Evaluation of Socio-Economic Characteristics of Fuel Wood Marketers in Kurmi Local Government Area of Taraba State, Nigeria.

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Abstract: The study was conducted to evaluate the socio-economic characteristics of firewood marketers in the study area. Data were collected through the use of a structured questionnaire. Three big firewood markets in the area were purposefully selected for the study. A total of 30 respondents, representing 50% of the marketers, were administered the questionnaire. The collected data were analysed by descriptive statistics using tables, frequencies, and percentages. The results revealed that the majority (57%) of the respondents were in the age bracket of 31–40, and 90% were males. (70%) were married, and (50%) of the respondents had a family size of 1 to 5 people. The majority (73%) of the respondents had no formal education; (76%) of them were farming as their primary occupation; they had only ten years of experience in the firewood business; and they were operating individually without forming an association. The respondents major constraints were low patronage (44.0%, followed by low cost (27.1%), lack of transport (16.6%) and lack of accessibility with (13.3%).Socio-economic factors that influenced firewood marketing in the area are age, gender, marital status, and family size. It is recommended that the government engage the marketers in the plans for sustainable utilisation and management of forest resources in the area.
Keywords: Fuel; wood Markers; Krumi Local Governent; Energy.

INTRODUCTION

Energy has been associated with fuels, which are used for various industrial, social, and household purposes. Over time, human beings have developed an understanding of energy that has allowed them to harness it for use well beyond basic survival. This has started from the time when man understood the use of fire as a source of energy for cooking and heating thousands of years ago until the advent of coal and, until recently, the use of sun, wind, water, fossil fuels, and other biomass products for the generation of the necessary amount of energy (WWEA, 2009). According to Nash and Cecilia (2001), concern about the use of firewood started in the 1970s and increased due to the rise in the costs of fossil fuels and other sources of energy. Firewood demand was seen to be outpacing sustainable supplies, a catastrophic projection for the year 2000. An estimated 2000 million people in 1981 were dependent on firewood and other biomass fuel, of which more than 100 million were unable to meet the minimum requirement. By mid-1980, however, the results of the first evaluations of the firewood programmes were emerging, and questions began to arise about the importance of woodlot programmes in addressing the problem. There was an increasing realisation that fuel wood use was having less impact on forest degradation than was previously assumed. In addition, the wood lots were not playing the hope-for role in meeting fuel wood demand and were doing little to increase rural suppliers.

In the United States, for instance, trees are either processed into timber or paper products. Few people rely on wood as a major source of energy. In many parts of the developing world, however, wood is a primary source of household energy. The global use of fuel wood has been growing in line with population growth. The annual growth in demand is between 3% and 4%, depending on the country. Moreover, energy consumption in rural areas of Africa is still low and limited almost exclusively to fuel wood (Oronsanye 2003).

Sub-Saharan Africa shows a yearly increase in the trade of saw logs, veneer logs, logs for sleepers, and other industrial wood and firewood. In the same vein, Nash and Cecilia (2006) showed that firewood usage was further encouraged by the widespread assumption that by the end of the century, much of Africa's woodlands would have been deforested to provide firewood for the poor. The belief that the fuel wood crisis was a major factor in forest degradation had the most direct implications for forestry and environmental sustainability. In light of this, Nash and Cecilia (2006) outlined four main strategies that were put forward for dealing with firewood shortages:

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firewood substitution, efficient storage, improved firewood production through better management of the existing resources, and additional firewood resources through plantation and farm forestry.

According to Edmund (2005), Nigerian agriculture faces a series of challenges that are common across sub-Saharan Africa. These challenges include limited capital, small-scale land holding, soil fertility, deforestation, and unsustainable land use, among others. Nigeria was once covered by wide-spread vegetation, comprising dense tropical forest in the south and savannah grassland in the north. A great percentage of this luscious vegetation has been cleared by the pressure mounted by human activities; presently, forest resources cover about 10% of the nation's mostly savannah woodland type. The southern rain forest is the source of the country's timber resources and covers only two percent of the total land area of Nigeria. It is being depleted at an annual rate of 3–5%. The total change in forest cover from 1900 to 2000 stood at about 40 million hectares. Also, Mandie (2003) showed that the population is growing in the country at a rate of 2.8% annually. And these forest areas are disappearing at a rate of 2.3% a year (Edmund 2005). The World Bank (2000) revealed that firewood is the dominant source of energy for cooking and other activities. The principal environmental problem of Nigerian agricultural land is land degradation in the form of erosion, soil fertility loss, severe moisture stress, and deforestation resulting from firewood cutting and gathering. The increasing intensity of land use systems combined with low technology (Oladebo 2003; Umotong, 2004)

