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# Gender Differentials in Climate Change Adaptive Capabilities Among Small- scale Farmers in Abia State, Nigeria

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### ABSTRACT

Gender differentials in climate change adaptive capabilities among small-scale farmers in Abia State was assessed using a sample size of 70 male and 70 female respondents generated via a multi- stage method. Data collected from the respondents through the use of questionnaire and interview schedule were analyzed using descriptive statistics and Z – Test analysis. Results showed 46 years and 44 years as the mean ages of male and female respondents respectively. About 29 %, 43 % and 21 % of the male respondents and 50 %, 36 % and 11 % of the female respondents were into farming, trading and other professions respectively. About 86 % of the male respondents and 69 % of the female respondents were literates and had mean monthly income of ₦32,871.143 and ₦28,642.854. Result equally, shows a mean farm size of 1.7 and 1.3 hectares for the male and female respondents with mean years of farming experience of 11 years and 12 years respectively. About 57 %, 14, 12 and 7 % of male respondents acquired their farm lands through inheritance, lease, communal ownership, and outright purchase respectively as against 7 %, 57 %, 7 % and 29 % for the female respondents. About 90 % of the male respondents had between once every 2 years and once every 6 months of extension contacts as against 82 % of the female respondents. Also 86 % of the male respondents belonged to social associations as against 93 % of the female respondents. Result further shows that a high proportion ( $X \geq 50$  %) of male and female respondents have high level of awareness on adaptive measures but negative ( $X < 2.5$ ) and low practice ( $X < 2.5$ ) level of adaptive measures on climate change. The study equally shows that there is a remarkable difference between the male respondents' attitude and practice levels and that of female respondents' in the study area. Therefore the study concludes that there is gender differentials in climate change adaptive capabilities among small- scale farmers in Abia State. Hence, the study showed differences both in attitude and practice levels between male and female respondents in adaptive measures against the effects of climate change in the study area. The study recommends that government agencies and other stakeholders in climate change issues should involve both male and female respondents equitably in order to find a sustainable and location specific adaptive measures against the negative effects of climate change mostly in the study area.

**Keywords:** Gender Differentials, Climate Change and Abia State.

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## Introduction

Gender is not the same as “sex”. It refers not only to male and female but to the socially constructed roles, behaviours, activities, and attributes that a society assigns to both men and women (Godson-Ibeji and Aja, 2015). Gender is dynamic, cultural, and historical and driven from the structure of social institutions and not only on the relations between men and women at personal and private levels but also, to a social system that is supported by values, legislation, and religion (FAO, 2011). Aniedu and Aniedu (2013) asserted that gender is not merely physical or natural appearance but a socio- economic variable used to analyze roles, responsibilities, constraints, opportunities and needs of men and women in the society. They further stated that it equally defines the social relationship between men and women, the ways these relationships have been constructed and institutionalized based on the different roles men and women play in the society, which are shaped and modified by economic, religious beliefs, cultural and environmental factors that determine the meaning of gender to that given society. On that note, the United Nations Development Programmes (UNDP) (2013b) postulated that like the theme of gender, the issue of climate change is also a cross-cutting issue that has to be mainstreamed into all programme activities of UN agencies.

The highly erratic patterns in climatic conditions in the Southern part of Nigeria complicate the ability of rural farmers to engage in subsistence agriculture, in as much as growing evidence suggests that men and women experience climate change differently and have different priorities and ability to respond to negative climate change impacts (Okoroh, Olaolu and Igbokwe, 2010). According UNDP (2013a) climate change touches on the four dimensions of food security: food availability, food accessibility, food utilization and food system stability. They further stated that women farmers currently account for 45 to 80 percent

