chief of Barracks).

After independence the community was still living a peaceful life, during the late sixties, they decided to migrate to their present settlement known as “*Sabon Kuyello*” (New Kuyello). The reasons given was that they wanted to be close to the main road and also that the former settlement was becoming too small for the growing population.

CHAPTER FOUR

ARCHAEOLOGICAL RECONNAISSANCE SURVEY OF KUYELLO SITES

Reconnaissance survey is one of the main procedures taken in carrying out the archaeological research in order to determine the cultural potentials of the sites, the extent of the sites and also to take measurements of the finds and features and their relationship with one another. This survey was carried out by field walking which enabled the researcher carryout a quick assessment of artifact potentials of the area. There were evidence of occupation on the sites bypresence of potsherds and remains of other cultural materials left behind by past occupants of the area in form of furnaces, dye pits and defensive walls. During the field walking it was evident that the researcher was dealing with three siteswhich are the Tsohon Kuyello, Tsohon Shado, and the iron working industrial site. Maps showing the threesites with their finds and features are provided for further understanding of the studied area (Fig. 5, 6 and 7).

4.1 TSOHON KUYELLO

Site Characteristics

Tsohon Kuyello is situated on a low plain characterized by granitic out crops. The area is well vegetated with both economic and medicinal trees such as *Tamarinus Indica* (Tamarind/*tsamiya*), *magnifera indica* (Mango/*mangoro*), *Parkia biglobosa* (Locust bean/*dadawa*) and *Adansonia digitata* (Baobab/*kuka*).The site has a land area of 0.2 square kilometers. This site is rich in cultural remains in form of grinding stones, dye pit cluster, collapsed defensive wall and remains of circular mud structures.

4.1.1 Kango/Tsauni Kuyello

This is a hill that is situated almost in the center of the abandoned settlement. It is situated on latitude 11⁰12`20.4``N and longitude 006⁰56`18.2``E with an elevation of

656m above sea level. The hill was used as a security post from which the movements of people were monitored in and out of the walled settlement (Mallam Muhammed, personal communication, March 15, 2013). This hill was chosen as the datum point because it was the most distinctive feature on the site(Plate 3). Measurements were taken from the foot of the hill. The point chosen for the datum was located on latitude $11^{\circ}12'17.4''$ N and longitude $006^{\circ}56'18.7''$ E.



Plate III: The Datum point at Tsohon Kuyello indicated by a ranging pole

4.1.2 Collapsed defensive wall

The prominent surface features identified at Tsohon Kuyello site are the remains of a defensive walling system made up of mud bricks, straws and stones. The highest point of the remains measured 3.8m while the collapsed side was measured as 1.5m with a thickness of 0.8m. The perimeter of the wall is 1.8 square kilometers (Plate IV). According to oral information the walling system was said to have four gates namely

the north (Arewa), south (Kudu), west (Yanma) and east (Gabas) (Mallam Muhammed, personal communication, April 4, 2013). Only one of the four gates was still visible and the co-ordinate was taken as latitude 11° 12' 08.9"N and longitude 006° 56' 16.7"E, with an elevation of 680m above sea level. This walled town was said to have consisted of house structures, markets, a center for religious activities and a centralized authority. The defensive wall is on the verge of disappearance as a result of human activities. The walls are destroyed in order to provide more land for farming activities which is noticeable as one approaches the site (Plate IV).



Plate IV: The highest point of the defensive wall at Tsohon Kuyello

4.1.3 Dye pits cluster

Among the features identified in the Kuyello settlement site is the dye pits area housing over 25 dye pits. Only 16 of them are still in their complete form. Some of the pits have been filled with soil and rubbish and have shrubs growing in them. Measurements of 16 dye pits were taken and recorded. The co-ordinates ranged from Latitude 11°12'19.8"N and Longitude 006°56'19.0"E to Latitude 11°12'20.3"N and Longitude 006°56'18.8"E

while the elevation ranged from 656m to 653m. The diameter ranged from 0.8m to 1m while the depth ranged from 0.2m to 0.9m. The dye pits cluster was located at the north eastern part of the datum point and the distance between the datum point and the dye pits was measured to be 21m at a bearing of 30°NE from the datum point (PlatesV & VI).



Plate V: Some Dye Pits at Tsohon Kuyello



Plate VI: A close view of a dye pit at Tsohon Kuyello

Some potsherds were collected intermittently from the dye pits area for analysis. Beside these pits, there was a heap of kaolin. According to oral information, the dye pits were constructed using kaolin known as *buzzai* in Hausa with a mixture of burnt clay and ash to give it a lasting firmness (PlateVII).



Plate VII: Kaolin deposit at Tsohon Kuyello settlement site.

4.1.4 Grinding Stones

Ten grinding stones were discovered and measured. The co-ordinate ranged from Latitude 11°12'18.6"N and Longitude of 006°56'8.7"E to Latitude 11°12'08.9"N and Longitude 006°56'16.7"E. The elevation ranged from 611m to 680m. The average width for the grinding stones was 0.5m, the average length was 0.28m and the average breath was 0.2m(PlateVIII).



PlateVIII:A Lower Grinding Stone at Tsohon Kuyello (GS1).

Three grinding stones were scattered about the site while the remaining seven were located in a cluster. It was obvious that they were found in their secondary context due to human activities going on around the site and also they were concentrated in a particular area. The first grinding stone (GS1) was located at 210°NW of the datum point, at a distance of 30m. The second grinding stone (GS2) was situated at 100°NW and 21m away from the datum point and 6m from the first grinding stone (Plate IX).



Plate IX: A Lower Grinding Stone at Tsohon Kuyello(GS2).

The third grinding stone (GS3) was located at 90°S of the datum point at a distance of 7.1m while the distance between the third grinding stone and that of the second grinding stone was measured to be 22m. The cluster of broken grinding stones (Plate X; GS4-GS10) was located at the southern part of the datum point at a distance of 30m. The distance between the collections of grinding stones to the third grinding stone was measured to be 18.5m. Grindingstones in archaeological context are very important because they show the extent of interaction between man and his intermediate environment. Grinding stones can also give insight on the diet of the people and also how the food produced was prepared.



PlateX: A Cluster of Lower Grind Stones at Tsohon Kuyello

4.1.5 Stone Hollows

These are round hollows on the surface of a rock found at the entrance of the south gate of the defensive wall. These hollows are situated on latitude $11^{\circ}12'06.13''\text{N}$ and longitude $006^{\circ}56'.59.4''\text{E}$ with an elevation of 673m above sea level. According to oral information these holes were used for playing “*Dara*” game in the evenings and also similar hollows can be found on the top of the Kango Kuyello at an elevation of 604m above sea level (Plate XI).



Plate XI: Stone Hollowson Kango Kuyello

4.1.6 Potsherds

Potsherds were found scattered all over the site and they were collected at intermittently especially around the dye pit cluster for analysis and interpretation. Potsherds can give indepth information about a settlement and the period of occupation because of its durability. Presently the use of clay ware has been replaced by metal and other storage materials due to modernization.

4.1.7 Ruins of Circular Mud Structures (Bariki)

These are located outside of northern part of the walled town. These ruins are approximately 50m away from the datum point. The structures were constructed during the colonial occupation. It was used to house the Native Area Authority officials when they came to discuss issues pertaining to tax collection and the development of the district (Mallam Muhammed personal communication, April 4, 2013). The ruins were circular in shape and identified to have been constructed using mud. The ruins were

located at Latitude 11°12'27.7"N and Longitude 006°56'22.4"E with an elevation of 646m. The diameters of the ruins range from 5.75m to 6.1m; the height of the first ruin was measured to be 0.37m while the second ruin collapsed into a mound (Plates XII & XIII).



Plate XII: Ruins of circular mud structure (Bariki) at Tsohon Kuyello



Plate XIII: Ruins of circular mud structure (Bariki) at Tsohon Kuyello

4.1.8 Old Well

This was used as an alternative source of water during the dry season when the stream dried out. The well is located at latitude $11^{\circ}12'36.2''\text{N}$ and longitude $006^{\circ}56'22.3''$ with an elevation of 682m above sea level. It is situated at the further north of the walled settlement and approximately a 1.5km walk from the datum point (Plate XIV)



Plate XIV: Abandoned well at Tsohon Kuyello

The well was covered with dried leaves and rubbish. The depth that was measured was about 6.3m and a diameter of 4.3m. The well is accessible through a footpath connecting one of the entrances to the city wall.

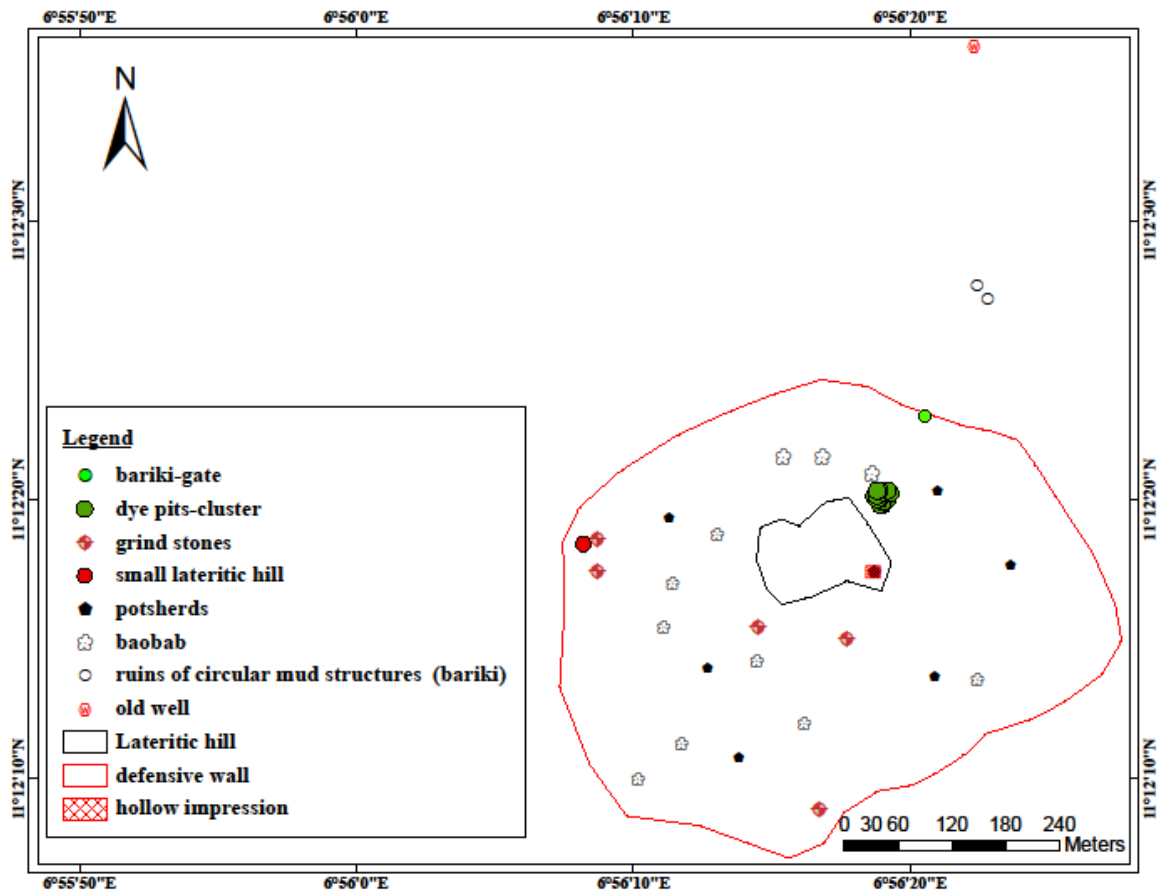


Fig 5: Map of Tsohon kuyello Settlement Site

4.2 TSOHON SHADO SITE

Site Characteristics

This site is situated on a low plain, it has a land area of 0.46 square kilometers. It is plausible to say it was a settlement site because of the finds and features available on this site though some of these have been destroyed by human activities. The site is characterized with the presence of large trees, scattered potsherds and evidence of collapsed defensive wall with the presence of iron slag scatters. The following are the features and finds discovered at the Shado settlement site (Plate XV).



