



Assessment of Local Blacksmithing Industry in Maiduguri, Borno State Nigeria

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Abstract: *The study look at the necessity of finding out the challenges faces by the blacksmith industry in Maiduguri and suggest a possible ways of integrating/updating them. The blacksmithing industry popularly called ka'almari or Makera by its locals has been in existence over for long. The industry plays a vital role in providing job opportunity and the socio-economic development of the nation through the servicing of vehicles spare parts, carpentry tools, household utensils, and agricultural implements. This study assesses the performance of the blacksmithing industry of Maiduguri in Borno State, Nigeria. An interview and observation was considered best for this study because most of the respondents could not read and write. The study considered the standardized interview technique where questionnaire designed and asked verbally in a face-to-face to gather the needed information. Training, capacity building and education on the safety related issues is highly recommended, as such, safety engineers, safety officer and fire fighting officers need to visit the industry from time to time. The study strongly recommends a permanent site should be provided to all Small, Medium, and Micro-Enterprise and the blacksmithing industry.*

Key words: *Blacksmithing, safety, production, capacity building, raw materials*

1.0 Introduction

Blacksmith is an ancient indigenous technology which is the progenitor of various metals forging operation in use today and can be found virtually in all major culture of the world(Oke & Aderoba, 2000).Blacksmith are those individuals who manufacture certain product in metal and steel by forging. The blacksmith creates objects from wrought iron or steel by forging the metal, using tools to hammer, bend, cut, and shape it into useful product; blacksmith produce objects such as cooking utensils, tools, agricultural implements and local weapon. Blacksmith works primarily with wrought iron and steel. The "black" in "blacksmith" refers to the black fire scale, a layer of oxides that forms on the surface of the metal during heating. The word "smith" was also derived from an old word, "smite" (to hit): Thus, a blacksmith is a person who hits black metal (Bealer, 1996). Blacksmith is someone who uses fire to transform unprocessed object into object of utility and beauty, giving life to inert metal, to be specific iron. Blacksmith make metal objects by using tool such as hammer. They do this by heating metal in a fire (forge) until it is hot enough to bend and shape. When the metal is removed from the forge, it is hit with a

hammer until it takes on the shape the Blacksmith wants. The metal may need to be reheated several times during this process. Blacksmith produce functional products such as pot, racks and tools. They also produce architectural pieces such as gates and railings. Today blacksmith are creating artwork and sculptures. Most modern-day Blacksmith considers them to be artists rather than toolmakers.

Blacksmith products have been recognized in the country from time immemorial and its importance, as an enterprise cannot be contested as one of the local skill necessary for sustainable development. The skill was extremely important to early Arkansan, to make and repairs tools, automobile spare parts, household implements and weapons (Oyenyeny, 1984). The potential of blacksmiths for serious application sometimes demonstrated under unusual circumstances is beginning to find commercial application in satellite town of Nigeria's urban centers where they serve as an adjunct to roadside mechanics (Aboh, et al 1995). Although the advent of the imported farm implements and machineries spare parts distorted the activities of local producers, the increasing scarcity of foreign exchange is now necessitating a change of direction to abandoned indigenous products (Obikwelu, 1999). Presently in Borno state the use of blacksmiths forge is minimal as in some local government area the use of smith forge is in existent: Therefore, the need to develop a smith forges to facilitate the blacksmith operation, off the entire requirement this study focus on the development of fuel-efficient blacksmith forge.

Blacksmith processes still remain primitive and rudimentary that it is hardly employed as a viable means of commercial production of metal wares in Nigeria (Thomas-Ogubuji, 1989). During a visit to some blacksmithing industries in Maiduguri Metropolitan Council, it was observed that the industries are lagging behind as well missing some basic requirements to produce qualitative products: These include; lack of safety, raw materials and lack of blacksmith forge this study focus on the development of fuel-efficient blacksmith forge.

This work aims to assess the performance of the blacksmith industries in Maiduguri, Borno state.

Blacksmith shops were considered as the hardware store, factory and repair shop: However, today's blacksmith faces some challenges, the created data bank would assist future researchers, the development of fuel efficient blacksmith forge should significantly improve the fuel economy and improve the production process.

