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Gender Participation in the Exploitation and Utilization of Forest Resources at J4 Section of Omo Forest Reserve, Ogun State, Nigeria

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ABSTRACT

Gender role analysis is essential for understanding disparities in access to resources, opportunities, and constraints between men and women. However, limited research exists on gender-specific participation in the exploitation and utilization of forest resources in Nigeria. Therefore, this study assessed gender participation in the exploitation of forest resources to understand the contribution(s) of the forest resources exploited by men and women in enclave communities of J4, Omo Forest Reserve, Ogun State, Nigeria. Purposive and simple random sampling techniques were adopted for the selection of eighty (80) respondent. Primary data were collected with the administration of structured questionnaire. Data collected were analyzed using descriptive statistics and Chi-square tests. The results revealed that majority of the respondents were men (60%) belonging to the Yoruba tribe (81%).Most of them were indigenes (68%) and farmers (33%) between ages 26 - 35 years (29%). Majority (74%) of the respondents were married with most (59%) having less than 5 individuals in their family. In this study, the academic status was low with only few (17%) having a tertiary education. Although, the findings of the study showed the participation of both gender in collection of forest resources, the male gender was more involved in the activities such as timber contractors and animal hunters. In addition, only a few (19%) of the respondents used forest resources strictly for subsistence, whereas 81% earned between USD$7-USD$13 monthly from sales or trading of the forest resources collected. Furthermore, Chi-square test of independence showed that hunting of animals was significantly associated with age (χ^2= 12.842, p = 0.046) and occupation (χ^2= 26.264, p = 0.024).The study provides baseline information on the different forms of use of forest resources based on gender that could on the one hand, help to better understand the products people demand and/or exploit, and on the other hand, provide an understanding for informed policies towards prioritizing management strategies for forest reserves to meet people's needs. This information would be valuable for conservation as well as livelihood intervention programs within communities in OFR and/or elsewhere.

Keywords: Community-based, fauna, floral, forests, management, participatory, sustainability

Introduction

Globally, forests and the trees that form them have been exploited for many uses by forest dependent communities especially in developing countries, Nigeria inclusive. Forests, in addition to their important role in protecting the environment through regulatory services, provide a variety of goods such as timber, fuel wood, and a number of non-wood products (FAO, 2020; MEA 2015). Forests are the home to the bulk of the world´s biodiversity and constitute a major

source of livelihood and sustenance for indigenous people. Similarly, forests play a central role in supporting the daily lives of most rural communities who depend to a greater extent on the natural resource base of their territories. According to Chilalo and Wiersum (2017) most people depend upon forests and their biodiversity, some more than others. Globally, an estimated 880 million people spend part of their time collecting food, medicine, fuelwood and/or producing charcoal in supporting food security, cash income and livelihoods particularly in many developing countries (FAO, 2020).

For instance, more than 15 million people in Sub-Sahara Africa earn their income from forest-related enterprises such as firewood and charcoal sales, small-scale saw-milling, commercial hunting and handicraft production (Kaimowitz, 2013). The harvesting and processing of forest resources have graduated from the subsistence level for household dietary, shelter needs and and/or sales at local markets to international cross-boundary trades. Jimoh (2016) noted that majority of rural households in Nigeria depend on forest products to meet some part of their nutritional needs, while up to 80% generate part of their income from the sales of forest products. Obviously, the economic importance of forest resources have been recognized as presenting opportunities and challenges for achieving conservation and development (Timko *et al*., 2010). Despite the importance, deforestation of our indigenous forests or woodlands occurs at alarming rates, which has been a big problem to Nigeria. According to the Forestry Management and Evaluation Coordinating Unit Assessment Report (FAO, 2020), undisturbed forest (UF) covers only 1 020 000.4 ha, i.e. about 1.13% of the country's total land area.

Conversely, the World Bank Forest Strategy reiterates that, *"sustainable use of forests and forest resources requires the participation of individuals across all gender"*(WBG 2014). Gender is the range of characteristics pertaining to femininity and masculinity and differentiating between them (Curtis, 2014). Depending on the context, this may include sex-based social structures (gender roles) and gender identity (Curtis, 2014). Gender is a sociocultural expression of particular characteristics and roles that are associated with certain groups of people with reference to their sex and sexuality (Watson, 2015), thus in Nigeria, only two (2) gender are recognized as male (man) and female (woman). Gender in forestry development refers to the ability and the degree in which male and female practice forestry in a sustainable manner for their mutual benefits (OECD-DAC, 2009).

