

ANALYSIS OF INCOME EFFECTS OF CHARCOAL BASE- ENTERPRISES IN ENUGU STATE, NIGERIA

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ABSTRACT

This research was carried out to ascertain the income effect of charcoal base-enterprise in Enugu State. Specifically, it examines the level of income generation by the charcoal base-enterprise activities, analyses the socio-economic effect of charcoal base-enterprise, it also examines the charcoal marketing channels, and the constraints of charcoal base-enterprise. Primary data were collected with the use of structured questionnaire from ninety (90) respondents. Data obtained were analyzed using appropriate econometric and other statistical tools. From the results obtained, female dominate males in the charcoal base-enterprise, and are people within the age range of 31-40years. The results also show that 89% of the respondents had their formal education and have mean experience of 16.5 years in the enterprise. The research further discovered that there are four different market channels of distribution of charcoal from the producers to the consumers in the marketing system. It was also found that the highest monthly income generated is within the range of \geq N20, 000.00 in the study area. Again, the findings also revealed that charcoal enterprise has created 10-15% level of income to the households. Majority (66.7%) of the respondents indicated that they use the income obtained from charcoal enterprise solve most of their basic needs such as clothe, shoes, food, and other household items. The research also identified that the major problem encountered in charcoal enterprise were lack of credit facilities. Other predicaments include, high transportation cost, lack of storage facilities and seasonality of the product, among others. From the findings of this research, it is hereby recommend that there is need for credit assistance, good road network and reduction in the price of fuel which will reduce transportation cost. Finally, there is a

need for government, researchers, financial institutions and international organizations to put interest in this energy sub sector (charcoal enterprise) as an alternative energy source, so that there will be reduction in the importation of petroleum products that is currently affecting our gross domestic product (GDP), and encourage the use of charcoal for domestic and commercial activities.

Key words: income, charcoal, enterprises, Enugu State

1 BACKGROUND INFORMATION

The cry for alternative energy sources due to the effects of global warming has put charcoal in the forefront of the global market. Nigeria has comparative advantage in the production and export of hardwood charcoal in Africa over her counterparts due to the large arable land available and the conducive climatic condition for the production of hardwoods. A large market exists in Europe and Asia with prices ranging from \$170 to \$300 per MT depending on the mode of packaging. The charcoal production industry is a multi-billion dollar industry and a money spinner for savvy investors to position themselves.

As reported by Awoyemiet *al.*, (2006) this product is virtually available all over Nigeria as many local communities have perfected the technology of charcoal production. Some known charcoal deports are found in places like Oyo, Isheyin, Saki Igbo-Ora, Ogbomoso- all in the western part of the country. We also have deports in Jebba, OmuAran, Egbe, Kabba in the Central States. Charcoal is found in abundance also in Minna, Jos and Kaduna. William (2008) pointed out that the business of trading in charcoal has now become a very lucrative venture in Nigeria. The charcoal trading business is a lucrative one for anyone involved

in it, whether as a retailer, wholesaler or supplier. According to Chidumayo (1993), charcoal is predominantly an urban fuel while firewood is the primary energy source in the rural areas. Charcoal is usually produced in the rural areas and transported to the urban areas for consumption. It has excellent cooking properties: it burns evenly, for a long time, and can be easily extinguished and reheated. Even in developed countries, such as the US, charcoal is desired for the flavors which it imparts to grilled food. Kalu and Izekor (2007) listed the main uses of charcoal to include cooking, roasting, blacksmithing and bronze casting.

High demand for charcoal in the urban areas of the country motivated a lot of people especially men both young and old in the rural areas into the business of charcoal production. However, in spite of its benefits, charcoal production has its adverse effects such as desertification, environmental degradation, global warming and climate change. Charcoal is mainly produced from tropical hard wood, although there are other sources like coconut shell. The process of production is called Pyrolysis. That is "burning of wood under high temperature in the absence of air". The processes involved in the production of charcoal include; felling trees such as acacia and burning them. In the process of burning trees in an unsustainable way, greenhouse gases are emitted. Also, high increase of carbon-dioxide is experienced in the atmosphere where these trees are being felled thereby causing global warming. Furthermore, at each stage of the life cycle of charcoal there are impacts on both the environment and human health. There should be a balance in the needs of society, the economy and the environment through sustainable development. Sustainable development is the ability to improve the quality of human life while living within the carrying capacity of supporting ecosystems.

Charcoal production and trade contributes to the national economy by providing rural incomes, tax revenue and employment. Charcoal is particularly important as a means of generating income for some of the poorest members of society. It also saves foreign exchange that would otherwise be used to import fuel. A large number of people are employed in the various phases of the charcoal value chain, including:

collection and sizing of wood; preparation of charcoal kilns; loading the wood into kilns and unloading charcoal after conversion; unloading, bundling, packaging and transportation; and marketing. Additional indirect employment is generated by the activities that use charcoal.

