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The Role Of Women In Agriculture In Niger Delta Region Of Nigeria

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ABSTRACT
Women's considerable contribution to agriculture, particularly food production and fishing, has been well established, and their involvement should be strengthened. Also, women are known for dual responsibility of looking after the household and their agricultural operations and are largely responsible for family welfare. At the height of the agricultural season, women are extremely busy. They are farm workers, fishers, produce processors and vendors as well as entrepreneurs. All these activities play an essential role in sustaining the domestic economy. However, the challenge of measuring the level of participation, particularly across cultures and contexts, is also garnering attention. This paper utilised qualitative and quantitative surveys to examine the role of women in agriculture. Relevant data was gathered with the help of a questionnaire and focus group discussions. The analysis of the data was done using inferential and descriptive tools. The outcomes demonstrated that women are highly engaged in every agricultural activity except for land clearing and pest and disease control activities in crop production. Correlation results showed that the socio-economic circumstances have no impact on women's participation in fishing, but age, household size, and income have an impact on participation in crop production. This study recommends that institutional support, investment in research and extension services and access to assets for women to balance their roles and participation and well-being, which arise from access to assets for women. This is especially important if Nigeria hopes to achieve its developmental priorities of poverty reduction and gender equality for its citizens as envisioned in the SDGs.
Keywords: Women farmers, Women fishers, Level of participation, Ijaw rural women, Niger Delta.

1. INTRODUCTION

Agriculture enhances the development of countries through economic growth when embraced by poor people (World Bank, 2025). Unfortunately, agriculture is not doing well in developing countries, owing partly to the fact that women, who constitute a considerable portion of farmers in the economy, and toil as labourers and entrepreneurs, are faced with marginalisation and undue constraint in their bid to have access to available productive assets (Njobe, 2015). The challenges to accessing productive resources are more peculiar to women than men (World Bank, 2022; FAO, 2010).

Women in rural areas manage households in their various abodes as well as pursue various livelihood activities. They get involved in several livelihood activities, including firewood and water fetching, fishing, crop production, home maintenance, etc (Raidimi, 2014 in Benson et al., 2017). These activities are not economically active engagements, but are rather meant for the sustenance of their various households. (UN Women, 2023; SOFA team & Doss, 2011). Valuing agricultural output assessment based on gender is problematic because crop production involves both sexes in several agrarian households (Maduka et al., 2023; Doss, 2014, in Quisumbinga & Doss, 2021). This may be possible if specific crops grown are associated with a particular sex in terms of totalling the outputs against each sex. This approach has sometimes been used by researchers, particularly in West Africa, where identifiable gender cropping patterns exist (Duflo & Udry, 2001, cited in SOFA Team & Doss, 2011). Yet, a careful analysis of agriculture in Ghana finds that while there are gendered patterns of cropping, the distinctions between men's and women's crops do not hold up well enough to use them to make inferences about men's and women's relative contribution to production (Nordhagen et al., 2020). Moreover, Doss (2002) opined that gendered patterns of cropping may change over time.

Women rarely embark on offshore and far-distance commercial fishing because it is strenuous work and their other involvements or commitments at home (Agbebi et al., 2016). Women mainly do their fishing within inland waters (Harper, 2020). Women are entrepreneurs and also providers of labour in artisanal and commercial fisheries. A typical example is West Africa, where some women known as Fish Mamas do fishing. Such women handle or coordinate the fisheries chain (Monfort, 2015; SOFA team& Doss, 2011). Women, even though active in the seafood industry, are invisible (Gustavsson, 2020). Their participation is constrained by cultural rules and social norms. Their access to resources is constrained, limiting them to small-scale operations, low-paying hired labour and unpaid support roles, making them vulnerable to shocks or negative external events and further limiting their access to credit.

Several factors affect the role in agriculture, and their level of participation, that is, the agricultural activity women do and the extent to which they are involved, respectively. These factors could include age, social class, ethnic group, production cycle, type of activity and geographical factors (SOFA team & Doss, 2011). Botreau & Cohen (2020) have a holistic view of the determinants. They opined that social norms and constructs such as patriarchy create barriers that restrain social participation by constraining women's access to productive and financial resources. Patriarchy brings about gender inequality that limits women's access to resources, such as land, credit access, extension services, education, and key decision-making positions, among others (Sexsmith et al. 2017 in Botreau & Cohen, 2020). Other limited productive resources are innovative and labour-saving techniques or technologies, education, marketing services, etc. (Lozano-Corona, 2023).

Women, however, play a vital role in various segments of the production process, though these roles and their level of participation in agriculture can vary across and within regions. Their participation is a function of social, economic and geographic factors. Generalising women's role in agriculture based on the available statistics for the world, Africa, and Nigeria may conceal variations that may exist in different geographies and ethnicities and their effectiveness in policy and planning. It is expedient to study women's work in agriculture, to determine how to aid them properly, especially due to the severe economic troubles the country is facing. To increase or boost food production as well as guarantee higher income and better living circumstances for the most vulnerable in rural societies, wise investments are required.

Therefore, this study focused on the rural Ijaw (a key ethnic group in the Niger Delta) women farmers. It looks at the relationship between the socio-economic characteristics of the women engaged in agriculture and their level of participation in agriculture.

2. MATERIALS AND METHODS

Study Area: Location

The Ijaw people have notable communities in six States in Nigeria. They are Bayelsa, Rivers, Akwa Ibom, Delta, Edo and Ondo States (Ndimele, et al., 2009; Ikporukpo & Akpoghomeh, 2009). These States are located within the Niger Delta region of Nigeria. The area lies within latitudes $4^0 0'0"$N and $7^0 0'0"$N

of the equator and longitudes 4^0 0'0"E and 8^0 0'0"E of the Greenwich meridian. The region is bounded at the south by the Atlantic Ocean (Figure 1).

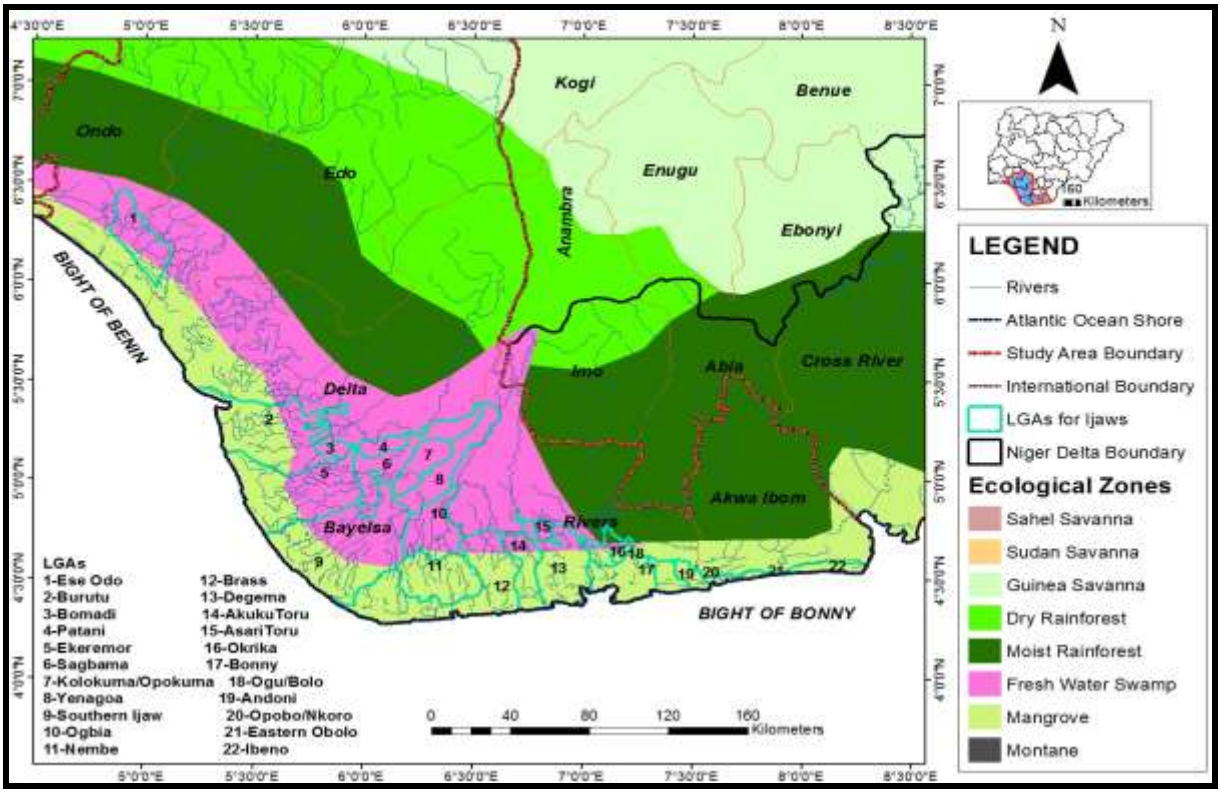

Figure 1. The study area shows 22 LGAs under study.
Source: Cartography and Geographic Information System laboratory, University of Port Harcourt.