Plate XV: An aspect of the Vegetation at the Tsohon Shado site.

A baobab was chosen as the datum point due to its location and also since there was no important physical feature to be used. The baobab was located almost at the center of the site at latitude $11^{\circ}12'7.2''N$ and longitude $006^{\circ}56'42''E$ (Plate XVI).



Plate XVI: A baobab tree (Datum Point) at Tsohon Shado

4.2.1 Iron slag Scatter

Iron slag scatter was discovered (Plate XVII) on an elevation of 670 m above sea level on latitude of $11^{\circ}12'54.7''N$ and longitude $006^{\circ}56'28.6''E$ located at $160^{\circ}SW$ of the datum point, the distance of the iron slag scatter to the datum point was measured to be 30m.



Plate XVII: Iron slag scatter at Tsohon Shado

4.2.2 Collapsed Defensive Wall

Remains of defensive wall were evident but most parts of it had collapsed but one could still see the markers of the wall and the ditch before the wall(Plate XVIII). Measurement was taken and the highest point measured to be 1.5m and the crushed point was measured as 0.6m with the coordinate of latitude $11^{\circ}2'06.1''$ N and longitude $006^{\circ}56'59.4''$ E with an elevation is 673m above sea level. The perimeter of the wall is 2.9 square kilometers. The wall was constructed using mud bricks, clay, straws and stones (Mallam Muhammed personal communication, April 4, 2013).



Plate XVIII: Collapsed defensive wall at Tsohon Shado site.

The defensive wall was said to have four gates namely the North Gate (Kofar Arewa), South Gate (Kofar Kudu), West Gate (Kofar Yanma), and East Gate (Kofar Gabas), (Mallam Muhammed personal communication, April 4, 2013). A lot of human activities have distorted the natural placing of artifacts on the site.

4.2.3 Potsherds

Potsherds are the most common found finds on archaeological site due to their durability, this is due to the fact that well baked clay takes time to crumble as such it could survive for thousands of years in an archaeological context. It gives clues about past human life which to an extent can give insight to cultural behaviours of a society, roles of gender, trade links and religious beliefs among others.

When potsherds are studied and dated, they can give possible date of occupation of a particular site. The potsherds were collected at intermittently without following a specific method or directions from this site, due to farming activities most of the pot sherds collected were broken as such could not be used to make meaningful interpretations thus they were discarded.

4.2.4 Spindle whorl

This was recovered during field walking, there is a possibility that it was not found in its original context (primary). The spindle whorl (Plate XIX) was found at the south western part of the datum point. This could be as a result of human or natural factor. It was recovered at latitude $11^{\circ}12'36.4''\text{N}$ and longitude $006^{\circ}56'25.2''\text{E}$ with an elevation of 672m above sea level. It is situated at 170°SW of the datum point.



Plate XIX: A spindle whorl from Tsohon Shado site.

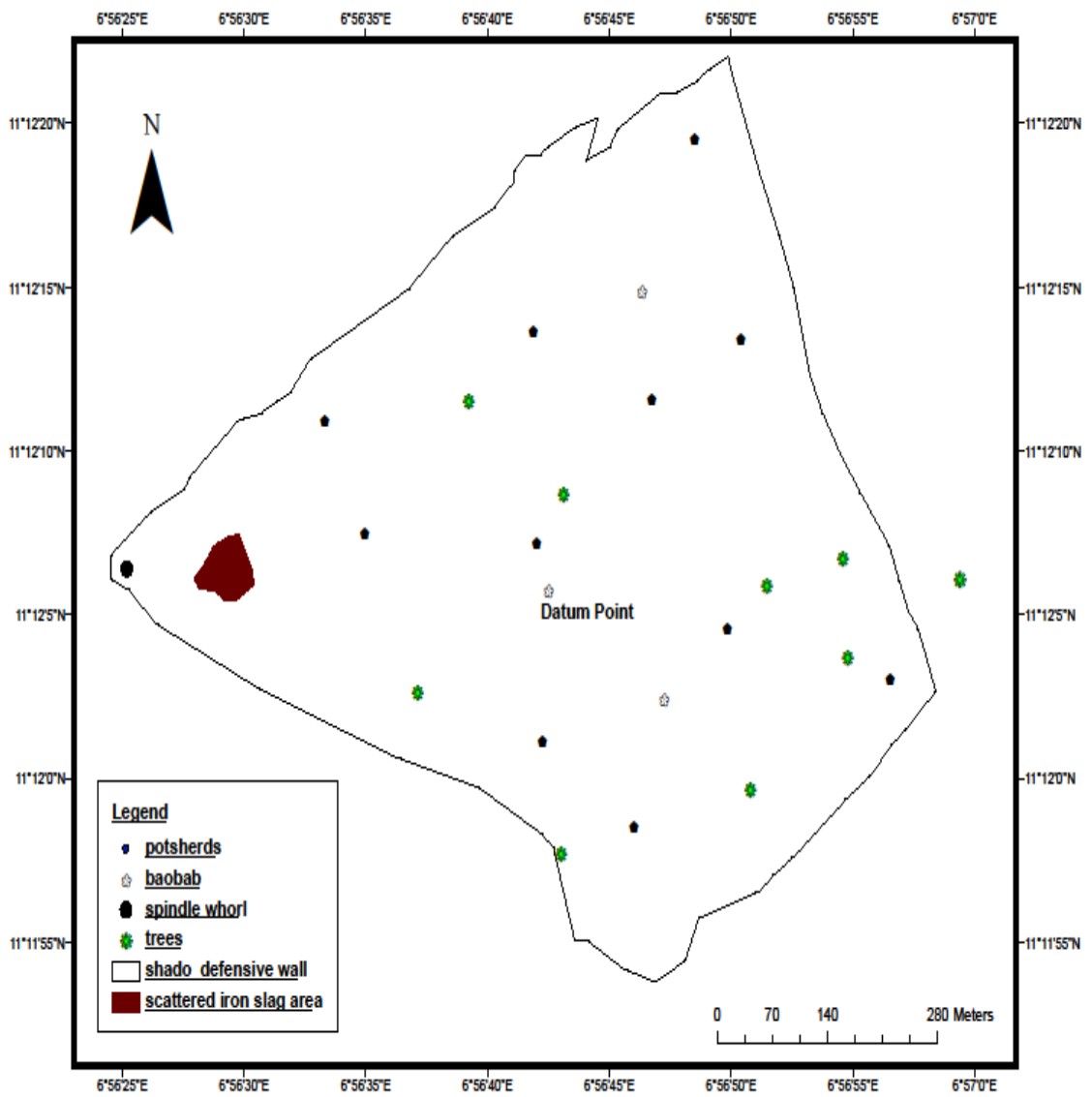


Fig 6: Map of Shado Settlement Site

4.3 KUYELLO IRON SMELTING SITE

Site Characteristics

In the Kuyello area an iron working site was discovered with collapsed furnaces and scattered iron slag. The area approximately covered a land area of about 0.6 square kilometers. *Tamarinus Indica* (Tamarind/*tsamiya*) tree was used as the datum point. The tree has a close proximity to the furnaces and was chosen since no other important physical feature could be used was available. The tree is located at latitude $11^{\circ} 12' 32.4''\text{N}$ and longitude $006^{\circ} 55' 30''\text{E}$ (Plate XX).



Plate XX: Datum point at Kuyello smelting site.

4.3.1 Furnaces

Most of the furnaces have been destroyed and most of their parts were not visible. In some cases no height or thickness was measurable. About twelve fragmented furnaces

were recorded as follows: furnaces six, seven, eight and nine were located in a cluster thus sharing the same geographic co-ordinates.

Furnace 1

This furnace was located at 40°N of the datum point at a distance of 50.5m. It was located on latitude 11°12'36.4"N and longitude 006°55'19.0"E, with a height of 0.23m, thickness of 0.14m and a diameter of 0.85m (Plate XXI).



PlateXXI: A Fragmented furnace at Kuyello smelting site.

Furnace 2

The second furnace was located at 45°NW of the datum point at a distance of 45m and a distance of 5.5m from the first furnace. This fragmented furnace was located on latitude 11°12'38.1"N and longitude 006°55'19.1"E with a height of 0.13m, thickness of 0.12m and a diameter of 0.8m (Plate XXII).



Plate XXII: Ruins of a furnace at the Kuyello smelting site.

Furnace 3

The third furnace was located at a distance of 30m, 52°NW of the datum point. The distance between the second and the third furnaces was measured to be 15m. The furnace was located on latitude $11^{\circ}12'34.7''$ N and longitude $006^{\circ}55'25.6''$ E with a thickness of 0.15m and a diameter of 0.76m.

Furnace 4

This is located at 76°NW of the datum point, at a distance of 25.6m. The distance between the fourth and the third furnaces is 4.4m. This furnace is located on latitude $11^{\circ}12'30.0''$ N and longitude $006^{\circ}55'36.5''$ E with a height of 0.28m, thickness of 0.11m and a diameter of 0.86m.

Furnace 5

This is located at a distance of 30.5m, 148°NE of the datum point. The distance between furnaces five and four is 4.9m. It was located on latitude $11^{\circ}12'30.1''$ N and longitude $006^{\circ}55'36.6''$ E with a thickness of 0.08m and a diameter of 0.78m (Plate XXIII).



Plate XXIII: Ruins of a furnace at the Kuyello smelting site.

Furnace 6

This is located at a distance of 30.2m, 150°NE of the datum point. The distance between the sixth and the fifth furnace is 0.3m. This furnace was located on latitude $11^{\circ}12'29.8''$ N and longitude $006^{\circ}55'36.5''$ E with a diameter of 0.7m.

Furnace 7

This furnace is located at a distance of 30m, 150°NE of the datum point. It is 0.2m from furnace 6. It was located on latitude $11^{\circ}12'29.9''$ N and longitude $006^{\circ}55'36.9''$ E; it has a height of 0.23m with a thickness of 0.11m and a diameter of 0.76m.

Furnace 8

This is located at a distance of 28m,150°NE of the datum point.It is 2m away from furnace 7. It was located onlatitude 11°12'30.0``N and longitude 006°55'37.0``E with a diameter of 0.6m.

Furnace 9

This furnace is located at a distance of 25m,150°NE of the datum point. It is 3m from furnace 8. It was located on latitude 11°12'29.8``N and longitude 006°55'37.7``E; it has a diameter of 0.62m with a thickness of 0.10m (Plate XXIV).



PlateXXIV: Ruins of a furnace at the Kuyello smelting site

Furnace 10

This is located at 180°NE of the datum point at a distance of 30m away and the distance between furnaces ten to furnace nineis 5m. It was located on latitude 11°12'34.5``N and longitude 006°55'28.2``E with a diameter of 0.82m (Plate XXV).



Plate XXV: Ruins of a furnace of Kuyello smelting site

Furnace 11

This is located at a distance of 27m, 180°NE of the datum point. The distance between furnace 11 and 10 is 3m. It is located at latitude $11^{\circ}12'36.2''$ N and longitude $006^{\circ}55'21.7''$ E with a diameter of 0.80m.

Furnace 12

This is located at a distance of about 60m, 308°SW of the datum point. The distance between furnaces 12 to 11 is about 48m. It is located at latitude $11^{\circ}12'10.3''$ N and longitude $006^{\circ}55'20.7''$ E with a diameter of 0.80m.

4.3.2 Iron Slag Scatter

Iron slag scatter was found on the northwestern part of the site (Plate XXVI). It is at a distance of 40m from the datum point and 10m away from the first furnace. It was located on latitude $11^{\circ}12'37.8''$ N and longitude $006^{\circ}55'23.4''$ E.



Plate XXVI: Iron slag scatter at the Kuyello smelting site.