1.1 Study area

This proposed study is expected to cover blacksmithing industries in Maiduguri Local Government council. Maiduguri also called yerwa by its locals is the capital and the largest city of Borno state in the northeast Nigeria. The city sits along the seasonal NgaddaBul River which disappears into the firki swamps in the area around Lake Chad. Maiduguri is a city found in Borno, Nigeria. It is located 11.85^olatitude and 13.16^olongitudes and it is situated at elevation 325 meters above sea level. Maiduguri has a population of about 1,112,449 making it the biggest city in Borno.([www.worldatlas.com](http://www.worldatlas.com/where-is-maiduguri)>where-is-maiduguri). The data seek from government agencies such as cooperate appears commission (CAC), Raw Materials Research and Development Council (RMRDC), Federal Bureau of Statistics and Borno State Agric Mechanization. There are no data available to know more about their existing work and the government policies or roll on technological advancement of indigenous technology employed by the Blacksmith. During the field survey to the

Gamboru market, a total number of 430 members of Blacksmith were found out of which only one hundred and seventy agreed to be interviewed, that was obtained through a well structured questionnaire where some members of the Blacksmith choose to answer face-to-face and responded directly. The experimental data were obtained in a Blacksmith workstation during production of hoe, cutlass, knife and rake.

2.0 Data Collection Instruments

An interview and observation was considered best for this study because most of the respondents could not read and write. The study considered the standardized interview technique where questionnaire designed and asked verbally in a face-to-face to gather the needed information. (Catherine Adu, 2014)

3.0 Methodology

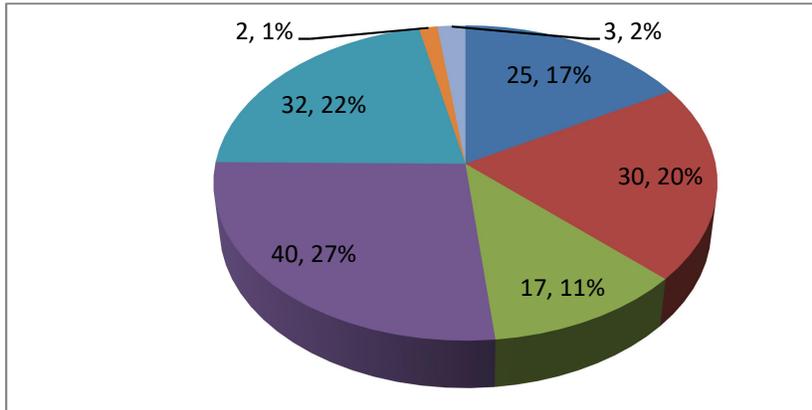
Empirical evidence shows that the validity and reliability of easy information depends largely on the strategies used in collecting data gathered (Cooper, 1985). There are two basic methods of research designs that one can use to carry out a study, these are quantitative which relies on numbers to describe data and the qualitative which resort to the use of words, interviews, recordings, videotapes, personal comments etc. in describing a phenomenon. For the purpose of this research study the descriptive method under the qualitative research method was used. The strategy included the use of a formal interview (structured interview) which helped the researchers to obtain first-hand information from the respondents (Best, 1981)

Design of questionnaire was carried out to facilitate the development of a data bank of the existing blacksmith industries in Maiduguri Local Governments Areas in Borno state. The designed questionnaire were used as the instrument for research, these questionnaires were administered to local blacksmiths shops in Maiduguri Metropolitan council area in Maiduguri, Borno State. Visitations were made to some blacksmith shops in order to carryout physical assessment of their manufacturing processes. The level of developments of theses blacksmith shops were also ascertained. One hundred and seventy copies of the questionnaire were distributed to various blacksmith shops in the study area. One hundred and fifty four of the copies were duly completed by the respondents. It was on these figures our findings were based on. The statistical methods used for description of the response contained in the administered questionnaire were simple percentage bar chart and pie chart.

4.0 Results and discussion

The data in plate 1 indicate that all the blacksmith interviewed were 100% males. This mean that females were not allowed into the industry probably because of the nature of the work and on religion background so as not to mingle with males. The data in Plate 2 indicate that one hundred and forty nine responded. Out of which twenty five (25) 17% of them are school dropout at various level for differences reason ranging financial issue, dead of parent and lack of motivation. Thirty (30) 20% of the blacksmith were ordinary level certificate holders, seventeen (17) 11% of them were advance level school certificate holders, while forty junior secondary school certificate holders, senior secondary school certificate holders were recorded to be thirty two, two (2) 1% technical school certificate

holders, three (3) 2% polytechnic graduate and zero (0) university graduate were recorded.