of all food production in developing countries, and two thirds of the labour force in the agricultural sector. They equally, observed that climate change has made traditional food sources unpredictable and scarce in that a loss of harvest means a loss of income, which is often the only source of food and income for a household. Equally, rising food prices have a negative impact; they make food less accessible to poorer segments of the population. With less food availability in a household, gendered relations and unequal power relations lead to unequal food distribution. Women and girls’ health has been found to decline more than male health in times of food shortages (UNDP, 2013a). In a related situation, Garutea, Mubaya and Zhon (2018) noted that various studies on climate change treated men and women as unitary categories with contrasting needs. On that note, the IPCC (2007) stated that most climate change impact studies in West Africa failed to consider disparities particularly in respect to land-use, management preferences, and other related perspectives. Women in Nigeria are more vulnerable to the effects of climate change than men because of their locally defined responsibility for reproduction and domestic roles, limited access to natural resources and role in decision- making (Omari, 2010). Similarly, UNDP (2013a) noted that men and women have different adaptive strategies and spatial perceptions that reflect their activities, social positions and differential access to and control over resources. Equally, Garutea, Mubaya and Zhon (2018) observed that in as much as the linkage between climate change and household dynamics are complex and indirect the effects of climate change and variability have differential impacts on vulnerability and adaptation strategies along gender lines. On that note, Carson et al (2013) suggested that the reason for integrating gender considerations into climate change adaptation and disaster risk reduction because of the fact that women and men in their

respective social roles are very differently affected by the effects of climate variability. They equally, noted that Climate change is not gender-neutral and affects women and men differently depending on their roles and responsibilities in the household and community. Gender based behaviours and stereotypes about what women and men can and cannot do, can further contribute to gender differences (UNDP, 2010). They therefore concluded that in the context of a climate-related disaster, women may suffer from a “double disaster”. Besides the material losses they suffer, women and girls are subject to a number of secondary or indirect impacts that arise from the event, including violence and trauma, pressure to marry early, loss or reduction in education opportunities, and an increase in their workload. Therefore, gender is an important concept and social category needed to understand vulnerability towards the impacts of climate change, though climate change is not happening in isolation, but is coinciding with many other trends and stresses on livelihoods, including economic liberalization, globalization, population growth, geopolitical conflict, and unpredictable government policies among others (UNDP, 2013a). In furtherance, UNDP (2013a) stated that women are vulnerable not because of natural weakness (because of their sex), but rather because of the socially and culturally constructed roles ascribed to them as women (because of their gender). Therefore, given the severity of gender inequality, particularly in the developing world, climate change is likely to magnify by having a disproportionately greater effect on women, since they are often poorer and less educated than men and often excluded from political and household decision-making processes that affect their lives. Additionally, women usually have fewer assets and depend more on natural resources for their livelihoods which indicate that they will be more vulnerable than men to the effects of climate change (FAO, 2013). Given the fact that UNDP

(2013b) posited that the best community based adaptive approach to the effect of climate change is the combination of local knowledge and scientific knowledge, the study therefore assessed the gender differentials in climate change adaptive capabilities among small-scale farmers in Abia State, Nigeria. The following objectives guided the study which included to;

- (i) describe the socio-economic characteristics of both the male and female respondents;
- (ii) determine sources of information on climate change to the male and female respondents;
- (iii) ascertain the level of awareness of the effects of climate change by the male and female respondents; and
- (iv) determine the Knowledge, Attitude and Practice (KAP) levels of male and female respondents on adaptive measures to the effects of climate change in the study area.

H0<sub>1</sub>: There is no significant difference between the knowledge levels of the male and female respondents in adaptive measures to climate change in the study area.

H0<sub>2</sub>: There is no significant difference between the attitude levels of the male and female respondents in adaptive measures to climate change in the study area.

H0<sub>3</sub>: There is no significant difference between the practice levels of male and female respondents in adaptive measures to climate change in the study area.