4.3.3 Pottery Vase

A complete pottery vase which was exposed by farming activities was collected from the northwestern part of the site. It was found at latitude $11^{\circ}12'36.4''\text{N}$ and longitude $006^{\circ}51'19.0''\text{E}$ at an elevation of 647m. The diameter of the vase is 0.04m while the height is 0.17m (Plate XXVII).



Plate XXVII: Pottery (vase) from Kuyello smelting site.

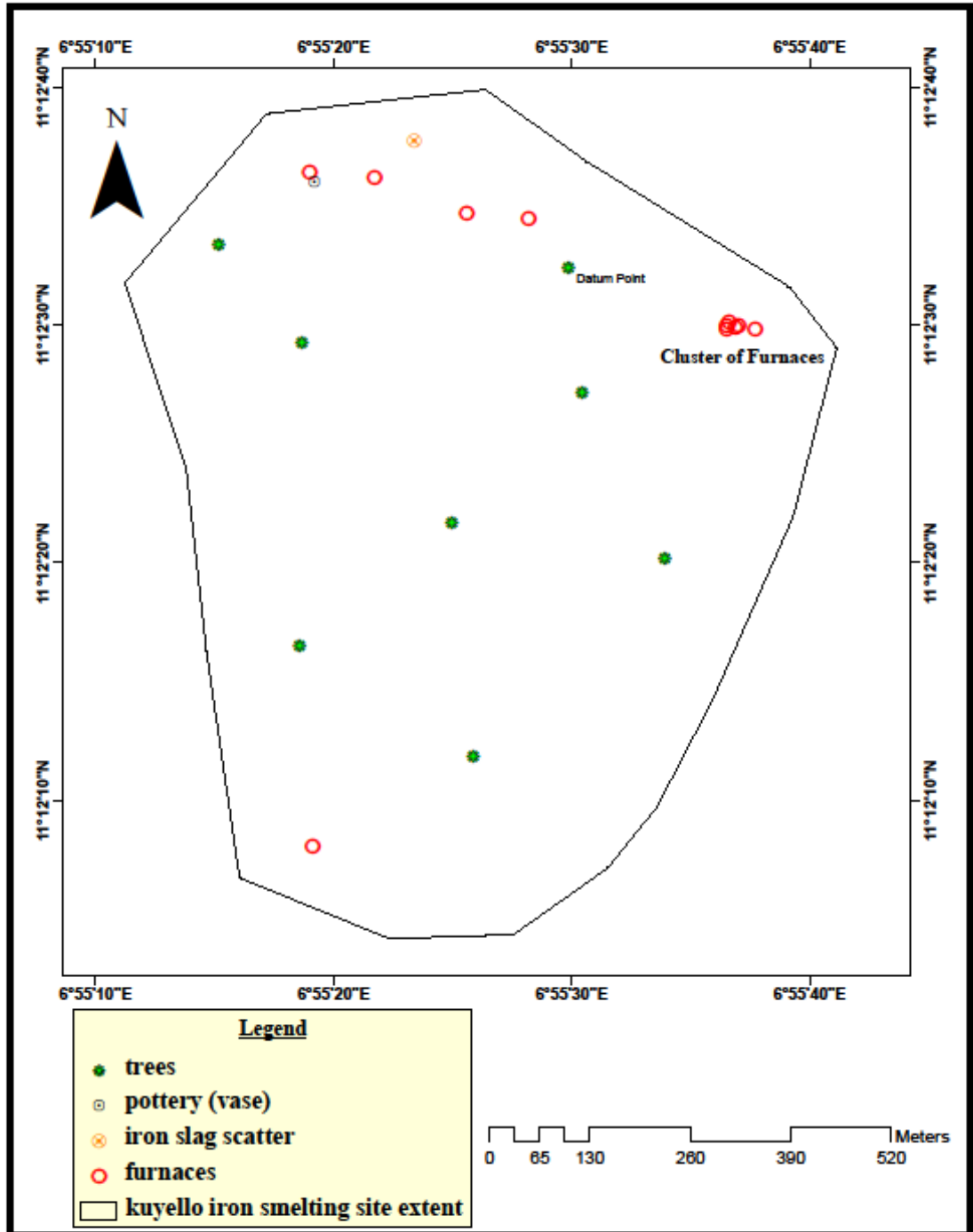


Fig 7: Map of Kuyello Iron Smelting Site

CHAPTER FIVE
CLASSIFICATION AND ANALYSIS OF FINDS AND FEATURES FROM
KUYELLO SITES

Classification of data is very important in archaeology because it provides the basis for further study. Classification is a fundamental analytical step towards interpreting the past. Classification can be said to be the process of ordering or arranging objects into groups on the basis of the sharing of particular characteristics. These characteristics are termed attributes (Sharer and Ashmore 1979). These characteristics are further placed into categories which are; stylistic characteristics. This is the most descriptive characteristics of artifacts such as color, texture and decoration. Form characteristics consists of the three dimensional shape of an artifact and the measurable dimensions such as length, width, thickness and lastly the technological characteristics. This has to do with the raw materials and other characteristics that reflect the process involved in the manufacturing of the artifact.

Classification is of importance to the archaeologist because it allows him/her to organize vast arrays of data into manageable units. It also allows the researcher to summarize the characteristics of many individual objects by listing only their shared attributes. By ordering and describing classes and types, the researcher can suggest a series of relationships among classes.

Analysis on the other hand is the study of a material in order to understand both its constituent elements and their relationships (Sharer and Ashmore 1979). There are standard methods that are implored in analyzing artifacts in archaeology. In cases of comparative analysis the most important attributes are used. These attributes can be in the form of raw materials used in the production of the artifacts (stone, metal, glass, clay) and their morphology, form, which includes sizes, shapes, thickness and stylistic

attributes (decoration and colour). The identification of these attributes over the years have provided information on past ways of life which includes chronology, trade, technology and aesthetic value of the markers of the artifacts (Orton 2000).

The classification and analysis of cultural remains from the Kuyello area was based on the types of finds recovered during the field research. The remains were collected from the Tsohon Kuyello, the Tsohon Shado settlement site, and the Kuyello iron smelting site. A total number of 100 potsherds, a spindle whorl and a vase (pottery) were collected from these sites. Fifty eight potsherds were collected from Kuyello abandoned settlement site, while 42 potsherds were collected from the Shado abandoned settlement site. Below are the quantities and percentage of finds collected from the study area (Table 1).

Table 1: Summary of finds from the study area

S/N	FINDS	QUANTITY	PERCENTAGE (%)
1	Potsherds:		
	Tsohon Kuyello	58	57
	Tsohon Shado	42	41
2	Spindle Whorl	1	1
3	Vase (pottery)	1	1
	Total	102	100

5.1 Classification of Pottery Sherds from Tsohon Kuyello Settlement Site

The classification of potsherds from Kuyello abandoned settlement site is aimed at describing the artifact types, the type of clay used in the manufacturing of the wares and the relationship of man and his intermediate environment. The first step taken in

the classification of the potsherds was washing them in order to remove any foreign impurity from the body of the potsherds. After washing, the potsherds were allowed to dry for some hours. During the washing the potsherds were handled with care to prevent breakage or washing off some delicate designs on the potsherds. After drying they were bagged according to the site from which they were collected.

A total number of 58 potsherds were collected during the archaeological survey of the Kuyello abandoned settlement site and were grouped according to the vessel parts. Potsherds can be grouped or separated into five vessel parts which includes the neck, body, rim, handle and base (Hodges 1976). The potsherds collected were separated into three vessel parts; the neck, rim and body.

The potsherds from the Kuyello abandoned settlement site were further classified into five distinctive heading which includes the following:

1. Classification based on paste characteristics
2. Classification based on surface finish
3. Classification based on vessel parts
4. Classification based on vessel forms
5. Classification based on decorative motif

5.1.1 Classification Based on Paste Characteristics

Paste refers to that combination of clay and non-plastic inclusions that together constitute the fabric of a piece of fired clay (McIntosh 1995). The visual observation of potsherds recovered showed that they were made from both coarse and fine grained clay. The pottery was manufactured with the addition of grog (this is fired clay that was crushed or pounded to be used as a temper). In some of the potsherds one could see

some impurities like grasses and straws with the inclusion of quartz. Also some of the potsherds with large coarse clay showed larger quantity of mica while those with fine grained clay showed less quantity of mica. The study of paste characteristics of pottery can give insight on the source or types of clay available to the markers. It can also provide information on intrusive pottery, establish trade or inter-regional relations and environmental resources. The wares were produced from lateritic clay and as such the potsherds are very heavy. The paste texture appeared to vary largely on the basis of the coarse nature of the pottery and the quantity of grog present. The pottery was hard and well consolidated. Since this analysis is based on visual observation with no use of any scientific microscopes it is possible to omit smaller particles due to their invisibility to the naked eye.

5.1.2 Classification Based on Surface Finish

The analysis of surface treatment or finish in pottery studies refers to the treatments applied on wares when they are in their final stage of manufacturing. This treatment can be applied on pots before they are fired. Out of the total number of the potsherds eight were burnished, while 47 of the potsherds were unburnished. The remaining three potsherds were undiagnostic. Most of the potsherds were in good shape apart from the three that were undiagnostic (Table 2).

Table 2: Summary of surface finish

S/N	SURFACE FINISH	QUANTITY	PERCENTAGE (%)
1	Burnished	8	14
2	Unburnished	47	81
3	Undiagnostic	3	5
	Total	58	100

5.1.3 Classification Based on Vessel Parts

The pottery sherds collected from the Tsohon Kuyello settlement site represents three out of the five composite parts of pottery namely the body, neck and rim, the other two being the base and handle. A total of 58 potsherds were collected intermittently and mostly around the dye pit clusters because they were more in that area. Out of the 58 potsherds, four were rims, five were necks and the rest 49 were body parts (Table 3).

Table 3: Summary of vessel parts

S/N	VESSEL PART	QUANTITY	PERCENTAGE (%)
1	Rim	4	7
2	Neck	5	9
3	Body	49	84
4	Base	-	-
5	Handle	-	-
	Total	58	100

5.1.4 Classification Based on Vessel Forms

Four rims were identified among the potsherds collected from the Tsohon Kuyello settlement site. In trying to identify rim forms potsherds with rim diameter shorter than their projected or vertical height were identified as pot. Bowls have less pronounced curvature than pots. The structure of pots may tend to give information on their functions (Shepard 1985). From ethnographic information the pots known as *Tukwane* are used in the preparation of food, soups and cooking of herbs. While the bowls are called *Randuna* which are used for storing water, grains and sometimes used for washing clothes. Three of the rims collected were classified as pots while one was classified as a bowl. Below is a table showing the distribution of potsherds according to vessel form (Table 4).

Table 4: Summary of vessel form from Tsohon Kuyello settlement site

S/N	VESSEL FORM	QUANTITY	PERCENTAGE (%)
1	Form 1- Pot	1	25
2	Form 2- Pot	1	25
3	Form 3-Pot	1	25
4	Form 4-Bowl	1	25
	Total	4	100

Form 1

Form 1 was classified as a pot with a diameter of 22cm and a wall thickness of 1.5cm. It has a slightly everted rim with a ridged lip (Fig. 8).

Form 2

Form 2 was classified as a pot with a diameter of 22cm and a wall thickness of 1.3cm. It is a straight rim with a tapered lip. Only one rim was classified under this category (Fig. 9).

Form 3

Form 3 was classified as a pot with a diameter of 24cm with a thickness of 1cm, it is a straight rim with a round lip, and only one rim was classified under this category (Fig. 10).

Form 4

Form 4 was classified under a bowl with a diameter of 10cm and a wall thickness of 1cm. It is a straight rim with a tapered lip and only one rim was classified under this category (Fig. 11).