The population of this study consists of women farmers in rural households, who live in Ijaw communities within the Niger delta region of Nigeria. In this region, there are 32 local government areas (LGAs) with notable Ijaw communities in six States. These States include Akwa Ibom, Rivers, Bayelsa, Delta, Edo and Ondo States. However, some of the LGAs are largely shared with other tribes. For the purpose of this study, only rural communities that fall within LGAs that are predominantly of Ijaw extraction make up the study population. Therefore, the population consists of rural communities from 22 LGAs in 5 States in the Niger Delta region of Nigeria. These LGAs are predominantly occupied by the Ijaw people.

The study area has a Tropical rainforest climate. It is characterised by warm temperatures and regular rainfall (National Geographic Society, 2017). The area has a wet and dry season. The wet season lasts between seven to eight months, from March to October. There is a brief break in rainfall, usually in the month of August. The dry season starts from November to February. Mean annual rainfall is highest at over 4000mm in coastal towns like Bonny and Brass in Rivers and Bayelsa States, respectively. It reduces further inland to 3000mm in the middle-delta in towns like Yenagoa and Warri in Bayelsa and Delta States, respectively. In the northern parts of the study area in Edo and Ondo States, annual rainfall falls between 1500mm -2000mm, temperatures are relatively high all year round. Average monthly maximum and minimum temperatures range from 28ºc to 33ºc and 21ºc to 23ºc respectively, rising towards the north and west.

Low relief and poor ground drainage are prevalent in the study area. The Niger River delta is underlain by soft, young sedimentary rocks, gently undulating plains, which become waterlogged during the rainy season (Udo et al., 2017). According to the NDDC (2006), the pattern of settlement in the Region is

mainly dependent on the availability of dry land and the nature of the terrain. Most settlements comprise largely rural communities in dispersed village settlements. There are also a few townships and cities. River Niger is the major river in the region. At the delta, the River Niger divides into numerous channels and forms a network of distributaries. These rivers drain the region, flowing southwards into the Atlantic Ocean through the Gulf of Guinea. Some of these rivers include the Nun, Forcados, Escravos, Brass, Sambrero and Bonny (Mabogunje, nd in Encyclopedia Britannica, 2017).

There are two main ecological zones: The Mangrove Forest and the coastal zone, and the Freshwater Swamp Forest zone. The Mangrove Forest and coastal zone are characterised by consistent saltwater inundation. Acid sulphate, silty clay, clay loam, and peat (Chikoko) soils are dominant in this zone. They are saline and have almost neutral pH when the soil is wet, but when the soils are uncovered and dry, the sulphides become oxidised to sulphuric acid, making the soil very acidic with pH 3 and incapable of supporting vegetation (Abere & Ekeke, 2011). The badly drained sandy soils are not conducive for farming, thus, mangrove forests are hardly used for farming (NDDC, 2006). Similarly, Aregheore (2009) opined that except for swamp rice cultivation in areas that have been stabilized and are non-saline, coastal swamps are not widely cultivated in the Niger Delta region. The mangrove region forms a vegetation belt 15 to 45km wide parallel to the coast. The vegetation consists of red mangrove, white mangrove, flowering plants (Combretaceae), Nypa Palms, among others (Abere & Ekeke, 2011).

The freshwater swamp forest zone is the region's major source of timber and forest products. It is also good for agricultural and fishing activities. Within this zone, there are areas that are flood forests and tidal-freshwater regions. The former has high flood levels, enormous sandy river channels, and several floodplain lakes. There are also back swamps, flood-free levees, and cane forests. Huge portions of the forest are inundated during the floods. This creates large seasonal nurseries for fish. The flood decreases the farming season. However, fertile silt deposits from the flood, enables yearly cropping devoid of fallow periods. The tidal-freshwater zones are always swampy with more constricted and muddy channels, located between the flood forest and mangrove zone.

The people are known as the Ijaws, and their main language is Izon. There are, however, other dialects that are quite dissimilar. Bayelsa State is made up of 8 local government areas (LGAs), which are of Ijaw extraction. Rivers State has 23 LGAs, out of which 8 are of Ijaw extraction. They are Akuku-Toru, Asari-Toru, Degema, Bonny, Opobo/Nkoro, Andoni, Okrika and Ogu-Bolo LGAs. Also, there is a residual Ijaw population in Abua-Odual LGA, Ahoada West LGA, Ogba/Egbema/Ndoni LGA and Port Harcourt LGA belonging to Engenni, Okrika and Kalabari Clans. Delta State has 25 local government areas. There are Ijaw communities in 6 of these local government areas. They are Bomadi, Burutu, Patani, Warri South, Warri Southwest and Warri North LGAs. Bomadi, Burutu, and Patani LGAs are of Ijaw extraction, while Warri South, Warri Southwest and Warri North LGAs are a combination of the Ijaws and other tribes. Akwa Ibom State has 31 LGAs. Only 2 LGAs are Ijaw; Eastern Obolo and Ibeno LGAs. Edo State has 18 LGAs. The Ijaws have communities amongst the major Edo tribes in 3 LGAs. They are Ovia North-East, Ovia-South-West and Ikpoba-Okha LGAs. In Ondo State, one out of 18 LGAs is of Ijaw extraction. It is the Ese-Odo LGA.

Sample Size and Sampling Methods

For this study, only rural communities that fall within LGAs that are predominantly occupied by people of Ijaw extraction make up the study population. Ovia-Northeast, Ovia-Southwest and Ikpoba-Okha in Edo State; Warri South, Warri Southwest and Warri North LGAs in Delta State and Abua-Odual, Port Harcourt, Ogba/Egbema/Ndoni and Ahoada LGAs in Rivers State are largely shared with other tribes. Thus, 22 LGAs in 5 States will make up the sampling population: Southern-Ijaw, Kolokuma/Opokuma, Sagbama, Yenegoa, Brass, Nembe, Ekeremor and Ogbia LGAs in Bayelsa State; Bomadi, Burutu and Patani LGAs in Delta State and Ese-Odo LGA in Ondo State. A simple random sampling technique was used to select the sample. Reconnaissance survey of the Rivers State and Bayelsa State Agricultural Development Programme offices, as well as some of the rural areas, revealed the want of organised farming and fishing associations from which the population of the women farmers and fisherwomen can be ascertained. Thus, the sampling was done using the households. A sample size of 400 was used for this study.

The simple random sampling technique was employed in the selection of the sample. From each LGA, 2 communities were randomly selected, giving a total of 44 communities. Thereafter, 400 interview schedules were administered proportionately across the communities, based on the number of households in each community. However, only **349** were deemed useful. The Focus Group Discussion (FGD) consisted of 4 men (including two youths) and 4 women (including two youths) per group. Participants were purposively picked. A total of 22 FGDs were held, one in each LGA. Thus, a total of 176 participants were interviewed.

Instrument for data collection

The interview schedule was used to collect primary data. A semi-structured interview schedule was administered by trained enumerators to 400 women in 400 households of 44 rural Ijaw communities. Only 349 schedules were deemed useful for the analysis. The Focus group discussions were recorded using a voice recorder, which was later transcribed for easy interpretation. Data for fishing was collected from 14 LGAs that fell largely within the Mangrove Forest and Coastal zone, while data for crop production was collected from 8 LGA that fell within the freshwater swamp zone. This is occasioned by the fact that lands in the mangrove forest and coastal zone is not widely converted for crop production purposes. On the other hand, land in the freshwater zone is commonly cultivated for crop production and is conducive for crop production (NDDC, 2006).

Method of data analysis

The data collected were analysed using descriptive and inferential tools. Bar graphs and frequency tables were the descriptive tools used. The research hypothesis states that there is a significant relationship between the socio-economic characteristics of women and their level of participation in agriculture in the study area. The hypothesis was examined using the Spearman rank correlation test with the aid of the Statistical Package for Social Sciences (SPSS) software version 22.0. The dependent variable (y) is the score for the level of participation of females who engage in agricultural activities. The independent variables ($x_1 \ldots x_n$) are the socio-economic features of the female farmers. They include the household size (x_1) was operationalized by ranking numerous groups of household sizes; Age (x_2) operationalized by ranking various age cohorts; educational status (x_3) measured by ranking various levels educational background from illiterate to tertiary degrees; Income(x_4) was measured by ranking groups monthly income from less than N10,000 to N100, 000 and above; and Marital status (x_5) was measured by ranking unmarried (single, divorced separated and widowed) – 1, married -2, Due to disparities in the way farming and fishing operations are carried out and the level of participation of farmers and fishers, the hypothesis was tested for the farmers and fishers separately. The qualitative data was analysed using narrative analysis

3. RESULTS

Socio-economic characteristics of the women engaged in agriculture

This section involves the socio-economic characteristics of the women engaged in agriculture. It presents information on household size, age, educational status, marital status, monthly income of respondents and monthly income of husbands of married respondents.

