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**THE EFFECT OF FLOOD ON LIVELIHOOD AND LIVELIHOOD COPING STRATEGIES IN
RURAL COMMUNITIES OF ANAMBRA WEST L.G.A, ANAMBRA STATE NIGERIA**

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Abstract

Among all the natural hazards humans are exposed to, flood is most wide spread and it accounts for untold damages to assets worth billions of dollars as well as suffering to millions of people across the world. This study examined the impact of flood on socio-economic well-being and coping strategies in the rural communities of Anambra West Local Government Area of Anambra State with emphasis on socio-economic status, effects on social-economic activities across gender, age groups and livelihood coping strategies. Survey research design was used and a total of 400 household respondents were sampled through proportionate stratified random sampling technique. Simple percentage was used for analysis of frequency data while ANOVA was for testing significance of relationship among variables. 68% of respondents in the study area are farmers and 65 % have no formal education, which implies that the literacy level of the sampled population greatly influenced the nature of the occupation and the status of their livelihoods. The study also revealed that the impacts of flooding on agricultural activities and socio-economic well-being of the residents is significant. A total of 1064 houses in the area were affected, total of 35 deaths as a result of flooding, a total of 37,683 persons have been forced to relocate to other places, a total of 12 roads, 19 schools, 31 churches, 16 health facilities, 804 farmlands, 736 households and 11 markets were affected by flooding in the study area. Women were more vulnerable due to poverty and less ownership of fragmented croplands. The impact on age groups is significantly different with people most vulnerable between the age ranges of 0-14 and 70 and above. Residents use sand bags to make roads a bit passable as well as wooden constructions as a means of gaining access to their houses as coping strategy, where many relocate to other places for safety. The persistent floods in the area have constituted a significant source of threat to life, property, livelihoods, and social amenities. The most adverse impact of flooding on livelihood recounted by the people includes human and animal lives; agricultural lands and products; housing, education, transportation commerce and other infrastructure. This study therefore recommends that farmers in the area should be encouraged to embark on early planting or cultivation of more water tolerant crop species and crops species that can mature early enough so that they can be harvested on time. This can be achieved by providing farmers in the area with improved varieties of crops from the Ministry of Agriculture.

Keywords: Flooding, Vulnerability, Livelihood Coping Strategies, Flood Impacts, Socio-Economic Wellbeing

1. INTRODUCTION

Disasters are catastrophic events resulting in heavy losses of human, animal and plant lives, causing injuries, disabilities, damage to property, livelihoods and environment, (Ahaoma, 2012). Natural disasters constitute one of the major processes in the circulation of matter and nutrients as well as contamination of life (Okafor, 2019). These processes such as volcanic eruptions, earthquakes, flooding, which have been occurring through human history, are indicative of the earth as a retaliatory mass and home of life. Among all the natural hazards humans are exposed to, flood is most wide spread. It does not respect political boundaries, it accounts for untold damages to assets worth billions of dollars as well as suffering to millions of people across the world (Onourah, 2008, Adejoh, 2009). The loss of these assets and human resources retards economic progress of households, communities and nations.

According to Okoye (2012), recurrent flooding, loss of lives and asset, undermine sustainable development of a nation. Following the recurrent nature of floods, its occurrence as a natural process, the counter approach is how human and developmental processes can unfold in harmony with flood control (Ina, 2011). Several studies have opined that this could be achieved through the ability of individuals, communities and states and their institutions to absorb and recover from shocks, whilst positively adapting and transforming their structures and means for living in the face of long-term changes and uncertainty (Okoli, 2012). Furthermore, some communities have adapted to living with flood through relocation of homes to refugee camps or transfer of their important valuables and seeking temporary refuge with neighbours, friends and relatives whose homes are relatively safe (Okpala, 2010). These approaches have contributed immensely in saving life, reducing the destruction of properties and community sources of livelihood. An understanding of local methods used by communities in reducing the impact of flooding could assist in evaluating processes that reduce flood impact and develop innovative approaches for other communities to adopt as well.