In the opinion of Oronsaye (2003), the destruction of trees and natural ground cover alters the water retention characteristics of the soil, thereby reducing its productivity. This low soil productivity has seriously affected farmers yields in the study area, and some of them have resorted to alternative activities like fuel wood marketing. According to Adebayo and Onu (1999), socio-economic characteristics affect decision-making and the level of use of conventional inputs and technology. Some of the relevant socio-economic characteristics of the farmers in this regard include age, level of education, marital status, land ownership, and access to credit, among other things. Agroforestry as a natural resource improves the socio-economic livelihood of rural people through income generation, improved human welfare, supply of food and nutrition, firewood, fodder for animal consumption, and employment generation (Mandie 2003).

Furthermore, Nash and Cecilia (2006) indicated that the reasons for the rise in the use of firewood include rural and urban poverty, low agricultural productivity, inequalities in land holding and security of tenure, the collapse of traditional resource sharing, rapid urbanisation, sharp division in the social-economic role of women and men, and in some countries, external pressure resulting in economic crises and war.

MATERIALS AND METHODS
The study area

The study was conducted in Wukari Local Government Area of Taraba State, Nigeria, in 2022. The area is located between Latitudes 70 58' 31' to 8 0 40' 56' North and Longitudes 100 02' 24' to 100 1150' East of Greenwich. The local government area is bounded in the south by Takum Local Government Area and in the south-east and north-east by Gassol and Donga Local Government areas, respectively. It is also bounded in the north by Ibi Local Government and in the north-west and south-west by Benue State. The vegetation of the study area is marked by southern guinea savanna (Taraba State Government Diary, 2016). (Figure 1). A semi-structured questionnaire that is easy to understand with open and close questions to be answered by respondents was used to obtain data from firewood marketers in Baissa, Abong, and Bisaula towns in the Kurmi Local Government area of Taraba State, Nigeria. Semi-structured questionnaires were randomly administered to the firewood marketers in the selected towns. The information collected on the socio-economic characteristics of the respondents was age, gender, marital status, education, family size, primary occupation, and marketing experience.
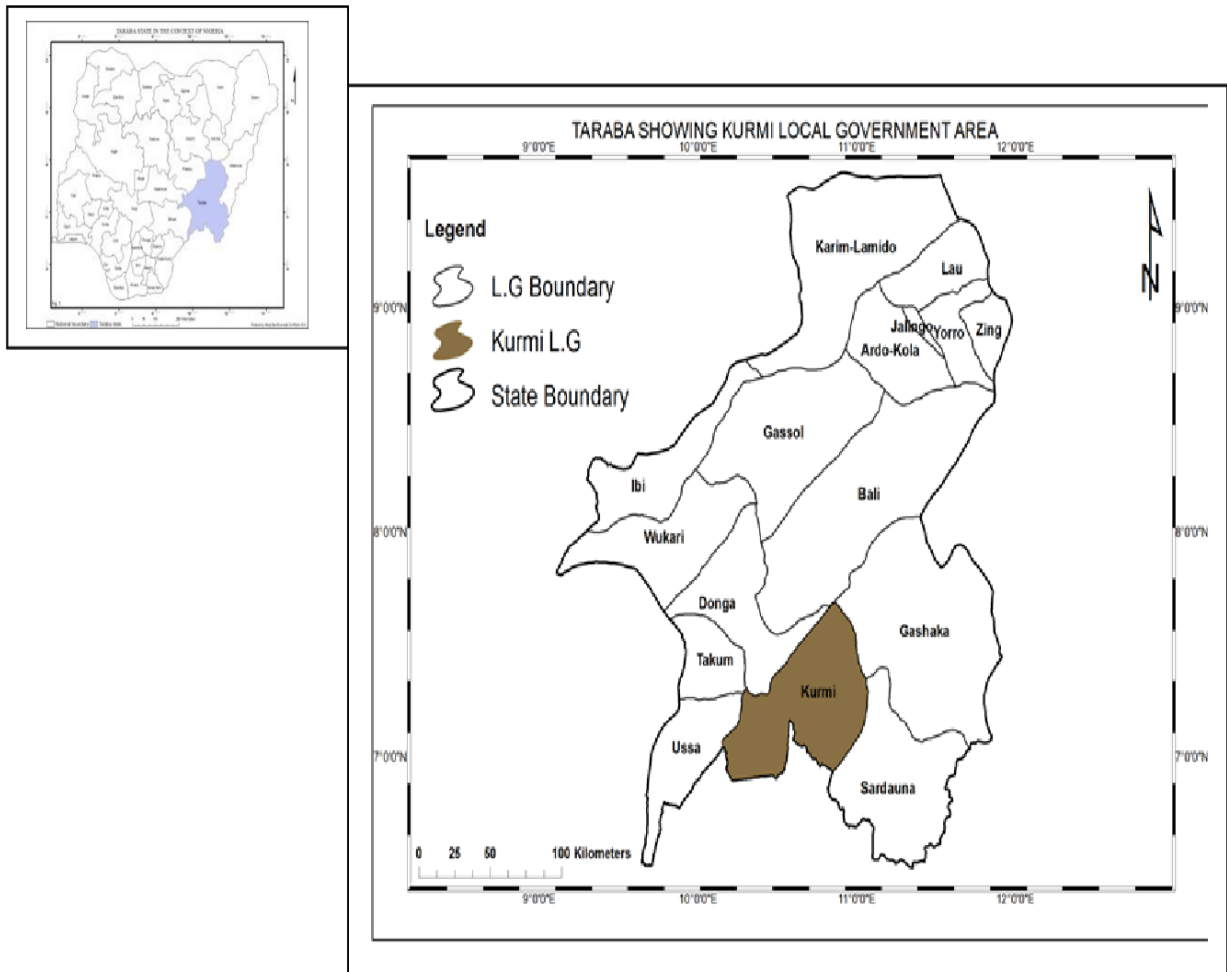
Figure 1. Map of Taraba State showing Kurmi Local Government Area.