### **Methodology.**

The study was conducted in Abia State, Nigeria. The State which is situated in the South-East Ecological Zone of Nigeria is bounded in the North by Enugu and Ebonyi States, in the East by Cross River and Akwai Ibom States, in the West by Imo State and in the South by Rivers State respectively. The State lies within Longitude 7° 23' E and 8° 2' E and Latitude 4° 47' N and 6° 12' N and is in the

rainforest belt of Nigeria (Abia – ADP, 2006). The minimum and maximum temperature range is between 20<sup>0</sup> and 30<sup>0</sup> Celsius and the rainy season starts from April to October, with an average annual relative humidity of 75% (Abia – ADP, 2006). The State covers a total land area of about 5,243.3 Km<sup>2</sup> being about 5.8 % of the total land area of Nigeria (Abia – State Ministry of Health, 2013). Abia State has a population of 2.8 million people and a population growth rate of 3 % per annum (Abia State Ministry of Health, 2013). It has a population density of 486 persons/ Km<sup>2</sup>. The Southern Nigeria climate is characterized by strong latitudinal Zones, becoming progressively drier as one moves north from the coast. Rainfall is the key climatic variable, and there is a marked alternation of wet and dry seasons in most areas ( Ozor et al., 2012). The distribution of vegetation in Southern Nigeria is dependent mainly on the climate, which becomes increasingly drier further inland from the coast. It is this climatic zoning that has resulted in a vegetation zoning; comprising the rainforest zone, the mixed deciduous forest zone, and the parkland zone (Ozor, *et al.*, 2012). Abia State is characterized by heavy precipitation of over 2000mm/ annum. Agriculture is the main occupation of the people and cassava occupies about 68.7% of the total annual farm holding per household in Abia State (Abia – ADP, 2006). Other crops cultivated in Abia State include: yam, cocoyam, maize, melon, vegetables, three -leaflet yam, beans, rice, oil- palm, cashew, cocoa, rubber, and coconut among others. Livestock production includes sheep, goats, pigs, poultry, fisheries, apiculture among others (Abia- ADP, 2006). A multi-stage procedure which involved the use of purposive and random sampling methods in selecting a sample size of 70 male respondents and 70 female respondents were used for the study. In stage1; The 3 Agricultural Zones of the State namely: Ohafia, Umuahia and Aba Agricultural Zones were purposively selected. In stage 2; 1 Agricultural Block was

purposively selected from each of the 3 Agricultural Zones to give 3 Agricultural Blocks. In stage 3; 7 Agricultural circles/ cells in all were randomly selected from the 3 Agricultural Blocks. In stage 4; 10 male respondents were randomly selected from each of the 7 selected circles/ cells through the assistance of Extension Agents in-charge of the circles/ cells. The same process was applied in the selection of 70 female respondents that were used for the study. Primary data were generated through the use of questionnaire and interview schedule. Data were analyzed through the use of descriptive statistics such as frequency, percentage, mean, pooled mean responses, and Z- Test analysis. Objectives i, ii, and iii were realized through the use of frequency and percentage. Objective iv was realized through the use of mean response while H<sub>01</sub> was tested using Z- test analysis.

## **Results and Discussion**

### **Socio- economic Characteristics.**

Table 1 shows the mean age of the male respondents was 46years and 44 years for the female respondents. About 29 % of the male respondents were into farming as against 50 % of female respondents. This implies that majority (71 %) of the male respondents abandoned farming to other sources of livelihoods since farming could not afford enough income to them. Table 1 further shows about 43 % of the male respondents 36 % of female respondents were into trading and 21 % of the male respondents and 11 % of female respondents were into other professions. Only 7 % of the male respondents and 3 % of the female respondents were civil servants. The disparity in the percentage might be due to poor educational background of the female respondents and their additional workload from household chores. Table 1 equally, shows 14 % of the male respondents and 21 % of the female respondents had no formal education. This is a pure evidence of gender inequality. In the area of study, in the years past, parents were not sending their female children to

schools for the simple reason that they would be married off. Results further show that 43, 29, and 14% respectively of the male respondents completed primary, secondary and tertiary education respectively as against 50, 21 and 7 % respectively of the female respondents. Table 1 shows the mean monthly income of the male respondents as ₦35,871.143 and ₦28,642.854 for the female respondents. The mean farm –farm size was 1.7 hectares for the male respondents and 1.3 hectares for female respondents and the mean years of farming experience were 11years for male respondents and 12 years for female respondents. Results further show that 57 %, 14, 21 and 7 % respectively of the male respondents acquired

their farm lands through inheritance, lease, communal and outright purchase respectively as against 7, 57, 7 and 29 % respectively of the female respondents respectively. Results further show 14, 36, 43 and 7 % respectively were into crop production, livestock production, mixed farming and others respectively as against 43, 7, 43 and 7 % respectively of the female respondents. Results also, show about 86 % of the male respondents had between once every 2 years and once every 6 months of extension contact as against 92 % of the female respondents and 86 % of the male respondents belonged to social associations as against 93 % of the female respondents.