Table 1: Household Size of Respondents

Household	Akwa Ibom	Rivers	Bayelsa	Delta	Ondo	Total
1-3	1(6.2)	17(13.8)	29(24.6)	23(33.3)	3(13.0)	73(20.9)
4-6	9(56.2)	69(56.1)	56(47.5)	24(34.8)	10(43.5)	168(48.1)
7-9	5(31.2)	29(23.6)	24(20.3)	18(26.1)	8(34.8)	84(24.1)
10 and above	1(6.2)	8(6.5)	9(7.6)	4(5.8)	2(34.8)	24(6.9)

Source: Field Survey (percentage in bracket)

The analysis of size of household in table 2, reveals that the bulk of the respondents had household size of 4-6 with 48.1%, 20.9% of the respondents had household size of 1-3, while 24.1% and 6.9% had size of households of 7-9 and 10 and above respectively. The majority of the respondents in Akwa Ibom (56.2%), Rivers (56.1%), Bayelsa (47.5%), Delta (34.8%) and Ondo States (43.5%) had 4-6 numbers of

households. While the proportion of respondent household size of 10 and above was: 6.2% in Akwa Ibom State, 6.5% in Rivers State, 7.6% in Bayelsa State, 5.8% in Delta State and 34.8% in Ondo State.

Table 2: Age of Respondents

Age (Years)	Akwa Ibom	Rivers	Bayelsa	Delta	Ondo	Total
15-24	0(0.0)	1(0.8)	7(5.9)	1(1.4)	0(0.0)	9(2.6)
25-34	1(6.2)	18(14.6)	27(22.9)	13(18.8)	6(26.1)	65(18.6)
35-44	2(12.5)	29(23.6)	38(32.2)	17(24.6)	9(39.1)	95(27.2)
45-54	9(56.2)	24(19.5)	32(27.1)	18(26.1)	2(8.7)	85(24.4)
55-64	4(25.0)	35(28.5)	13(11.0)	11(15.9)	4(17.4)	67(19.2)
65 and above	0(0.0)	16(13.0)	1(0.8)	9(13.0)	2(8.7)	28(8.0)

Source: Field Survey (percentage in bracket)

The distribution of their age presented in Table 2 shows that most of the respondents were between 35- 44 years, with 27.2% and followed by those in the age bracket of 45-54 years with 24.4%. Older people of 65 years and above were just 8%, while the younger age bracket of 15-24 years was the least (2.6%). Most of the respondents in Akwa Ibom State (56.2%) and Delta State (26.1%) were between the ages of 45-54 years, while in Rivers State, 28.5%, the majority were between 55-64 years. But in Bayelsa State (32.2%) and Ondo State (39.1%), larger percentages of the respondents were between 35-44 years. Across the State, most respondents were of working age.

Table 3: Education Level of Respondents

Level of education	Akwa Ibom	Rivers	Bayelsa	Delta	Ondo	Total
Illiterate	3(18.8)	27(22.0)	13(11.0)	14(20.3)	5(21.7)	62(17.8)
Can read and write without formal education	1(6.2)	11(8.9)	4(3.4)	1(1.4)	3(13.0)	20(5.7)
Primary school not completed	4(25.0)	15(12.2)	1(0.8)	7(10.1)	1(4.3)	28(8.0)
FSLC (Primary school completed)	7(43.8)	29(23.6)	28(23.7)	23(33.3)	2(8.7)	89(25.5)
WASCC (secondary school completed)	1(6.2)	32(26.0)	54(45.8)	20(29.0)	7(30.4)	114(32.7)
OND/NCE	0(0.0)	7(5.7)	14(11.9)	4(5.8)	5(21.7)	30(8.6)
B. Degree/HND	0(0.0)	2(1.6)	4(3.4)	0(0.0)	0(0.0)	6(1.7)

Source: Field Survey (percentage in bracket)

Table 3 shows the educational level of respondents in the study area. The majority of the women engaging in agriculture have FSLC (25.5%) and WASC (32.7%). However, 17.8% are illiterate, and 5.4% of the women can read and write without formal education, while those with tertiary education among the respondents were 10.3%. In Akwa Ibom (43.8%) and Delta States (33.3%), the majority of the women had FSLC. While in Bayelsa (45.8%), Rivers (26.0%) and Ondo States (30.4%), the larger percentage of the respondents had WASSC certificates (secondary completed).

Table 4: Marital Status

Marital status	Akwa Ibom	Rivers	Bayelsa	Delta	Ondo	Total
Married	10(62.5)	68(55.3)	80(67.8)	49(71.0)	12(52.2)	219(62.8)
Unmarried:						
Singled	2(12.5)	11(8.9)	12(10.2)	4(5.8)	0(0.0)	29(8.3)
Divorced	1(6.2)	6(4.9)	7(5.9)	5(7.2)	0(0.0)	19(5.4)
Widowed	3(18.8)	32(26.0)	12(10.2)	8(11.6)	6(26.1)	61(17.5)
Separated	0(0.0)	6(4.9)	7(5.9)	3(4.3)	5(21.7)	21(6.0)

Source: Field Survey (percentage in bracket)

Table 4 shows the analysis of the marital status of the respondents. Most of the women are married, constituting 62.8% of the population, 8% are single, 5.2% are divorced, 17% are widows, and 6% are separated. Therefore, 36.6% of the respondents are unmarried, while 62.8% of the respondents are

married. The majority of the respondents are married. They include: 62.5% in Akwa Ibom, 55.3% in Rivers, 67.8% in Bayelsa, 71.0% in Delta and 52.2% in Ondo States. While 37.5% in Akwa Ibom, 44.7% in Rivers, 32.2% in Bayelsa, 28.9% in Delta and 47.8% in Ondo States are unmarried.

Table 5: Monthly income of husbands

Monthly Income (NGN)	Akwa Ibom	Rivers	Bayelsa	Delta	Ondo	Total
Less than 10,000	0(0.0)	4(7.4)	9(12.3)	1(2.6)	1(9.1)	15(8.0)
10,000 - 19,999	0(0.0)	14(25.9)	5(6.8)	0(0.0)	0(0.0)	19(10.2)
20,000 - 29,999	0(0.0)	8(14.8)	9(12.3)	5(12.8)	0(0.0)	22(11.8)
30,000 - 39,999	2(20.0)	11(20.4)	7(9.6)	9(23.1)	1(9.1)	30(16.0)
40,000 - 49,999	2(20.0)	3(5.6)	9(12.3)	7(17.9)	5(45.5)	26(13.9)
50,000 - 59,999	3(30.0)	1(1.8)	12(16.4)	5(12.8)	3(27.3)	24(12.8)
60,000 - 69,999	2(20.0)	2(3.7)	5(6.8)	3(7.7)	1(9.1)	13(7.0)
70,000 - 79,999	0(0.0)	5(9.3)	8(11.0)	2(5.1)	0(0.0)	15(8.0)
80,000 - 89,999	1(10.0)	2(3.7)	3(4.1)	4(10.3)	0(0.0)	10(5.3)
90,000 - 99,999	0(0.0)	3(5.6)	5(6.8)	3(7.7)	0(0.0)	11(5.9)
100,000 and above	0(0.0)	1(1.8)	1(1.4)	0(0.0)	0(0.0)	2(1.1)

Source: Field Survey (percentage in bracket)

Table 5 shows the analysis of the income of the husbands of the respondents. The monthly incomes of the husbands of the married respondents are mostly within the wage brackets of N20000-N29999 (11.8%), N30000-N39999 (16%), N40000-N49999 (13.9%) and N50000-N59999 (12.8%). Only 1.1% earn N100000 and above, while 8% earn less than N10000. Across the States, most husbands earn: N50000-N59999 (30%) in Akwa Ibom, N10000-N19999 (25.9%) in Rivers, N50000-N59999 (16.4%) in Bayelsa, N30000-N39999 (23.1%) in Delta and N40000-N49999 (45.5%) in Ondo States. The distributions of the income below N50000 are as follows: 40% in Akwa Ibom, 74.1% in Rivers, 53.3% in Bayelsa, 56.4% in Delta, and 63.7% in Ondo States earn less than N50000. There are more husbands earning less than N50000 in Rivers State than in any other State. Overall, 59.9% of husbands earn less than N50000.