The harvesting of forest resources is carried out by both male and female with different interests. For instance, Coulibaly-Lingani *et al*., (2021) and Ogunjobi *et al*., (2020) reported that women constitute about 75% of forest users who engage in harvesting of non-timber forest products which require less input and less energy in its exploitation and management whereas men use forest resources in agriculture, logging, and fishing for commercial purposes. It is worth mentioning that irrespective of gender, people engage in forest related activities because they derive benefits and/or get some satisfaction from such activities, thus, the role of gender in forest exploitation cannot be overemphasized (UN-REDD, 2021).

Gender participation is the different mechanisms for people to express opinions and ideally exert influence regarding the issues that influence or affect their lives.

Gender role analysis is important to assess and understand the relationship between gender and access to resources and opportunities, activities, and the constraints they face relative to each other. The process exposes the varied and different roles and responsibilities that men and women play in the family, community, economy, legal, political and social structures (Rocheleau *et al*., 2016).

Although, women are much more versatile in forest resources exploitation and management than men, the role of both gender could vary across regions and cultures (Eneji, *et al.*, 2019). Moreover, due to embedded socio-cultural practices and gendered power relations, women's needs and priorities, especially in regard to natural resources, can easily be overlooked (Bose, 2012). Forest governance and management in many developing countries including Nigeria, have not involved women in their desired proportion (Tinker, 2014;Agarwal, 2011). An improved policy environment that has potential for addressing gender inequality has not necessarily resulted in gains for women even though a large and growing literature illustrates their knowledge of and dependence on forest products (Sunderland *et al.*, 2014;Colfer, 2015). Unfortunately, women continue to be disadvantaged by insecure access and property rights to forest and tree resources (Onyekachi *et al.*, 2019;Muller *et al*., 2014).

Generally, forest management programs in Nigeria are not participatory. Over the last two decades, a number of publications have shown that gender inequalities in access to forest resources, as well as extension, education and health services may be linked to higher levels of poverty (Agarwal, 2011;Newton *et al.*, 2016). The forest dependent communities comprising of the male and female are not involved in protecting and managing of the forest resources (Camou-Guerrero *et al.*, 2008). In addition, little or nothing done to involve both genders in management plans, especially for community forests. Moreover, there is insufficient information on the participation of gender in the exploitation and utilization of forest resources particularly in Nigeria.

Therefore, gender participation in the exploitation of forest resources was assessed to understand the contribution(s) of the forest resources exploited by men and women in enclave communities of J4, Omo Forest Reserve (OFR), Ogun State, Nigeria. To achieve this, some of the research questions include: (1) What are the different forest resources exploited by men and women in OFR? (2) Is/are there significant difference(s) in the resources exploited across both gender in the study area? (3) What is/are the contribution(s) of the forest resources to the people/community? *amongst others*. Findings from the study could provide baseline information on the importance of understanding the role of gender to forestry development that could assist relevant institutions in developing interventions towards promoting the sustainable utilization and management of forest resources in OFR, Nigeria and/or elsewhere.

Methodology

Study area

Omo Forest Reserve (OFR) is a biosphere reserve situated in Ogun State, Nigeria. OFR is one of the 701 biosphere reserves in 124 countries in a land area of 130 600 hectares which includes a Strict Nature Reserve of 460 hectares with more than 20 000 inhabitants living within its borders (UNESCO, 2021;

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Ola-Adams 2014).The geographical coordinate lies between Latitude 6º 35' to 7 º 05' N and Longitude 4 º 19' to 4 º 40' E. The terrain of OFR is largely flat and well-drained, with some low rolling hills and derives its name from the "Omo River" watershed that traverses it (see Figure 1). The climatic distribution of OFR shows a mean annual rainfall of around 175mm, mean relative humidity of about 80% and mean daily temperature of 27ºC during rainy periods. The vegetation consists mainly of a dry evergreen mixed deciduous forest in the north and a moist evergreen forests in the south. Over two hundred plant species belonging to the families Araceae, Asteraceae, Ebenaceae, Faboideae, Liliaceae, Poaceae, Rubiaceae and Violaceae have been recorded in OFR. In addition, over 125 avian species and mammals like chimpanzees, elephants and the white-throated guenon monkey have been identified (Ojo, 2014). In OFR, majority of the inhabitants depend on farming, hunting, fishing, hired labour, timber contractors and the collection of non-timber forest products as their primary profession (UNESCO, 2021).