**Table 1: Distribution of the Respondents According to Socio- economic Characteristics**

S/ No	Variables	Male Respondents		Female Respondents	
		Frequency	Percentage	Frequency	Percentage
01	Age in years				
	≤ 25	10	14.3	10	14.3
	26 - 36	15	21.4	15	21.4
	37 - 47	20	28.6	15	21.4
	48 - 58	15	21.4	20	28.0
	59 & above	10	14.3	10	14.3
	Mean	46 years		44 years	
02	Primary Occupation				
	Farming	20	28.6	35	50.0
	Trading	30	42.9	25	35.7
	Civil- Servants	05	7.1	02	2.9
	Others	15	21.4	08	11.4
03	Educational Attainment				
	No formal education	10	14.3	15	21.4
	Primary six completed	30	42.9	35	50.0
	Sec sch. Completed	20	28.6	15	21.4
	Tertiary completed	10	14.3	05	7.1
04	Monthly income in Naira (₦)				
	≤ 20,00.00	05	7.1	15	21.4
	21,000.00 – 31,000.00	25	35.7	35	50.0
	32,000.00 – 42,000.00	20	28.6	15	21.4
	43,000.00 – 53,000.00	10	14.3	05	7.1
	54,000.00 & Above	10	14.4	-	-
	Mean	₦35,871..871		₦28,642..854	
05	Farm Size in Hectares				
	≤ 0.9	20	28.6	45	64.3
	1.5 - 2.4	40	57.1	25	35.7
	2.5 & above	10	14.3	-	-
	Mean	1.7 hectares		1.3 hectares	
06	Years of Farming Experience				
	< 5	10	14.3	08	11.4
	6 - 10	20	28.6	15	21.4
	11 - 15	25	35.7	22	31.4
	16 & Above	15	21.4	25	35.7
	Means		11 years		12 years
07	Land Tenure System				
	Inheritance	40	57.1	05	7.1
	Lease	10	14.3	40	57.1

	Communal Land	15	21.4	05	7.1
	Outright Purchase	05	7.1	20	28.6
08	Type of Farming System				
	Crop Production	10	14.3	30	42.9
	Livestock Production	25	35.7	05	7.1
	Mixed- farming	30	42.9	30	42.9
	Others	05	7.1	05	7.1
09	Frequency of Extension Contacts				
	None	10	14.3	18	25.7
	Once every 2 years	20	28.6	25	35.7
	Once a year	30	42.9	22	31.4
	Once every 6 months	10	14.3	05	7.1
10	Membership to Associations				
	Yes	60	85.7	65	92.9
	No	10	14.3	05	7.1

Source: Field survey 2018.

### Sources of Information on Climate Change to the Respondents

Table 2 shows about 14 % of the male respondents got their information on climate change through personal observations and friends / neighbours respectively as against 28.6% and 20 % of female respondents. This implies that as better natural resources managers, women have the tendency of being better observers of the natural environment than their men counterparts. Also, women have the natural gift of being friendly which oftentimes makes them to interact more with their neighbours than men. This corroborates OFAM (2011) which noted that women are better care givers than men. Table 2 further shows about 11.4 % of the male respondents got information on climate change from extension agents as against 8.6 % of the female respondents. This is due to the fact that men always have more extension contacts than

women. About 8.6% of the male respondents as against 17 % of the female respondents had their sources of information from social associations. Table 2 further shows that 17, 8.6, 14,7 % and 4.3 of male respondents got information on climate change through radio, television, books, phoned calls/ texts messages and internet respectively as against 8.6, 2.9, 8.6, 5.7% and zero percent respectively of the female respondents. This implies that rural women in the study area have little or no time for reading books, listening to news from radio or television due to their congested household chores, coupled with their poor education background. This corroborates UNDP (2013b) which postulated that throughout the world, that there are gender- specific differences in consumption patterns, lifestyles, access to and control of resources and power, and vulnerability to climate change.

