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ASSESSMENT OF WOMEN'S ROLE IN SUSTAINABLE FUELWOOD MARKETING AND ITS IMPACT ON WILDLIFE CONSERVATION IN WUKARI LGA, TARABA STATE, NIGERIA

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Abstract

The study was carried out to assess women involvement in sustainable fuelwood marketing and impact on wildlife conservation in Wukari Local Government Area, Taraba State. The specific objective was to examine the socio-economic characteristic of the respondents, assess the role of woman involvement in fuel-wood marketing and income generation from fuelwood marketing practice in the area. Structured questionnaire was used to obtain information. The purposive sampling technique was employed to select the study participants and markets, as it allowed for the deliberate selection of cases that were rich in information and experiences relevant to the research question. Specifically, the three markets selected (Wukari, Rafin Kada, and Bantaje) are major fuelwood marketing hubs in the study area, and their selection was guided by the need to capture a diverse range of experiences and perspectives among fuelwood marketers. A total of 60 copies of structured questionnaires were administered to the respondents in the three selected markets. The data generated from the study was analysed using simple descriptive statistics. The results on Age revealed that the majority (43.33%) of the respondents were in the age group of 31-40 years, 65% of the respondents were married. 53.2% had family size of 6-10 members, 43.3% had secondary education while primary education recorded 33.33 % and 63.3% of the respondents had petty trading as their major occupation. The result on the finding of the role of women involvement in fuelwood marketing in the study area showed that 58.33% are involved in fuel wood marketing in Wukari L.G.A. majorly (70%) obtain their fuelwood from those collecting them from the forest and only 30% of them buy the fuelwood and the also sell them. Bad road network is one major challenge facing fuelwood marketers with 41.76% followed by the distance of the forest with 36.6% 33.3% of the respondents indicated that they are earning between ₦40,000 (\$26.04) and above in fuelwood market in a month. The study highlights the intricate relationships between economic and environmental factors, stressing the need for a holistic approach to achieve sustainable development. The research recommends improvements on road infrastructure, security enhancement, sustainable forest management, agricultural development, conservation initiatives, and economic empowerment programs.

Keywords: *Assessment, Conservation, Fuelwood, Impact, Involvement, Marketing, Sustainable, Wildlife and Women.*



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INTRODUCTION

Forests are a vital source of essential goods and services, contributing significantly to ecological, economic, social, religious, and cultural development (Kumar *et al.*, 2021). Forests provide numerous benefits, including income and employment opportunities through the sale and exchange of non-timber forest products (NTFPs), such as firewood (Nzeh *et al.*, 2007). NTFPs encompass a wide range of products, including plants used for firewood, handicrafts, condiments, fodder, chemicals, medicines, and shade (Ibrahim *et al.*, 2016). Wood, a primary forest product, is used as timber, pulp, paper, or fuelwood, with approximately 3.4 billion cubic meters of timber equivalent produced annually worldwide (FAO, 2018). Fuelwood, a type of NTFP, is a crucial energy source for industrial and domestic use, particularly in developing countries. It is obtained from trunks, branches, and other parts of trees and shrubs, and is used for cooking, heating, or generating energy through direct combustion (Boucher *et al.*, 2011). The use of fuelwood is influenced by various factors, including social, cultural, environmental, and economic considerations according to Kimengsi *et al.* (2020). Historically, women and children were primarily responsible for harvesting fuelwood in developing countries, but the increasing commercialization of agriculture has led to widespread harvesting by men, women, and children. However, the unsustainable harvesting of fuelwood has severe environmental implications, including deforestation, habitat loss, and biodiversity decline, which can have devastating effects on local wildlife populations (Magembe *et al.*, 2016). The removal of trees and shrubs for fuelwood can lead to habitat destruction, ecosystem disruption, and biodiversity