Table 6: Monthly income of the women

Monthly Income	Akwa Ibom	Rivers	Bayelsa	Delta	Ondo	Total
Less than 10,000	0(0.0)	31(25.2)	15(12.7)	8(11.6)	1(4.3)	55(15.8)
10,000 - 19,999	0(0.0)	35(28.5)	12(10.2)	10(14.5)	1(4.3)	58(16.6)
20,000 - 29,999	5(31.2)	18(14.6)	18(15.3)	12(17.4)	6(26.1)	59(16.9)
30,000 - 39,999	7(43.8)	11(8.9)	24(20.3)	8(11.6)	12(52.2)	62(17.8)
40,000 - 49,999	2(12.5)	6(4.9)	24(20.3)	15(21.7)	3(13.0)	50(14.3)
50,000 -59,999	1(6.2)	2(1.6)	14(11.9)	11(15.9)	0(0.0)	28(8.0)
60,000 - 69,999	0(0.0)	1(0.8)	6(5.1)	1(1.4)	0(0.0)	8(2.3)
70,000 - 79,999	0(0.0)	5(4.1)	3(2.5)	2(2.9)	0(0.0)	6(2.9)
80,000 - 89,999	0(0.0)	3(2.4)	1(0.8)	2(2.9)	0(0.0)	6(1.7)
90,000 - 99,999	0(0.0)	4(3.3)	1(0.8)	0(0.0)	0(0.0)	5(1.4)
100,000 and above	1(6.2)	7(5.7)	0(0.0)	0(0.0)	0(0.0)	8(2.3)

Source: Field Survey (percentage in bracket)

Table 6 shows the analysis of the monthly income of the respondents. The monthly income of the majority of the women lies between N30000-N39999 (17.8%). This is closely followed by those between N20000-N29999 (16.9%), N10000-N19999 (16.6%) and less than N10000 (15.8%). The least proportion of respondents, 1.4%, earn between N90000-N99999. Across the States, most women earn: N30000-N39999 (48.3%) in Akwa Ibom, N10000-N19999 (28.5%) in Rivers, N30000-N39999 (20.3%) and N40000-N49999 (20.3%) in Bayelsa, N30000-N39999 (23.1%) in Delta and N40000-N49999 (45.5%) in Ondo States. The distribution of the income is clustered below N50000. 87.5% in Akwa Ibom, 82.1% in Rivers, 78.8% in Bayelsa, 76.8% in Delta and 100% in Ondo States earn less than N50000. Overall, 81.4% of the women earn less than N50000.

Participation in Agriculture

This section presents findings and analysis on the participation of women in agriculture.

Table 7: Proportion of major decisions made by women in agriculture in the study ecological zones

Response	Mangrove forest/Coastal Zone	Freshwater Swamp	Total
None	11 (5.3)	11(7.7)	22(6.3)
Less than half	13(6.3)	4(2.8)	17(4.9)
Half	24(11.6)	21(14.8)	45(12.9)
More than half	55(26.6)	42(29.6)	97(27.8)
All	104(50.2)	64(45.1)	168(48.1)

Source: Field Survey (percentage in bracket)

Table 7 shows the analysis of the proportion of major decisions made by women in agriculture; such decisions as to the choice of size and location of farm/the duration of fishing trips, and where to fish, engaging labour and procuring loans/credits. Most respondents in both ecological zones made all the major decision guiding their agricultural operation; 50.2% in the mangrove forest/coastal zone and 45.1% in the freshwater swamp forest zone. In the mangrove forest/coastal zone, 26.6% of respondents made more than half of the major decisions, 11.6% made half of the major decisions, 6.3% made less than half of the major decisions, while 5.3% made none of the major decisions in their operation. In the freshwater swamp forest zone, 29.6% of the respondents made more than half of the major decisions, 14.8% made half of the major decisions, 2.8% made less than half of the major decisions, while 7.7% made none of the major decisions in their operation.

Most women make all major decisions regarding their farm/fishing operations, especially the widowed, singles, separated and divorced. However, a few married women make all the decisions with some input from their husbands. Notably, in Okrika LGA, women allow their husbands to make most of the decisions. During the FGD, a separate group was demanded for men alone, thus, two different FGDs were conducted for the men and the women.

"Women decide when they go to catch fish. We follow the tide, and our husbands know we fish for the good of the family, so they do not stop us." (FGD Ikpokiri, Ogu/Bolo LGA)

"My husband prevents me from fishing regularly. Even though he knows that he cannot meet all our family needs by himself, he doesn't want people to say it is his wife who feeds him."

(FGD Ogbogbo, Okrika LGA)

"Women make decisions for everything concerning farm work. But when the family shares a new forest for farming, the men insist that we must first plant plantain on the land. The next year, we can decide what to plant on the land."

(FGD Toru-Angiama, Patani LGA)

Table 8: Proportion of major decisions made by women in agriculture in the study States

Response	Akwa-Ibom	Rivers	Bayelsa	Delta	Ondo	Total
None	0(0.0)	9(7.3)	11(9.3)	2(2.9)	0(0.0)	22(6.3)
Less than half	0(0.0)	9(7.3)	7(5.9)	0(0.0)	1(4.3)	17(4.9)
Half	3(18.8)	17(13.8)	18(15.3)	6(8.7)	1(4.3)	45(12.9)
More than half	3(18.8)	28(22.8)	31(26.3)	28(40.6)	7(30.4)	97(27.8)
All	10(62.5)	60(48.8)	51(43.2)	33(47.8)	14(60.9)	168(48.1)

Source: Field Survey (percentage in bracket)

Table 8 shows the analysis proportion of major decisions made by women in agriculture in the study States. Most of the respondents in all States made all of the major decisions guiding their agricultural operation; such decisions as to the choice of size and location of farm/the duration of fishing trips, and

where to fish, engaging labour and obtaining loans/credits. In Akwa Ibom State, 62.5% made all the major decisions in their operation, 18.8% made more than half of the major decisions, 18.8% made half of the major decisions, and no respondent made less than or none of the major decisions in their operation. In River State, 48.8% of the respondents made all of the major decisions, 22.8% of the respondents made more than half of the major decisions, 13.8% made half of the major decision, 7.3% made less than half of the major decisions while 7.3% again, made none of the major decision in their operation. In Bayelsa State, 43.2% of the respondents make all of the major decisions, 26.3% of the respondents made more than half of the major decisions, 15.3% made half of the major decision, 5.9% made less than half of the major decisions while 9.3% made none of the major decision in their operation. In Delta State, 47.8% of the respondents made all of the major decisions, 40.6% of the respondents made more than half of the major decisions, 8.7% made half of the major decision, no respondent made less than half of the major decisions while 2.9% made none of the major decision in their operation. In Ondo State, 60.9% of the respondents made all of the major decisions, 30.4% of the respondents made more than half of the major decisions, 4.3% made half of the major decision, 4.3% again, made less than half of the major decisions while no respondents made none of the major decision in their operation.

Table 9: Mode of ownership of farms or fishing implements in the study ecological zones

Ownership of tools	**Mangrove forest/coastal zone (Fishers)**	**Freshwater swamp (Farmers)**	**Total**
Response			
I do	96(47.1)	69(47.6)	165(47.3)
My spouse and I	68(33.3)	55(37.9)	123(35.2)
Household	15(7.4)	21(14.5)	36(10.4)
Hire	17(8.4)	0(0.0)	17(4.9)
Borrow	8(4.0)	0(0.0)	8(2.3)

Source: Field Survey (percentage in bracket)

Table 9 shows the analysis of the mode of ownership of implements in the ecological zones in the study area. Most of the respondents, 47.3%, own the tools they use in their work. 35.2% of the respondents share ownership of tools with their husbands, while 10.4% of the respondents use tools jointly owned by their households. In the mangrove forest/coastal zone and Freshwater swamp forest zone, most respondents, representing 47.1% and 47.6% respectively of the sample population in the zones, own their own implements. 33.3% and 37.9% respectively of the respondents in the mangrove forest/coastal zone and the freshwater swamp forest zone use implements that are jointly owned by them and their husbands. In the mangrove forest/coastal zone, 7.4% of the respondents use implements owned by their households, 8.4% hire implements, 4% borrow tools without having to pay any charges, and 1.5% implements boats to go fishing but own other implements. In the freshwater swamp forest zone, 14.5% of the respondents use tools owned by their households and 1.4% share ownership of their implements with their mothers.

Table 10: Occupational experience across ecological zones

Duration of fishing /Crop production	**Mangrove forest and coastal zone (Fishers)**	**Freshwater swamp (Farmers)**	**Total**
1-10	96(47.1)	52(35.9)	148(42.4)
11-20	57(27.9)	61(42.1)	118(33.8)
21-30	23(11.3)	21(14.5)	44(12.6)
31-40	21(10.3)	8(5.5)	21(8.3)
40-50	7(3.4)	3(2.1)	10(2.9)

Source: Field Survey (percentage in bracket)

Table 10 shows the distribution of occupational experience across ecological zones. The bulk of the respondents had work experience, mostly between 1-10 years and 11-20 years. In the mangrove forest and coastal zone, 47.1% and 27.9% of the respondents have 1-10 years and 11-20 years' work experience, respectively. In the freshwater swamp, 35.9% and 42.1% of the respondents have 1-10 years and 11-20 years' work experience, respectively.

