

# An Archaeological Survey of Zango Iron Smelting Site in Sokoto State, North Western Nigeria

An IBR Research Sponsored by Tertiary Education Trust Fund (TETFund)

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## I. INTRODUCTION

The discovery and the use of iron implements were found to be of great significance to the history of mankind worldwide. As the tools produce from iron turned to be more effective and efficient for man's daily activities and safety. Its introduction has no doubt revolutionized man's way of life. As a result of that, the period that marked the beginning and utilization of iron technology came to be known by archaeologists and historians as the Iron Age. With this development man was able to have efficient utilization of his environment. The use of iron implements is the most significant innovation from technological point of view in the development of mankind. Iron was employed to produced war equipment as well as agricultural tools. In Nigeria, the earliest evidence of iron discovery came from the site of Taruga which was dated to about 4<sup>th</sup> century B.C (Fagg;1968:28). This is one of the important sites that are affiliated to the Nok Culture found in Jos Plateau, Nigeria. In the case of Sokoto area, the evidence of early iron activities came from the site near Yelwa in present day Yawuri Emirate. The site was dated to the middle of the first millennium A.D. (Priddy; 1970). Despite the fact that the site is not as old as Taruga, however, the features have been identified to be similar in those of other Nok culture sites (Priddy; 1970)

The evidence therefore suggests that societies in Sokoto region could have begun to manufacture iron implements and weapons as far back as 4<sup>th</sup> century B.C – a date suggested for Taruga. Apart from Yelwa, there are other sites scattered all over Sokoto State which include the site of Gongono in present day Tangaza Local Government Area, Dutsin Disa in Tureta, Tungar Madugu in Gwadabawa, Birnin Lalle in Gada and Gundungaand Kalalawa in Kware Local Government Area. This paper attempts to give a report of the archaeological survey of iron smelting site of Zango Bayan

Dutse in Magabchi area of Yabo local government. The report covers the surface collections which show the participation of Sokoto people in the art of iron smelting activities.

## II. GEOGRAPHICAL LOCATION OF ZANGO(BAYAN DUTSE IN MAGABCHI)YABO LOCAL GOVERNMENT AREA, SOKOTO STATE

The area under study falls within the Sokoto plains. It is the western section of the Sokoto region (Gill: 1974;62). The area consists of a plateau of Sandstone, capped by an extremely resistant layer of lateritic ironstone (Udo;1970;168). The most important river in the region is the Gawon Gulbivalley which is located some meters away from the site. The natural vegetation is the open savanna woodland. There exist two major seasons. The marked dry season which lasts for about seven months- November to early May while the wet season is mid-May to September.

The actual site, Zango Bayan Dutse in Magabchi, being surveyed is situated in this region of sedimentary environment. It is located at Kilometer 31 on the Sokoto – Jega road. The survey method employed was transits method. The researchers followed a linear pattern across the landscape and walking over the area. Using the Global Positioning System (GPS). It is a few meters from the main road on latitude 12°42' 29.3" N and longitude 005° 02'46.9" E with an altitude of 311m above sea level. This site is a grassland area at the foot of a low lying lateritic hill covered with shrubs (see fig 1). There are few dry- streams like trenches which may contain water during the rainy season. Between the site and the main road lies a cultivated section where grains like millet, guinea corn and other cereals are grown. There was an edge planted to shield or protect the cultivated area from animal's encroachment because it is situated on an animal grazing route.