VESSEL FORMS FROM KUYELLO

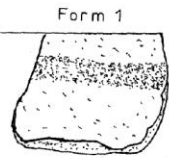


Fig. 8

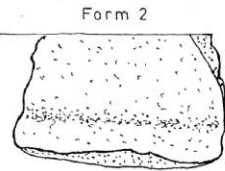
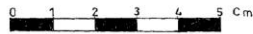


Fig. 9



VESSEL FORMS FROM KUYELLO

Form 3

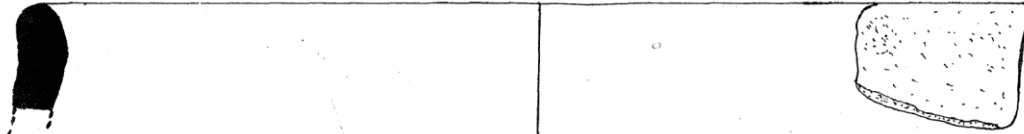


Fig. 12

Form 4

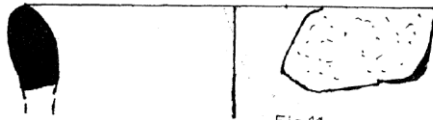
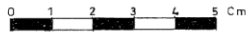


Fig. 11



5.1.5 Classification Based on Decorative Motifs

Decorations are impressions or patterns made on pottery objects when they are in the leather hard stage before they are fired. This impression may be as a result of religious, aesthetic behaviours of the makers, or to signify the utilitarian purposes of the pots or wares. The decorations made on pottery can be of different types depending on the culture of the makers, the functions of the vessel and instrument used for the creation of the impression or motif. These decorations range from incision, grooving, stamping, rouletting to notching and the instruments used are string, twisted cord, corncob, grass and maize ear to mention a few. These instruments are incised, impressed or dragged on the surface of the pottery objects. The potsherds collected were classified into two main groups of decoration which are the single and composite/multiple decorations, single decoration is when only one impression is made on a pottery object, while composite decoration is when multiple impressions are made on a pottery object. Most of the potsherds collected had roulette patterns, the least decorative motifs were grooves. While those with multiple decorations, consisted of grooves with roulettes. Fifteen (83.3%) of the potsherds have single decorations while three potsherds (16.7%) have multiple decorations (Table 5). From observation most of the potsherds from the Kuyello area were roulettes.

5.1.5.1 Single decoration

Motif 1

This motif is a carved wooden roulette with a chevron pattern (Plate XXVIII), accounting for 13.3% of the potsherds with single motifs. Two of the potsherds were classified under this decoration. This decoration is achieved by rolling a carved wood on the surface of a pot when in its leather hard stage.



Plate XXVIII: Motif 1-Carved wooden roulette

Motif 2

This motif comprises of grooves (Plate XXIX). Two of the potsherds were classified under this categories accounting for 13.3% of the total potsherds with single decoration. It might have been achieved by a sharp horizontal line drawn across the surface of the pottery objects in its leather hard stage.



PlateXXIX: Motif 2 - Grooving

Motif 3

This motif comprises of twisted cord roulette (Plate XXX).Six potsherds were identified with this motif accounting for 40% of the potsherds with single decorations. This pattern is achieved when a twisted cord is rolled across the surface of the pottery object in a leather hard stage.



Plate XXX: Motif 3 -Twisted cord roulette

Motif 4

This motif is of fine string roulette (Plate XXXI).Four potsherds were identified with this decoration accounting for 26.7% of the total number of potsherds with single decorations. This is achieved when a fine string is rolled across the surface of a pottery object at a leather hard stage.



Plate XXXI: Motif 4 -Fine string roulette

Motif 5

This motif is a simple twisted cord impression (Plate XXXII).It is achieved by impressing a twisted cord on the surface of a pottery object in its leather hard stage. Only one potsherd falls under this group accounting for 6.7% of the total number of potsherds with single decoration.



Plate XXXII: Motif 5-A Double twisted cord roulette

Table 5: Summary of Single Decoration

S/N	SINGLE DECORATION	QUANTITY	PERCENTAGE (%)
1	Motif 1- A carved wooden roulette	2	13
2	Motif 2- Grooves	2	13
3	Motif 3-Twisted cord roulette	6	40
4	Motif 4- Fine string roulette	4	27
5	Motif 5- Double twisted roulette	1	7
	Total	15	100

5.1.5.2 Multiple decorations

Three types of decorative motifs were identified from the Kuyello settlement site (Table 6).

Motif 6

This motif consists of a carved wood roulette with grain-like pattern and a horizontal groove (Plate XXXIII). The pattern looks like grains of rice. One potsherd was identified with this motif accounting for 33.3% of the total potsherds with multiple decorations.



PlateXXXIII: motif 6- Carved Wood Roulette and a Horizontal Groove

Motif 7

This motif was seen on one potsherd, it is a groove with twisted cord roulette (Plate XXXIV). Amounting for 33.3% of the total number of potsherds with multiple decorations.



PlateXXXIV: Motif 7- A Groove with a twisted cord roulette

Motif 8

This motif was seen on one potsherd, this is a horizontal incision and a carved wooden roulette having a chevron pattern (Plate XXXV). Amounting for 33.3% of the total number of the potsherds with multiple decorations.



Plate XXXV: Motif 8- Horizontal incisions with carved wooden roulette

Table 6: Summary of Multiple Decorations

S/N	MULTIPLE DECORATION	QUANTITY	PERCENTAGE (%)
1	Motif 6-Carved Wood Roulette and a Horizontal Groove	1	33
2	Motif 7-A Groove with a twisted cord roulette	1	33
3	Motif 8-Horizontal incisions with carved wooden roulette	1	33
	Total	3	100

5.2 Classification of Pottery from Tsohon Shado Settlement Site

Pottery sherds were collected from the site intermittently for classification and analysis.

A total of 42 potsherds were collected, below is how they were classified.

5.2.1 Classification based on paste characteristics

The potsherds were produced from lateritic clay, most of the potsherds had large inclusion of quartzs and large quantity of mica with finely ground grog. The potsherds were well compacted.

5.2.2 Summary of Surface Finish

The potsherds collected from the Tsohon Shado settlement site were mostly well consolidated and had little surface finish. Some were decorated but were unburnished, only a few percentages of them were burnished. Twenty had decorations on them while four were undiagnostic. Below is the summary of potsherds based on surface finish (Table 7).

Table 7: Summary of Surface Finish

S/N	SURFACE FINISH	QUANTITY	PERCENTAGE (%)
1	Burnished	8	19
2	Unburnished	30	71
3	Undiagnostic	4	10
	Total	42	100

5.2.3 Classification Based on Vessel Parts

The potsherds collected were classified into three vessel parts. 36 of the potsherds were classified under body, five were necks and there was only one rim form. Below is the summary of the distribution of the potsherds collected from Tsohon Shado settlement site (Table 8).

Table 8: Summary of Vessel Parts

S/N	VESSEL PARTS	QUANTITY	PERCENTAGE (%)
1	Body	36	86
2	Rim	1	2
3	Neck	5	12
	Total	42	100

5.2.4 Classification Based on Vessel Form

In this category only one rim was recovered from the Tsohon Shado settlement site. The classification of vessel form helps in the reconstruction of the types of ware. Below is the summary of the vessel form from Tsohon Shado (Table 9).

Table 9: Summary of Vessel Form

S/N	VESSEL FORM	QUANTITY	PERCENTAGE (%)
1	Form 1-Pot	1	100
	Total	1	100

Form I

The rim has a diameter of 20cm and a thickness of 1cm. From the composition of the rim it is slightly everted with a slanting rim lip. This rim fell under the classification of a pot known as *Tukuyan*(Fig.12).

VESSEL FORMS FROM SHADO

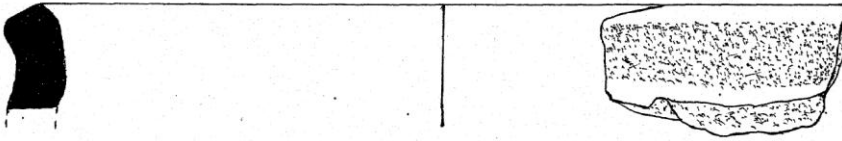
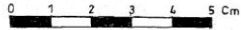


Fig. 12



5.2.5 Classification Based on Decorative Motifs

The potsherds collected from the Tsohon Shado settlement site amounted to four different decorative motifs, only two of the potsherds had multiple decorations. The remaining 18 had single decoration. Ninety percent (90%) had single decoration, while ten percent (10%) had multiple decorations (Table 10 &11).

5.2.5.1 Single Decoration

Motif 3

This motif is composed of twisted cord roulette (Plate XXXVI).It is achieved by rolling a cord on a pottery ware at leather hard stage. Ten of the potsherds have this motif amounting to 55.6% of the total potsherds with single decorations.



Plate XXXVI: Motif 3-Twisted cord roulette

Motif 4

This motif is composed of fine string roulette (Plate XXXVII). Eight of the potsherds fall under this category amounting to 44.4% of the total potsherds with single

decoration. This decoration is achieved by rolling a fine string across the vessel in a leather hard stage.



Plate XXXVII: Motif 4-fine string roulette

Table 10: Summary of Single Decorative Motif

S/N	SINGLE DECORATION	QUANTITY	PERCENTAGE (%)
1	Motif 3- Twisted cord roulette	8	44
2	Motif 4-fine string roulette	10	56
	Total	18	100

5.2.5.2 Multiple Decorations

The potsherd with multiple decorations amount to two potsherds.

Motif 6

This is composed of a carved wood roulette (Plate XXXVIII), with check-like pattern and a horizontal groove. This is achieved by carving an impression on a piece of wood

which is then rolled or applied on a pottery ware when in its leather hard stage. A groove is achieved by drawing a line with a blunt object across the surface of a pottery ware when it is in the leather hard stage.



PlateXXXVIII: Motif 6- Carved wooden roulette and a horizontal groove

Motif 7

This motif consists of cordroulette and a horizontal groove (Plate XXXIX). This is achieved by rolling a cord on pottery when in its leather hard stage. The groove is achieved by drawing a blunt object on pottery to give a horizontal line.



Plate XXXIX: Motif 7- Twisted Cord roulette and a horizontal groove

Table 11: Summary of Multiple Decorations

S/N	MULTIPLE DECORATION	QUANTITY	PERCENTAGE (%)
1	Motif 6-Carved wooden roulette and a horizontal groove	1	50
	Motif 7- Twisted Cord roulette and a horizontal groove	1	50
	Total	2	100

5.3 Analyses of Finds and Features

Analysis is another step in archaeological investigation. This is done in order to aid the understanding of the composition of artifacts. It has been defined as the examination, description and identification of material cultures as well as consideration of its broader meaning (Shepard 1985). Analysis is usually conducted both on the field and in the laboratory. Analysis is important in order to make meaningful interpretation about past human societies and their activities. Analysis can be carried out based on

technological analysis; this involves the methods and processes of manufacturing of an artifact. Functional analysis which involves the uses of these artifacts, what purpose they might have served the maker of the artifacts, whether they were utilitarian or ceremonial objects and also stylistic analysis which can tell or give information pertaining to the decoration and stylistic attributes of artifacts in archaeological investigation.

5.3.2 Lithic

Stone features are one of the most durable remains that can survive in archaeological context. It is one of the ancient technologies in human history and also among the earliest tools/materials used by man. This cultural evidence is considered to be the first tools/materials used by man to conquer his intermediate environment. The stone tools have their history dating to the early, middle and late stone ages.

Ten lower grinding stones were found on the sites most of which were fragmented. The grinding stones were manufactured from granitic rocks. The grinding stones have an average length of between 0.2-0.3m and a breadth of between 0.1-0.24m. None of the grinding stones had hallowed depression but one could see scarred surfaces as a result of abrasion. According to oral information they were used for grinding grains for food preparation and herbs for medicinal purposes. (Mallam Muhammed personal communication, April 4, 2013)

5.3.3 Pottery

Pottery is one of the most commonly analysed artifacts in archaeological research, this is as a result of its durability and its common occurrence in archaeological sites. Pottery is important to the archaeologist because it has immense information embedded on it

(Sharer and Ashmore 1979). Pottery wares were used as containers for food, water and even grains storage. They were also used for cooking as well as containers for serving food. It has other specific functions in burial rites in most parts of the world. For instance in Islamic parts of northern Nigeria, pottery are arranged on top of a corpse when it is buried because coffins are not used for burials here.

