



WOMEN'S INVOLVEMENT IN FORESTRY PRACTICES AS LIVELIHOOD OPTION IN RURAL COMMUNITIES OF EBONYI STATE, NIGERIA

Social Science

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ABSTRACT

The study evaluates the involvement of women in forestry practices as a livelihood options in Ebonyi state, Nigeria. Rural women having realized that in the near future natural resources will not be sufficient at the current consumption level and having indigenous knowledge in protection and management have involved themselves in forestry practices as an alternative source. Multi stage sampling procedure was used in selection of sample size. Ebonyi state is made up of thirteen Local Government Areas and 6 LGAs were randomly selected. From each LGA, one community was randomly selected, followed by a random selection of 2 villages and 30 rural women who are actively involved in forestry practices bringing the total to 180 respondents. Data were collected using structured questionnaire and Focus Group Discussion and later analysed using descriptive and inferential statistics like regression model. Results revealed that majority of the women were between 50 – 55 years of age, 63% of them being married and 38% of them has no formal education. About 70% of them has no access to adequate land. Type of forestry practices involved show that 93% were involved in Boundary trees planting, 96% Agro forestry, 66% Home gardening, 48% were involved in Wood lot management and 40% in Nursery development. Forestry practices has empowered them through sales of forest products increase and improve household food security and economic stability, arrest the situation of land degradation and deforestation. Factors influencing women involvement in forestry practices indicated that marital status, educational level and household size were positive and significantly related to involvement in forestry practices. Given the significant role in, and contribution of forestry resources to rural women livelihood. The recommends that this forestry practices should be facilitated to encourage women.

KEYWORDS

Forestry practices, Livelihood options and Rural communities.

INTRODUCTION

Forestry is defined as the application of scientific knowledge to the management of forests and forest trees that either exists in its wild state or planted by individuals or group of people or government for continuous production of goods and services. The involvement of rural women in forestry activities has been ignored by policy makers in Nigeria (Adebayo and Oyun, 2010). These poor rural women have realized that in the future, natural resources needed to sustain the human population will exceed available resources at current consumption levels. Thus the agricultural livelihood of rural poor women depend on the condition of natural resources (World Bank, 2005) and having indigenous knowledge in protection and management of forestry now through self-initiated women groups has remains in forestry practices which has remains largely invisible, unrecognized and poorly reported.

Forests offer numerous benefits to local people adjacent communities (Oksanen et al., 2003; Laws, et al. 2004). Forests provide ecosystem services that serve as sources of employment cultural and aesthetic uses, subsistence uses, and direct or indirect income. Nonetheless, in many cases, access to natural resources is neither uniform nor equitable within and between communities (Shackleton et al., 2007). Usually, forests are located in rural and remote areas. Such areas are relatively underdeveloped regarding infrastructure, market, government services, jobs and health facilities. Therefore, local communities living in and around the forest areas have been falling high levels of poverty with limited livelihood opportunities. Sunderlin et al., 2005).

This important linkage between forestry and resources and rural livelihoods has affected the state of most forests.

Household livelihood security is defined as adequate and sustainable access to income and resource to meet basic needs (Adekunle, 2009). Livelihoods can be made up of a range of on farm and off farm activities which together provide a variety of procurement strategies for food and cash (FAO, 2012).

Thus, each household can have several possible sources of entitlement which constitute its livelihoods. One of the challenges faced by policy and decisions makers in Nigeria for maintaining the livelihood security is how to improve the well being of the poor in its rural communities while maintaining a viable environment.

Forest have a significant role to play in reducing vulnerability and providing safety nets and subsistence (food, fuel, wood and income) for the rural poor who depends on forest for their livelihood (FAO, 2007). But the widespread poverty in our rural communities due to slow rate of economic growth has resulted in deforestation, biodiversity loss due to over exploitation, conversion to farm slash and burn agriculture, charcoal production, bush fire etc.

Livelihood vulnerability may arise from natural disasters, human conflict, human agro ecological factors such as water vulnerability, market and price risks. Rural poor women in Nigeria are more exposed to these risks and less resilient in coping with them. They tend to have weaker political representation and to experience greater difficulty in securing their rights to land, other resources and support in times of crisis (Odoemelam and Anyim, 2017). The rural poor moreover tends to have more access to the forest than other natural capital and a few land rights elsewhere. Within these households, gender asymmetry in ownership and access to productive resources such as land causes women to rely disproportionately on non-wood forest products for income and nutrition (FAO, 2015). In addition, Shackelon *et al* 2011, stated that income generated from these activities can add significantly to their households' purchasing power.