<https://paramountecologicalresources.com> loss, ultimately threatening the survival of wildlife species. Wukari Local Government Area of Taraba State, Nigeria, is renowned for its rich wildlife diversity, including iconic species such as Elephants, Lions, and Antelopes. These species play a vital role in maintaining ecological balance and supporting local livelihoods. However, the increasing demand for fuelwood, driven by the reliance of rural communities on fuelwood production and marketing, has led to widespread deforestation, jeopardizing the very existence of these wildlife species. Despite the critical role of women in fuelwood marketing, little attention has been given to understanding the gender dynamics within the fuelwood sector. This study aims to examine the impact of fuelwood harvesting on wildlife elimination in Wukari Local Government Area, Taraba State, Nigeria, with a focus on the role of women in fuelwood marketing. By investigating the complex relationships between fuelwood harvesting, wildlife conservation, and women's livelihoods, this study aims to contribute to the development of sustainable fuelwood management practices that balance human livelihood needs with environmental conservation goals. However, the increasing demand for fuelwood has led to widespread deforestation, threatening the existence of wildlife species in the area. This study examines the impact of fuelwood harvesting on wildlife conservation in Wukari Local Government Area, Taraba State, Nigeria, focusing on the role of women in fuel-wood marketing and the complex relationships between fuel-wood harvesting, wildlife conservation, and women's livelihoods, with the goal of developing sustainable fuel-wood management practices that balance human livelihood needs with environmental conservation goal.



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MATERIALS AND METHODS

Study Area

The study was carried out in Wukari local Government area of Taraba state, Nigeria. Taraba State is located in North-eastern part of Nigeria as shown in Figure 1. Wukari is the headquarters of Wukari Local Government Area of Taraba State. It is located between latitude 7°51'N to 7°85'N and longitude 9°46'E to 9°78'E of the Greenwich meridian. Wukari Local Government area is situated in the Southern part of Taraba State. It is about two hundred kilometres away from Jalingo the State capital. The Local Government is bounded by Plateau State in the North, Benue State in the Southwest, Northeast by Karim Lamido, Bali, and Takum Local Government Area (LGA). It has an area of about 4308 km² (1663sq mi) as shown in Figure 2 (NPC, 2006). The local Government is comprised of ten (10) wards namely Akwana, Avyi, Bantaje, Chonku, Hospital, Jibu, Kente, Puje, Rafin Kada and Tsokundi. The local Government is divided into Wukari I and Wukari II. Wukari, I comprise of Akwana, Chonku, Hospital, Kente, and Rafin kada ward while Wukari II comprises of the remaining five wards namely Avyi, Bantaje, Jibu, Puje and Tsokundi wards. The major tribe are Jukun and few Hausa and Fulani. Farming is the main occupation of the people of the local Government area. The study area is characterized by a tropical savanna ecosystem with a mix of grasslands and woodland which is home to a variety of wildlife, including Antelopes, Monkeys, and Birds. However, the region faces conservation concerns due to deforestation, habitat fragmentation, and wildlife poaching,

Data Analysis

The data collected were analysed using descriptive statistics including frequency and percentages in the tables (Kothari *et al.*, 2018)

<https://paramountecologicalresources.com> largely driven by fuelwood harvesting and agricultural expansion. This ecological context highlights the importance of sustainable fuel-wood management practices and informed decision-making to balance human livelihood needs with environmental conservation goals.

Data Collection and Analysis

The study used a combination of structured questionnaires, oral interviews for those who could not read and write, and observations method to collect data from the respondents. A total of 60 copies of the structured questionnaire was designed and administered to women respondents from the three selected markets to assess their involvement in fuelwood production and marketing practices in their locations. The questionnaire was designed to obtain data on respondent's demographic characteristics and the impact of fuelwood harvesting on wildlife conservation.

