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The Growth and Development of Iron Works and its Contributions to Economic Emancipation in Yola-Adamawa Emirate

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ABSTRACT: This paper gives general account of iron work industry (Blacksmithing) in Adamawa emirate, which have been an integral subsector of the manufacturing agricultural, domestic tools and indigenous weapons. Smithing is the act of turning mined ores into useful metal objects. There are two parts of smithing: smelting and forging. Smelting means using a furnace to convert ores into metal bars. Forging means hammering metal bars on anvil to make weapon pieces of armour, dart tips and more. The industry contributes to the growth and development of commercial activities and livelihood of the people of Yola (Adamawa) and their neighbours. It is worthy to note that the history of iron work activity in Yola shows the evolution and exposed the region in the face of wider world with its technological advancement. The paper adopted both primary and secondary sources of data collection because many researches undertook in the region were mostly focused on socio-political than economic history of the region especially on iron work industry which was neglected. Therefore, research on iron works should give light on the activities of blacksmithing in Yola area and its significant to the economic growth and development of the area.

KEYWORDS: Blacksmith, Iron, Manufacturing, Processing, Smilthing.

I. INTRODUCTION

Adamawa is one of the emirates in northern Nigeria founded in 1809 as a consequence of the 1804 Sokoto jihad. The emirate was founded by *Modibbo* Adama an Islamic scholar and supporter of Shehu Usman Danfodio after the success of the jihad in *Fombina* region. Adamawa emirate is made up with numerous ethnic identities such as Fulani, Hausa, Bata, Verre and Kilba among others (Kirk-Greene, 1969; Sa'ad, 2008).[12,19] The economy of the emirate ranges from agricultural activities such as food crops production and animal husbandry and non-agricultural sectors such as mining and blacksmithing industry which has contributed to the development of the emirate since the pre-colonial period. Such groups engaged largely on iron works because of it relevancy to the economic development of Yola-Adamawa particularly the agricultural production and craft industries that have become a backbone of their livelihood (Chubado and Musa, 2020). [9]

The arrival of iron manufacturing technology in Adamawa has brought profound changes to the societies and lives of its inhabitants. The production of iron tools and weapons has allowed for the kind of extensive systematized agriculture, efficient hunting and successful warfare necessary to sustain large urban centres. Iron working technology played a significant role in economic changes brought on by iron working to Adamawa: more efficient farming development due to iron tools such as axes and hoes; job specialization led to the production of more trade goods which fetch economic change with increasing urbanization and population growth (bringing great wealth to the region); permanent settlements grew along the banks of river Benue and its tributaries as a number of farms increased (Ross, 2000). [18]

However, iron Work Industry is an essential craft industry of the people in Yola and such activity goes side by side with farming activities. There have been sectoral linkages between iron industry and agricultural industry, according to Chubado and Juliet, (2022) [8] people Sokoto caliphate were exposed to blacksmithing, a trade which involves arts of manufacturing farm tools and implements, these became tools for farming in the region. As a result, agriculture became subsistent. Another role that blacksmiths played was in providing fishing implements for fishers and hunters respectively; war tools/weapons for defence and security purposes. In Yola, the blacksmith workshop was a round hut made of clay covered by grasses supported by pillars. Inside the workshop, a clay material that separated where furnace was situated and just before the clay material was the smith's seat. The bellows was attached on each other to the clay. The bellows were split bags of goat skins obtained from butchers. The bellows were hand operated by individuals working. Blacksmiths in the region produced their own working materials such as the anvils, hammers and many more. Before one

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becomes a blacksmith, such a person must undergo an apprenticeship. The apprentice provides free labour to their masters. The training period extend over years for instance Buba Kila and Bappa Abdullahi noted that during their apprentice's days they spent over two years on training while Hammajam Sale spent three years (Group Interview with Bappa Abdullahi, Buba Kila and Hammajam Sale, 2022). [3] On completion of the training, the master smith helped the trainee in setting up their own workshop with all the necessary equipment or tools. But in the case of the trainee being a relative to the master smith, he stays with him permanently in the workshop, where he would also work to earn a living in the same shop with his master. On the death of the master smith, he would inherit the workshop (Group Interview with Bappa Abdullahi, Buba Kila and Hammajam Sale, 2022). [3]