In pot making there are different techniques employed, this to a large extent depends on the potter. Clay that are fine grained are mostly used, this clay are mostly collected from near water sources. Methods used in pottery making also depends on households and also whether they are produced for household uses or manufactured for sale. There are three major methods involved in forming shapes or making vessels in pottery making. They include the hand forming, mould forming and the wheel forming, this is the easiest method of making pottery. After forming the shapes the pots or wares can be decorated, glazed, burnished or fired depending on the purposes they are meant to serve (Talatu Garba personal communication, March 15, 2013). In recent past most pots were fired in an open kiln or closed kiln (Hodges 1976).

The potsherds collected from both Tsohon Kuyello settlement site and Tsohon Shado settlement site were hand moulded and fired using the bon fire method (Talatu Garba, personal communication, March 15, 2013). From visual observation the potsherds collected had three distinctive colours of reddish brown, light brown and black, the differences in colour may be as a result of the firing processes or difference in sourcing of the raw material that is the clay, the functions the pottery performed and also the duration of use. Most of the wares were eroded as such interpretation was limited to what was visible.

The potsherds had inclusions of quartz, mica specks and other impurities like grasses and straw. Most of the potsherds were made from fine grained clay while others were

made from coarse clay. The Tsohon Kuyello settlement site had more percentage of the potsherds collected.

5.3.4 Iron Slag

Over the years researches have been conducted on iron working, its technology and symbolism. Iron slag is usually well preserved in archaeological site due to its resistance to weathering. Iron slag is the silicate complex formed in a bloomery process when iron ore is reduced in a smelting furnace (Friedel and Steel 1983). Iron slag can provide information about technology and can also reflect raw material constituents. The iron slag in the Kuyello area when properly studied can provide clues to the technical aspects and processes used by the people that worked the iron. Also the type of slag produced after a smelting process can tell the type of ores that were smelted. The analysis of iron slag can be on the chemical composition, size and shape or its physical appearance. Also slag can give information about the type of furnace that was used in the smelting process. This research is restricted to physical analysis, the Slag recovered from the Kuyello area were dark in colour and have a glossy appearance, the slag have a flowing surface in some cases with large holes like bubbles.

5.3.5 Defensive Wall

Walling of a society by a walling system may differ in purpose from one society to another. It might be for security reasons or as agricultural boundaries (Ogundele 1994). Since the colonial era this act of building walls around a town or community has since disappeared. In most parts of Hausaland a fortified town has four gates namely the north gate (Kofar Arewa), the southern gate (Kofar Kudu), the western gate (Kofar Yanma) and the eastern gate (Kofar Gabas).

According to oral tradition the wall at Tsohon Kuyello was built as a result of invasion of the Jihad crusade (Mallam Muhammed personal communication, April 4, 2013). Most parts of the wall are now in form of mounds. The highest point of the wall has been measured to a height of 3.8m, while other points give a height of about 1.5m with a thickness of 0.8m. The wall has a perimeter of 1800.2m.

At the Kuyello abandoned settlement four gates were identified but most parts of the walls were destroyed due to human activities like farming and animal grazing and some of the people used the bricks for farmland demarcations. In the Shado abandoned settlement site the defensive wall has collapsed in a mound but the ditch before the wall is still evident. The highest point measured 1.5m. The collapsed part was measured as 0.6m and no thickness could be ascertained due to the collapsed nature of the wall. The perimeter of the wall was measured as 2941.2m. In this settlement only one gate could be identified due to large scale of farming activities on the site which must have destroyed evidence of the other gates or entrance.

5.3.6 Furnace

Furnaces are containers in which iron ores are smelted. The process of smelting in Africa is said to be the reduction process which produces bloom. The iron ore are hauled into the furnace stocked with charcoal which is then heated continuously until a brownish black coloured substance is produced called the bloom. (Daze 1981). After the bloom is reheated the iron is separated from the slag by heating and fusing the nodules (Okpoko 1987).

Most of the furnaces found in the Kuyello smelting sites were destroyed or deteriorated. About twelve furnaces were found most of them were totally or partly destroyed and

from the investigation it was possible to see that the furnaces were circular in shape. The diameters range from 0.6-0.8m, the thickness ranged from 0.08m to 0.15m. No tuyere was found.

5.3.7 Dye pits

Traditional dyeing methods are extinct in the Kuyello area but still survive in other areas like Zaria, Kano and Sokoto. Dyeing is said to have predated written records and in Nigeria dyeing predates the colonial era as stated by Heinrich Barth in 1857 when he observed not only the cultivation of indigo in Baghirmi but also gave a list of villages most famous for the production of this dye during his travels.

In Kuyello abandoned settlement site over 25 dye pits were found but only 16 of them were not completely in ruins. Most of them have shrubs growing out of them and are filled with soil and rubbish from wind action. The dye pits had a diameter range of about 0.8m-1.15m with some having the depth of about 0.3m-0.9m. Very close to the cluster of dye pits is a mound of wood ash mixed with white soil known as *buzzai* in Hausa. The inner walls of the dye pits looked like they were cemented with this white soil. This gives it the durability to withstand the dyeing process. Oral tradition has it that these dye pits were usually operated by only one household known for their dyeing expertise and this knowledge was passed from one generation to another (Mallam Audu personal communication, March 15, 2013).

CHAPTER SIX

INTERPRETATION OF FINDS AND FEATURES

Interpretation is an act or process of applying several principles or formulae to the explanation of the result obtained in special cases. Archaeological investigation cannot be complete till all the recoverable data collected and analyzed are interpreted. Interpretation enables the archaeologist to make inferences and reconstruct behavioural patterns, technological know-how, cultural processes and also the effects of man on his intermediate environment and vice versa. The interpretation of archaeological data constitutes the final stage in the research process (Sharer and Ashmore 1979; 2003). This final process involves the merging of all the isolated data to establish temporal control as the basic foundation for the reconstruction of a wide range of ancient behavior which can then be organized into past technological, social and ideological systems (Sharer and Ashmore 2003).

Interpretation is the meaning the archaeologist infers from analyzed and synthesized data. Interpretation in archaeology attempts to answer questions such as what happened in the past, when it happened, where it happened, how it happened and why it did happen. In trying to reconstruct the relationship between humans and their material culture, the archaeologist must use some set of tools since it is difficult to directly observe the prehistoric past as such the archaeologist is left with the option of using the principles of uniformitarianism which will allow the archaeologist to assume that the physical and behavioural pattern of material culture must have been a replica of the same or similar event that had occurred in the near past. So what is been observed in the present day societies must have been exactly or similar to the events that took place in the past (David 1992). For example this is to say that if the pottery in present day Kuyello is similar to that in the past in Birnin Gwari it is easier to assume that pot

making in the past can be observed in the present and can be used to make inferences on the pot making in the past from Birnin Gwari.

The archaeological record exists in the past and since the archaeologists are concerned with past human behaviours that created that record, it is necessary to employ some tools which will help in bridging the gap between the material evidence and the past behaviours. For this to be possible, some theoretical links are used and these links are based on analogy. Analogy is a form of reasoning in which the identity of unknown items or relations may be inferred from those that are known. Reasoning by analogy is founded on the premise that if two classes of phenomena are alike in one respect, they may be alike in other respects as well (Sharer and Ashmore 2003). Analogy allows the archaeologists to look at the past and present day data to find a broader, meaning that will improve the data analyzed by linking them to other available knowledge. This method has been used to infer identity of and relationships among archaeological data based on comparison with similar phenomena documented in living or historic human societies (Andah and Okpoko 1994).

6.1 Types and Sources of Analogy

Three types or main sources of analogy have been identified in archaeology (Andah and Okpoko 1994; Sharer and Ashmore 2003). They include historical/documents accounts, ethnographic studies and duplicative or experimental archaeology. For analogies to be meaningful in archaeological reconstruction there must be a degree of cultural continuity and historical connection between the archaeological record and the ethnographic model. There must be cultural comparability between the archaeological and ethnographic cultures in question and also the environment of the two must also be established before comparison can be made (Andah and Okpoko 1994).

6.1.1. Historical/Documentary Analogy

Historical sources include the full range of past records including studies written by professional historians and descriptions made by other observers, such as travelers, merchants, soldiers or missionaries (Sharer and Ashmore 2003), with proper evaluation, historic data can be a prime source for analogy useful in the interpretation of archaeological data. Historical analogy is regarded as the strongest form of analogy by Brian Hauden (2003) and many other archaeologists. For historical analogy to be effective or useable the past and the present should be able to meet at a point in time. The use of historical analogy depends on a great deal of writing carried out in an area. Most of the documented history in Africa is by Ibn Batuta in his ethnographic write ups of his travels where he describes the people and their ways of life, many inferences are drawn from these journals and also the journal of Dr. Henrich Barth in Northern, Western and Central Africa in 1898. In recent times these ethnographic journals are now used as basis for drawing inferences on societies. The use of historical sources may enable the archaeologists to identify contact sites, these are sites occupied by a prehistoric people at the time, and the contact was made with a people possessing a historical tradition (Sharer and Ashmore 1979). These contact sites provide the archaeologist with a starting point for interpretation using the direct historical approach.

6.1.2 Ethnographic Analogy

Ethnographic studies of living human societies are probably the most common source of archaeological analogs. They are written by professional anthropologists, ethnographies are generally more relevant and useful to the archaeologist than other sources (Sharer and Ashmore 1979). Over the years, ethnographic investigation has not

really been presented in a way that relates behavior to material remains (White 2004). This prompted the archaeologist to come up with the term ethno-archaeology. This was developed by archaeologists to counteract the growing abuses found in the ethnographic analogy method. Ethno-archaeology is one of many interpretive methods employed in archaeological research (Sharer and Ashmore 1979). It is closely linked to experimental archaeology and in some instances both fields have crossed to assist one another. Ethnologists work with the known tangible facts and begin to fill in the culture gaps with ideas and hypothesis. All ideas must be tested sometimes especially in the case of a continuous society that has survived to modern times. Observation of the modern customs and rituals may be helpful in proposing explanations that can only otherwise be guessed at. Great care must be taken when using this approach, some cultures may have endured and survived through many centuries, their traditions or more importantly the use of tools during this tradition may have dramatically changed. Also the limitation in the preservation of artifacts in the archaeological record such as decay, destruction by fire, insects, sampling errors, geological movements and simple human procedural errors can all affect the interpretational results of ethnography (Hauden 2003).

6.1.3. Experimental Analogy

Experimental analogy is one of the very practical methods of archaeological interpretation. It is a living analytical process used to recreate aspects in part or in whole of ancient societies in order to test hypothesis or proposed interpretation and assumptions about that society (Hauden 2003). Experimental archaeology has two distinct variants. The first is called historical re-enactment and it is an artificial recreation of a past culture (or part of it) the testing of all of the many theories about

building construction, transport systems, weapons, metals, ceramics, use of time and to mention but a few. The second variant is known as living history and it requires archaeologists usually coupled with anthropologists to find a similar modern group of people living in and under the same types of conditions of the ancient target group and to live with or at the very least to observe and study that group in order to determine the how's, what's and whys that are unstated in the archaeological record (Hauden 2003).

Historical re-enactment is the most common form of experimental archaeology and by far the most profitable for researchers as tests can be repeated and small adjustments made in a suitably controlled manner to yield scientifically valid results.

Experimental archaeology is a systematic and controlled method of interpretation of artifacts discovered in the archaeological record. By testing the validity of archaeological assumptions archaeologists are expanding the database of empirical knowledge about ancient humanity (Hauden 2003).

Regardless of the nature of analogies used, the fundamental issue is the way an archaeologist makes meaningful sense from the material remains recovered during the field research. In most cases interpretation in archaeology are based on analogies but in some other cases it is based on direct observation whereby no historical connections can be made. The Kuyello area finds and features are interpreted based on historical and ethnographic explanation. These sites have promising contribution to the development of archaeological knowledge in northern Nigeria. But these sites need further investigation in terms of excavation and dating. Cultural materials found on the sites point to early human occupation and iron working activities in the area.