Sampling Techniques

The data for this study was obtained from both primary and secondary sources. A purposive sampling technique was employed to select three major fuel-wood markets, namely Wukari, Bantaje, and Rafin Kada, in the study area. These markets were chosen due to their high population density, making them representative of the most densely populated communities in the local government area

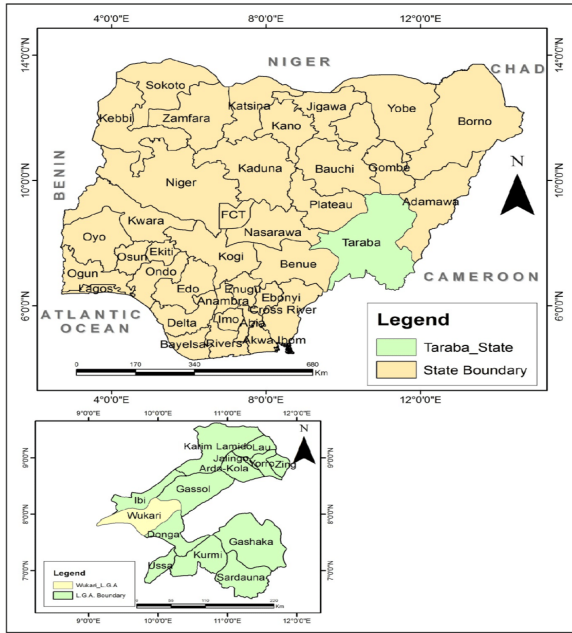


Figure 1: Map of Nigeria showing Taraba State.

Source: Ministry of Land and Survey, Taraba State (2015).

RESULTS

The table 1 shows the age distribution of the 100% respondents in the study area. The respondents are categorized into three age groups: 21-30 years, 31-40 years, and above 50 years. The majority of the respondents (43.30%) fall within the 31-40 years age group. The second-largest age group is above 50 years, accounting for 40% of the respondents. The youngest age group, 21-30 years, makes up the smallest proportion of respondents, at 16.67%.

Table 1: Age Distribution of the respondents

| Age Class | Frequency | Percentage (%) |
|----------------|-----------|----------------|
| 21-30 years | 10 | 16.60 |
| 31-40 years | 26 | 43.30 |
| Above 50 years | 24 | 40.00 |
| Total years | 60 | 100.00 |

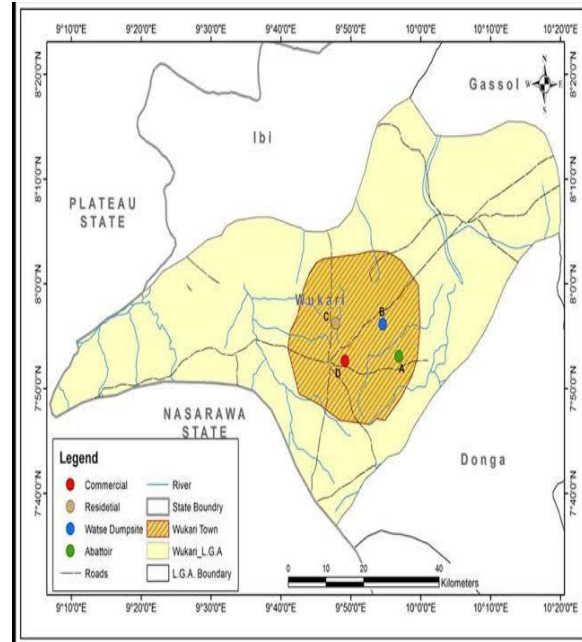


Figure 2: Map of Wukari Showing the study area in Wukari Local Government Area

Table 2 presents the marital status of respondents, showing that the majority (65%) were married, while 35% were single, divorced, or widowed." However, married people are vested with the responsibility to provide food, health, education, shelter and well-being of their family members.

Table 2: Marital status of the Respondents.

| Marital Status | Frequency | Percentage (%) |
|----------------|-----------|----------------|
| Single | 21 | 35 |
| Married | 39 | 65 |
| Total | 60 | 100 |

The majority of the respondents (43.3%) have a secondary level of education within the area. A significant proportion of respondents (33.3%) have a primary level of education. About one-sixth (16.7%) of the respondents are illiterate, while only



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a small proportion (6.7%) of the respondents have a tertiary level of education (Table 3).