Their involvement in these forest practices was motivated by numerous benefit, their respective household had to generate from such practices. Thus, benefit of forest and forest trees to households and community members, particularly women for fuel wood, staking materials and management for fruits, vegetables, seeds, soups condiments, herbs and income can draw their attention into practicing forestry. Therefore, they have greater stake in forest rehabilitation and management (Agbogidi and Okonta, 2003). Women carry out silvicultural operations on trees around their homestead and those in their husband's farm thereby contributing to sustainable forest management, environmental protection and biodiversity conservation. Women are also actively involved in nursery development programmes (Agbogidi *et. al*, 2009). Most women in developing countries depend largely on forest products and agriculture for livelihood. They largely need development to improve food security, reduce poverty and provide an adequate standard of living for the growing population (Ekpo and Asuquo, 2012). The broad objective of this study is to examine how involvement of women in forestry practices can improve their livelihood as well as environmental sustainability, with the following specific objectives;

1. identify the socio-economic characteristics of the women in the study area
2. identify forest resource use by the women
3. examine the type of forestry practices involved by the women in the study area
4. ascertain the factors influencing their involvement in forestry practices
5. determine the perceived effected forestry practices on their livelihood.

Methodology

The study area is Ebonyi state. The state is in South Eastern Nigeria. It is inhabited and populated primarily by the Igbos. Its capital and largest city is Abakiliki. The state is divided into thirteen local government areas which include Abakiliki, Afikpo South, Afikpo North, Ebonyi, Effium, Ezza, Ezza South, Ikwo, Ishichi, Ivo, Ohaozara, Ohaukwu and Onicha. The state shares a border with Benue state to the North, Enugu state to the west, Imo and Abia state to the South and Cross River to the East. The state are predominately farmers and traders. The main crop produced in the state are rice, yam, palm produce, cassava, melon, fruits and vegetables. They also produce honey, ogbono seed and locust bean seed, mortar with pestle, charcoal, cotton weaving and black soap using ash from indigenous forest trees within the locality. Multi stage sampling procedure was used in the selection of sample size. In the first stage, 6 local government areas were randomly selected, followed by selection of 1 community for each LGA, and selection of 2 villages from each community and finally selection of 30 rural women who are actively involved in forest practices, thereby bringing the sample size to 180 respondents.

The data were collected from both primary and secondary sources. Primary data were obtained through both formal and informal interviews. For formal interview, a questionnaire for basic information at the household level was designed prior to the field work to collect both qualitative and quantitative information. The questionnaire was first tested in the field with 20 women who are involved in forest practices. The questionnaire was administered to the respondents from the selected villages. All interview with the respondents were carried out in Igbo language although the questionnaire was written in English. These interviews were accompanied by personal observations which allowed the researchers to judge the reliability of the answers given in all selected villages. The village leader was first to be approached to get permission to carry out interviews with the respondents. The questionnaire was designed to obtain information on personal characteristics of the respondents, economic activities and environmental aspects in addition to respondent's perception on effect of forest practices on their livelihood. Informal interviews include discussion with the village leaders, extension workers and personal observation from the field visit were the methods used to collect qualitative information. Secondary data were obtained largely through the analysis of various documents relevant to the study. This includes institutional reports, records and papers which provide baseline information for the study. Data were analysed using the statistical package for the social sciences (SPSS) Calculations of the percentage was used as a tool of analysis for interpretation of the qualitative information gathered from the respondents. Regression analysis was used as an analytical tool in the study to explain the influence of some selected variable expected to affect the dependent variables and the explicit form is stated below

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7) + e$$

Where Y = dependent variable (involvement in forest practices)
 dummy variable
 and $X_1 - X_7$ = independent variable
 where

X_1 = Age (measured in years)

X_2 = Martial status (dummy variable; 1 married, otherwise 0)

X_3 = Educational level (number of years of formal schooling)

X_4 = Income (measured in naira from major occupation)

X_5 = Access to land (dummy Access 1, No access 0)

X_6 = Household size (Number of people living together under one roof)

X_7 = Empowered 1; Non 0

e = error term

Results and Discussion

Table 1: Socio-economic characteristics of the respondents in the study area

Variables	Frequency	Percentage
Age		
20 – 25	28	15.6
30 – 35	24	13.3
40 – 45	31	17.2
50 – 55	67	37.2
60 – 65	30	16.7
	180	100
Marital status		
Married	113	62.8
Not married	67	37.2
	180	100
Educational level		
Non-formal	69	38.3
Primary	34	18.9
Secondary	75	41.7
Tertiary	2	1.1
	180	100
Land holdings		
Enough access	54	30
Inadequate access	126	70
	180	100
Household size		
1 – 5	50	27.8
6 – 10	69	38.3
14+	60	33.9
Monthly income ('000)	180	100
Less than 50,000		
51,000 – 100,000		
Above 101,000		

Source: Field survey, 2017.