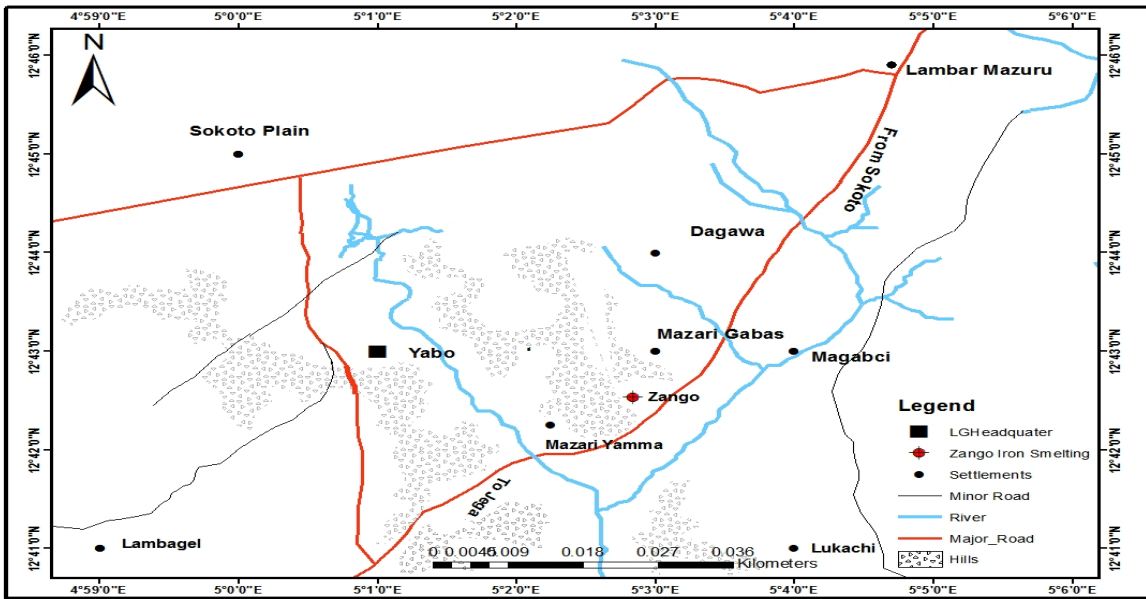


Figure 1: Map of Yabo LGA Showing the Physical Features of Zango Iron Smelting Site. Source: Map Gallery, Geography Dept. UDU, Sokoto

It was possible to undertake the ground survey of the whole site because the area is virtually devoid of vegetation which left the site quite open. Zango Bayan Dutse is located in Yabo Local Government Area of Sokoto State in North West Nigeria. The inhabitants of the closest village nearby (Magabchi) said that they are not aware of the existence of the site and equally have no knowledge of Iron smelting

technology. This would suggest that the site might have been abandoned before the present village was founded. The survey photographs of the site are shown in figure / plates and they depict the most obvious features like- hill, furnaces, slag etc. This site represents an important evidence of past human activity in the area which should be archaeologically investigated.

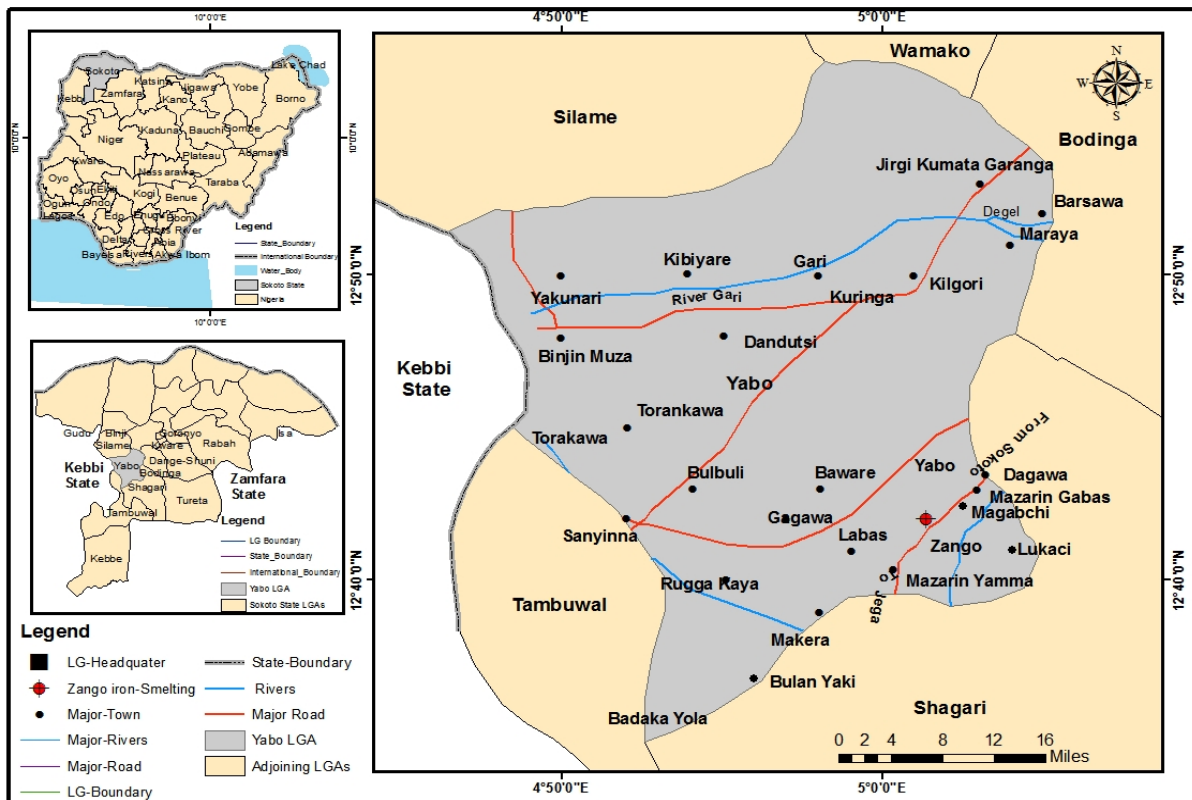


Figure 2: Map of Yabo L.G.A. showing Zango Iron Smelting Site. Source: Map Gallery, Geography Department, UDU, Sokoto Description of Finds and Features