Nigeria is one of the countries in the world worst hit by recurrent flooding, especially in the southern region of the country such as 2012 flood, affecting about 14 states. In Anambra State, there have been incidences of flooding in various parts and over the years. Four L.G.As., which include Ogbaru, Anambra West, Anambra East and Ayamelum were totally submerged (after the 2012 flood disaster), displacing an estimated 76,000 persons in about 200 communities in a manner the locals said they had never seen before. Over 20 camps were opened across the State to cater for the victims (Ahaoma, 2012).

The increasing persistence of flood occurrences in Anambra West L. G. A has undoubtedly attracted public awareness about the need to combat this environmental hazard to improve the economic viability of the area. Most of the inhabitants of Anambra West L.G.A living along the riverine area engage mainly in fishing and agriculture. The persistent floods in the area have constituted a significant source of threat to life, property, livelihoods, and social amenities. A large proportion of the landmass in the area was inundated in the 2012 flood and other subsequent ones (Okonkwo, 2012). Unfortunately, most of these areas inundated, are places where the inhabitants of these towns' carryout most of their economic activities like agricultural activities, fishing, industrialization, transportation and trading. This is to say, going by how the flood plains of the areas are being ravaged; the economic activities are in serious danger of being badly affected. The rainy season allows River Niger to overflow its banks and extends to its tributaries thereby causing yearly flood called "ijummiri". It is to this effect that this study seeks to assess how floods had affected the means of livelihood of the people in the area and coping strategies across different age groups.

In trying to examine the impact of flood on livelihood as well as the coping strategies in the rural communities of the study area, this study looked at effects on socio-economic well-being, impacts across gender, age groups and coping strategies

2. MATERIALS AND METHODS

2.1 Study Site

The study area is Anambra West Local Government Area of Anambra state Figure 1, Figure 2. The communities include Nzam, Ibokoye, Nmiata, Umuenwelum, OromaEtiti, UmudoraUmuikwu, George camp, Obodola, Oroma and OrantaOtu. Out of these communities, Nzam, Ibokoye, Umuenwelum, OromaEtiti, and UmudoraUmuikwu were communities of focus as they are located closer to the Omambala river and more vulnerable to flood disasters than other communities. The study area covers approximately an area of about 954km² with a total population of 207,388 (National Population Commission Population Projection, 2022).

