

GENDER ANALYSIS OF ACCESS AND USE OF INFORMATION FOR MANAGING CLIMATE RISK BY AGRO-FORESTRY FARMERS IN OYO STATE NIGERIA

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Abstract

Accessibility and use of relevant information by farmers will improve the capacity of farmers to manage the risks associated with climate change and variability. The aim of this study is to assess the role of gender in information accessibility and use by agroforestry farmers in Oyo state, Nigeria. The study was conducted in 2018 among agroforestry farmers in Oyo state Nigeria. Data used for the study was collected using structured questionnaire and focus group discussion. The data obtained were qualitatively analysed using STATA statistical package. Result from the study showed significant different in the percentage of male respondent that have access to information when compared to female, 67% of male respondents have access to credit facilities compare to 33% of females. Result shows that 10% of male farmers were cultivating on borrowed land, compared to 15% female farmers, 40% of male farmers purchased their land compared to 35% of female. Higher percentage (25%) of female was on rented land, compared to the male farmers (20%). The result also showed significant difference in inherited land with (25%) of males inheriting land compared to (5%) of females. Climate information and accessibility result shows that 65% of male respondents have knowledge of climate change compare with 47% of female respondents that have knowledge of climate change. The study concluded that there is need to develop policies and interventions that can improve the potentials of female farmers to access facilities and information to enhance productivity and reduce risk associated with climate change.

Key Words: *Climate change, Credit facilities, Land, Information*

Introduction

Agriculture and forestry play critical roles in the economy of Nigeria and among the livelihood strategies of a majority of families in Nigeria. Despite its importance, agriculture in Nigeria is marked by low productivity, low levels of investment, and high levels of weather and climate-related risks. Climate change

poses significant threat to rural farmers in South West Nigeria whose livelihoods depend mainly on rainfall. This threat is aggravated by their poor financial and technical ability to adapt. Accessibility and use of climate information by farmers are expected to improve the capacity of farmers to manage the risks associated with climate variability and change and in

doing so, transform investment in this important sector. Given the degree to which relevant information, especially weather and climate shape agricultural production, a great deal of research, (Lawanson, 2010; Oyekale, 2015 and Egwuonwu, 2018) has focused on how farmers access and use information for decision making and the role gender plays in information accessibility and use by farmers in Africa.

Information is an important requirement for sustainable agricultural development in any economy (Pope *et al.*, 2017). Information is one of the appropriate tools, which can be relied upon to increase food production. Information as a factor of production is necessary to increase productivity; hence timely availability of relevant information is vital for effective performance in any agricultural activities. FAO (2009) reported that poverty in Nigeria has a strong linkage with agricultural stagnation due to declining productivity as a result of low use of information. Lack of information has impacted negatively on the development process.

Generally, African women farmers have less accessibility to useful information that can enhance productivity and reduce risk associated with agricultural production (Jost *et al.*, 2016). This makes women more vulnerable to climate change and its impact. With about 40–60% women involved in agriculture in Africa, increasing access to useful information that can increase productivity and enhance their resilience to climate change is thought to be an important step in improving food security in the region (Doss, 2018).

Effectively targeting women and improving their access to information and necessary technologies on the use of agricultural innovations and information is essential to increase food production in

Nigeria (Partey *et al.*, 2018). This study is therefore aimed to determine whether gender is a determinant of information accessibility and use; and whether men and women benefit and face similar constraints in the use of climate information. Findings of this study will be crucial for the development of gender responsive adaptation strategies that helps women mitigate climate related risks and build resilient livelihoods.

Materials and Method

Study Area

The study was conducted with agroforestry farmers in Ibadan the capital of Oyo State in Nigeria. Ibadan is located in the southwestern part of Nigeria; on longitude 3°54' of the Greenwich median and latitude 7°54' north of equator. The city is elevated at about 234 meters above the sea level. The 2006 census put the total population of Ibadan 2,550,593 while the average population density was 828 person per km² (NPC, 2006). Ibadan metropolis consists of eleven local government areas. Five of the local government areas are urban. These include; Ibadan north, Ibadan north east, Ibadan north west, Ibadan south, Ibadan south east, while the remaining six are rural. They are Akinyele, Lagelu, Egbeda, Onara, Oluyole, and Ido local government. The major farming activity practiced in the area is crop farming; the main crops cultivated in the area are cassava, maize, coco-yam, vegetables, plantain, rice, groundnut, beans.

Methodology

Data Collection

Information on different aspect of the study was obtained through the administration of questionnaire on individual agroforestry farmer in Ibadan.