The trips to Zango sites were spectacularly rewarding, we discovered attractive and beautiful materials depicting incontrovertible evidence of iron smelting technology which signifies that Zango was certainly a workshop. The site lies on a recognized animal grazing route which was responsible for the substantial damage to the finds. The material evidence has been trampled all over by large animals such as donkeys, camels, cattle and others. Their foot prints could be seen everywhere. In a number of places, the animals had trodden on furnaces and broken them. Below are some the important finds and features recovered from the site.

#### *Lateritic Soil and Outcrops*

The site is located close to the lateritic outcrops. This confirmed the oral evidence that smelting activity is usually located close to the source of the iron ore (Malam Bello Makeri). The abundance of those lateritic outcrops with metallic content in the area is therefore seems to have paved way for the ore mining in the site. This feature is not peculiar to this site alone as the area of Sokoto is known to have been endowed with the iron resources in virtually all its regional areas (Jones; 1973).

This situation is not peculiar to Zango alone as most of the iron smelting sites discovered in Sokoto region (state) are

located along the outcrop areas that are lateritic in nature. A good example of those sites include the sites of DutsinDisain Tureta, Dutsen Gwabro in maru, Dutsin Sakkwai in Gongono and Dutsinyar'abba in Wamakko Local Government areas (Bello; 2014: 4). The surface layer of the hill reveals some holes and rough surfaces which might have resulted from mining activities of the smelters. The outcrop reveals the types of stones which were said to have been of iron bearing. There are basically *Antarkuturu* (liver like) *kwankifi* (Fish egg) and *Kada Maigaban Tsira* (Tukur; 2008:56). These stones are revealed by the oral source to have possessed the highest iron content all over Sokoto, which are crushed to smaller particles for smelting ( Sarkin MakeranYabo).

#### *Abandoned Furnaces and Tuyeres*

Iron furnaces appeared to have been driven into the ground. Walls of furnaces were found with clay pipes used to increase the draughts. Iron slag were also clearly identified with some potsherds. The furnaces were arranged in a circular formation of four, five or six together. There is need to determine whether suitable stones containing iron ore were sourced locally or they were imported to the site (see fig 2).



Figure 2: Showing a cluster A of traditional smelting furnaces at ZangoMagabci site

From the site, two major groups of furnaces were identified during the survey which were divided into group A and B.

The average diameter of furnaces in group A is 75 to 100cm, while that of group B is 60 to 70cm (see Fig. 4)



Figure 3: Showing a cluster B of traditional smelting furnaces at ZangoMagabci site