**Table 2: Distribution of the Respondents According to Sources of Information on Climate Change.**

S/No	Sources of Information on Climate Change	Male Respondents		Female Respondents	
		Frequency	Percentage	Frequency	Percentage
01	Personal observations	10	14.3	20	28.6
02	Friends/ Neighbours	10	14.3	14	20.0
03	Extension Agents	08	11.4	06	8.6
04	Social Associations	06	8.6	12	17.1
05	Radio	12	17.1	06	8.6
06	Television	06	8.6	02	2.9
07	Books	10	14.3	06	8.6
08	Phone calls/ text messages	05	7.1	04	5.7
09	Social media (internet)	03	4.3	0	0

Source: Field Survey 2018

**Table 3: Distribution of the Respondents According to Their Level of Awareness on the Effects of Climate Change**

Table 3 shows that the female respondents have high level of awareness on emergence of new species of weeds (60%), new breeds of pests (56%), and loss in biodiversity (55%) respectively as against low level of awareness of the male respondents (40, 45, and 48%) respectively. This implies that most rural women carry out manual weeding operations in the gender division of labour in the farm operations in the study area therefore, most women are better natural resources managers than men. This corroborates Garutsa, Mbaya and Zhon (2018) who observed that approximately 80% of women of Nigeria rural area engage in food production and that women play role as users, conservation knowledge holders, and managers of agrobiodiversity and therefore, demonstrate the ability to undertake adaptive measures. Table 3 equally, shows that both male and female respondents have high level of awareness on negative effects of climate change on shortening of planting seasons, lengthening of harvesting seasons, increase in cost of production, increase in soil/ land erosion and degradation, reduction in crop yields, increase in food scarcity/ poverty and increase in

unemployment. This implies that out of 16 item questions on the negative effects of climate change that both male and female respondents have high level of awareness on 7. These seven questions are mostly on agriculture, social and economic issues, whose manifestations can be felt via mere observations. Table 3 further shows that both male and female respondents have low level of awareness on 5 item questions which include: stresses in livestock, increase in the rate of sickness/ diseases, increase in the rate of desertification, rise in communal clash/ disputes, drying up of fresh water – resources, and relocation of settlements. These effects are not so common in the study area, since the area is located in the rainforest Zone of Nigeria, where the effect of desertification, rise in communal conflicts due to the effect of climate change or relocation of settlement which is very common in the riverine and coastal areas of Nigeria are not common. This corroborates Okoroh, Olaolu and Igbokwe (2016) who noted that “the awareness of climate change is usually a thing of experience and observation of changes in the environments over time which also brings about adjustments made to cope with the change.

**Table 3: Distribution of the Respondents According to Their Level of Awareness of the Effects of Climate Change**

Possible effects of Climate change	Male Respondents			Female Respondents		
	Awareness in %	Not aware %	Level	Awareness in %	Not Aware %	Level
Are you aware that climate change can cause emergence of new species of weeds	40	60	L/L	60	40	H/L
Are you aware that climate change can cause of new breeds of pests	45	55	L/L	55	45	H/L
Are you aware that climate change can bring about loss in biodiversity?	48	52	L/L	56	44	H/L
Are you aware that climate change can shorten planting seasons	70	30	H/L	50	50	H/L
Are you aware that climate change can lengthen harvesting season	60	40	H/L	60	40	H/L
Are you aware that climate change can cause increase in the use of agro-inputs increasing the cost of production	80	20	H/L	70	30	H/L
Are you aware that climate change increases the rate of flooding, erosion and land degradation	70	30	H/L	70	30	H/L
Are you aware that climate change causes reduction in crop yields?	75	25	H/L	80	20	H/L
Are you aware that climate change causes stresses on live stocks?	40	60	L/L	40	60	L/L
Are you aware that climate change can cause increase in the rate of livestock infestations?	35	65	L/L	30	70	L/L
Are you aware that effect of climate change can increase food scarcity and poverty	80	20	H/L	80	20	H/L
Are you aware that effect of climate change can fast track desertification	60	40	H/L	45	55	L/L