Socio-economic characteristics of the respondents

Results on Table 1, shows the socio-economic characteristics of the respondents. From the result about 37% of the respondents were between 50 – 55 years of age while 17% were between 40 – 45 years of age. This finding is line with (Umunna et. al, 2014), who reveals that majority of women are involved in forestry practice for farmers in Southern Guinea Savanna of Nigeria fall within the age range of 40 – 45 years. The younger ones were less involved in forest management. This may be connected with rural-urban migration by young women looking for better opportunities to improve their living standard. However, the age range of the respondents is an indication of good agricultural potential for improvement since people within this range would be more reasonable in compliance with new technologies. Also Adekunle (2009) cited that people in this age group are agile and gainfully employed in farming, hence their involvement in agro forestry practices. The study revealed that majority of the women were married (63%) while 37% were not married. Therefore, respondents that were married participated more in forest practices as a livelihood option. Adejoba and Oyewale (2014) concluded that married people were more stable and their participation would improve their standard of living which is the major impact it has on them. This may be connected with the responsibilities of women in satisfying most of the household subsistence needs. The table also revealed that a good number of the women (38.3%) had no formal education. The higher the educational level of the farmers, higher the chance of getting better paying jobs or higher the tendency to be involved in politics and less involved in forestry practices as a livelihood option. Results on land holdings indicated that only 30% of the women have enough access to land while 70% has no adequate access.

The table also reveals that a good proportion (57%) of the respondents had monthly income of less than 50,000 and were classified as low income group and the rest of the respondents had monthly income of between 51,000 – 100,000. The income status of the respondents has implication for their decision, choice of involvement in forestry

practices as well as sustainability of the enterprise. Nwibo and Alimba (2013) noted that income level of an individual plays a great role in shaping the type of enterprise to venture into. This finding is justified on the ground that the women has limited access to productive resources and so the only alternative is to venture into forestry practices to sustain their livelihood.

Table 2: Distribution of Respondents based on the type of Forestry practices involved

Types of forestry practices	Frequency	Percentage
Wood lot management	87	48.3
Nursery development	18	10
Home garden system of agro forestry	118	65.6
Boundary trees	167	92.8
Apiculture	34	18.9
Mushroom production	72	40
Fish pond	172	95.6

Multiple regression

Source: Field survey, 2017.

Results on Table 2, shows that (48.3%) of the women were into woodlot management. According to (Shuaibu, 2015) in his study discovered that women generate income from the gathering, processing and sales of indigenous tree products and this income realized from sales of the woodlots products helps on daily basis the women to provide household food and improve on their livelihood. The Table 2, also indicated that (10%) of the respondents were involved into Nursery development to produce seedlings primarily for market sales. Few people were involved in nursery development because there were no immediate income and food for household, unlike the woodlot management that money could be realized on daily basis from the sales of fruits, fuel wood and soup condiments. The table further revealed that about 65.6% of the respondents were into home garden system of agro forestry. According to (LEISA, 2004), home garden is a way of producing poultry and livestock, fresh vegetables and fruits among others. The practice of home garden in the study area shows that women are empowered through quantifiable and unquantifiable profits derived from the practices with very low input investment and surplus out. Udofia (2007) stated from his findings that between N3,000 and N7,000 were generated as a mean monthly income from home garden across the three agro ecological zones in Akwa Ibom state. An attractive feature of home garden is their resilience in nutrient advantage and environmental services, thereby creating a harmonious two-way link between providing more food and presenting sustainable environmental condition (Udofia, 2011). About (93%) of the respondents were involved in boundary tree planting. According to Uphoff and Cohen (2012), boundary trees are shrubs or other vegetative planted on the edges of fields while it could also be used as intercropping of trees on the other woody plantation within farm crops to provide demarcation or boundaries. (Walsum, 2002 stated that women are very active in afforestation practices and therefore champion communal forest management and development. About 19% of the women were involved in apiculture. There were fewer involvement in apiculture probably because of the hazard nature of bees and lack of income to invest in hives and harvesting materials (Udofia, 2011). The table further revealed that 40% of the people were involved in mushroom production and 97% were involved in fish farming respectively. () in their studies disclosed that young and married women are involved in fisheries activities. Nwabeze et. al. (2018) also stated that women in fishing communities have been observed to participate actively in fisheries.

Table 3: Perceived of effects of forestry practices on livelihood of the women

Statement	Mean
Poverty reduction	3.42
Food security	2.25
Enhancing soil fertility	2.54
Biodiversity	2.57
Environmental security	3.14
Self-employment	3.62

Source: Field data, 2017.