Sampling Technique.

The list of firewood marketers were obtained from the three selected towns with big firewood markets in the local government. The total number of the marketers was 60, out of which 50 percent were sampled using simple random sampling technique.

Data Collection

Semi structured questionnaire which is easy to understand with open and close questions to be answered by respondents was used to obtained data from firewood marketers in Baissa, Abong, and Bisaula towns in Kurmi Local Government area of Taraba State, Nigeria. The structured questionnaires were randomly administered to the firewood marketers in the selected towns. The information collected on the socio-economic characteristics' of the respondents were age, gender, marital status, education, family size, main occupation, and marketing experience.

Data analysis

Data collected were analyzed by descriptive statistics including frequency, tables, percentages, and bar chart. The inferential statistics used was the multiple regression analysis to test the socio-economic factors that influenced the respondents in the marketing of firewood. The linear function form that was used and gave the best fit is explicitly stated as;

Regression $Y= f(x^1, x^2, x^3, x^4, x^5, x^6, x^7............u^t)$ (Oluwadare et al.2009)
$Yij = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5....................+\mu$

Where:
b_0=Intercept,

μ= errors term.

$y=f(x_1\ldots\ldots\ldots\mu)$

Where:
y=amount generated in the forest (₦)
x_1 = Age
x_2 = Gender
x_3 = Marital status
x_4 = Family size
x_5 = Education
x_6 = Main Occupation
x_7 = Marketing experience

RESULTS AND DISCUSSION
Socio-Economic Characteristics of the Respondents

Table 1 is the socio-economic characteristics attributes of the respondents in the study area. Analysis of data on age of respondents shows that majority (57%) were between the ages of 31-40. Age plays a vital role in firewood marketing business, young people who are more active, stronger and can take risks are more involved in the business than very young and very old people. The finding in the study is in line with the finding of Afolabi (2001) and Ikurekong et al. (2009) who reported that age of marketers have positive impact on the business aggressiveness and flexibility in marketing activities.

The data on the gender of respondents revealed that majority (90%) were males. This may be due to cultural barriers in the study area which limits women from participating in commercial collection of firewood in the forest. The result of the finding collaborate the finding of Ani (2004) and Fedellia (2005) who reported that males dominate firewood marketing and other agricultural activities that are labor demanding. Analysis of data on marital status of the respondents revealed that (70%) were married. Married people have responsibilities of providing food, clothing, education, health, shelter and well-being of their wives and children (Taphone, 2009). It is because of these needs that the firewood marketing business is dominated by married people. Adebisi (2003), Campbell et al. (2002) and Sunderlin et al. (2005), reported that their pressing needs could be met by collecting and marketing forest products.