The data in plate 3 shows one hundred and fifty four responded to years spend in blacksmith work, from zero to four years were sixty eight (68) 44% blacksmith these; include apprentice and semi skill, from four years to eight old were recorded to be seventy nine (79) 51% who are both semi skill and skill blacksmith and from eight and above were recorded to be only seven (7) 5% in number, this is because of age related issues, fatigue, stress at work and muscular skeleton disorder due poor work station design(poor ergonomics). The data in Plate 4 shows one hundred and fifty four (154) responded by saying source of raw materials are from scrap, Auction or market. The breakdowns of their responses are as follows; one hundred and twenty one (121) 79% says raw materials are from scrap, twenty seven (27) 18% says their sources of raw materials are from auction and the other four 3% blacksmith says they obtain their material from the market. The data in Plate 5 shows that one hundred and two responded to the question related to finances out which fifty three (53) 52% agree to have gotten support from the family, none responded to saving and forty nine (49) 48% responded to have gotten support from relatives. The data in Plata 6 indicate that total number of one hundred and fifty four (154) interviewed about safety awareness and forty four (44) which is 29% refused to respond possibly, they have not gotten any safety related matter, while eighty (80) which indicate 52% of the blacksmith agrees that safety exist but in adequate, these indicate that some of the them were aware of safety and thirty (30) which is 19% of the blacksmith goes with adequate safety, but from the discussion we had with them shows the knowledge of safety is minimal though their responses are positive. The issue related ergonomics, anthropometry, global warming and carbon emission were not adequately discussed with them before now. The data in Plate 7 shows one hundred and fifty four (154) responded to challenges encountered by blacksmith, forty six (46) 30% responded to high income tax and multiple taxation from government, thirty two (32) 21% answers to lack of market as a result of the product computing with cheap imported product, thirty three (33) 21% of the blacksmith responded to lack of credit facility from government and forty three (43) 28% said low and irregular income were their major challenges.

4.1 Conclusion

In line with the government's policy of entrepreneurial, vocational training and poverty alleviation in the country, assessing the performance of the blacksmithing industry has

become necessary because of the role blacksmith plays providing services to the agricultural sector (implement), household utensils, vehicles spare parts and carpentry, to mention but a few, which contribute immensely to the socio-economic livelihood and development of the nation.

However, blacksmith's industries impact to national development has not been greatly felt because the industry has not been given its rightful position in national development policies. None inclusion of blacksmith industry to the national development policies has poses a great challenge to the industry in terms of the quality of the products, their utility as well as costing and pricing of the products due to the inferior finishing of the final product. Therefore, assessing the performance of the industry is a step in the right direction, since it can address some of the problems faced by the industry if given opportunity, so that they could offer better services to the general public and the nations as a whole.

4.2 Recommendations

Based research carried out, the following recommendations have been suggested to enhance the effective running and performance of the industry;

There is the need from time to time organize training for the industry and resource persons with the requisite knowledge and skills in blacksmithing invited to educate the blacksmiths. This will help to upgrade and update the skills and techniques of the industry. Training and capacity building cannot be overemphasized, so educate the blacksmith on the safety related issues is paramount, as such, safety engineers, safety officer and fire fighting officers need to visit the industry from time to time as well.

Lastly, a permanent site should be provided to all Small, Medium, and Micro-Enterprise and the blacksmithing industry. This will give sense of belonging and drive away any fear of an impromptu ejection by land owners.

Plate 1 Sex of blacksmith

| Sex | frequencies |
|--------|-------------|
| Male | 100 |
| Female | 0 |
| Total | 100 |

Plate 2 educational status

| Level | frequencies |
|-------------------------|-------------|
| Drop out | 25 |
| 'O' level school leaver | 30 |
| 'A' level school leaver | 17 |
| JSS school leaver | 40 |

| | |
|-------------------------|-----|
| SSS school leaver | 32 |
| Technical school leaver | 02 |
| Polytechnic graduates | 03 |
| University graduates | 00 |
| Total | 149 |

Plate 3 number of years spend in blacksmith work

| Years | frequencies |
|-------------|-------------|
| 0.....4 | 68 |
| 4.....8 | 79 |
| 8 and above | 07 |
| Total | 154 |

Plate 4 source of blacksmith raw material

| Raw material | frequencies |
|--------------|-------------|
| Scrap | 121 |
| Auction | 27 |
| Market | 04 |
| Total | 152 |

Plate 5 Source of finance

| Status | frequency |
|---------------------|-----------|
| Support from family | 53 |
| Saving | 00 |
| Loan from relative | 49 |
| Total | 102 |

Plate 6 blacksmith safety awareness

| Safety | frequency |
|-------------|-----------|
| No response | 44 |
| In adequate | 80 |
| Adequate | 30 |
| Total | 154 |

Plate 7 blacksmith challenges

| Challenge | frequency |
|---|-----------|
| Low and irregular income | 43 |
| Lack of capital and credit facility | 33 |
| Lack of market as a result of the product-computing with cheap imported product | 32 |
| High income tax | 46 |
| Total | 154 |

Plate 8 capacity building

| Training | frequency |
|----------|-----------|
| Yes | 00 |
| No | 143 |
| Total | 143 |

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