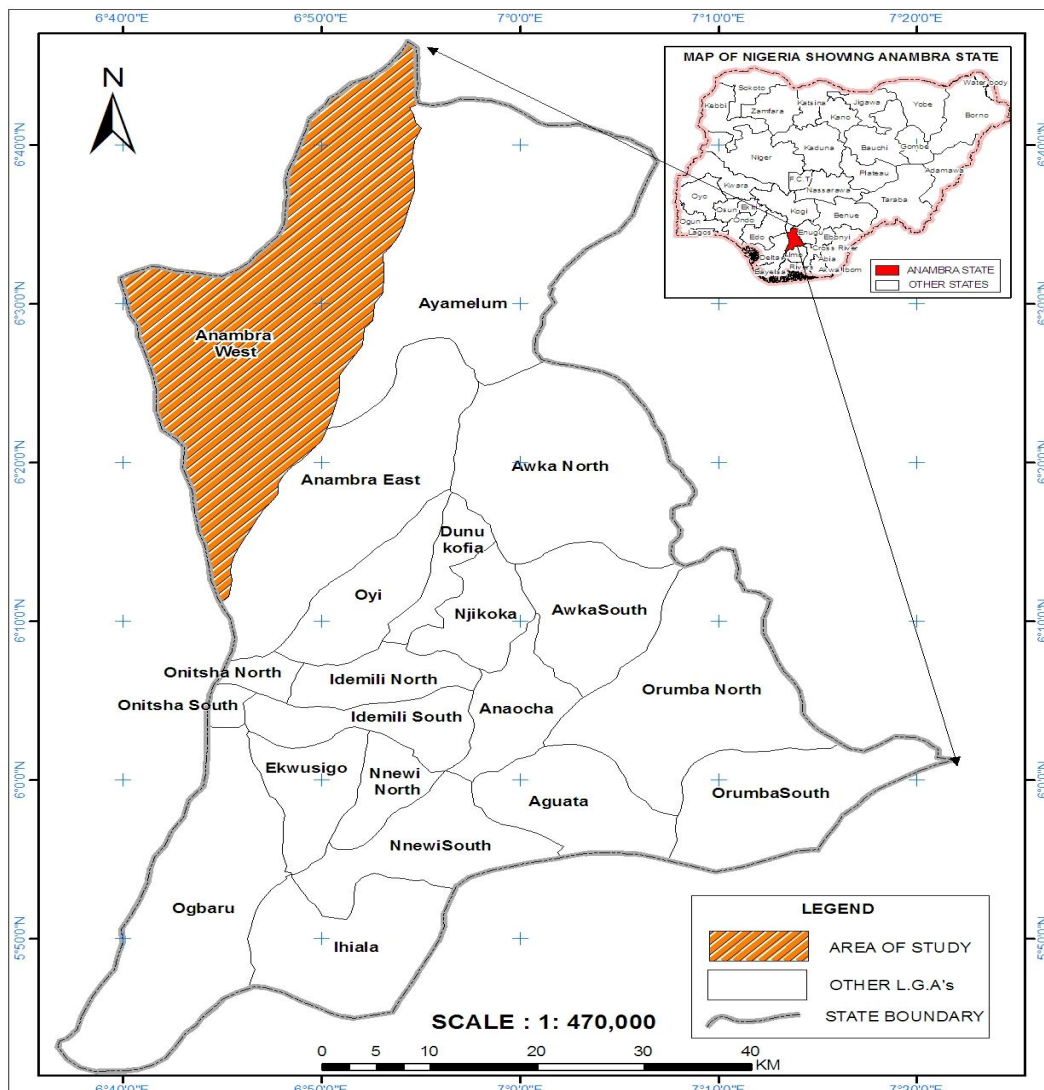


Figure 1: Map of Nigeria Showing Anambra State

Source: Surveying and Geoinformatics Dept. UNN (2018)