Table 3: Educational Background of the Respondent in the Study Area.

| Age distribution | Frequency | Percentage (%) |
|------------------|-----------|----------------|
| Primary | 20 | 33.3 |
| Secondary | 26 | 43.3 |
| Illiterate | 10 | 16.7 |
| Tertiary | 4 | 6.7 |
| Total | 60 | 100.00 |

Table 4 presents the family size of the respondents in the study area. The respondents are categorized into four family size groups: 1-5 members, 6-10 members, 11-20 members, and 21 members and above that revealed majority of the respondents (53.33%) have family sizes ranging from 6-10 members. About one-fifth (21.67%) of the respondents have family sizes ranging from 1-5 members. While a small proportion (13.33%) of the respondents have family sizes ranging from 11-20 members. A negligible proportion (11.67%) of the respondents have large family sizes of 21 members and above.

Table 4: Family Size of the respondents

| Family Size | Frequency | Percentage (%) |
|-------------|-----------|----------------|
| 1-5 | 13 | 21.67 |
| 6-10 | 32 | 53.33 |
| 11-10 | 8 | 13.33 |
| 21 above | 7 | 11.67 |
| Total | 60 | 100 |

Table 5 presents the primary occupation of the respondents in the study area. The key Findings revealed majority of the respondents (60%) are engaged in farming as their primary occupation with only, one-quarter (23.33%) of the respondents

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are involved in petty businesses while a smaller proportion (16.67%) of the respondents are civil servants.

Table 5: Occupation of the respondents

| Occupation | Frequency | Percentage (%) |
|----------------|-----------|----------------|
| Farming | 36 | 60.00 |
| Petty Business | 14 | 23.33 |
| Civil servants | 10 | 16.67 |
| Total | 60 | 100.00 |

The Role of Women Involvement in fuel Wood Marketing in the Study Area.

Table 6 showed the findings on whether the respondents were involved in the role of fuel wood marketing in the study area showed that, majority (58.33%) of the respondents agreed that the respondents are involved in fuel word marketing, while (41.67%) indicated they are not involved in fuelwood selling.

Table 6: The Role of Women Involvement in Fuelwood Marketing in the Study Area

| Statement | Frequency | Percentage (%) |
|-----------|-----------|----------------|
| Yes | 35 | 58.33 |
| No | 25 | 41.67 |
| Total | 60 | 100.00 |

The findings on source of fuelwood obtained by respondents in table 7 below, revealed that (70%) of them obtained their fuel wood from those Cutting trees directly from the forest while 30% buy the fuel wood to Sale.



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Table 7: Respondents Source of fuelwood the study Area

| Statement | Frequency | Percentage (%) |
|-----------|-----------|----------------|
| Collector | 42 | 70.00 |
| Buying | 18 | 30.00 |
| Total | 60 | 100.00 |

Source: Field Survey (2024)

Table 8 revealed the findings on challenges respondents are facing on fuel-wood marketing practice in the Study area showed that (41.67%) of the challenges is bad road Network followed by the distance to the forest with (36.67%) and Lack of buyers with (21.7%).

Table: 8 Challenges faced by Respondents on Fuelwood Marketing Practices

| Challenges | Frequency | Percentage (%) |
|------------------------|-----------|----------------|
| Lack of buyer | 13 | 21.67 |
| Distance to the forest | 22 | 36.67 |
| Bad road network | 25 | 41.67 |
| Total | 60 | 100.00 |

Table 9, presents the income generated by respondents from fuel-wood marketing, categorized into four income ranges, the results revealed a proportion (33.33%) of respondents earn above ₦40,000 from fuel-wood marketing practice, while a substantial number (30%) of respondents earn between ₦21,000-₦30,000. Almost a third (31.67%) of respondents earn between ₦11,000-₦20,000, and the least percentage (5%) of respondents earn between ₦1,000-₦10,000.