The smiths were important class of professionals highly respected by the society and they produced all the agricultural tools required for crop production. Items produces include hoes, axes, cutlasses, knives, swords, spears, chains; handcuff, locks, sickles and among others. They also manufactured decorative objects like rings, bangles, ear-rings and necklaces mostly for women (Alkasum, 2003). [1] In addition, smiths were also producers of indigenous weapons used for hunting and fishing, etc. They also produced weapons such as arrows, machetes, swords, spears, hooks among others. Therefore, they were in good relationship with farmers because of their provision of farm tools and hunting tools (Alkasum, 2003). [1] The basic raw material of the blacksmiths was iron ore locally produced by the blacksmiths themselves in Yola area. They obtained it from different areas: Verre, Bagale and Mayo Ine hills before and after the jihad of 1804. They collected the ore-sand in this areas mostly during the rainy season, usually after heavy rains. The iron ore was separated from sand melted in huge pots around the mining places and the melted iron was cut into short iron-bars. This activity was done collectively during the rainy season by the blacksmiths in Yola region. It also served as an important medium of exchange to the people and their neighbours (Alkasum, 2003). [1]

Blacksmithing is an indigenous technology, which is the progenitor of various metal forging operation in use today and can be found virtually in all major cultures of the world. The blacksmithing industry in Adamawa was blessed with many experts and products superior in quality to those of other neighbouring communities which made buyers from places like Bauchi, Borno, Marwa, Naaundare (present Cameroon Republic), Wukarı, Jalingo, Gombe and other communities, to come down to Yola, Adamawa and purchase products (Bealer, 2009). [4] Blacksmiths of Adamawa were popular because of their expertise. The Bata communities in Adamawa have over years dominated the blacksmith industry, with emergence of several professional blacksmiths who employed the services of young apprentices among the members of both Bata and non-Bata speaking groups (Alkasum, 2003; Chubado, 2012). [1,7] For instance, one professional blacksmith employed an average number of three to five apprentices (and sometimes even more), thereby increasing the number of professional blacksmiths tremendously (David and Bernhard, 1993). [10]

2. BLACKSMITHING INDUSTRY IN YOLA

Blacksmith is an ancient indigenous technology which is the progenitor of various metal forging operation in used today and can be found virtually in all major cultures of the world. But, blacksmith processes still remain subsistence and fundamental that it is hardly employed as the viable means of commercial production of metal waves in Nigeria. For long particularly during the pre-colonial era and even now, some Nigerian indigenous blacksmith are traditional producers of simple tools as earlier mentioned and many features and devices primarily used for agricultural production and related crafts fabrication (Osagie and Ikponmwosa, 2015; Kingsley and Razaq, 2015). [16,11] A blacksmith is best defined as a man who manufactures certain products in iron used in the production of iron tools and implements: fire charcoal, an anvil, tongs, skin bellow and a variety of hammers (Shelter, 2013). [20]

Production was largely organized on household and in some cases hereditary; some non-members could also join as apprentices. Smithing was a highly complex occupation, which requires close observation and dedication. It was a guild industry of sorts. However, other of the society could also be incorporated after showing so much dedication and loyalty to the occupations (Newman, 1974). [15] However, even the leadership of the emirate encouraged such occupation within the emirate capital and its villages. *Lamido* of Adamawa also encourage agricultural production through the chief of farmers in all communities around Yola and its environs. In industrial activities, the emirate administration intervened to ensure quality control. Intervention was done through the (*Sarakunan sana'a*) occupational chiefs such as chief of blacksmiths (*Sarkin makera*), chief dyers (Allison, 1975; Oke and Aderoba, 2000). [2,16]

As a matter of fact, the significant progress or development experienced in agriculture which led to revolutionizing agricultural production has been associated with the discovery of iron and the application of its tools to agricultural cultivation or farming. The industry was roughly organized around three sectors namely: mining, smelting and smithing. Mining involved the mining of iron

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ore i.e. tama from the ground. This mining was usually carried out by professional group of iron ore miners who sometimes doubled as smelters, in any case, iron smelting is supposed to be a separate activity of its own carried out either by the miners or blacksmith (Kingsley and Razaq, 2015). [11] Blacksmithing is the third sector and perhaps the most complex, but there is no doubt about the fact that it occupied an important place in the structure of the political economy of the region, the blacksmiths were also the producers of tools used in agricultural production. There were also the producers of utensils, cutleries and a variety of other iron products used in different domestic uses and in construction, including implements used in hunting such as traps and guns etc. and trumpets as well as musical instruments down to jewelries, bracelets, reckless and other luxury of the fineries consumed by women. To this day there are enclaves of pre-colonial cottage industries which are in existence in varying degree of development (Chubado, 2019; Chubado, 2012). [6,7]