The finding on the family size of respondents showed that majority (50%) have between 1 and 5 persons. Large families are more likely to face lower per capita land availability and high dependency ratios for food requirements (Adesina et al. 2000; Mujawamariya and Karimov 2014). They may thus rely on forest resources around them because of the available family labor that can be utilized. The result also is in line with the conclusion drawn by Kabubo-Mariara and Gachok (2008) who reported that families with large households who lived adjacent to forestlands in Kenya derived more resources from the common resources due to labor availability that can be spread across various collection activities

The result on the educational level of the respondents showed that majority (73%) had no formal education. Amaza (2000) had reported the preponderance of non-literates in high labor demanding livelihood labor. He stressed that practitioners' level of education is inversely proportionate to involvement in labor demanding livelihood. The finding on the primary occupation of the respondents indicates that majority (76%) were farmers. The main occupation of an individual represents the major economic activity engaged in for cash income and subsistence. The firewood marketers concentrates more in the business during dry season and spend substantial part of their time on their farms during raining season. The result on the years of experience of respondents showed that majority (60%) had ten years' experience in the firewood marketing business. And finding on whether the marketers have association, the result indicates that majority (97%) revealed that there was no association for firewood sellers in the local government. This was probably due to the fact that they were new into the business.

Table 1. Socio-Economic Characteristics of the Respondents.

Variables	Frequency	Percentage	
Age			
> 20	-	-	-
21-30	3	10	
31-40	17	56.7	
41<	10	33.3	
Total	30	100	
Gender			
Male	27	90	
Female	3	10	
Total	30	100	
Marital Status			
Married	21	70	
Single	-	-	
Divorced/Widow	9	30	
Total	30	100	
Family Size			
1-5	15	50	
6-10	12	40	
11<	3	10	
Total	3	100	
Educational Level			
Non-formal	22	73.3	
Primary	6	20	
Secondary	2	6.7	
Tertiary	-	-	
Total	30	100	
Main Occupation			
Farming	23	76.7	
Trading	4	13.3	
Hunting/Fishing	3	10	
Total	30	100	
Marketing Experience			
1-10	18	60	
11-20	6	20	
21-40	3	10	
41<	3	10	
Total	30	100	
Marketers Association			
Yes	1	3.3	
No	29	96.7	
Total	30	100	

Source: Field Survey 2022

Table 2 shows the constraints the fire wood marketers are facing in the collection and marketing of fire wood in the study area. The result revealed that majority (43%) of the respondents were constraint by low patronage especially during raining season, followed by low cost with (27.1%), (16.6%) of the respondents were constraint by lack of transport to carry the fire wood from the forest to the town and (13.3%0) of the respondents agreed that lack of accessibility was a problem in fire wood collection in the area. During raining season most households are engaged in farming activities. When they go to the farm, while returning home most women collects fire wood. This is what causes the low patronage in fire wood marketing business in raining season. This finding is line with the report of Adeyemi and Adereleye (2016) who observed and made submission that women are more involved in fuel procurement and cooking in the households.

Table 2. Constraints in the collection and marketing of fire wood in the study area.

S/N	Constraint	Frequency	Percentage (%)
1	Low cost	8	27.1
2	Lack of transport	5	16.6
3	Lack of accessibility	4	13.3
4	Low patronage	13	43.0
Total		30	100

Source: Field Survey (2022)

Multiple Regression Analysis

The multiple regression analysis results (Table 3) indicates that firewood marketing in Kurmi local government are influenced by the age of the respondents, gender, marital status, family size and main occupation. The result corroborate the submission of Belcher Schreckenberg (2007) and Coulibaly-Lingani et al. (2009) that multiple regression analysis support the widely accepted view that household heads participation in income generating activities is strongly influenced by their social, economic, and cultural status. Stressing that these influences are mostly site specific and are not necessarily generalizable to all socio-economic conditions and geographical location

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Table 3. Multiple Regression Analysis

Variables	Co-efficient	Standard error	Z
Constant	3.3124	0.755	4.39*
Age	1.895	0.4406	4.13*
Gender	0.0984	0.0146	-6.73*
Marital Status	0.4299	0.1318	-3.26*
Family Size	0.0899	0.0355	2.53*
Education	0.1649	0.1506	1.09
Main Occupation	0.2604	0.0861	3.024*
Marketing Experience	0.0155	0.0677	-2.78
Marketers Association	0.1475	0.2978	-0.50

Source: Field Survey 2022
*Significant at 5%.

CONCLUSION

The study revealed the socio-economic factors that influenced fire wood marketers into fire wood marketing business. There is therefore the need for government to force them to form an association so that they can be involved in the sustainable utilization and management of forest resources in the area. Government should also reduce the high cost of cooking gas and kerosene in order to reduce over-dependent on fire wood

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