processes ?						
Are you aware that effect of climate change can give rise to more communal conflicts?	40	60	L/L	30	70	L/L
Are you aware that effect of climate change can dry up your sources of fresh water?	70	30	H/L	60	40	H/L
Are you aware that effect of climate change can cause migration & relocation of settlements?	55	45	H/L	45	55	L/L
Are you aware that effect of climate change can increase rate of unemployment?	30	70	L/L	40	60	L/L

Source: Field survey 2018

**Determination of Knowledge, Attitude and Practice (KAP) Levels of the Respondents on Climate Change Adaptive Measures.**

Table 4A shows that out of 18 items on climate change adaptive measures that both male and female respondents were aware of 13 of them. This implies that the respondents were very much aware of the changes in their environment. This is in agreement with UNDP (2013a) which noted that Community Based Approach (CBA) on climate change adaptation

allows for experimentation, helps improve local capacity to adapt, and makes it easier to identify and to share information about best practices. CBA equally increases resilience by ensuring that local actors are aware of why local conditions are changing and why they are adapting to. Tables 4A, 4B, and 4C have shown that about 72% of the male respondents had high KAP level on climate change adaptive measures as against 66.7% of female respondents.

**Table 4A: Distribution of the Respondents According to their Knowledge Levels on Adaptive Measures on the effect of Climate Change in the Study Area.**

S/N0	Climate Change Adaptive Measures	Male Respondents		Female Respondents	
		Percentage	Level	Percentage	Level
01	Diversification of sources of livelihoods	80	H/L	50	H/L
02	Shift in planting dates	70	H/L	75	H/L
03	Planting improved varieties	80	H/L	80	H/L
04	Afforestation	75	H/L	80	H/L
05	Crop rotation	80	H/L	80	H/L
06	Regular weeding	40	L/L	75	H/L
07	Mixed- farming	80	H/L	80	H/L
08	Cover- cropping	60	H/L	60	H/L
09	Shift in harvesting dates	80	H/L	75	H/L
10	Conservation of soil moisture	45	L/L	30	L/L
11	Use of organic manure	70	H/L	75	H/L
12	Irrigation	65	H/L	68	H/L
13	Use of water channels	35	L/L	35	L/L
14	Rain – water harvesting	40	L/L	80	H/L
15	Information on early warning	70	H/L	45	L/L
16	Insurance – cover	40	L/L	35	L/L
17	Practice of IPM	56	H/L	40	L/L
18	Minimum Tillage	60	H/L	65	H/L

Source: Field Survey 2018

Table 4B shows that out of 18 adaptive measures the male and female respondents both had positive attitude ( $\geq 2.5$ ) on 13 adaptive measures and negative attitude on 5 adaptive measures. These five adaptive measures,

where the respondents had negative attitude are measures that are not specific to the study area. This corroborates with UNDP (2013a) which stated that since climate change affects communities differently according to their



respective vulnerabilities, and adaptation capabilities, adaptation must be locally specific and appropriate to the context. Table 4B shows that out of 18 items on climate change adaptive measures that the male respondents had positive attitude towards 13 of them as against 12 of the female respondents. This might be for the fact that men are more exposed through

their mobility which is far much more than that of the women, who often times are restricted to stay at home due to their domestic responsibilities. This also corroborates UNDP (2010) which stated that women perceive climate change