The information collected using the questionnaire included demographic information of farmers; socio-economic characteristics of the farmers including resource endowments, sources of income and accessibility to land; accessibility to loan; accessibility and use of climate change information. The information collected from the questionnaire interviews was further validated through FGDs, informal interviews and general observations.

Analytical Technique

The data obtained were qualitatively analyzed using descriptive statistics and regression analysis. The descriptive analyses consist of tables and graphs used specifically to describe the socio-economic characteristics of the farmers. Gender comparison was calculated using Pearson chi-square. Significance was set at $P < 0.05$. Data collected was analyzed using STATA statistical package.

Results and Discussion

The socioeconomic characteristics of the agroforestry farmers are represented in Table 1. The study shows that 64.3% of the respondents are male while 35.7% are

female. Doss *et al.* (2015) reported that about 40-60% of farmers in sub Saharan Africa are female. This shows the importance and contribution of women to agriculture and food security in Nigeria. The result shows that 42.9% of the respondents are over 50 years of age while 28.6% of the respondents were less than 40 years of age. This suggests a low involvement of youth in agriculture in the study area. Several studies (Swarts and Aliber, 2013; Doss *et al.*, 2015) have also reported low involvement of youth in agriculture in different countries in sub Saharan Africa.

Most of the farmers have formal education (89 %); with primary level (21%), secondary education levels (53%) and tertiary (14%). This study agrees with Ijatuyi *et al.* (2017) and Egwuonwu (2018) who both reported that respondents had one form of education in similar studies conducted in Nigeria. The studies show that 28.6% of respondent has 1-10 years farming experience, 42.8% has 11-20 years experience and 28.6% has experience of 20 years and above.

Table 1: Socioeconomic characteristics of Agroforestry farmers

Socioeconomic characteristic	Frequency (n=120)	Percentage
Sex		
Male	77	64.3
Female	43	35.7
Age (years)		
0-20		
20-30	12	10.7
30-40	22	17.9
40-50	34	28.5
50-60	30	25.0
60-above	22	17.9
Marital Status		
Single	34	28.6
Married	64	53.6
Divorced	22	17.8
Widowed		
Educational status		
Non-formal	13	10.7
Primary	26	21.4
Secondary	64	53.6
Tertiary	17	14.3
Farming Experience		
1-10	34	28.6
11—20	52	42.8
20 – above	34	28.6

Gender Based Analysis of Agroforestry Farmers Accessibility to Credit Facilities

The gender analysis of agro forestry farmer’s access to credit facilities in the study area is presented in table 2. Income disparities between men and women are well documented in the literature (Seguino and Were, 2014; Pérez *et al.*, 2015). Comparatively, women have been reported to have less access to credit facilities and other facilities such as fertilizers, improved seed and irrigation (Partey *et al.*, 2018). Result from this study shows that male respondent has significantly higher (67%) access to credit facilities compare to the females (33%). Male respondent significantly higher access to bank loan when compare to the females. 20% of male respondent have

access to agricultural bank loan compare to 12% of female , and 15% of male respondent have access to commercial bank loan compare to 3% of female. The main source (77%) of credit facility by female farmers is cooperative societies. Access to agricultural credit has been positively linked to agricultural productivity in several studies in Nigeria (Rahaman and Marcus, 2004 and Abu *et al.*, 2011). This study agrees with Omonona *et al.* (2008), who reported a significant relationship between farmer’s sex and access to credit in Nigeria. In a similar study conducted in Benue State Nigeria, Jeiyol *et al.* (2013) reported that females farmers generally have lower access to credit facilities., especially credit facilities from agricultural and

commercial banks. He reported that lack of collateral and no bank account are the

main factors limiting access to credit facilities by female farmers.

Table 2: Gender analysis of agro forestry farmer's accessibility to credit facilities

Characteristics	Male (%)	Female (%)	P value
Access to credit	67	33	0.0325*
Source of credit			
Agricultural bank	20	12	0.035*
Commercial Bank	15	03	0.023*
Cooperative Bank	55	70	0.054*
Friends and Family	10	15	0.065*

Gender Based Analysis of Access to Land by Agroforestry Farmers in Oyo State Nigeria

Land is the most valuable form of property in agrarian societies because of its economic importance and political significance. (Bioye *et al.*, 2006). Land ownership, and accessibility are very crucial for any meaningful agricultural development. The table on gender based access to land by agroforestry farmers (table 3) shows that 10% of male farmers are using borrowed land for farming compared to 15% female farmers.