6.2Lithic

The presence of grind stones on Tsohon Kuyello can be taken as indirect evidence of the settlement being agricultural based. The grind stones recovered were the flat ones, which according to oral tradition were used in grinding vegetables, pepper, herbs and grains.

In the ethnographic present the women of Sabon Kuyello use the flat grinding stones to grind pepper, tomatoes, beans, groundnut for soup though, most households no longer use grind stones since the inception of electrical grinding machines.

Most of the grinding stones found were fragmented, this may have been as a result of human impact and poor preservation on the sites since there is massive farming activities going on. The interpretation given to uses of these stone artifacts can further be investigated in future research by the use of microwear analysis. This analysis will provide information on the uses of these stone artifacts and thus the period of manufacture to the period of usage and abandonment. Also, the types of food processed on the grinding stones can leave traces that powerful magnified microlens can show, one can thus infer the types of food items produced. Also the further study of stone tools can provide substantial information on technology, the life history of the artifact and the human behavior which manufactured these tools. According to Price (2007), when the operational sequence of the stone tools is known it can go a long way in telling the different stages involved in the production of the stone tools from the acquisition of raw material to the final abandonment of the used objects. He used the French term *Chaine operation* to explain that the reconstruction of the operational sequence of stone artifacts processes can be determined in regards to waste materials, refitting human motor abilities and skills, knowledge and experiences as well as the end products of the processes can be known. In his work he was able to show that the

Chain of operation of a tool involves four major processes which are; the raw materials procurement, technology, use and discard. Through the study of the chain of operation the archaeologist can be provided with valuable data in terms of the distribution of cultural traits, technical traditions, activities, site use and subsistence activities (Price 2007).

6.3 Dyeing

Evidence of early dyeing dates back to more than 5,000 years (in the Neolithic period) in China, most areas of the world practiced dyeing using materials mostly from vegetables, these vegetable dyes are sourced from plant roots, berries, tree barks, leaves, wood and other organic sources like fungi and lichens (Godwin 1982). Dyeing process changed over time, the dye materials are put into a pot of water and then the textiles to be dyed are added to the pot which is then heated and stirred until the color is transferred. In Asia and Africa patterned fabrics were produced using resist dyeing techniques to control the absorption of colour in piece-dyed cloth (Goodwin 1982). In the mid-19th century the discovery of manmade synthetic dyes triggered a long decline in the large scale market for natural dyes.

Dyes that are used alone are called direct dyes or substantive dyes while other dyes that use a mordant which are chemically enhanced to fix colour in textile fibers are called adjective dyes (India 2001). In the ethnographic present the art of dyeing is being abandoned and dyeing is no longer practiced in the present settlement of Kuyello. From oral information (Hadiza Musapersonal communication, March 15, 2013), it was gathered that only one household was known to be dyers, they were in-charge of dyeing of fabrics in the settlement and this was passed from one generation to the other. Both males and females were involved in the processes but males were the ones that did most of the work. Some grinding stones were said to be used in the pounding of the dye

plants. Over 25 dye pits were discovered measuring up to 0.3m – 0.9m deep. Most of them have been filled with soil, rubbish, stones and some have shrubs growing inside them. Close to these dye pits one could see a heap of whitish soil, according to oral information (Murjanatu Muhammed personal communication, March 15, 2013) the soil was used in the plastering of the walls of the dye pits and this prevents the pits from reacting with the chemical content of most of the dyes used. The importance of dyeing cannot be overemphasized. This evidence showed the occupants of the site in the past had vast knowledge of their physical environment and had ways in which to use the resources present for their betterment and thus it is evident that the knowledge of dyeing could date back to antiquity.

6.4 Pottery

Pottery is a strong indicator of human activities on a site. The Kuyello area pottery is characterized by a fine grained clay tempered with coarse large quartz and mica inclusions with impurities like grasses most of the potsherds are undecorated.

Most of the Kuyello decorative motifs suggest their aesthetic values, functions and the interaction between man and his environment. Some of the decorative motifs are rouletting and grooving, some have more than one decoration, like grooves with carved wooden roulettes, incision with chevron roulettes. The pots with simple/single decorations were likely used for domestic purposes like cooking and storage. Other pots could have been used for storing medicines and other valuable possessions. Others were used for burial purposes because of its preservation ability.

In the present settlement there is no pottery making. According to oral information (Murjanatu Muhammed personal communication, March 15, 2013), the act was abandoned as a result of the introduction of iron/stainless steel pots. It was hard to

determine whether there was continuity at some point. There are similarities in decorative motifs of the pot sherds collected from both settlement sites. However it is difficult to determine whether the pots were produced locally or they were produced in one of the settlements. Then taken to the other settlement as item of trade, and if the pots had similar functions. The potsherds collected from the Tsohon Shado and Kuyello settlement had differences in colour, potsherds from Kuyello were reddish and light brown while the potsherds from Tsohon Shado were reddish brown and grey in colour, this might have been as a result of raw material procurement that is to say the clay might have been sourced from different locations.

6.5 Defensive Wall

The construction of defensive walls around settlements suggests the priority of communal security against outsider (Ogundiran 2006). The construction of defensive walls was a common practice in Hausaland. This was done to ward off attackers and thieves. This building of defensive walls could be traced to antiquity dating back to 7000 BC in Jericho. The Zaria and Kano city walls are the most preserved defensive walls in northern Nigeria dating to the 13 to 14 century AD.

The defensive wall in the Tsohon Kuyello settlement site was constructed during the reign of Nagwamatse in order to protect the town from outside attack (Mallam Muhammed personal communication, April 4, 2013). The remains of the wall are still visible but it has collapsed into a mound. It was constructed using mud, stones, cow dung and grasses. The defensive wall in the Tsohon Kuyello settlement measures up to 3.8m this is the highest point of the defensive wall and has a perimeter of 1.8 km while that of Tsohon Shado measures up to 1.5m with a perimeter of 2.9 km. The defensive wall has four entrances which are: north entrance (Kofar Arewa) the southern gate

(Kofar Kudu), the western gate (Kofar Yanma) and the eastern gate (Kofar Gabas). The presence of a defensive wall in a community signifies a well-organized administration and as such emphasizes the importance of sedentary way of life.

6.6 Iron Working

The Kuyello area has provided important evidence of iron working in the Northern part of Nigeria. Twelve furnaces were discovered in the Kuyello smelting complex most of which have been destroyed. Not too far from these furnaces was a cluster of iron slag. It is hard to say the type of furnaces that were used in the smelting since no full furnace could be discovered but with further researches and possibly excavation one could categorically say the type of furnace that was used. Oral tradition (Mallam Ado Soja personal communication, March 16, 2013) supports the existence of a well-organized smelting complex in the Kuyello area and also that only men participated in the smelting activities but did not further disclose if any spiritual ceremony associated with smelting was carried out which also rises suspicion on the fact that a pottery vase was discovered buried within the area where the furnaces were situated. His silence may be as a result of their belief in Islamic religion which classifies rituals as fetish. Excavation may provide data on the types of furnaces used and give possible dates for the smelting complex. According to oral tradition people in the Kuyello area were producers and traders in iron within the region and supplied iron ingots to Kano, Katsina and other areas.

In the Shado abandoned settlement site scatters of slag were also discovered but the slag in this site looked different physically from those of the Kuyello Smelting site. It might be possible that the method of smelting and the source of ore were different from that of the Kuyello smelting site. The slag are larger in sizes and were rougher than

those of the Kuyello smelting site. There were no furnaces or iron ore source discovered in the area which is surprising because of the presence of iron slag scatter. The slag found scattered in the Shado settlement site might have been as a result of blacksmiths utilizing bloom or ingots that were transported as item of trade from the Kuyello smelting area since there is no presence of furnaces or tuyeres on the site. Oral tradition also mentioned that smelters and the smiths formed an organized artisan group (Alhaji Idi personal communication, April 15, 2013). Excavations in the Zaria area have revealed the use of shaft furnaces in ancient iron working (Sutton 1976; Effah-Gyamfi 1981; Boachie-Ansah 1983, 2000; Odofin 2010), it is plausibly to say that the furnace type found in Kuyello area might have been shaft furnaces given the proximity of Kuyello to these excavated sites in the Zaria region (Figure 13). A shaft furnace is cylindrical in nature and made of a mud structure over a shallow pit (Daze 1981 cited from Abubakar 1987). And according to Kense (1983) the shaft furnace is the most developed and efficient of all the traditional furnaces (Abubakar 1987).

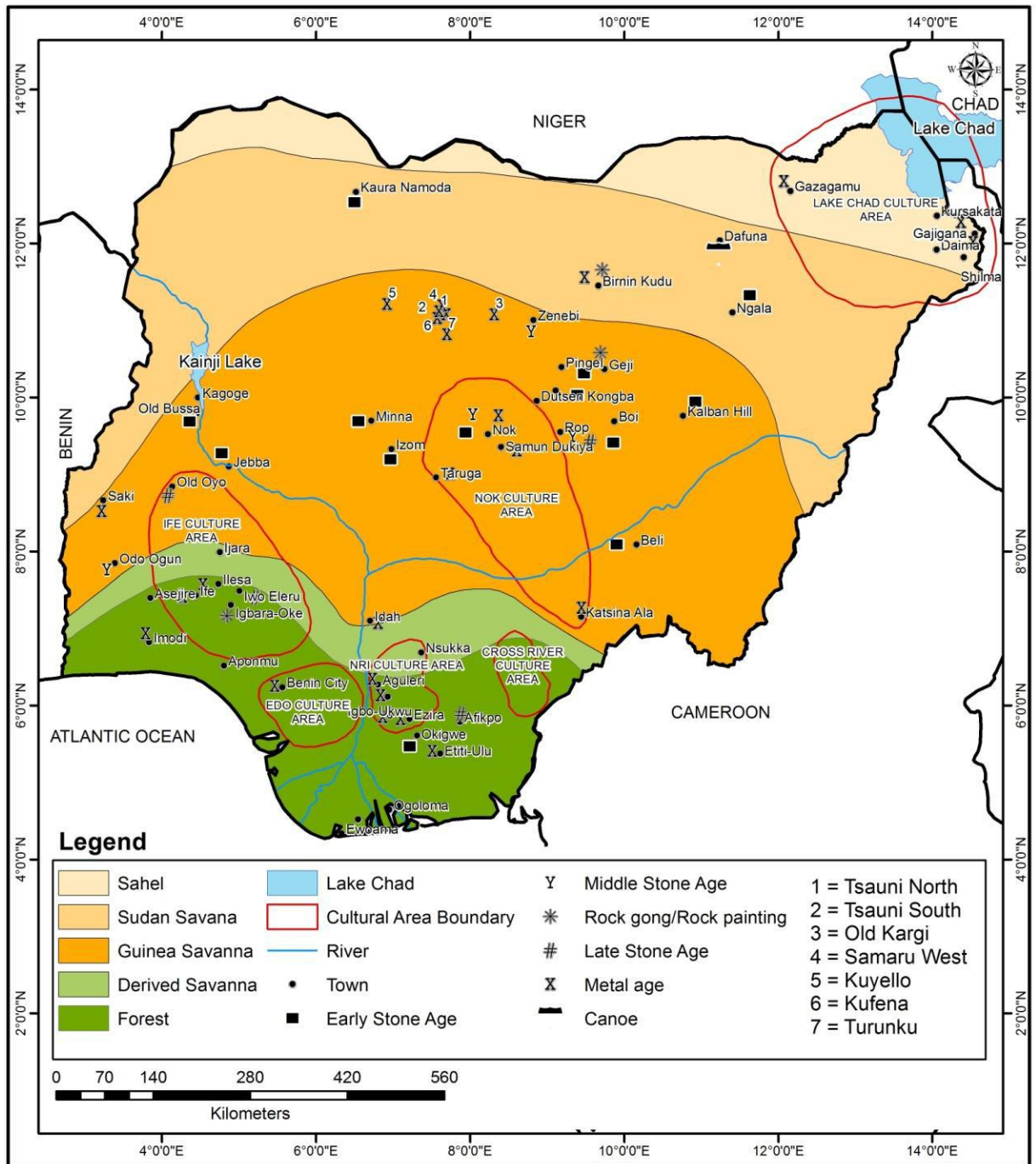


Figure 13: Archaeological Map of Nigeria
Adapted from Barbour, M. K. *et al.*, 1987

6.7 Comparison of Tsohon Kuyello and Tsohon Shado Settlement Sites

The comparison of these two sites is as a result of the claim by oral tradition that these two settlements were contemporaneous. This is done in order to ascertain if there are any cultural similarities or cultural differences. The comparison is to try to establish if there is any cultural connection by comparing the finds and features located on the two sites. The areas to be compared will be on the site characteristics, aspects of settlement pattern, subsistence economy and material culture.