3. IRON PROCESSING IN YOLA

The iron ore (Tama) was used in this industry prior to the introduction of iron. Tama was procured from the surrounding hills particularly the ridges that dotted Adamawa emirate. One of these ridges was Verre Hill. Other areas in which tama was obtained were Bagale and Mayo Ine areas (Chubado, 2012). [7] Available sources have shown that, iron ore was obtained after heavy rains which softened the hill side and made possible the mining (Alkasum, 2003). [1] With the introduction of iron, this industry became increasingly sophisticated as diverse items reproduced. These include farming tools (such as hoes, cutlasses, axes, sickles; armaments arrows, spears, and indigenous guns). Other industries in Yola include leather-working, pot-making, wood carving, grass weaving, and salt-making. Prior to the imposition of colonial domination, there were specialization and division of labour in the pursuits of these manufacturing activities as characterized by the emergence of guilds in such occupations (Hodder, 1969). [13]

The industry was a respectable profession in Yola and it was not for weaklings. Whenever smiths agreed to embark on smiting project, they have to find the iron first because then there was no available iron for smiting project. The blacksmith smelted iron ore which they found in the hills in the region. After they mine the iron stone, they built the furnace which is about 1.50 metres high, while the building of the furnace (oven) was in progress, the smelters scouted for special trees to cut down and burnt to provide the much needed charcoal for their work (Bealer, 2009). [4] Having done these, they would dig a deep pit to put the charcoal and join it with pipe so that to provide adequate air to the oven from both sides. Before they burn the iron ore, they must ensure that in order to avoid conflagrations in the area, the site must not be near people's homes, shrines, farms, towns. This is because the charcoal pit site and the blast furnace belch out showers of sparks, wise of smoke and occasional huge flames (Bealer, 2009; Shelter, 2013). [4,20]

The blacksmiths burnt the iron ore for one day, it turned into liquid and having done that they would put water from the ground and removed the iron ore, then smashed it and removed the dust so that to get the iron, then they would return only the iron and burnt it, then they could smelt all objects for wars, defence, hunting and tools for farming (Osagie and Ikponmwosa, 2015). [17]

4. OBJECTS MANUFACTURED BY BLACKSMITH IN YOLA

The products of blacksmiths vary as the occasion demanded and according to the need of people. Blacksmith products have been recognized from time immemorial and its importance, as an enterprise cannot be contested as one of the indigenous skill necessary for sustainable development (Osagie and Ikponmwosa, 2015). [17] Blacksmiths were traditional producers of simple tools such as cutlass, knives, head pan, digger, marches, hoes, axes, and many features and devices primary use for agricultural production. The use of the tools helped to increase the food production such as maize, millet, beans, guinea corn, etc. other items produced through blacksmithing processes are domestic products which include; kitchen wares, cooking utensils, basin pails, which have found application in various homes. However, blacksmiths also produced swords, spears, bowls and arrows, shelfs, handcuffs for military purpose. They also produced dagger, knife with double blade, trap and a bell shaped object hung of hunting dogs for the purpose of hunting (Alkasum, 2003; Chubado, 2019). [1,6] They also produced decorative items to the emirate which were used in riding a horse: saddle they used to decorate it with metal, halter, stirrup, metal cap, metal shirt, food container, bottles and chain which is to tie the stubborn horse (David and Bernhard, 1993). [10] However, they involved in the production of industrial products which includes key, chisel punch bolt and nuts. Blacksmiths turns various reagents mostly metals, into agricultural implements, plate armours, indigenous weapons, and some utility items. In addition, they produced objects such as gates, grilles, railings, light fixture furniture, sculpture tools, decorative and religious items (Newman, 1974). [15]

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However, colour is important for indicating the temperature and work ability of the metal as iron heats to higher temperatures; it first glows red, then orange, yellow and finally white. The ideal heat for must forging is the bright yellow-orange colour appropriately known as forging heat. Because they must be able to see the glowing colour of the metal, some blacksmiths work in dim, low-light conditions, but most work in well-lit conditions. The key is to consistent lighting which is not too bright. Direct sunlight obscures the colour. The techniques of smithing may be roughly divided into forging sometimes called (sculpting), welding, heat-treating, and finishing (David and Bernhard, 1993). [10]