Poverty reduction had a mean score of ((x)⁻=3.42). The indication is

that sales of forestry products can be used to supplement regular income. World Bank (2012) cited that, forest can and must assume a more prominent role in meeting the 2000 Millennium Development Goal of halving extreme poverty by 2015. Food security had a mean score of ((x)⁻=3.25). Swingland (2002) in his findings opined that non-wood forest products are partially important in relieving hunger periods in the agricultural cycle; they provide seasonal employment and a buffer against risk and household emergencies. These rural women, however, tend to have more access to forest than other natural capital and few land rights elsewhere, hence their involvement in forestry practices. Enhancing soil fertility had a mean score of ((x)⁻=2.54). The forestry practices like boundary tree planting and other agro forestry practices enhances the soil fertility and less reliance on inorganic fertilizer. Biodiversity had a mean score of ((x)⁻=2.57). Sheer riches of biodiversity also have human benefit. Many new medicines are harvested from nature such as a fungus that grows on the fur of sloths and can fight cancer. Wild varieties of domesticated animals and crops are also crucial as some will have already solved the challenge, for example coping with salty soil in some part of Ebonyi state. If money is a measure, the services provided by ecosystems are estimated to be worth trillions of dollars-double the world GDP (Mulyoutami, et. al.2015). Women have extensive knowledge about trees that are good for subsistence, food and medicine provision and their involvement in forestry practices helps in improving soil qualities (Colter et. al 2015).

Environmental security had a mean score of ((x)⁻=3.14). The women state that their involvement in forestry practices offer them environmental security. According to (FAO, 2013), forest and trees help to mitigate climate changes by absorbing carbon dioxide and storing carbon dioxide. This can also help to reduce vulnerability of the women to climate change by providing food and other ecosystem services during critical period of climate driven food shortage.

Self-employment had mean score of ((x)⁻=3.62). According to the respondents, gathering and selling of forestry products has given us a full employment and sustenance. According to 2017, the forest based sector employees has kept over 10.3 million rural women busy with a commercial output of about 1 percent of global GDP. Also Boyd and Banzhaf in their findings stated that an estimate of 300 million people depends on forests for their livelihood while hundreds of thousands rely on them for fibre and raw materials.

Table 4: Factors Influencing Women Participation in Forestry Practices using Multiple Regression

Parameter	Linear	Semi-log+	Double-log	Exponential
Constant	9.583 (0.3385)	-26.038 (2.28) xx	1.466 (0.246)	4.104 (6.35) xxx
Age	-0.552 (0.0207)	28.731 (0.2831)	0.250 (1.573)	0.457 (4.18) xxx
Marital status	0.0522 (0.0167)	68.0235 (4.5033) xxx	0.366 (2.036) xx	0.440 (1.30)
Educational level	0.8180 (0.0338)	88.3031 (2.0663) xx	-0.178 (-1.031)	0.206 (4.28) xxx
Income	0.0915 (0.0308)	34.2314 (3.115)	0.046 (0.017)	0.579 (0.76)
Access to land	-1.635 (-0.230)	0.135 (0.965)	-0.033 (-2.019) xx	0.284 (2.26) xx
Household size	0.698 (12.652) xxx	2.88 E-066 (4.703) xxx	0.513 (3.471) xxx	155.4 (7.833) x
R ²	0.504	0.727	0.7478	0.656
Adjusted R	0.464	0.703	0.7342	0.639
F-ratio	78.43 xxx	30.67 xxx	25.208 xxx	251.77 xx

Source: Field data, 2017.

xxx = 1%

xx = 5%

x = 10%

Figures in parenthesis are t-values

Factors Influencing Women Involvement in Forestry Practices

To test for factors influencing women involvement in forestry practices, multiple regression analysis was used. The choice of multiple regression is because the beta weight helps to measure how each factor contributes or constrain or influence women involvement

in forest resources (Eneji et.al, 2015).

The result in Table 4, shows that three factors out of the six factors included were statistically significant at various levels. The semi-log production form was chosen as the lead equation for the analysis based on conformity with a prior expectation of signs, magnitude and coefficients, overall significance of the functional form (F-statistics) as well as the explanatory power of the variables adjusted (R²) included in the model. The F-value is statistically significant at 1% level which implies that the independent varies (X₃) included in the model, best explained the independent variables (Y), involvement. In table 4 that the R² is 0.737 and it implies that the regression model was a good fit and also 73.7% of the total independent variables (marital status, educational level, and household size etc.) included in the model while the remaining 27.3% was due to error of estimation and other factors outside the scope of this study and therefore, this model has a sound explanatory power and can be used for forecasting purposes.

Conclusion and Recommendation

The study revealed that the women in the study area have highly specialized knowledge of trees and forest in terms of biodiversity, sustainable management and use for various purposes

They were aware of the food and medicinal values of forest products which were particularly important during food crisis. Therefore, we conclude that their involvement in forestry in forestry practices supported their livelihoods.

Based on the conclusion of the study, we recommend that policies and practices empowering women in the forest sector should be encouraged; as this will yield significant benefit to food security and nutrition and the sustainable management of forest in the study area.

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