Table 11: Occupational experience across States

Duration of fishing /Crop production	Akwa Ibom	Rivers	Bayelsa	Delta	Ondo	Total
1-10	13(81.2)	65(52.8)	37(31.4)	28(40.6)	5(21.7)	148(42.4)
11-20	3(18.8)	29(23.61)	48(40.7)	23(33.3)	15(65.2)	118(33.8)
21-30	0(0.0)	12(9.8)	19(16.1)	10(14.5)	3(13.0)	44(12.6)
31-40	0(0.0)	10(8.1)	13(11.0)	6(8.7)	0(0.0)	21(8.3)
40-50	0(0.0)	7(5.7)	1(0.8)	2(2.9)	0(0.0)	10(2.9)

Source: Field Survey (percentage in bracket)

Results presented in Table 11 show the occupational experience of respondents in the study area grouped by States in the study area. 81%, 52.8% and 40.6% of the respondents in Akwa Ibom, Rivers and Delta States, respectively, had work experience between 1-10 years. This was followed closely by those with 11-20 years of work experience. 18.8% in Akwa Ibom State, 23.6% in Rivers State and 33.3% in Delta State. In Bayelsa and Ondo States, 29.7% and 21.7% of respondents have 1-10 years of work experience, while 46.6% and 65.2% have 11-20 years of work experience, respectively. In Rivers State, 9.8% have 21-30 years of work experience, 8.1% have 31-40 years of work experience, and 5.7% of the respondents have 41-50 years of work experience. In Bayelsa State, 18.6% have 21-30 years of work experience, 4.2% have 31-40 years of work experience and 0.8% of the respondents have 41-50 years of work experience. In Delta State, 14.5% have 21-30 years of work experience, 8.7% have 31-40 years of work experience, and 2.9% of the respondents have 41-50 years of work experience. In Ondo State, 13% of the respondents are 21-30 years.

Table 12: Labour for fishing/Crop production operations in the study States

Extra labour in the fishing / Crop production operation	Mangrove forest/coastal zone (Fishers)	Freshwater swamp (Farmers)	Total
Do you have assistance when you go fishing or Crop production?			
Yes	167(81.9)	135(93.1)	302(86.5)
No	37(18.1)	10(6.9)	47(13.5)
Who assists and how often			
Husbands:			
Never	106(63.5)	51(37.8)	157(52.0)
Not often	45(27.0)	47(34.8)	72(30.5)
Regularly	16(9.6)	37(27.4)	53(17.5)
Other family members:			
Never	27(16.2)	34(25.2)	61(20.2)
Not often	93(57.5)	76(56.3)	172(57.0)
Regularly	44(26.3)	25(18.5)	69(22.8)
Hired labour:			
Never	123(73.7)	53(39.3)	176(58.3)
Not often	24(14.4)	53(39.3)	77(25.5)
Regularly	20(12.0)	29(21.5)	49(16.2)
Friends/Groups/Neighbours:			
Never	153(91.6)	123(91.1)	276(91.4)
Not often	5(3.0)	12(8.9)	17(5.6)
Regularly	9(5.4)	0(0.0)	9(3.0)

Source: Field Survey (percentage in bracket)

Table 12 shows the analysis of the labour for fishing/Crop production operations in ecological zones in the study. In the mangrove forest/coastal zone, 81.9% of the respondents get labour support while 18.1% do not. This support mainly comes from other family members other than husbands. 26.3% and 57.5% of the respondents get labour support from other family members regularly and irregularly (not often), respectively. The least labour support from Friends/Cooperative groups/Neighbours. 9.6% and 27% of the respondents get labour support from husbands regularly and irregularly (not often), respectively. 5.4% and 3% of the respondents get labour support from Friends/Cooperative groups/Neighbours, regularly and irregularly (not often), respectively. 12% and 14.4% of the respondents get labour support from hired labour, regularly and irregularly (not often), respectively. In the freshwater swamp zone, 93.1% of the respondents get labour support while 18.1% do not. 27.4% and 34.8% of the respondents get labour support from husbands regularly and irregularly (not often), respectively. 18.5% and 56.3% of the respondents get labour support from other family members regularly and irregularly (not often), respectively. 21.5% and 39.3% of the respondents get labour support from hired labour, regularly and irregularly (not often), respectively. And, 8.8% get labour support from friends/cooperative groups/Neighbours, irregularly (not often).

Table 13: Labour for fishing/Crop production operations in the study States

Additional labour in fishing / Crop production operation	**Akwa-Ibom**	**Rivers**	**Bayelsa**	**Delta**	**Ondo**	**Total**
Do you have assistance during fishing/Crop production?						
Yes	15(93.8)	101(82.1)	110(93.2)	54(78.3)	22(95.7)	302(86.5)
No	1(6.2)	22(17.9)	8(6.8)	15(21.7)	1(4.3)	47(13.5)
Who assists and how often						
Husbands						
Never	15(100.0)	68(67.3)	43(39.1)	26(48.1)	5(22.7)	157(52.0)
Not often	0(0.0)	20(19.8)	32(29.1)	27(50.0)	13(59.1)	72(30.5)
Regularly	0(0.0)	13(12.9)	35(31.8)	1(1.9)	4(18.2)	53(17.5)
Other family members						
Never	1(6.7)	23(22.8)	27(24.5)	8(14.8)	2(9.1)	61(20.2)
Not often	10(66.7)	46(45.6)	52(47.3)	44(81.5)	20(90.9)	172(57.0)
Regularly	4(26.7)	32(31.7)	31(28.2)	2(3.7)	0(0.0)	69(22.8)
Hired labour						
Never	14(93.3)	75(74.3)	55(50.0)	30(55.6)	2(9.1)	176(58.3)
Not often	0(0.0)	19(18.8)	22(20.0)	17(31.5)	19(86.4)	77(25.5)
Regularly	1(6.7)	7(6.9)	33(30.0)	7(13.0)	1(4.5)	49(16.2)
Friends/Groups/Neighbours						
Never	15(100.0)	88(87.1)	107(97.3)	53(98.1)	13(59.1)	276(91.4)
Not often	0(0.0)	5(5.0)	2(1.8)	1(1.9)	9(40.9)	17(5.6)
Regularly	0(0.0)	8(7.9)	1(0.9)	0(0.0)	0(0.0)	9(3.0)

Source: Field Survey (percentage in bracket)

Table 13 shows the analysis of the labour for fishing/Crop production operations in the study States. In Akwa Ibom State, 93.8% of the respondents get labour assistance in their operation, while 6.2% do not. This assistance does not come from their husbands and friends/groups/neighbours. 26.7% and 66.7% of the respondents get labour support from family members regularly and irregularly (not often), respectively. 6.7% of the respondents get labour support from hired labour. In Rivers State, 82.1% of the respondents get labour assistance in their operation, while 17.9% do not. 12.9% and 19.8 % of the respondents get labour support from husbands regularly and irregularly (not often), respectively. 31.7%

and 45.6% of the respondents get labour support from other family members regularly and irregularly (not often), respectively. 6.9% and 18.8% of the respondents get labour support from hired labour regularly and irregularly (not often), respectively. 7.9% and 5% of the respondents get labour support from friends/groups/Neighbours regularly and irregularly (not often) respectively. In Bayelsa State, 93.2% of the respondents get labour support while 6.2% do not. Many respondents, 31.8% and 30%, get labour support from husbands and hired labour regularly, more than in any other State. Also, 29.1% and 20% of the respondents get labour support irregularly (not often) from husbands and hired labour, respectively. However, most respondents get more labour support from other family members; 28.2% and 47.3% get help regularly and irregularly (not often), respectively. The groups refer to labour cooperative groups formed by the women solely to work as a group on each other's farms.

In Delta State, 78.3% of the respondents get labour support while 21.7% do not. Most respondents get irregular (not often) labour support from other family members, 81.5% and husbands, 50%. In Ondo State, 95.7% of the respondents get labour support while 4.3% do not. Also, most respondents get irregular (not often) labour support from other family members, 90.9%, hired labour, 86.4% and husbands, 59.1%.