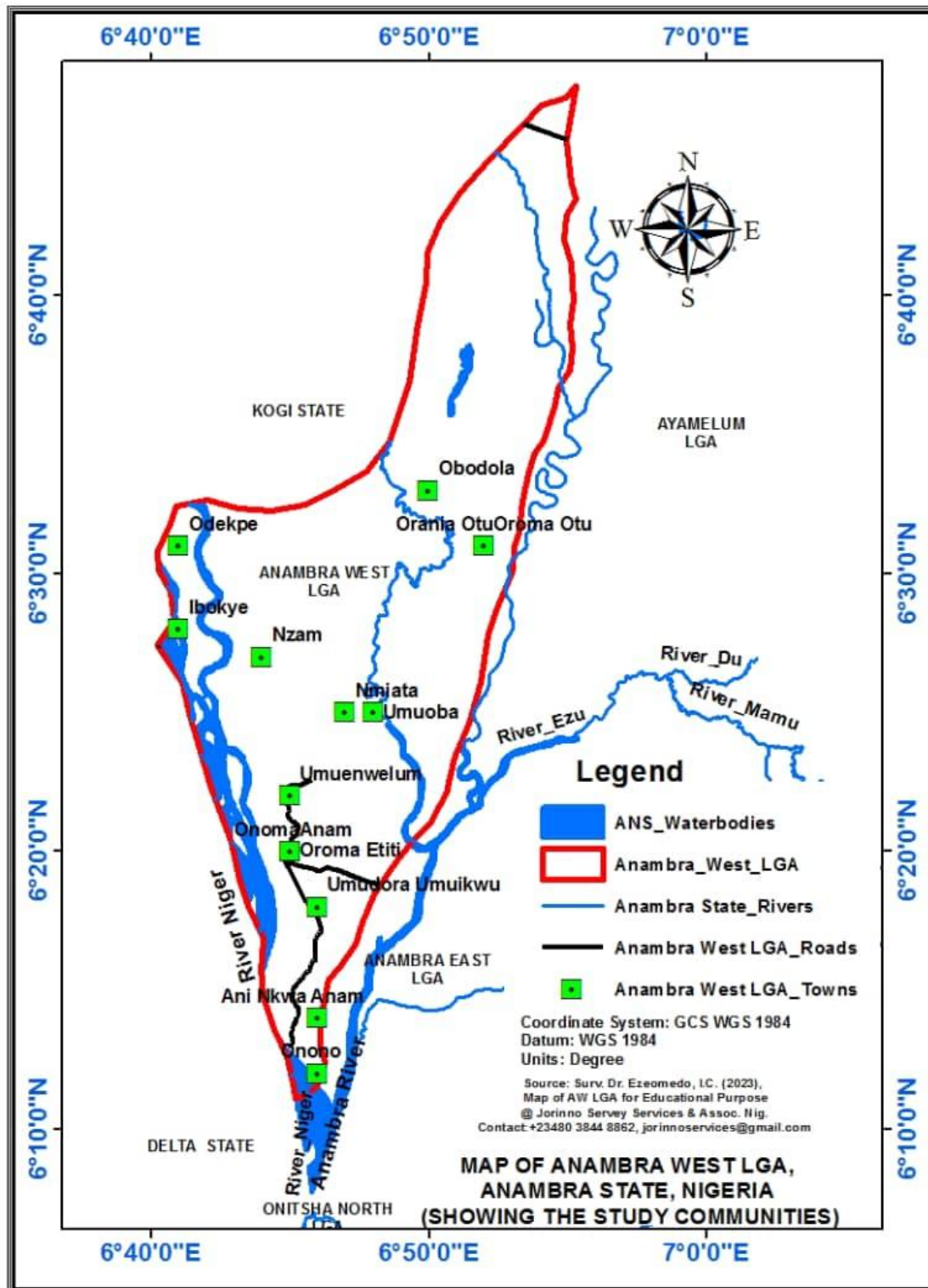


Figure 2: Map of Anambra West Local Government Area

Source: Surveying and Geoinformatics Dept, NAU, Awka, (2021)

Anambra West Local Government Area lies below 300 meters above sea level in a valley on the floodplain of the River Niger which covers an area of about 954km². It is located at Latitude 6° 18'49"N to Latitude 6° 19'40"N and longitude 6° 45' 36"E to longitude 6° 15' 30"E respectively (Surveying and Geo informatics Dept, NAU, Awka.2021), (Figure 2). It is located in a fertile tropical valley but most of the original rain forest has been lost due to clearing of bushes for farming and human settlement. It has a population of 203,842 according to National Population Commission population projection, (2019), Anambra West Local Government Areas comprises farming and fishing settlements in the west of Anambra State River. The annual rainfall of more than 2500mm and the rich soil makes the area one of the food baskets of the state and the nation.

The people are mostly farmers owing to the arable conditions of the area. About 70% of the food crops cultivated in Anambra state are from this area (Duru, 2010). The major food crop is yam. These yams are later transported to Onitsha market for sale and onward distribution to all parts of Nigeria and West Africa. The yams are usually transported from the villages and farm settlements through wooden powered boats and other means of transportation to the markets. Other food crops include cassava, potatoes, rice, groundnut, maize, melon, fluted pumpkin, and a whole lot of others. The people are also natural fishermen and they employ different methods in harvesting the fish. The rainy season makes River Niger to overflow its banks and extend to its tributaries thereby causing a yearly flood called "ijummiri" which inflict pains on people and physical structures. It however fertilizes the land and provides fishes to the various lakes and ponds where fishes are being caught.

One of the significant cultural festivals in the area of study is Nzideani. The word Nzideani literally means coming down and marks the period of coming down to ground level after three months during which people live on bamboo decks made inside their houses during the flood season that usually overran their villages. Sometimes the flood reaches as high as roof tops. During the time of flood also, all shrines are evacuated to tree branches to beat the flood. After the flood water subsides around late November every year, the people come from the bamboo decks (Akpata) made in their houses, to the ground, and also bring down their shrines from tree tops (Onumai, 2017).