1.1 OBJECTIVES OF THE RESEARCH

The broad objective of this study is to analyze the income effects of charcoal based enterprise in Enugu state, Nigeria.

The specific objectives are to:

- i. examine the socio-economic characteristics of respondents in the charcoal base enterprise,
- ii. examine the level of income generation by the charcoal base activities in the study area,
- iii. identify the charcoal marketing channels in the study area,
- iv. examine the constraints facing the charcoal base enterprise in the study area.

2 RESEARCH METHODOLOGY

The study was carried out in Enugu state of Nigeria. Enugu State which is one of the 36 states in Nigeria lies between latitudes 5°56' and 7°06'N and longitudes 6°53' and 7°55'E. The state occupies an area of about 12,831 km with a population of 3,267,837 (NPC, 2006). Enugu State is bounded on the East by Ebonyi State, on the North by Benue and Kogi States, on the south by Abia State and on the west by Anambra State (Ezike, 1988).

Purposive sampling technique was employed in this research to select charcoal base-enterprise respondents in the six agricultural zones of Enugu State, Nigeria. The first stage was the selection of a local government area from each of the six (6) agricultural zones. In the second stage it involved the selection of two (2) communities from each of the selected local government areas. Finally, at the third stage, there was selection of nine (9) households (respondents) purposively from the two selected communities, making it total of one hundred and eight respondents. Meanwhile, during the data analysis only ninety (90) respondents were used as eighteen questionnaires were discarded due to errors found in them. Data collected with the use of well-structured questionnaire were analyzed

with descriptive statistics.

3 RESULTS AND DISCUSSION

3.1 Socio-Economic Characteristics of the Respondents

The socio-economic variables considered in this research are: sex, age, marital status, level of education, household size, and years of experience. This is shown in table 1 below.

Variable	Frequency	Percentage(%)	Mean
Gender			
Male	10	11.1	
Female	80	88.90	
Age (years)			
-	4	4.44	
21-30	10	11.11	
31-40	60	66.70	35.3
41-50	11	12.22	
> 51	5	5.60	
Marital status			
Single	10	11.11	
Married	60	66.70	
Widowed	15	16.70	
Separated	5	5.60	
Household size			
0-4	15	16.70	
5-9	70	77.8	6.5
10-14	5	5.60	
Educational status			
Non formal	10	11.11	
Primary education	50	55.55	
Post-Primary education	25	27.77	
Tertiary education	5	5.60	
Experience (years)			
≤ 5	20	22.22	
6-10	40	44.44	
11-15	10	11.11	
16-20	5	5.60	16.5
21-25	10	11.11	
≥ 26	5	5.60	

Sources: Field survey, 2016

Table 1 above shows that a majority 88.9% of the respondents involved in charcoal based-enterprise were female. From the same table 1, 11.11% of the respondents which are male agreed that they participant in the charcoal-based business in the study area. The high female ratio could be traced to the low level of income attached to the enterprise. From the same table 1 it revealed that most 66.7% of the respondents were within the age range of 31 -40 years, as only 12.2% are within the age bracket of 41 - 50 years. Critically analysis of the table as it relates to age of the respondents indicated that the mean age was 35.3 years. This implies that the respondents were relatively at youthful adult age and it can help in maximizing the time and income that might be generated from these enterprises.

Meanwhile, the result from the above table 1 also shows that a greater percentage 66.7% of the respondents were married in the study area whereas 16.7% were widowed, 11.11% were single, while 5.6% have separated. The implication of the married respondents being involved in the charcoal enterprises shows that they use this business for assistance in their different household as it additional sources of income outside farming activities especially in the rural areas. Table 1 above also revealed that, most respondent's 77.8% had a household size of 5-9, 16.7% had household size of 1 – 4 and only 5.6% had 10-14 household. The mean

household size was 6.5. Large household size is a characteristic of many rural settings especially where large family size is one of the determinants of the wealth and easier availability of labour as observed by (Orebiyi and Nzeh, 2002). Also Nzeh, et.al (2015) stated that large family size is an obvious advantage in terms of farm labour supply and other activities even that of charcoal enterprise.

With regard to education of respondents in the study area, majority (55.5%) of the respondents had their basic education, while as 11% of the respondents had non-formal education. These high level of education especially in the study area as can be seen from table 1 above usually help households in managerial activities of their various business even that of charcoal enterprise. The data from table 1 also indicated that, a greater percentage (44.4%) had 6-10 years of experience; 22.22 % had \leq 5 years of experience; 11.11% of the respondents had 11-15 years of experience, another 11.11% of the respondents had 21-25 years of experience while 5.60% had 16-20years' experience in charcoal enterprise. This implies that, those involved in charcoal enterprise have acquired sufficient relevant business experience that will enhance their performance in the enterprise activities and other business endeavours.