40% of male farmers purchased their land compared to 35% of female. Higher percentage (25%) of female rented the land they are using when compared to the male farmers (20%). The result also shows a significant (P<0.05) disparity in inherited and gifted land with (25%) of males inheriting land compared to (5%) of females and 5% of males received the land as gift compared to 20% of female. Lawanson (2010) reported that Nigeria is a typical patriarchal society where male superiority and dominance originated from historically rooted culture and religion. The finding of this study on land inheritance and ownership was in

conformity with Lawanson (2010) and Afonja *et al.* (2002). Lawanson (2010) suggested that the low accessibility of female to agricultural land could be as result of sociocultural factors that is hindering female from owning land. The result of land size shows that male farmers cultivated larger size of land compared to the female farmers. The result shows that 70% of female cultivated 1-3ha of land compare to 55% of male, 25% of female cultivated 4-6ha of land compared 30% of male while only 15% of male (P<0.05) farmers cultivated above 6ha of land compared to 5% of female farmers. This finding confirms reports on gender inequalities in land ownership in Africa (Doss *et al.*, 2015; Njoh and Ananga, 2016). Partey 2018 reported that most women farm on land of less than 1 ha, with land sizes for both men and women not exceeding 5 ha. Such land sizes are characteristic of Africa's subsistence farmers which adds to the growing evidence that agriculture production systems in Africa need to be intensified and diversified to meet the food security requirements of the region (Tittonell and Giller, 2013; Palm *et al.*, 2017).

Table 3: Gender based analysis of access to land by agro forestry farmers in Oyo State Nigeria

Characteristics		Male (%)	Female (%)	P value
Land Ownership	Borrowed	10	15	0.093
	Purchased	40	35	0.162
	Gifted	5	20	0.026*
	Rented	20	25	0.096
	Inherited	25	05	0.023*
Land size (ha)	1-3	55	70	0.054
	4-6	30	25	0.089
	Above 6	15	05	0.023*

Gender Based Analysis of Access to and use of Climate Information by Agroforestry Farmers

In the context of a changing climate (IPCC, 2013) and the high exposure of developing countries to climate change risks (Hewitson *et al.*, 2014), it is important that farmers have access to climate information to help reduce risks and utilize opportunities. With climate information, farmers can strategically plan their farm operations and adopt strategies that improve their adaptive capacity in the face of climate risks. Table 4 shows significant difference (65%) in the number of male respondents that have knowledge of climate change compare with female (47%) that have knowledge of climate change. The study shows that 53% of female has no knowledge of climate change compared to 35% of men. Harvey *et al.* (2009) expressed concern that information sharing among climate

change actors, especially vulnerable women and the elderly in Africa is limited. This study shows that most of the respondent receive climate information through radio and Television. Table 4 shows that 45% of male and 62% of female respondent receive climate information through either radio or television. Access to climate information via radio has been linked to low cost, wide coverage, use of vernacular language and low maintenance cost (Oyekale, 2015). This study shows that family members and friends also is a good source of climate information to respondent, as 20% of male respondent and 23% of female respondent receive climate information from families and friends. The percentage of male farmers that have access to climate information from Research Institutions is also significantly higher (15%) that the percentage of females (1%).

Table 4: Gender based analysis of access to and use of climate information for agro forestry farmers in Oyo State

Characteristics	Male (%)	Female (%)	P value
Knowledge of Climate change	67	47	0.048*
Source of climate information	45	62	0.048*
Yes	67	47	0.048*
No	35	53	0.048*
Extension Agents	15	10	0.094*
Local NGOs	05	04	0.292
Friends and Family	20	23	0.210
Research Institute/ Higher institution	15	01	0.01*

Conclusion

This paper shows that women make essential contributions to food production in Ibadan, Oyo state. Women are vital instrument for any meaningful development in agricultural production in Nigeria. However, there is much disparity in women's accessibility to information and facilities that can enhance production and reduce risk to emerging challenges like climate change.

This study shows that there is a significant disparity in access to credit facilities by female farmers compare to their male counterpart. There was gender differences in land accessibility in the study area as male were found to have more access to agricultural land than their female counterparts. Accessibility to inherited land is influence by the culture and tradition of the people of Oyo state that gives the right to land inheritance solely to the male child. It is therefore important that society and government restructure the system of land holding and accessibility to include the vulnerable group as this can have a significant effect on food production in Oyo State and in Nigeria at large. Also, land tenure policies should be restructured to ensure that farmers (male and female) have equal access to agricultural land. Accessibility

to climate information is very important in risk management by farmers. Female farmers in this study have less knowledge about climate change and have less accessibility to climate information that can guide decision making and reduce risk from climate induced extremes.

This study shows that there is disparity in accessibility to information and facilities that can enhance food production by female farmers in the study area. For Nigeria to significantly increase food production there is need to develop policies and interventions that can improve the potentials of female farmers to access facilities and information that can enhance their productivity and reduce risk associated with changing climate.

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