The study area is in the tropical zone of Nigeria and experiences two distinct seasons brought about by the two predominant winds that dominate the area. The monsoon winds or tropical maritime air mass from the Atlantic Ocean creates seven months of heavy tropical rains which occur between April and October which are then followed by five months of dryness (November - March). The Harmattan also known as "ugulu" in Igbo is a particularly dry and dusty wind that enters Nigeria in late December or in the early-part of January and is characterized by a grey haze limiting visibility and blocking the sun's ray. Humidity is high in this area being about 80-85% in the rainy season and 60% in the dry season (Duru, 2010).

The natural vegetation in the study area is deciduous which in its original form comprised tall trees, with thick undergrowth and numerous climbers. Three soil types are recognized in the study area which are; alluvial soil, hydromorphic soil and feralitic soils. Farming season starts immediately after the floods has receded with cultivation of annual crops. Similarly, timely harvest of crops is done before the flood set in.

As a person's livelihood refers to his means of securing the basic necessities (food, water, shelter and clothing of life, this study is based on the concepts of livelihood, coping strategy, vulnerability and capacity. These concepts revolve around resources such as land/property, crops, food, knowledge, finances, social relationships, and their interrelated connection with the political, economic, and socio-cultural characteristics of an individual community. A sustainable livelihood is having the ability to cope and recover from unexpected events, while at the same time enhancing current and future capabilities. This interlinks resilience, sustainability, and livelihood, as each affects the others and highlights how Disaster Risk Reduction (DRR) directly affects sustainable livelihood. Therefore, there is need to focus on reducing

vulnerabilities of the community, including reducing poverty levels, building capacities and coping mechanisms, and focusing on community resilience.

Flood is the most damaging of all natural disasters in Bangladesh, United Kingdom, Australia, Nepal, Netherlands, China, Ghana, Senegal, South Africa and Egypt, with impacts including loss of lives, damage of goods, loss of social and economic goods and possessions (Crossman, 2016; International Flood Initiative, 2013; Kolen, 2012; Ariyabandu & Wickramasinghe, 2015; Khandlhela, 2016; Dixit, 2013; Mohapatra & Singh, 2013).

In Nigeria especially Ebonyi State, River, Ondo, Omambala in Anambra state, Adamawa, Oyo Lokoja, Kogi and Lagos state. flood disaster has devastating impact on the livelihoods of the people particularly in the agriculture, housing, health, education, water and sanitation, property and assets as well as infrastructure sectors, (Ote, 2016; Adabiri, 2017; Momoh, 2018; Efobi & Anierobi, 2013; Umar, Bardeand & Adamu, 2020; Onifade, Ruth, Adigun, Oguntunji & Ogugboye, 2014; Jimoh & Salami, 2019; Onwuka, Ikekpeazu & Onuoha, 2015; Okeleye, Olorunfemi, Sogbedji & Aziadekey, 2016).

The problems posed by flooding in most riverine communities in Nigeria including Anambra West L.G.A of Anambra State have been empirically studied. However, the issue of coping strategies residents can adopt during flooding in the area of the study have not been seriously addressed as previous studies only focused on the impacts of flood on the livelihood of residents. Therefore, this study seeks to fill this gap by investigating not only the impacts of flood on agricultural activities and socio-economic well -being of residents as done by other researchers but also the coping mechanisms employed by the residents in rural communities during flooding in Anambra West L.G.A of Anambra State, Nigeria. This is the gap in knowledge which this study intends to fill.

2.2 Method of data collection

Survey research design was used to find out the impacts of flooding on agricultural activities, health and other socio-economic activities and coping strategies from the residents of communities in Anambra West Local Government Area with population of 207,388, male 100,267 and female 107, 121. Population projection of each community obtained from National Population Commission, Awka (2022) is as follow: Nzam 19, 156, Ibokoye 20,546, Oromaetiti 20,893, Umueunwelu 27,956, UmuodoraUmuikwu 18,091, Oroma 21,613, Obodola 19,190, Nmiata 19,248, George Camp 20,374, and Oranta 20,315.