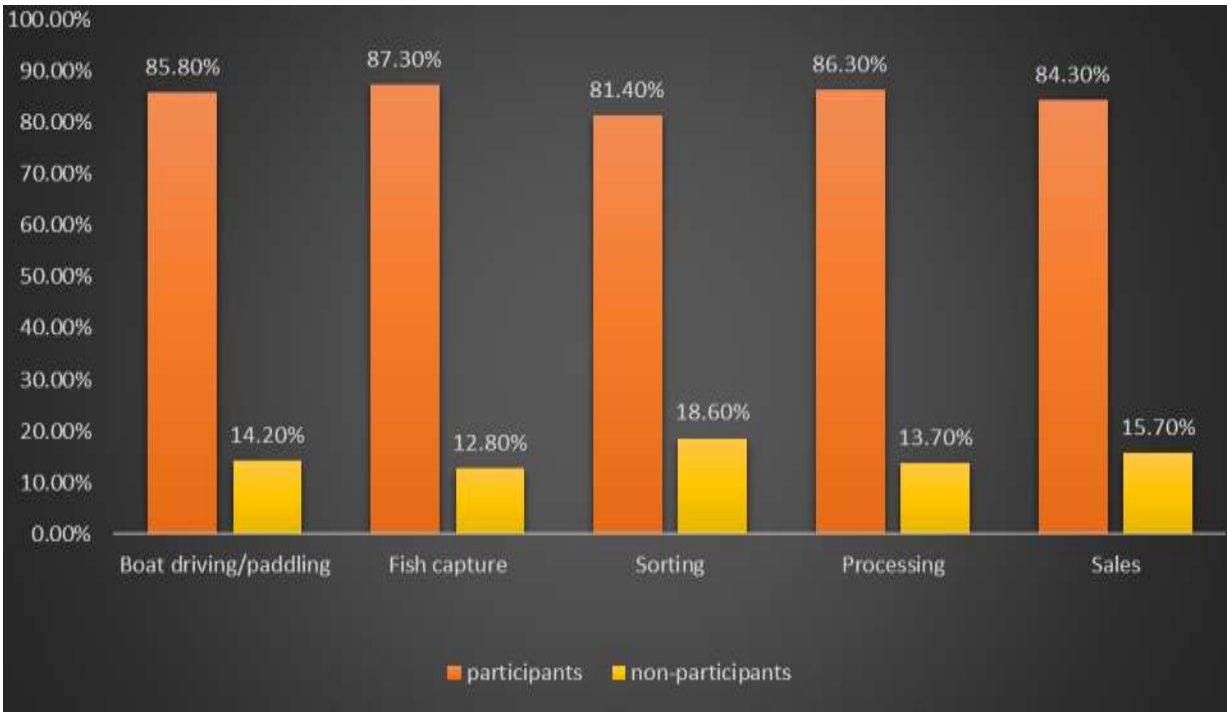

Figure 2: Distribution of participation of respondents in fishing activities
Source: Field Survey

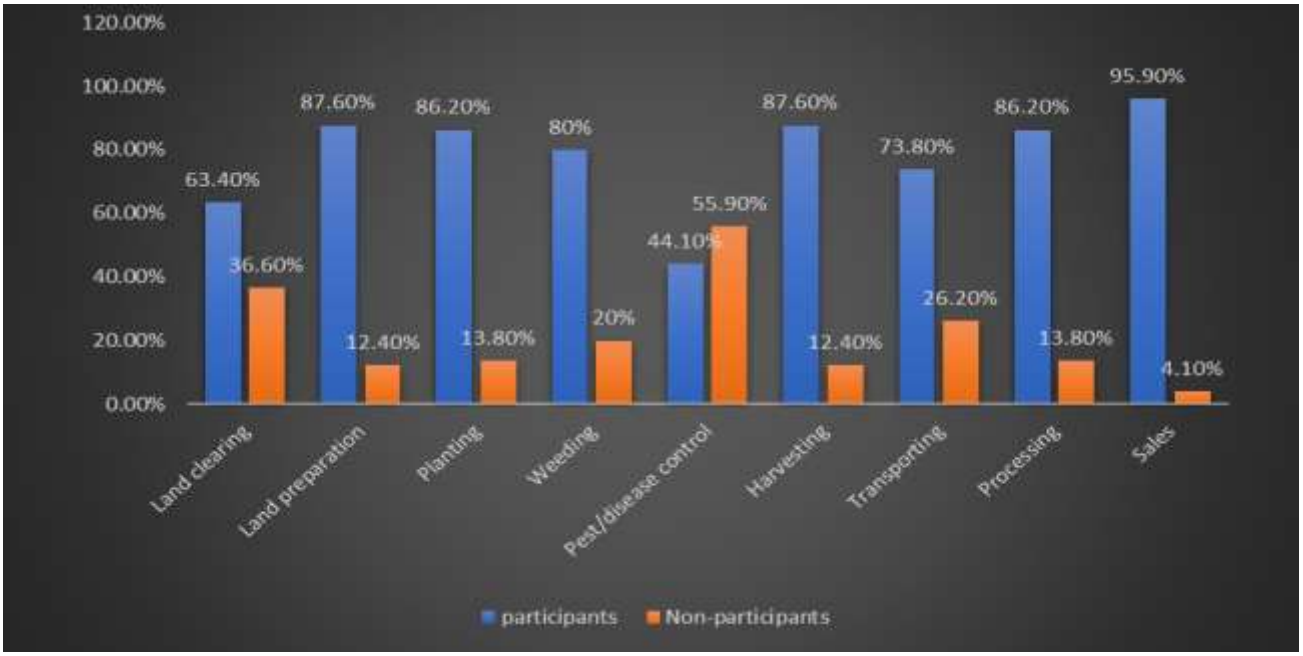

Figure 3: Distribution of participation of respondents in Crop production activities
Source: Field survey

The distribution of participation of respondents in fishing and Crop production activities is presented in Figures 2 and 3, respectively. The participation level of women in various tasks in their operation was ascertained with data on the extent of work done personally in those operations. Women were asked to indicate the amount of work they do in each agricultural activity. Each level of actual work done was scored as follows: none of the work- 1, less than half of the work -2, half of the work- 3, more than half of the work –4 and all the work – 5. Those who scored 3-5 were considered to have a high level of participation. Those who scored 0-2 were considered to have a low level of participation. The fishers have a high participation level in all their activities, ranging from 81.4% in sorting, 84.3% in sales, 85.8% in boat driving/paddling, 86.3% in processing, to 87.3% in fish capture. The farmers have the highest participation rate in sales with 95.9%. They are not too involved in pest/disease control (44.1%) and land clearing (63.4%). In land preparation (87.6%), harvesting (87.6%), planting (86.2%) and processing (86.2%), they are very active.

Table 14: Types of fish/crops captured

Types	**Akwa Ibom**	**Rivers**	**Bayelsa**	**Delta**	**Ondo**	**Total**
Fish	n=16	n=123	n=47	n=18		n=204
Crayfish	5(31.3)	37(30.1)	4(8.5)	0(0.0)	-	46(22.5)
Periwinkle	6(37.5)	74(60.2)	5(10.6)	0(0.0)	-	85(41.7)
Other shellfish	4(25.0)	28(22.8)	0(0.0)	0(0.0)	-	32(15.7)
Fish	3(18.8)	55(44.7)	44(93.6)	18(100.0)	-	120(58.8)
Crops			n=71	n=51	n=23	n=145
Cassava	-	-	63(88.7)	49(96.1)	23(100.0)	135(93.1)
Plantain	-	-	51(71.8)	42(82.4)	21(91.3)	114(78.6)
Water yam	-	-	42(59.2)	28(54.9)	20(87.0)	90(62.1)
Other tubers	-	-	32(45.1)	26(51.0)	11(47.8)	69(47.6)
Vegetables	-	-	26(36.6)	13(25.5)	10(43.5)	49(33.8)
Fruits	-	-	21(29.6)	24(47.1)	10(43.5)	55(37.9)
Groundnut	-	-	10(14.1)	6(11.8)	3(13.0)	19(13.1)
Corn	-	-	20(28.2)	4(7.8)	10(43.5)	34(23.4)
Rice	-	-	5(5.5)	0(0.0)	0(0.0)	5(3.4)

Source: Field Survey (percentage in bracket).

(percentages do not sum up to 100% per column, as fishers and farmers mostly have more than one type of catch or crop)

Table 14 presents the distribution of the types of fish and crops captured by respondents. In Akwa Ibom State, 31.3% of the respondents catch crayfish, 37.5% of the respondents catch Periwinkle, and 25% of the respondents catch other shellfish, such as oysters and clams, while 18.8% catch fish. In Rivers State, 30.1% of the respondents catch crayfish, 6.2% of the respondents catch Periwinkle, and 22.8% of the respondents catch other shellfish, such as prawn, lobster, crab, mussel, oyster and clam, while 44.7% catch fish. In Bayelsa State, 8.5% of the respondents catch crayfish, 10.6% of the respondents catch Periwinkle while 93.6% catch fish. In Delta, all respondents (100%) catch fish. In crop production, most of the respondents in Bayelsa State produce cassava and plantain. 88.7% and 71.8% of the respondents produce cassava and plantain, respectively. The others are as follows: 59.2% produce water yam, 45.1% produce other tubers like sweet potato and cocoyam, 36.6% produce vegetables such as okro, cucumber, garden egg and various leaves, 29.6% produce groundnut, and 28.2% produce corn, and 5.5% produce rice. In Delta State, most of the respondents also produce cassava (96.1%) and plantain (82.4%). The least proportion of respondents, 7.8%, produce cereal, just corn. In Ondo State, all the respondents (100%) produce cassava, and 91.3% produce plantain. The least proportion of respondents, 13%, produce groundnut. Corn is the only cereal produced by the respondents in Ondo State as well.

Cassava is usually processed into *Garri* and sold. It is not commonly sold raw. However, mature cassava farms can be sold to traders, who harvest, process and sell. The farm price is usually influenced by the condition of cassava leaves and stems. Cassava is also peeled and sold in large basins, which are usually made up of two bags (50kg bag size) of cassava or fermented and sold in 100 kg bags.