**Table 4 B; Distribution of the Respondents According to Their Attitude Level on Climate Change Adaptive Measures.**

S/N0	Climate Change Adaptive Measures	Male Respondents					Female Respondents				
		S/A	A	D/A	S/D/A	MEAN	S/A	A	D/A	S/D/A	MEAN
01	Diversification of livelihoods	20	30	15	05	2.93	15	30	15	10	2.71
02	Shift in Planting Dates	22	28	10	10	2.89	20	30	10	10	2.86
03	Planting improved varieties	20	28	12	10	2.69	20	20	20	10	2.71
04	Afforestation	20	25	15	10	2.79	20	22	18	10	2.71
05	Regular weeding	15	15	20	20	2.36	20	25	15	10	2.79
06	Crop – rotation	20	28	12	10	2.83	18	22	15	15	2.61
07	Mixed- farming	20	25	25	-	2.93	20	20	20	10	2.71
08	Cover- cropping	18	32	10	10	2.83	20	25	15	10	2.59
09	Shift in harvesting dates	20	25	20	05	2.86	18	20	17	15	2.59
10	Conservation of soil moisture	15	25	20	10	2.64	20	15	25	10	2.64
11	Use of Water- channels	15	15	20	20	2.36	15	10	15	30	2.14
12	Rain- water harvesting	10	20	30	10	2.43	20	20	20	10	2.71
13	Use of organic manure	15	25	20	10	2.64	20	20	25	05	2.71
14	Information on early warning	20	30	20	-	2.71	10	15	25	20	2.21
15	Insurance cover	-	20	30	20	2.00	-	05	25	40	1.50
16	Irrigation	-	20	20	30	1.86	-	20	15	35	1.79
17	Practice of IPM	15	15	20	20	2.64	-	20	15	35	1.79
18	Minimum Tillage	15	15	20	20	2.36	15	10	15	30	2.14

Source: Field Survey 2018

S/A = Strongly Agree, weighted and scored 4 points, A = Agree, weighted and scored 3 points

D/A = Disagree, weighted and scored 2 points, S/D/AN = Strongly Disagree, weighted and scored 1 point. Decision Rule: Any mean response ≥ 2.5 was regarded as positive attitude while any mean response < 2.5 was regarded as negative attitude.

Table 4C shows that the male respondents practiced 13 out of 18 adaptive measures to climate change as against 11 of the female respondents. This implies that the male respondents practiced more climate change adaptive measures than the female respondents because they are more educated and richer than the female respondents and make decisions for them. This corroborates UNDP (2013a) which states that men are favoured because of the gender inequalities mostly in the developing countries of the world. This might be due to the fact that men are more exposed through their mobility which is far much more than that of the women, who often times are restricted to stay at home due to their

domestic responsibilities. This also corroborates UNDP (2010) which stated that women perceive climate change differently from men. In conclusion, Tables 4A, 4B, and 4C have shown that about 72% of the male respondents had high KAP level on climate change adaptive measures as against 66.7% of female respondents. This corroborates UNDP (2013b) which states that oftentimes, women have fewer assets than men and therefore, depend more on natural resources for their livelihoods. It was equally based on the above that UNDP (2013b) noted that gender – blind adaptation programmes are potentially harmful to development as they tend to exacerbate existing inequality

**Table 4C; Distribution of the Respondents According to their Practice Level on Climate Change Adaptive Measures.**

S/N0	Climate Change Adaptive Measures	Male Respondents					Female Respondents				
		A	O	S	N	Mean	A	O	S	N	MEAN
01	Diversification of livelihoods	20	30	15	05	2.93	15	30	15	10	2.71
02	Shift in Planting Dates	22	28	10	10	2.89	20	30	10	10	2.86
03	Planting improved varieties	20	28	12	10	2.69	15	15	20	20	2.38
04	Afforestation	20	25	15	10	2.79	20	22	18	10	2.71
05	Regular weeding	15	15	20	20	2.38	20	25	15	10	2.79
06	Crop – rotation	20	28	12	10	2.83	18	22	15	15	2.61
07	Mixed- farming	20	25	25	-	2.93	20	25	25	-	2.93
08	Cover- cropping	18	32	10	10	2.83	20	25	15	10	2.59
09	Shift in harvesting dates	20	25	20	05	2.86	18	20	17	15	2.59
10	Conservation of soil moisture	15	25	20	10	2.64	20	15	25	10	2.64
11	Use of Water- channels	15	15	20	20	2.38	15	10	15	30	2.14
12	Rain- water harvesting	10	20	30	10	2.43	20	20	20	10	2.71
13	Minimum tillage	20	20	15	15	2.64	10	10	25	25	2.07
14	Practice of IPM	20	20	15	15	2.64	15	15	15	15	2.29
15	Use of organic manure	15	25	15	15	2.57	20	20	15	15	2.64
16	Information on early warning	15	25	20	10	2.64	10	10	25	25	2.07
17	Insurance cover	15	10	20	30	1.79	-	05	10	55	1.29
18	Irrigation	10	20	30	10	2.43	-	20	20	30	1.86