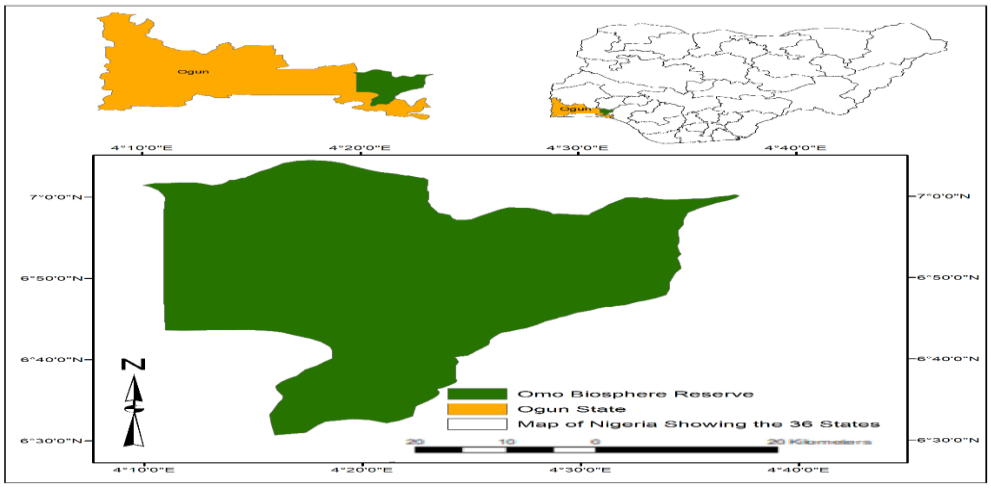


Figure 1: Schematics of Omo Forest Reserve, Ogun State, Nigeria (Source: Adeyemi, 2017)

Sampling procedure

Requisite data was obtained from two (2) communities purposively selected around J4 section of Omo Forest Reserve, Ijebu East LGA, Ogun State, Nigeria. The communities were selected based on the proximity and constant access and/or use of the forest reserve. In addition, simple random sampling technique was adopted for the selection of the eighty (80) respondents i.e. forty (40) within each of the communities. These were men and women who were actively involved in the exploitation and utilization of the forest resources in OFR.

Data collection and analysis

The primary data sets were obtained from socio-survey using semi structured questionnaire to obtain information relating to the objectives of the study. The questionnaire were administered in the form of an interview guide such that the respondents were asked to fill and return the forms immediately. Overall, 80 copies of questionnaire (100% response rate) were sorted for the analysis since there were no missing data recorded and none was

excluded in the analysis. Data analysis involved computing descriptive statistics such as frequencies, percentages as well as Chi-square test to explain gender participation in the exploitation of forest resources and the demographic factors influencing their participation in the study area. Results are presented as charts, pictures and tables.

Results and Discussion

Demographics and frequencies

In the study, more than half (60%) of the sampled population were male (Figure 2), corroborating findings in previous studies (Kolade *et al.*, 2020;Gurung, 2022;Watson, 2015) where most forestry related activities were traditionally dominated by men. Most (83%) of these were in their active age between 18 and 40 years (Figure 2). Vedeld *et al.*, (2014) reiterates that forestry activities such as gathering, hunting, farming *inter alia* require lots of energy and do not favour the aged household heads due to health and physical constraints. Over 70% of the respondents were married with the highest household population of between 1 and 4 individuals. The sample included a higher share of indigenous people who were farmers (n = 41), possibly due to the landscape of OFR that supports farming activities and only few (12%) had a tertiary education, limiting their chances to gain white-collar jobs in the city.