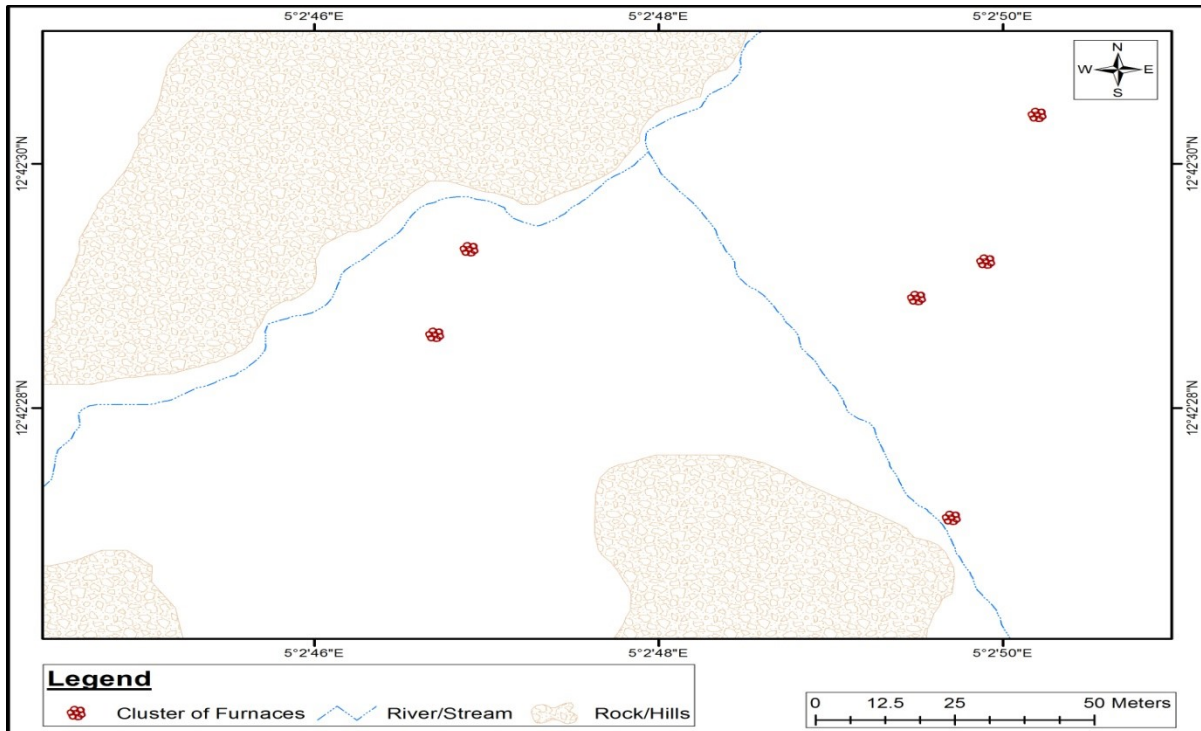


Figure 7: Site Map of Zango- Magabci Iron Smelting Site showing Cluster of Furnaces Water Supply

Water supply to the area would appear to be difficult. There are few dry stream-like trenches which may contain water during the rainy season. At the extreme end of group B, a pond of shallow standing water was discovered. The inhabitants of the nearby village claimed that iron smelting activity in coexisted before the 19<sup>th</sup> century Islamic Movement led by Usmanu Danfodiyo. This would suggest that the present village was founded before the introduction of the smelting activity in the site. One important feature of this site is that, just unlike other sites where iron smelting activities were located along rivers and streams, like in Samaru West where smelting was located along Kabanni

river, Taruga along Gurar and Gongono along Gulbin Shalla (Okpoko;1999:39), the site of zangomagabci is located there is no evidence of river or stream close by in Zango Magabci site

#### *Grinding Stone*

Another feature recovered during the survey is lower grinding stone. This was located in group B at latitude 12°42'30" N and longitude 0050 2'45.8" E. The feature was identified with a centre hole which indicated the way it was overused in the past.



PLATE 4: Grinding stone found at Zango site

### III. DISCUSSION AND CONCLUSION

In spite of the existence of the evidence of smelting activity in the site and many areas in Sokoto, by the early 20<sup>th</sup> century iron smelting activity started to decline. This is mainly resulted from the colonial policy that enhanced the introduction of the iron scrapes and some important tools produced by the indigenous iron workers from Europe. Subsequently, considering the complexities and the difficulties associated in the production of the iron ingot, the imported iron scrapes seemed to be cheap and easy to acquire by the local smiths compared to the locally smelted iron (Okpoko; 1999:38).

In addition, colonial policy in the emirates which came up with the free distribution and selling of the iron scrapes to black smiths in Sokoto province contributed immensely to the

destruction of the traditional iron smelting activity in the area. The idea here was to draw the attention of the indigenous smithers to the European imported iron scrapes and implements. The situation became worse with the imposition of colonial taxation on the local industries. This policy led to the imposition of tax known as *kudintama* on the local smelters there by increasing the production cost of the locally smelted iron. With the increase in the cost of locally made iron, many smelters turned their patronage to the imported iron which was at that time, easy to obtain than the local one. As a result of that, the local smelters could not be able to compete with their European counter part which contributed to the final abandonment of the smelting activity among the smelters of zango in Magabci in particular and the entire Sokoto area.

This paper gives a general account of the work that was carried out at Zango iron smelting site in Magabci village. To the best of our knowledge there has been no archaeological excavation that was conducted at the site to confirm various conclusions and opinions held about iron smelting activity in the area. This survey was undertaken to be able to determine the potentialities of this site for a viable archaeological excavation. The quality and the extent of the iron slag together with the number of abandoned broken furnaces and tuyeres bear witness on the importance of iron smelting at this site. The desirability of archaeological excavations at Zango Bayan Dutse is evident. In this area where substantial evidence of iron slag, damaged furnaces and tuyeres lay on the ground were subjected to a careful search and some quantities were collected for study. Since these materials are surface findings, they cannot be dated yet. But oral evidence suggested that iron smelting activities in Magabci site was undertaken before the 19<sup>th</sup> century. We can also not be able to ascertain the types of furnaces used by the smelters of Zango Magabci workshop. In spite of that, the arrangement of the furnaces in circular formation as well as their sizes in diameter and circumference proved the existence of well organized guild system which produced iron in large quantity, and it equally reflected the organization of production that is been determined by either family size or the size of the labor force

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#### Informants

Name	Age	Occupation
Malam Bello Makeri,	87 years	blacksmith
SarkinMakeranyabo	72 years	blacksmith.