6.7.1 Site Characteristics

In comparing the two settlement sites, finds and features including their size, space utilization are considered. Also the nature of these sites is also important. In the Tsohon Kuyello settlement site it is evident that it is a settlement site though with no trace of house foundation which might be as a result of human activities in form of massive farming going on in the area. But presence of trees like baobab and mangoes signifies that the site was once a settlement area. The presence of dye pits, grinding stones and scattered potsherds are also an indication of a once settled environment. It is hard to give the exact chronology of these sites but inferences can be made that settled life in the area began in the eighteenth and nineteenth century AD (Hyne 1924). This assertion can be supported with information from oral tradition which gives an approximate date for the construction of the site's defensive wall as the period of the raids carried out by Umaru Nagwamaste and his successor Ibrahim Nagwamaste Sarkin Sudan on pagan communities in search of Slaves and Calvary.

In the Tsohon Shado settlement site, the presence of a collapsed defensive wall also signifies evidence of settled life but the date of the wall could not be determined. According to oral tradition the Tsohon Shado settlement site existed at the same time as

the Tsohon Kuyello sites and it was a community that was heterogeneous in nature in the sense that people from Zamfara, Sokoto, Zaria and Katsina area all lived together there. And also in looking at the distinctive tradition of the Hausa way of building a town, there is normally a settlement referred to as *Bayan Gari*. It is plausible to assume that the Tsohon Shado abandoned settlement was regarded as *bayan Gari* given its close proximity to the Tsohon Kuyello settlement site. But again it is possible that the Shado settlement site was occupied even before the Tsohon Kuyello settlement site, then security and other internal factors may have been responsible for their migration to the Tsohon Kuyello settlement site. Both sites have evidence of human activities such as iron smelting though the other site had more evidence of iron smelting in form of slag clusters and furnaces while that of Tsohon Shado is only scattered iron slag.

In the aspect of land mass area Tsohon Shado is a plain area occupying a land area of 0.46 square kilometers with no obstruction while Tsohon Kuyello has obstruction in form of a hill with a land area of 0.2 square kilometers. It also has clusters of dye pits very close to the hill. Thus could have been done in order to prevent the pits from collapsing on time and also to preserve the dye pits.

6.7.2 Settlement Type

Settlement pattern in archaeology is of importance because its studies can show the manner in which people manage or use space to distinguish one area of cultural activity from another. The study of settlement pattern in archaeology can be done from site catchment analysis and central place theory (Andah 1995). The concern here is to see how the settlement type of the Tsohon Kuyello and the Tsohon Shado sites, using the surviving archaeological remains recovered during the survey of the sites can be

reconstructed. These remains are in the form of potsherds, iron smelting evidence, house remains, dye pits and grinding stones.

The exact functions of the Tsohon Kuyello and Tsohon Shado site could not really be ascertained but remains like pottery, grinding stones, presence of some edible trees signifies that it had the evidence of a settled live both due to massive human interference it was not possible to locate house foundations. In the Tsohon Kuyello settlement sites there was iron slag scatter and furnaces in a particular area which was some distance away from the settlement area, this shows that the people had structured their land area in a way that will suite different cultural activities on the sites. Also in the Tsohon Kuyello settlement site, the cluster of dye pits close to the “Kango Kuyello” hill signifies that they wanted the dye pits there for durability since that area was not suitable for farming as such the dye pits will become preserved over time. Also the scattered broken pots all over the sites showed that clay pots were used in larger quantity in the sites and also the location of the “*bariki*” house remains outside the defensive wall signified that the people held that structure in high esteem and did not want the community to interfere with the functioning of the “*bariki*” where Colonial Local Authorities came to discuss issues about the settlement and tax collection.

In the Tsohon Shado settlement site there is also no evidence of house structures but there are scattered stones which the farmers used in demarcating their farmlands so one cannot categorically say they were stones used for house foundations.

6.7.3 Subsistence Economy

Based on the nature of the cultural remains and information from oral tradition, it is possible to say that the economy of both sites was based on agriculture. The people were settled agriculturalists as can be inferred from the data collected in form of

grinding stones which were possibly used for grinding grains, vegetables and herbs for medicinal purposes and the impression of seed like motif on their pottery. The presence of dye pits also signifies that they were also involved with other activities during non-farming periods. Also the recovery of a spindle whorl in the Tsohon Shado settlement may portray the settlement as that having different craftsmen co-existing together. From the above, one can say that apart from farming which was their major source of livelihood, people in the settlements were potters, dyers, masons and smelters.

6.7.4 Material culture

Material culture is often used by archaeologists as a non-specific way to refer to the artifacts or other tangible materials left behind by past cultures (Hirst 2010). According to Sharer and Ashmore (2003), material culture refers to all the things made and used by a people from which past behavioural patterns can be inferred and reconstructed. The material culture in the Tsohon Kuyello settlement site and that of the Tsohon Shado settlement site had similarities in the aspect of pottery, both sites had scattered potsherds, residues of iron smelting and only the Tsohon Kuyello site had grinding stones as well as dye pits. From physical observation the clay used in the making of the pottery in the Tsohon Shado settlement was fine grained and some of the potsherds had quartz particles the clay was more reddish brown in colour and the texture was rough most of them were unburnished. While in the Tsohon Kuyello settlement the clay used was lateritic in nature, the potsherds showed that they were made from both coarse and fine grained clay with an addition of grog known as temper the wares were well fired and compacted in nature. The potsherds with very coarse clay showed larger quantity of mica while those with fine grained clay showed less quantity of mica. The potsherds

were darker in colour, this may be due to firing of the objects. Most of the potsherds were unburnished.

In the area of vessel parts, from the Tsohon Kuyello site four rims were collected, the rims were either slightly everted with ridge rim lip or straight rim with a tapered lip to straight rim with a round lip. Three of rims were grouped under pots while the other was a bowl, it can be inferred that most of the wares in the settlement were pots. While in the Tsohon Shado settlement site only one rim was recovered and this fell under pot classification, it has a slightly everted rim and a slanting rim lip. In the aspects of decorative motifs, thirteen of the potsherds had single decorative motifs while three had multiple decorative motifs from the Tsohon Kuyello settlement while in the Tsohon Shado settlement site, sixteen potsherds had single decorative motifs with two multiple decorative motifs. The common decorations amongst the potsherds were rouletting, chevron and grooves. Basically, the decorative motifs from the Tsohon Kuyello pottery were mostly grooves, carved wood roulette, twisted cord roulette, a double twisted cord roulette and fine string roulette while the multiple decorations were grooves with carved wood roulette and incision with chevron patterns. In the Tsohon Shado settlement the single decorations were mostly rouletting in form of string and cord roulettes while the multiple decorations were carved wood roulette with seed like pattern and carved wood roulette with horizontal groove.

The decoration of the potsherds from both sites may suggest the type of uses they were manufactured for, the type of livelihood the makers had, the environmental condition and also the aesthetic value of the makers. The similarities in these decorative motifs from both sites may mean that they might have come from the same origin with re-occurrences of roulettes but the time may not have been the same because of the level of preservation. The potsherds from the Tsohon Kuyello site looked more recent than

those of Tsohon Shado. Also it might be that the pots from the Tsohon Shado settlement were not well fired as such reducing the survival rate of the potsherds. Since there was no ethnographic evidence of pottery making in the extant settlement more information could not be ascertained. According to oral information pottery making was practiced in the recent past but due to modernization clay pots were replaced with iron pots and also given the fact that metal pots are more durable and could last for a very long time.

Evidence of iron smelting was present in both sites but the nature of the evidence differed in the Tsohon Kuyello settlement. Furnaces were identified and most of them were fragmented and had clusters of scattered iron slag but in the Tsohon Shado settlement only scattered iron slag were found. There were no iron mining pits identified from either of the sites.

Lower grinding stones were also discovered from the Tsohon Kuyello settlement sites, some of them were fragmented while in the Tsohon Shado settlement sites, no grinding stone was located. The grinding stones were flat in nature and were said to be used for grinding vegetables, grains, beans and herbs.

From the archaeological data collected from both sites one can see some level of similarity with regards to iron slag and pottery scattered all over the sites. The problem here is; whether the Tsohon Shado site was older than the Tsohon Kuyello settlement site or did they exist together at the same time that is to say if they were contemporaneous and also if the Tsohon Shado settlement site was abandoned before that of the Tsohon Kuyello settlement site or was it those who lived or settled in the Tsohon Shado settlement that migrated to the Tsohon Kuyello settlement site.

The presence of dyeing, iron smelting and pottery shows a diversified economy. With the walling system Tsohon Kuyello might have been a well-developed center with a central authority.

CHAPTER SEVEN

SUMMARY, CONCLUSION AND RECOMMENDATION

This dissertation was the result of extensive consultation of books, journals and articles, taking of notes during the field work and analysis of the material and non-material culture of the Kuyelloarea. This chapter is meant to act as a guide for what has been written so far.

This research work was conducted using archaeological methods and historical data in order to understand some basic concepts and ideas about the past ways of life in these sites. To achieve a comprehensive record, the dissertation was divided into seven chapters which basically focused on issues pertaining to environment, methods of study, analyses and interpretation.

7.1 Summary

Chapter one deals primarily with archaeological investigation, methods and application of these methods in carrying out comprehensive field work. This chapter dealt with the understanding of some basic terms used in archaeology and the basic methods used in conducting research work. This was done in order to enable prospective readers from other disciplines. Also in this chapter, the problems which the research was intended to resolve at the end of the research and the process in which the purpose of the research was to be achieved was stated and the procedures in which was used in gathering of information, locating of finds and features on the sites was established.

Chapter two deals with the literature review and theoretical framework on the interpretation of data is based upon.

Chapter three is an overall view of the environmental condition of the location of sites, where the site were located, the type of climatic and ecological diversities that are

prevalent in the region. The type of environmental conditions which to a larger extent, helped in determining the cultural history and behavioural pattern of the Kuyello area. The understanding of this ecological diversity has help in providing avenues for the proper understanding of people's reasons for innovation, changes in cultural character and as well continuity in cultural manifestation and points out that environmental condition is an important factor in the survival of a culture and that it varies from region to region.

The second part of chapter three deals with the tradition of origin of the people of the Kuyello area, the history of migration and the succession of rulers over the years. There is a need for proper documentation of one's history, also there is the problem of the storage of one's history in the recent this is evident in the sense that the younger generation do not really care about their historical origins and thus without proper documentation the history of particular areas would be lost and as such generations to come may not be lucky to know their historical heritages.

Chapter four deals with the usage of archaeological methods for extensive documentation of finds and features and the use of Geographic information system (GIS) in placing of these finds and features on an archaeological map for proper identification and location of these cultural remains in further research work. This chapter also employs the use of visual imagery for archaeological investigation, this is to enable readers understands the descriptive aspect of the documentation which will give proper understanding of the whole research work.

This chapter shows the range of the types of sites been investigated whether it is a settlement site, industrial site or religious site. In the case of this research, they are both settlement and industrial site. This chapter tells the readers the types of finds and features that have been identified.