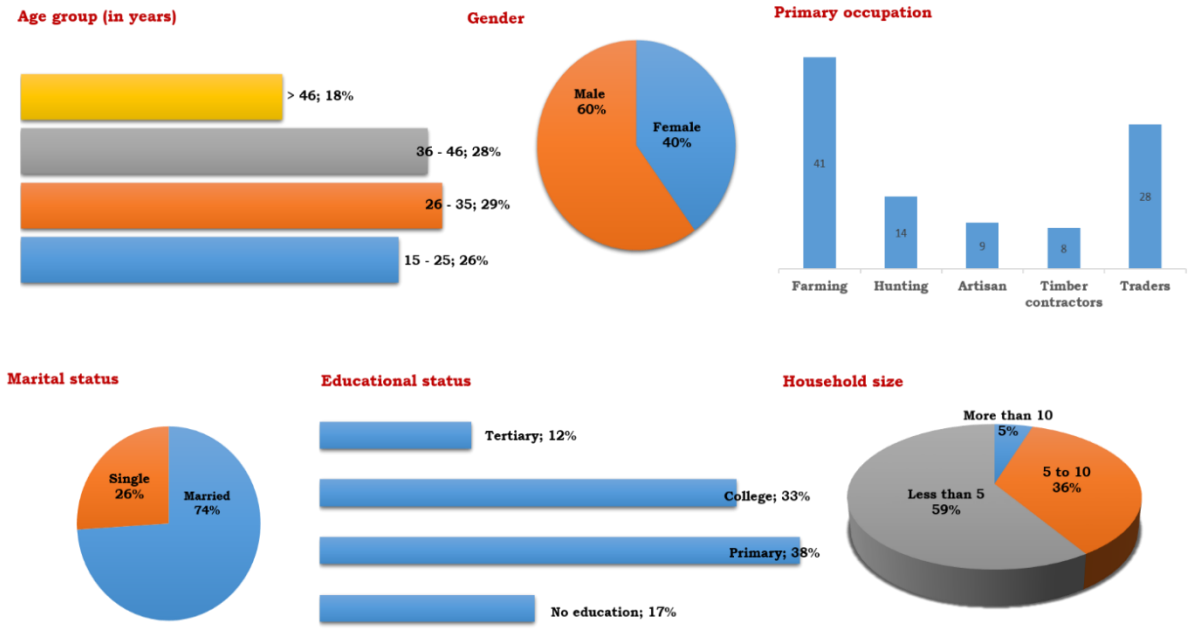


Figure 2: Socio-demographic profiles of the sampled population in OFR (n = 80; Source: authors' analysis)

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1. Gender participation in the exploitation of forest resources

The results showed that contrary to previous studies i.e. Onyekachi *et al* 2019 and Mogaka *et al.*, 2011, both men and women were involved in the exploitation and utilization of forest resources in OFR by their agreement to the statement "I am not restricted from accessing the forest because of my gender and/or cultural beliefs" (Table 1). However, the Chi-square test of independence (Table 1) showed that based on cultural belief the involvement of men in the exploitation of forest resources, for instance, hunting of animals was dependent on their age (χ^2= 12.842, p = 0.046) and occupation (χ^2= 26.264, p = 0.024). From the results, majority (87%) of the total respondents indicated no restriction on the amount of forest resources collected or harvested from the forests based on their gender. In this study, 98% of the respondents agreed to the statement "There is/are specific law(s) regulating the rate or form at which men and/or women exploit the forest resources in OFR, corroborating findings of previous studies (Babalola *et al.*, 2014). However, only 1% of the total respondents indicated that they were restricted by age in the exploitation of forest resources in OFR, probably because they fell within the advanced age class of 50 years and above.

Table 1: Gender participation in exploitation of resources in OFR

Variables†	**Number of Respondents (n = 80)**
*Does your gender restrict your access to the forest based on cultural beliefs?**	
No	80
Yes	nil
Is there restriction on the amount of forest resources you can access because of your gender?	
No	69
Yes	11
Is/are there any specific law(s) regulating the access and use of the forest resources in OFR?	
No	2
Yes	78
Does your age restrict or prevent you from accessing the forest resources in OFR?	
No	79
Yes	1
Cultural beliefs*Men*Age*	χ^2= 12.842; df = 6; p = 0.046
Cultural beliefs*Men*Occupation*	χ^2= 26.264; df = 14; p = 0.024
% Correctly Predicted	92
Number of Observations	80

†Rounding may result in numbers not adding to 100%; *significant at $p < 0.05$; Source- authors' analysis

2. Exploitation of forest resources based on gender

The study sought to understand the forest products collected to determine the level of engagement across gender in the exploitation of forest resources in OFR (Table 2). The result showed that about 40% of the female respondents were involved primarily in the collection of medicinal plants, a proportion higher than the male counterparts (Table 2; Plate 1). Women depend on the collection of a wide range of forest products, including medicinal plants because those activities are well suited to their capacities (Fonta and Ayuk, 2013). Another reason was for use in trado-medicine corroborating previous studies i.e. Baer, 2020, where women highly valued the forests as sources of natural medicines, which are vital compounds for health care.