Table 9: Income generated by respondents on Fuelwood Marketing

| Income (₦) | Frequency | Percentage (%) |
|---------------|-----------|----------------|
| 1000-10,000 | 3 | 5.00 |
| 11,000-20,000 | 19 | 31.67 |
| 21,000-30,000 | 18 | 30.00 |
| 40,000 Above | 20 | 33.33 |
| Total | 60 | 100.00 |

Source: Field Survey (2024)

DISCUSSION

The study area, comprising Wukari, Rafin Kada, and Bantae in Taraba State, presents a unique blend of occupational, economic, and environmental characteristics. Farming is a vital occupation in the area, but the income generated from farming is often supplemented by other activities, such as fuel-wood marketing. This is evident in the age distribution of respondents, which shows that the majority (43.30%) were in the age bracket of 31-40 years, followed by those with (16.7%) in the age group of 21-30. This finding is consistent with Ebute *et al.* (2016), who reported that the ability to participate in community projects peaks during early adulthood. Education also plays a crucial role in the study area, as majority of the respondents were literate and able to understand the importance of forests, policies, and programs. This agreed with Ebuete *et al.* (2016) who stressed that education helps to liberate the mind and exposes individuals to alternative options. The literacy level of the respondents is expected to have a positive impact on their ability to manage forest resources sustainably. The occupation of respondents revealed that the majority 60% were farmers followed by petty business 23.33%, while civil servants had the least which is



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not surprising, given the significant alteration of the vegetation of Taraba State due to human activities and forest harvesting, as reported by Ali *et al.*, (2020). The dominance of petty business and civil service as primary occupations highlights the importance of diversifying the economy of the study area. The geographical context of the study area is characterized by a diverse range of wildlife and natural resources. The presence of various wildlife species, including monkeys, birds, and crocodiles, emphasizes the importance of protecting these natural resources. The study area's natural resources are not only important for conservation but also provide a source of income for respondents engaged in fuel-wood marketing. The majority of respondents are involved in selling fuelwood, which they obtained from those cutting them directly from the forest. However, fuel-wood marketers face significant challenges, including bad road networks and insecurity. Despite these challenges, fuel-wood marketing emerges as a significant source of income for respondents, with a substantial proportion earning above ₦40,000. In other hands, while fuelwood marketing provides economic benefits for women in the study area, it also poses significant threats to wildlife conservation. The unsustainable harvesting of fuelwood contributes to deforestation and habitat loss, exacerbating the decline of biodiversity. To address the challenges faced by fuel-wood marketers and promote sustainable development in the study area, initiatives aimed at conservation, such as wildlife reserves and sustainable forest management practices, could be implemented. Programs aimed at improving agricultural productivity, such as training, input subsidies, and irrigation schemes, could also benefit farmers in the area.

CONCLUSION

This study has demonstrated that fuelwood marketing is a vital income-generating activity for women in the study area, contributing to their economic empowerment. However, the unsustainable harvesting of fuelwood also poses significant

<https://paramountecologicalresources.com> threats to wildlife conservation, including deforestation, habitat loss, and biodiversity decline. The key findings of this study the need for sustainable forest management practices, alternative energy sources, and eco-friendly livelihood options to mitigate the negative impacts of fuelwood marketing on the environment. By adopting these strategies, women can reduce their environmental footprint while maintaining their economic benefits from fuelwood marketing. The finding present recommendations aim at more effort are to promoting sustainable forest management, reduce deforestation and habitat loss, and enhance the livelihoods of women involved in fuelwood marketing.

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APPENDIX



Plate1: Fuel wood harvesting in Rafin Kada Village of Wukari Local Government Area, Taraba State



Plate2: Charcoal Produced from the Forestland Ready for Sale

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