Table 15: Role in agricultural activities

Activities	**Akwa Ibom**	**Rivers**	**Bayelsa**	**Delta**	**Ondo**	**Total**
Fishing Activities	n=16	n=123	n=47	n=18		n=204
Boat driving/paddling	15(93.8)	97(78.9)	45(95.7)	18(100.0)	-	175(85.8)
Fish capture	15(93.8)	99(80.5)	46(97.9)	18(100.0)	-	178(87.3)
Sorting	15(93.8)	88(71.5)	45(95.7)	18(100.0)	-	166(81.4)
Processing	16(100.0)	98(79.7)	44(93.6)	18(100.0)	-	176(86.3)
Sales	16(100.0)	93(75.6)	45(95.7)	18(100.0)	-	172(84.3)
Crop Production Activities			n=71	n=51	n=23	n=145
Land clearing	-	-	55(77.5)	30(58.8)	7(30.4)	92(63.5)
Land preparation	-	-	60(84.5)	47(92.2)	20(87.0)	127(87.6)
Planting	-	-	66(93.0)	46(90.2)	13(56.5)	125(86.2)
Weeding	-	-	55(77.5)	42(82.4)	19(82.6)	116(80.0)
Pest/disease control	-	-	29(40.9)	16(31.4)	19(82.6)	64(44.1)
Harvesting	-	-	68(95.8)	45(88.2)	14(60.9)	127(87.6)
Transporting	-	-	60(84.5)	37(72.5)	10(43.5)	107(73.8)
Processing	-	-	60(84.5)	44(86.3)	21(91.3)	125(86.2)
Sales	-	-	71(100.0)	47(100.0)	21(91.3)	139(95.9)

Source: Field Survey (percentage in bracket)

The distribution of the role of women in agricultural activities is presented in Table 15. This are those who participate in an activity, that is those who did not score 0 in figure 3 and 4 analysis. For fishing activities, all respondents (100%) in Akwa Ibom State participate in processing and sales. 93.8% of the respondents participate in boat driving/paddling, fish capture and sorting. In Rivers State, most of the respondents (80.5%) are involved in fish capture. 78.9%, 71.5%, 79.7%, and 75.6% of the respondents

participate in boat driving/paddling, sorting, processing and sales, respectively. In Bayelsa State, 95.7%, 97.9%, 95.7%, 93.6%, and 95.7% of the respondents participate in boat driving/paddling, fish capture, sorting, processing and sales respectively. In Delta State, all respondents (100%) participate in all of the activities. The FGD revealed that women are mainly engaged in fish and shellfish capture from creeks and along the coasts. There is no traditional law that restricts the extent to which women fish.

However, women do not often fish with cast nets because they are usually not trained to use this kind of net. Women use traps, hand nets and set nets to fish. They also gather most shellfish with their bare hands, but oysters are usually cut from the roots of mangrove trees with a machete. Some women also go fishing with their husbands to paddle the boat and hold the boat steady for the men to cast their nets. Women along the coast in Bayelsa State, Brass LGA and Akwa Ibom State, Ibeno LGA, who are able, buy fishing boats, mainly big wooden boats with outboard engines, which they usually loan to fishermen who go offshore fishing with an agreement to have the right of refusal to buy the fishermen's catch.

"Women who have money buy a big boat with an engine and give it to fishermen so that when the fishermen come from the deep sea, the fishermen will weigh the fish and sell them to the women who own the boat."

(FGD/Twon kubu, Brass LGA).

For Crop production activities, all respondents (100%) in Bayelsa State participate in sales. They participate less in pest/disease control activities. Only 40.9% of the respondents participate in pest/disease control. In Delta State as well, all respondents (100%) participate in sales, and only 31.4% participate in pest/disease control activities. In Ondo State, 91.3% of the respondents participate in processing and sales, while 30.4% participate in land clearing.

Socio-economic impact on the level of participation in agriculture

Table 16: Summary of crosstabulation of the socio-economic characteristics of the women and their level of participation in fishing.

Socio-economic characteristics	**Low (n=50)**	**High (n=146)**
Household size		
1-3	9(18.0)	29(19.9)
4-6	30(60.0)	76(52.1)
7-9	9(18.0)	35(24.0)
10 and above	2(4.0)	6(4.1)
Age (years)		
15-24	0(0.0)	2(1.4)
25-34	6(12.0)	29(19.9)
35-44	16(32.0)	32(21.9)
45-54	13(26.0)	33(22.6)
55-64	13(26.0)	33(22.6)
65 and above	2(4.0)	17(11.6)
Level of education		
Illiterate	12(24.0)	23(15.8)
Can read and write without formal education	4(8.0)	11(7.5)
Primary school not completed	5(10.0)	13(8.9)
FSLC (completed)	11(22.0)	43(29.5)
WASCC	14(28.0)	46(31.5)
OND/NCE	4(8.0)	8(5.5)
B. Degree/HND	0(0.0)	2(1.4)
Marital status		
Married	29(58.0)	78(53.4)
Unmarried	21(42.0)	68(46.6.)

Level of Income		
Less than 10,000	7(14.0)	19(13.0)
10,000 - 19,999	5(10.0)	29(19.9)
20,000 - 29,999	6(12.0)	24(16.4)
30,000 - 39,999	11(22.0)	20(13.7)
40,000 - 49,999	12(24.0)	16(11.0)
50,000 - 59,999	5(10.0)	11(7.5)
60,000 - 69,999	2(4.0)	5(3.4)
70,000 - 79,999	0(0.0)	7(4.8)
80,000 - 89,999	0(0.0)	5(3.4)
90,000 - 99,999	1(2.0)	4(2.1)
100,000 and above	1(2.0)	7(4.8)

(Percentage in bracket)

The result in Table 16 shows cross-tabulation of the socio-economic characteristics of the women and their participation in fishing activities. Result reveals that the majority who had high level of participation in fishing were those with household size, 4-6 (52.1%), age between 45-54 years and years and 55-64 years (22.6%), have WASCE certificate (31.5%), married (53.4%) and with monthly income of 10,000-19,999 (19.9%).

Table 17: Spearman rank correlation analysis results between the socio-economic characteristics of the women and their level of participation in fishing

Spearman's rho		**Level of participation**
Household size	Correlation Coefficient	.008
	Sig. (2-tailed)	.908
	N	196
Age	Correlation Coefficient	.029
	Sig. (2-tailed)	.684
	N	196
Level of education	Correlation Coefficient	.078
	Sig. (2-tailed)	.280
	N	196
Marital status	Correlation Coefficient	.064
	Sig. (2-tailed)	.376
	N	196
Farmer's income	Correlation Coefficient	-.029
	Sig. (2-tailed)	.692
	N	196

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Spearman rank correlation analysis in Table 17 showed that socio-economic characteristics had very low correlations with women's participation in fishing, and none of the variables was significantly associated with the level of participation of women in fishing. However, income, though not significant, showed a negative relationship with the level of participation. Thus, as income decreases, participation tends to increase. However, the null hypothesis was accepted for all the socio-economic characteristics and women's participation in fishing at a 0.05 significance level.

Table 18: Summary of crosstabulation of the socio-economic characteristics of the women and their participation in Crop production.

Socio-economic characteristics	**Low** (n=86)	**High**(n=59)
Size of your household		
1-3	13(15.1)	21(35.6)
4-6	34(39.5)	24(40.7)
7-9	28(32.6)	10(16.9)
10 and above	11(12.8)	4(6.8)
Age		
15-24	3(3.5)	4(6.8)
25-34	10(11.6)	19(32.2)
35-44	31(36.0)	14(23.7)
45-54	27(31.4)	11(18.6)
55-64	10(11.6)	8(13.6)
65 and above	5(5.8)	3(5.1)
Level of education		
Illiterate	15(17.4)	10(16.9)
Can read and write without formal education	3(3.5)	2(3.4)
Primary school not completed	3(3.5)	3(5.1)
FSLC (completed)	20(23.3)	14(23.7)
WASSC	29(33.7)	24(40.7)
OND/NCE	15(17.4)	3(5.1)
B. Degree/HND	1(1.2)	3(5.1)
Marital status		
Married	65(75.6)	42(71.2)
Unmarried	21(24.4)	17(28.9)
Level of Income (NGN)		
Less than 10,000	10(11.5)	14(24.1)
10,000 - 19,999	10(11.5)	11(19.0)
20,000 - 29,999	17(19.5)	12(20.7)
30,000 - 39,999	19(21.8)	12(20.7)
40,000 - 49,999	18(20.7)	4(6.9)
50,000 - 59,999	8(9.2)	4(6.9)
60,000 - 69,999	1(1.1)	0(0.0)
70,000 - 79,999	3(3.4)	0(0.0)
80,000 - 89,999	1(1.1)	0(0.0)
90,000 - 99,999	0(0.0)	1(1.7)
100,000 and above	0(0.0)	0(0.0)

(Percentage in bracket)

Table 18 presents the cross-tabulation of the women's participation in Crop production and their socio-economic characteristics. Result reveals that larger percentage of the respondents with high level of participation were those with households' sizes, 4-6 (40.7%), age group 25-34 years (32.2%), WASSC (40.7%), married (71.2%), and with level of income less than 10,000 (24.1%).