Chapter five presents classification of the finds collected during the field research. They were sorted out and classified according to attributes and class. Afterwards they were analyzed. This chapter comprises a descriptive, analytic and interpretive aspect of the research work.

Chapter six deals with the archaeological finding and it tries to look at theories that will help in the explanatory information. The cultural materials collected are the only data that an archaeologist can use for insights into human behavioural pattern. These finds tells a story that only the archaeologist can interpret, how good the interpretation is depends on the level of the story that these finds can tell. In this chapter the researcher observation is important because it contributes to the studies like in the case of crafts making it was impossible to observe the ethnographic present because it was no longer practiced due to economic and cultural changes but from the oral data collected it was possible to say the process of pottery making in the Kuyello settlement was like that, that was practiced in northern Nigeria. This chapter covers the acquisition of raw materials, the treatments these raw materials passed through up to the final stage, the styles and function of objects/cultural remains are taken into recognition. This chapter provides information on how societies have been able to manipulate their environment for sustainable survival. The data provided in this chapter can provide information on socio-economic life ways of the people in settlement.

Chapter seven this deals with the summarization of the archaeological investigation of the Tsohon Kuyello and Tsohon Shado settlement sites. This chapter provides a recap of all the data provided in this research work. This also deals with the recommendation made which will serve as a foundation for further research investigation in the settlement sites.

7.2 Conclusion

The research has re-emphasized the role of archaeology in understanding and interpreting the cultural and technological processes of past societies. The archaeological potentials of Kuyello particularly the settlement history and iron metallurgy has come to light. This work has being able to place the Kuyello area on the archaeological map of this part of Nigeria and other meaningful information were deduced. Given the numbers of furnaces discovered one can say that the Kuyello iron working industry support the claims made by indigenous scholars might have been a vast one. From the archaeological materials discovered it is wise to say that the Kuyello area before the coming of the Europeans were living a settled life and was functioning as a community with a centralized authority and had adequate knowledge on how to utilize the natural environment for sustainable development and technological advancement.

Evidence of pottery suggests the existence of a settled food producing society. This also suggests that the pottery were used for domestic purposes such as cooking and storing of grains as well as religious purposes. The use of grinding stones also suggests that the society was agrarian based used for grinding grains or other food items. The research tried to show possible interaction and similarities between the sites studied even though it is difficult to say whether the settlements were contemporaneous or not given the limited nature\ scope of the research work as stated earlier. Oral tradition and ethnographic data was able to provide the needed corroboration of archaeological evidence in regards to the possible reconstruction of the human activities that occurred on these sites. This was deduced from the study of the cultural materials that were studied.

7.3 Recommendation

This research work is the first archaeological work to be carried out in the Kuyello area as such a more systematic follow up research is expected to be done in the near future as such it will enable broader coverage of the area. The follow up research is expected to involve excavations, dating and laboratory analysis which are necessary in determining the sequence of occupation of the site. Other sites that are in close proximity to the Kuyello area will be added to the scope of this further research this will enable broader investigation. Excavation will be carried out in order to have a comparative analysis of these sites in terms of chronology, technological advancement and sources of raw materials, population growth and settlement arrangement to see if there is a trending pattern common to the archaeological sites in the whole of the Kuyello area. It will also provide answers to questions of the type of furnaces constructed and so as to compare these sites and determine which is the oldest amongst the sites. And if the people who settled in the Tsohon Kuyello are the ones responsible for the smelting site or whether these sites were contemporaneous or existed at different time in the past. The slag will be studied which will in turn give information on the quality of the bloomy iron that produced the. Also dates will help clarify the position of Kuyello among the smelting centers of this part of northern Nigeria. Further research is needed to answer questions about the period of occupation and abandonment of these sites and also the composition of the clay used in the making of pottery in the area this is to ascertain if they were from the same source and also the year in which they were manufactured.

The chronology of the sites could not be determined as such. This leaves another aspect of the research work that can be investigated and also if the chronologies of these sites

are determined it can help to prove the assumptions made about the two sites being in existence at the same time.

Material culture of these sites indicates that complex socio-cultural relations existed on the sites. The research has been able to show clearly the ability of people who occupied the area to adapt and exploit natural resources for technological development.

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APPENDIX 1

QUESTION GUIDE

Below are the questions, constructed which aided the coherent collection of data.

TRADITION OF ORIGIN

1. Who are the Kuyello people?
2. Who were the inhabitants of Old Kuyello?
3. When was old Kuyello occupied?
4. When was it abandoned?
5. What led to the abandonment of the Old Kuyello?
6. Did you meet any other group of people when you first came here?
7. If yes, who are these people?
8. What do you have in common with them?
9. Did they migrate with you to your new settlement?
10. What is the relationship between the inhabitants of old Kuyello and present inhabitants of Sabon Kuyello?

ECONOMY AND TECHNOLOGY

1. What is the principal source of income for the people of the Kuyello area?
2. What is the basic element of your economy?
3. What types of crafts do you practice in your community?
4. What type of technology do you engage in?
5. Do you still practice pot making in your new settlement?
6. How do you acquire the raw materials needed for these crafts or technology?

7. Who were responsible for iron smelting in Kuyello area?
8. Is iron technology practiced presently in Sabon Kuyello?
9. What are the major occupations of the people in the past?
10. Were there pottery making in Old Kuyello?
11. If not, where do the people obtain pottery from in the past?
12. Was there a market inside the settlement?
13. What were the market days?
14. Do you have a trade link with other neighboring communities?

SETTLEMENT PATTERN

1. Can you tell me how your settlement evolved?
2. What was the reason for the choice of this site?
3. Can you estimate the size of the then settlement?
4. What was the nature of the site occupation was it seasonal or permanent?
5. What is the mode of building in the present settlement?
6. Are there similarities or differences on how buildings were constructed in the past and the present day settlement?

RELIGION

1. What is the belief system in your settlement?
2. Who do you worship as the Supreme Being?
3. What are the main components of your religion?
4. What are the major religious festivals in your settlement?
5. How are they performed?
6. What is their seasonality?

7. How long is the religion been in existence?
8. Do you specific location in the settlement where these religious activities are carried out?
9. Do you have any significant religious rituals associated with rites of passage, child birth and initiation into adulthood?
10. How do you burry your dead?

POLITICS

1. What type of political structure do you have in the Kuyello Settlement?
2. Do you have a leader?
3. What title is ascribed to your leader?
4. How do you choose your leader?
5. Does your leader have any judicial powers?
6. What is the political structure in your community?
7. How many rulers have your settlement had since the emergence of the settlement?
8. What criteria must be met in choosing a leader?
9. Are women allowed to rule? If no,why?
10. How long is it expected for a leader to rule?

APPENDIX II

LIST OF INFORMANTS

S/ no	Name	Age	Gender	Date	Place	Occupation	Information
1	Malam Magaji Audu	96	Male	03/04/2012 15/03/2013	Kuyello	Basket weaver	Traditions of Origin
2	Alhaji Idi	92	Male	03/04/2012 15/04/2013	Kuyello	farmer	Traditions of Origin
3	Malam Mahmud Muhammed	47	Male	04/04/2013	Kuyello	District Head of Kuyello	Political Organization
4	Ibrahim Ahmed	42	Male	04/04/2013	Kuyello	Farmer	Migration History
5	Sani Ibrahim	30	Male	15/03/2013	Shado	Farmer	Site Location
6	Ibrahim Mairina	56	Male	15/03/2013	Kuyello	Farmer	Settlement History
7	Ibrahim Adamu	42	Male	03/04/2012	Shado	farmer	Political Organization
8	Alhaji Danmusa	45	Male	15/03/2013	Kuyello	Trader/farmer	General Information
9	Malama Jummai	92	Female	04/04/2012	Kuyello	Housewife/ former Dyer	Settlement History
10	Hajiya Maryam	35	Female	04/04/2012	Kuyello	House wife	Ethnography(Pottery)
11	Mallam Ado Soja	95	Male	03/04/2012 16/03/2013	Kuyello	Retired Soldier	Traditions of Origin
12	Alhaji Sanni councilor	46	Male	04/04/2012 15/03/2013	Shado	Politician/farmer	Settlement History
13	Malam Muhammad(late)	75	Male	03/04/2012 16/03/2013	Shado	farmer	General Information
14	Luqman Muhammed	35	Male	05/04/2012 16/03/2013	Kuyello	Farmer/commercial bike rider	Site Location
15	Ibrahim Soja	37	Male	04/04/2012	Kuyello	Farmer	Site Location
16	Muhammed Kuyello	57	Male	04/04/2012	Kuyello	Farmer	Migration History
17	Malam Shuiabu Shado	47	Male	04/04/2012 16/03/2013	Shado	Farmer/trader	General Information
18	Murjanatu Muhammed	52	Female	15/03/2013	Kuyello	House wife	Ethnography(Dyeing)
19	Talatu Garba	50	Female	15/03/2013	Kuyello	House wife	Ethnography(Pottery)
20	Hafsatu Shado	40	Female	16/03/2013	Shado	House wife	Ethnography(Pottery)
21	Hadiza Musa	50	Female	15/03/2013	Kuyello	House wife	Ethnography(Dyeing)
22	Mairo Muhammed	45	Female	15/03/2013	Kuyello	Trader	Ethnography(Dyeing)
23	Zainab Yusuf	75	Female	16/03/2013	Kuyello	Former dyer	Migration History
24	Aisha Kuyello	96	Female	05/04/2012	Kuyello	House wife	Settlement History
25	Hadiza Mahmud	75	Female	05/04/2012	Kuyello	Housewife/ former potter	Migration History

APPENDIX III

GLOSSARY

Global Positioning System Co-ordinates

S/NO	FINDS AND FEATURES	Y (LATITUDE) N	X (LONGITUDE) E
1.	Kango/Tsauni Kuyello	11.20483333	6.938527778
2.	Dye pits (16)	11.20550000	6.938611111
		11.20550000	6.938583333
		11.20558333	6.938527780
		11.20561111	6.938555556
		11.20555556	6.938611111
		11.20555556	6.938583333
		11.20555556	6.938666667
		11.20552778	6.938611111
		11.20555556	6.938611111
		11.20555556	6.938555556
		11.20558333	6.938555556
		11.20561111	6.938638889
		11.20561111	6.938694444
		11.20563889	6.938666667
		11.20563889	6.938583333
		11.20563889	6.938555556
3.	Grinding Stones (10)	11.20516667	6.935750000
		11.20483333	6.935750000
		11.20427778	6.937361111

		11.20416667	6.938250000
	5-10	11.20247222	6.937972222
4.	Stone Hollows	11.20483333	6.938527778
5.	Ruins of circular mud Structures (Bariki)	11.20769444	6.939555556
		11.20755556	6.939666667
6.	Old Well	11.21005556	6.939527778
7.	Baobab	11.20580556	6.938500000
		11.20597222	6.938000000
		11.20597222	6.937611111
8.	Bariki (Barracks) Gate	11.20650000	6.939111111
9.	Lateritic Outcrops	11.20511111	6.935611111
10.	Tsohon Shado Baobab	11.12720000	6.941500000
11.	Trees	11.19990000	6.947420000
		11.20160000	6.947640000
		11.20110000	6.947530000
12.	Iron slag scatter	11.21050000	6.923166667
13.	Spindle whorl	11.20177778	6.940333333
14.	Kuyello iron smelting site Tamarind tree	11.21020000	6.923670000
15.	Other trees	11.20990000	6.923900000
		11.21070000	6.923050000
		11.21020000	6.923070000

		11.21020000	6.922570000
16.	Furnaces (12)	11.21011111	6.921944440
		11.20225278	6.921972222
		11.20963889	6.923777778
		11.20833333	6.926805556
		11.20836111	6.926833333
		11.20827778	6.926916667
	7-9	11.20830556	6.926944440
		11.20833333	6.927138889
		11.20827778	6.922694444
		11.21005556	6.924500000
17.	Iron slag scatter	11.20169444	6.941277778
18.	Pottery vase	11.21000000	6.922000000