Herbal medicines are used by the majority of rural and urban dwellers even when orthodox medicine is within reach and affordable. It was noted that 80% of total households particularly in rural areas depend on natural herbs for their health care (Baer, 2020). In contrast, male respondents mostly engaged in other activities such as timber extraction (71%) and hunting of game meat (n = 48%), corroborating previous report that forestry related activities like timber harvesting were mostly dominated by men (Iheke and Eziuche, 2016**).** Forest resources offer a range of options for commercialization including game meat and timber species that provide raw materials for the furniture industry. For instance, Larinde (2013) and Warizeribe (2013) observed that men were involved in small scale forest enterprises such as fuelwood gathering, poles trading, wildlife trading and wood production.

Overall, only few (19%) of the respondents used forest resources collected strictly for subsistence (domestic use), whereas about 25% of them were indifferent in their responses. In addition, majority (81%) of the respondents earned between ₦10 000 - ₦20 000 (USD$ 7-13) monthly from sales or trading of the resources collected. According to them, monies generated were used mainly for the provision of food, clothing, shelter and health needs for the wellbeing of the families' i.e. family upkeep. Chi square test of independence (Table 2) showed that trading of forest resources was significantly dependent on gender (χ^2= 1.000, p = 0.000) and occupation (χ^2=27.728, p = 0.000) of the respondents, whereas, monthly income generated was dependent on their occupation (χ^2= 62.547, p = 0.003) and household size (χ^2= 18.341, p = 0.049), suggesting that gender participation could generally depend on their interest i.e. to meet basic needs. Eneje *et al*., (2013) reiterates that apart from the fact that forests and trees contribute to the nutritional and health needs of rural and urban households, it provides employment and income to them. For instance, in a dwindling economy, the contribution of forest resources relative to agriculture and allied activities begin to rise particularly for rural households who are more prone to dwindling economic situation.

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Table 2: Forest resources collected based on gender and benefits accrued

Forest products[†]	Proportion of Respondents (%)	Reason(s)
ProMedicinal plants		
Men	28	
Women	40	Family up-keep
Both	33	
Arable crops		
Men	45	
Women	23	
Both	35	
Tree species		
Men	71	Commercial purpose
Women	18	
Both	12	
Game meat		
Men	48	Subsistence/Commercial
Women	26	
Both	26	
Monthly income from sales of forest resources (₦'000) **		
≤ ₦10	2	Provision of basic needs like child's education, clothing, foodstuffs, medical bills, etc.
₦11 - ₦15	13	
₦16 - ₦20	32	
≥ ₦20	18	
None	15	
Sales of resources*Gender*		$\chi^2 = 1.002$; df = 1; $p = 0.000$
Sales of resources*Occupation*		$\chi^2 = 27.728$; df = 7; $p = 0.000$
Monthly income*Household size*		$\chi^2 = 18.341$; df = 35; $p = 0.049$
Monthly income*Occupation*		$\chi^2 = 62.547$; df = 10; $p = 0.003$

[†]Rounding may result in numbers not adding to 100%; ₦ is the Nigerian currency in Naira at US$1 = ₦1 510;*significant at $p < 0.05$; **significant at $p < 0.01$; Source- authors' analysis

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Plate 1: Forest resources collected by men and women in OFR

Conclusion

This study provides baseline information on gender participation in the exploitation of forest resources in a rural landscape within the context of J4 in Omo Forest Reserve (OFR), Ogun State, Nigeria. In congruence with previous studies report that forestry related activities were mostly male specific, women also engage in specific activities like collection of non-timber forest products i.e. medicinal plants for both subsistence and commercial purposes. The study found that the collection of forest resources contributes to the socioeconomic status of the people through provision of basic needs such as food, clothing, shelter, and health needs from cash income generated.

Additionally, the study demonstrated that demographic factors could influence gender participation in exploitation of forest resources. Therefore, using OFR as a case study, assessing the different forms of use of forest resources based on gender, on the one hand, could help to better understand the products people demand and/or exploit, and on the other hand, provide an understanding that could inform policies towards prioritizing management strategies for forest reserves to meet people's needs. This information would be valuable for conservation as well as livelihood intervention programs within communities in OFR and/or elsewhere.

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