Table 19: Spearman rank correlation analysis results between the socio-economic characteristics of the women and their level of participation in Crop production

Spearman's rho		**Level of participation**
Household size	Correlation Coefficient	-.245**
	Sig. (2-tailed)	.003
	N	145
Age	Correlation Coefficient	-.165*
	Sig. (2-tailed)	.048
	N	145
Level of education	Correlation Coefficient	-.049
	Sig. (2-tailed)	.561
	N	145
Marital status	Correlation Coefficient	.026
	Sig. (2-tailed)	.760
	N	145
Farmer's income	Correlation Coefficient	-.249**
	Sig. (2-tailed)	.003
	N	145

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The Spearman rank correlation analysis results in Table 19 showed that household size (p=0.003), age (p=0.048) and level of income (p=0.003) had significant and low correlations but a negative association with the level of participation of women in crop production. Age has a very low level of association, which is expected as most women were within the productive age. However, the analysis informed that as age, household size and level of income increased, participation in crop production decreased in the study area. Thus, there are statistically significant associations between socio-economic characteristics (i.e. household size, age and level of income of the women) and their level of participation in crop production. Therefore, H1 is accepted: Household size, age and income at a 0.05 significance level.

4. DISCUSSION

The household sizes in the study area are mostly within 4-6, which is in line with the Average household size of 5.9 for rural areas in Nigeria (NBS, 2015). Most respondents were between 35-44 years old. Only 19.2% (55-64 years) were close to retirement age. Thus, respondents were mostly within peak productive years. This is similar to assertions that rural farmers (Adesoji *et al.,* 2014) and fishers (Cliffe & Akinrotimi, 2015) are mostly below 50 years of age. This may be because farming and fishing require energy, and usually, young people possess this energy.

Most women (32.7%) have O-level certificates, and only 23.5% have no formal education. Most of the women are married (62.8%). It was also observed that the income for husbands of married respondents was highly diverse. The mode income for husbands and women (married and unmarried) is N30, 000-N39, 999. However, only 18.2% of the husbands earned less than N20,000 monthly, while 32.4% of the women earned less than N20,000. These men earn more than women in the study area. This is similar to the findings of Oluwatayo (2009), who opined that women earn less than men.

Despite the socio-economic characteristics of the respondents, their participation in various fishing or crop production activities is quite high. Women participate in all activities pertaining to their operations.

In fishing from boat paddling, fish capture to sales (marketing), over 80% of the women participate. This contradicts the assertion that women in fisheries are more involved in the pre-fishing and post-fishing activities (FAO, 2014). Over 80% of fishers in the study area participate in all fishing activities, ranging from boat driving or paddling, fish capture, sorting, processing, to sales. The highest participation is in fish capture (87.3%). Fish here comprises shellfish and regular fish capture. Women who can buy fishing boats, mainly big wooden boats with outboard engines. They allow the fishermen to use their boats for offshore fishing with an agreement to have the right of refusal to buy the fishermen's catch. This is similar to the findings of Monfort (2015), who asserted that in the coastal region of West Africa, women provide the financial framework for fishermen, such as boats and other fishing equipment, to get privileged access to their fish harvest.

The analysis of the types of fish captured by women shows that 58.8% of the women capture fish, and 79.9% capture shellfish. But in Akwa Ibom and Rivers States, the proportions of respondents who capture shellfish exceed those who capture fish. In Akwa Ibom, 81.2% of the fishers capture only shellfish while 18.8% capture fish. In Rivers State, 44.7% of fishers capture fish while 55.3% capture only shellfish. In Bayelsa State, on the other hand, 93.6% of the fishers capture fish while 6.4% capture only shellfish. In Delta State, none of the respondents capture shellfish. Thus, the trend in Bayelsa and Delta State may be in part as a result of the location of the community and culture. Island communities along the sea have sand beaches and bars. They do not support shellfish such as periwinkle, and in Nembe L.G.A of Bayelsa State, there is a tradition that bans the sale of periwinkle. It can be used for household consumption and as a gift.

In crop production, women also participate in all activities pertaining to their crop production operations. However, farmers do not maintain the same high participation rate as fishers in every activity. The farmers participate most in sales (95.9%) and least in land clearing (63.4%) and pest and disease control (44.1%). Over 70% of the farmers participate in planting, weeding, harvesting and processing. This agrees in part with Sahel Capital Limited (2014), who opined that women farmers in Nigeria are engaged mainly in planting, weeding, harvesting, processing and sales of farm produce, but in most cases, the land clearing is entirely left to men. The findings are similar to assertions of Fabiyi *et al* (2007), which states that women participate in all crop production activities, including land clearing. The chief crops are cassava, Plantain and water yam. Cassava crop is a staple, as 81.7%, 96.1% and 100% of the women in Bayelsa, Delta and Ondo States, respectively, produce the crop. Only the women in Bayelsa State (5.5%) engage in rice farming. It is quite low considering that the freshwater swamp forest zone, where most farmers reside, is conducive for rice farming.

The level of participation in fishing showed no significant correlation with any of the socio-economic characteristics employed to explain it. This may be because most fishers (72.1%) in the study have a high level of participation. However, in crop production, the correlation analysis results show that age, household size and income have negative and significant relationships with the level of participation of women in crop production. That means as age, household size, and income increase level of participation in crop production decreases. The result of the multiple binary logistic regression shows that household size and income are significantly associated with the level of participation in crop production. Also, those farmers with a household size of 4-6 people are more likely to have a high level of participation in crop production than farmers with a household size of 1-3 people. Farmers with incomes between N10,000 – N19,999 are more likely to have a high level of participation than those with incomes less than N10,000. The farmers with smaller household sizes may not have the extra hands needed to assist with farm work. Farmers with low incomes may not be able to pay for more farmhands.

Most major decisions concerning crop production and fishing operations are made by the women across ecological zones and States in the study area. This may be because major ownership of agricultural operations in terms of ownership of farms for farmers and ownership of fishing implements for fishers rests with women. This is the trend of ownership of assets across the study area, except in Bayelsa State, where 38.1% of the respondents own the farms and fishing tools they use, and 48% of the women share ownership of farms and fishing implements with their husbands. According to Chayal et al. (2013),

women's involvement in decision making is positively influenced by land holding, age, and educational level among other characteristics.

Most women (42.4%) in the study area have 1-10 years of occupational experience. But in Bayelsa and Ondo States, the majority, 40.7% and 65.2% respectively, of the women have 11-20 years of occupational experience. More farmers get more help in their operations than fishers. The farmers get more assistance from their husbands than the fishers do. 62.2% of the farmers get help from their husbands, while 36% of the fishers get help from their husbands. However, 83.8% of the fishers get help from other family members, while 74.8% of the farmers get help from other family members. Farmers hire more labour than fishers. 60% of the farmers get assistance from hired labour, while only 28% of the fishers use hired labour in their operations. Very few women (fisher or farmer) get assistance from friends, groups and neighbours. But assistance, from husband, family members or friends, is not regular.

5. CONCLUSION

In conclusion, based on the research findings, Ijaw women do not have any typical (stereotypical) role in fishing. They are actively involved in every fishing activity. Also, the participation of Ijaw women in fishing is not impacted by their socio-economic characteristics. However, their participation varies between States. Ijaw women engaged in crop production participate in all crop production activities. They don't have any exclusive role. Thus, the roles of Ijaw women in Crop production are to clear farmlands, prepare land for planting, plant crops, weed farms, manage pests and plant diseases, harvest crops, transport crops to storage areas, process crops, and sell crops. Their participation is impacted by household size, age and income. As these variables increased, their level of participation decreased. Also, the level of participation of Ijaw women in crop production is not dependent on the State they reside. Women mostly have low incomes. This explains why many do not even own the manual tools used in their activities. It will be difficult for them to hire farmhands even if they wanted to. This can constrain any expansion plans in their operation. Hence, women's access to the same rights and resources as men is critical to improving agricultural productivity, along with food and nutritional security. Overall, assets controlled by women were found to benefit the well-being of other members of households, especially children, in terms of health, education, and nutrition.

Based on the findings arrived at in this study, it is recommended that the ADP ensure that its Women in Agriculture (WIA) department should well well-positioned to carry out their duties, such as providing extension services and grouping women into active cooperatives to improve their income and tools at their disposal. Fishers should be given as much attention as farmers to improve their operations as well. The government should provide various economic incentives such as loans, farmer training programs with adequate incentives, and storage to encourage farmers and fishers to ensure success. This can be achieved through a strategic increase in sectoral allocations to agriculture. Cultural inheritance practices that discriminate against women should be discouraged. Such practices include depriving women of owning farmland. Government, community leaders and organisations such as the Ijaw National Congress and Ijaw Youth Congress should ensure a shift in such behaviours that affect the productivity of women.

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