5. CONTRIBUTION OF IRON WORKS TO ECONOMIC DEVELOPMENT OF YOLA

The blacksmithing industry was important to the society and economy of Adamawa emirate. Blacksmith in Yola provided a collection of ornaments and gadgets for daily use or preserve for sacrificial oath making and ritual purpose. They made rings, bangles, bracelet, initiation knives and spears. In an agricultural society, the importance of this industry cannot be over emphasized. The smiths provided the farming community (each household) with farming implements, while their products entered into the trading system. As a craft closely associated with the requirement of agriculture, it was subject to function during the rainy/planting season (between April and June) smith's products were quickly disposed into the village markets but during the dry season, smiths went out to the surrounding hamlets and villages to find customers as well as raw materials (Chubado, 2012). [7] The smiths also provide political authority with necessary military equipment especially bow and arrow, swords, spears. Many of the swords were of admirable metal, nicely engraved and some were laid with portions of deeper coloured or more highly oxidized iron. Blacksmiths in Yola were famous and according to our informant nearly every village possessed one or two blacksmith workshops. The number smiths in each workshop ranged from two and above (Interviewed with Isa, December 3rd, 2022). [14]

The people of Yola regarded blacksmithing industry as an important occupation in production of agricultural implement and weapons in defending their land against external aggression (Group Interview with Bappa Abdullahi, Buba Kila and Hammajam Sale, Interviewed 8th December, 2022). [3] Essentially, blacksmith can have profound impact on the society particularly the youth, economy, agricultural and technological advancement. One of the most immediate benefits of blacksmith is its ability to create skilled employments. It is technological inclined trade has the potential to create more jobs per unit of investment than any other artisan and can significantly cater for the employment of technical incline youth and adult alike. On technological and agricultural development, blacksmithing when properly developed and managed can advanced production of agricultural implements amongst other human utilities and stimulate local cultures and folklores (Bealer, 2009; Bello, 2018). [4,5]

Blacksmith bring many benefits to Adamawa emirate because of it linkages to other indigenous industries. The importance of blacksmithing in the emirate cannot be overstated. Not only their individual products invaluable, but also those were commodities that complemented the work of other craftsmen. Countless other craftsmen depended upon the blacksmith for the construction of their goods or performance of their craft works; however, blacksmiths depended on no other to maintain their business. Carpenters required nails, hammers, Butchers required knife, and farmers required hoe, axe, and cutlass. Most of all these industries cannot do without the help of blacksmithing. Therefore, blacksmithing serve as mother of all indigenous industries (Grou[Interview with Bappa Abdullahi, Buba Kila and Hammajam Sale, Interviewed 8th December, 2022). [3]

Economically also blacksmithing provide opportunities to many people where at least fifteen workers on production of blacksmithing products as well as the labourers that source for the iron from various villages to town for sale and earn their living through these labour. Agriculture was the mainstay of the Adamawa economy and the iron working that gave agriculture the main boost. That why people were able to cultivate the land any grow food to feed (Group Interview with Bappa Abdullahi, Buba Kila and Hammajam Sale, Interviewed 8th December, 2022). [3]

It would be understood that the blacksmithing industry was relatively developed indigenous technology and civilization among African countries and indeed Adamawa emirate. It was well-integrated, sustainable indigenous economy, largely based on agriculture and craft manufacture which generated and sustained a reasonable level of trade and commerce; an indigenous economy which not only mobilized labour, but also provided a platform for apprenticeship which assured training in skill acquisition under guild-like occupational organizations. This encouraged not only skill acquisition, but also provided opportunities for the development of innovation in particular and of local initiative in general (Bello, 2018). [5]

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6. CONCLUSION

This paper examined the growth and development of blacksmithing in Yola, Adamawa emirate, also looked at the processes involved in blacksmithing and the items or tools produced by blacksmiths. Similarly, it discussed the roles of blacksmithing to the economic development of the region. The paper also examined the blacksmithing as sub-sector and its role on Yola economy. It began with discussing the processes that must be carried out before the blacksmith produces his products, and unveiled the coming of blacksmithing industry to Yola area. It would be understood that the blacksmithing industry was relatively developed indigenous technology and civilization among African communities and indeed Adamawa emirate. It was well-integrated, sustainable indigenous economy, largely based on agriculture and handicrafts production which generated and sustained a reasonable level of trade and commerce; an indigenous economy which not only mobilized labour, but also provided a platform for apprenticeship which assured training in skills acquisition under guild like occupational organizations. This encouraged not only skills acquisition, but also provided opportunities for the development of innovation in particular and of indigenous initiative in general.

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