Source: Field Survey 2018

N/B A= Always, weighted and scored 4 points, O = Often, weighted and scored 3 points, S = Sometimes, weighted and scored 2 points N = Never, weighted and scored 1 point. Decision rule: Any mean response  $\geq 2.5$  was adjudged Practiced, while any mean response  $< 2.5$  was adjudged not practiced.

## Hypotheses Testing

H0<sub>1</sub>: There is no significant difference between knowledge levels of the male and female respondents on adaptive measures on climate change in the study area.

Male Respondents,  $X_1 = 62.56\%$ ,  $S_1 = 234.676$ ,  $S^2 = 15.32$

Female Respondents,  $X_2 = 62.67\%$ ,  $S_2 = 337.192$ ,  $S^2 = 18.363$ .

$Z_{\text{calculated}} = 0.080$ , Since  $Z_{\text{Cal}} < Z_{\text{Tab}}$  The H0<sub>1</sub> is hereby accepted, since there is no significant difference between the knowledge level of male and female respondents on adaptive measures on climate change.

H0<sub>2</sub>: There is no significant difference between the attitude level of male and female respondents on adaptive measures on climate change in the study area.

Male Respondents,  $X_1 = 2.60$ ,  $S_1 = 0.0968$ ,  $S^2 = 0.311$

Female Respondents,  $X_2 = 2.44$ ,  $S_2 = 0.164$ ,  $S^2 = 0.405$ .

$Z_{\text{calculated}} = 0.80$ , Since  $Z_{\text{Cal}} > Z_{\text{Tab}}$  the H0<sub>2</sub> is hereby rejected and the alternative accepted. Since there is significant difference between the

attitude level of the male and female respondents towards adaptive measures on climate change in the study area. This corroborates FAO (2013) who noted that men and women have different adaptive strategies and spatial perceptions that reflect their activities, social positions and differential access to and control over resources.

H0<sub>3</sub>: There is no significant difference between male and female respondents on adaptive measures on climate change in the study area.

Male Respondents,  $X_1 = 2.63$ ,  $S_1 = 0.071$ ,  $S^2 = 0.266$  and  $n_1 = 18$

Female Respondents,  $X_2 = 2.44$ ,  $S_2 = 0.083$ ,  $S^2 = 0.288$  and  $n_2 = 18$

N/B  $X_1 =$  Mean for male respondents,  $S_1 =$  Variance of male respondents,  $S^2 =$  Standard Deviation of male respondents.

$Z_{\text{calculated}} = 1.08$ , Since  $Z_{\text{Cal}} > Z_{\text{Tab}}$  the H0<sub>3</sub> is hereby rejected and the alternative accepted. Since there is significant difference between the practice level of the male and female respondents on adaptive measures on climate change in the study area. This corroborates Garutsa, Mbaya and Zhon (2018) who noted

that the effects of climate change and variability have differential impacts on vulnerability and adaptation strategies along gender lines.

### Conclusion and Recommendations

The study concludes that there is gender differentials in climate change adaptive capabilities among small- scale farmers in Abia State. Since the study showed differences both in attitude and practice levels between male and female respondents in adaptive measures against climate change in the study area. The study therefore, recommends that government agencies and other stake holders in climate change issues should involve both male and female respondents equitably in order to find a sustainable and location specific adaptive measures against the negative effects of climate change mostly in the study area.

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