3.2 Income generation from charcoal enterprises by households.

Table 2: Distribution of respondents according to their monthly income generation from charcoal business activities

Income/month ₦	Frequency	Percentage
\leq 10,000	3	3.33
10001- 15000	7	7.78
15,001-20,000	10	11.11
\geq 20,001	70	77.8
Total	90	100

Source: Field survey, 2016

From the table 2 above, 77.8% of the respondents stated that they generate monthly income of \geq N20001 from charcoal enterprise in the study area. This implies that income realized from charcoal enterprise is enough to take care of their families especially now other sources of income acquisition in the country is very had. The table also reveals that 11.11% of the respondents confirmed that they realize N15000-N2000 on monthly basis from the charcoal enterprises, but 7.78% and 3.33% generates N10, 001-N15000 and \leq N10000 respectively.

3.3. Marketing channels of charcoal

Table 3: Distribution of respondents according to their Place of marketing charcoal

Market area	Frequency	Percentage
Rural area	20	22.22
Urban area	50	55.55
Others	20	22.22
Total	90	100

Source: Field survey, 2016

From table 3 above, it shows that 55.6% of charcoal marketers sale their charcoal in the urban areas of Enugu State. This is because there is high population of charcoal consumers in the urban areas. This is expected especially in the recent time because other sources of energy like kerosene and gas is too costly. The negative implication of this is that there will be too many deforestation of both natural and artificial forest in the state so as to generate more charcoal. This will lead to much climate change effect as deforestation of forest is one of the sources of climate as reported by Nzeh and Eboh (2011). The data from the table 3 above also revealed that only 22.22% of the respondents' sale charcoal in the rural areas. This lower percentage of respondents that market their charcoal in the rural area is expected because so many of the respondents in the rural areas will prefer to suffer and transport their charcoal to urban markets so that they can make more profit hence the demand for the charcoal is higher in urban areas. From the same table 3, 22% of the respondents stated that their market their charcoal in other areas other than rural or urban market.

3.4 Constraints in charcoal based enterprise

Table 4: Distribution of Respondents According to their Constraints to charcoal enterprise

Constraints	Frequency	Percentage
Transportation problem	30	33.33
Lack of market	10	11.11
Seasonality of the product	20	22.22
Lack of storage house	30	33.33
Total	90	100

Source: Field survey, 2016

Table 4 above shows that 33.33% of the respondents complained that transportation is their major problem in this charcoal base-enterprise, and this could be attributed to the bulky nature of a bag of charcoal which causes high transportation cost coupled with bad road networks that still exist in some rural areas of the state. From the same table 4 above, 33.33% of the respondents agreed that they normally have problem of storage house. This storage house is needed by those in this charcoal enterprise hence charcoal should be moisture free to enable those in the business to make adequate profit. Again table 4 reveals that 22.22% of the respondents stated that seasonality of the product is their major predicament in

the charcoal enterprise in the study area. From observation, charcoal used to be scarce during the rainy season and lack of fund usually prevent those in the charcoal business from buying large quantity during the dry seasons when charcoal is in abundant and store them. Therefore, seasonality of the product counts as major problem to those involve in this enterprise.

4 CONCLUSION AND RECOMMENDATION

Charcoal based-enterprise contributes to the national economy by providing rural incomes, tax revenue and employment. Charcoal is particularly important as a means of generating income for some of the poorest members of society. It also saves foreign exchange that would otherwise be used to import fuel. A large number of people are employed in the various phases of the charcoal value chain, including in collection and sizing of wood; preparation of charcoal kilns; loading the wood into kilns and unloading charcoal after conversion; unloading, bundling, packaging and transportation; and marketing. Additional indirect employment is generated by the activities that use charcoal like roasting (corn roasting, plantain roasting, and yam roasting etc), smoking, and blacksmithing among others.

Charcoal base-enterprise has a lot of income contribution to the household on the various aspects of the enterprise activities like charcoal production, charcoal marketing and commercial activities that uses charcoal. Charcoal production in the rural areas of Nigeria is increasing on daily basis as a result of increase in the price of domestic fuel such as oil and gas. An average household especially in the urban areas finds it difficult to purchase oil and gas which are suppose to be common man cooking product as a result of increase in price. The situation is worsening going by the fact that the price of oil (kerosene) is even increasing and so a lot of people could not afford these essential commodities. Hence, people particularly households rely on the use of charcoal as a source of fuel especially in the urban areas for both domestic and commercial purposes.

Meanwhile, considering the social and economic status of Nigeria today especially in epileptic power supply, scarce and increase in

the price of petroleum products and even in increasing rate of importation of petroleum products due to ever increasing population of this country, government, research institution, international organizations, and other relevant body should look into this energy sub sector (charcoal enterprise). This is because it is more sustainable, through effective awareness campaign in other to meet up with the energy needs of the large population in the study area. Again, there is need for alternative energy use, which charcoal can stand for, in other to reduce the over dependence on petroleum products. An employment opportunity is also associated with this enterprise if we make it more sustainable.

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