The data for the research was derived primarily using structured questionnaire, which focused on flood impacts and coping strategies of residents and communities in the area. Secondly, data were obtained from existing literature on effects of flood and coping strategies which included Newspapers, Journals, internet materials and books. A total of 400 household respondents were sampled in the study area. To determine the sample size, the Taro Yamane formula was employed. The proportionate stratified random sampling technique was used to select respondents to ensure each community in the study is well represented. Proportionate stratified random sampling according to Nworgu (2015), is a sampling technique of each stratum sample size is directly proportional to the population size of the entire population of strata. The sample size of 400 was allocated proportionately to residents of George camp, Oroma, Oranta, Nzam, Ibokoye, Oroma-Etiti, Umueunwelu, UmudoraUmuikwu, Nmiata, and Obodola.

2.3. Method of Data Analysis

Simple percentage was used to analyse the collected data to answer the research questions and Analysis of Variance (ANOVA) were used to test the hypothesis at 0.05 level of significance. Simple percentage is most appropriate for analysis of frequency data while ANOVA is for testing significance of relationship among variables.

3. RESULTS

3.1 Socio-Economic Status of the Respondents

Results in figures 3 and 4 show the occupation and educational level of respondents in the study area.

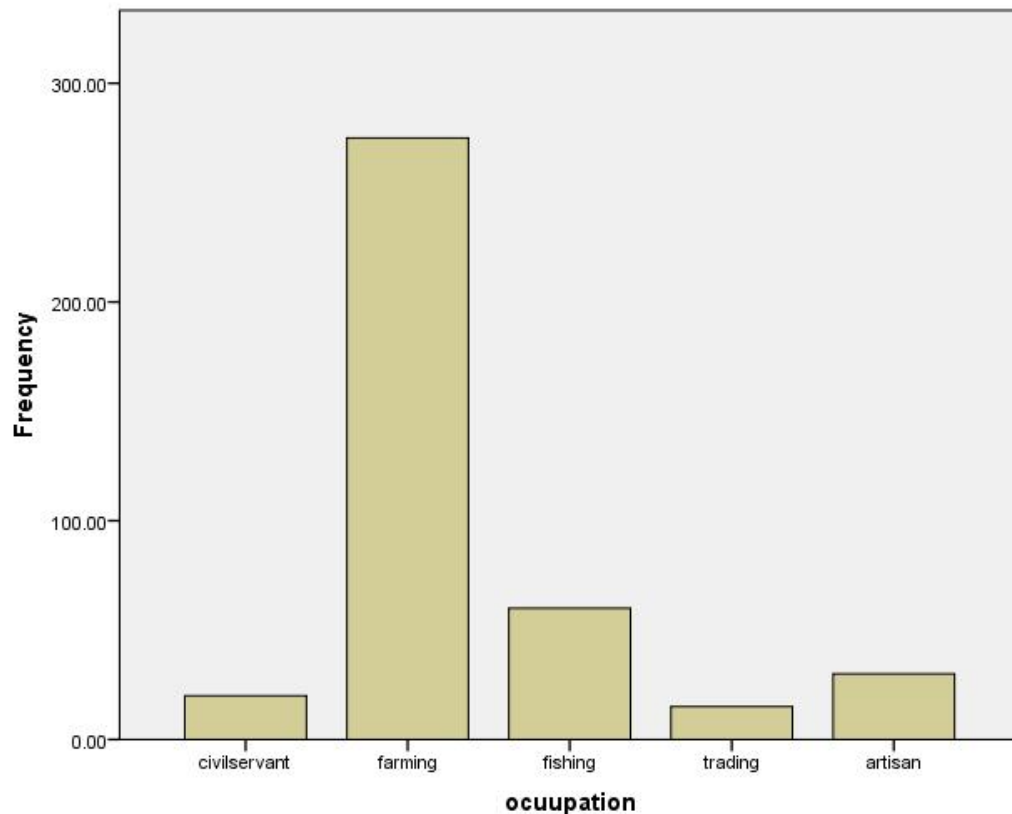


Figure 3. Bar chart showing the occupation of respondents in the study area

Source: Fieldwork (2022)

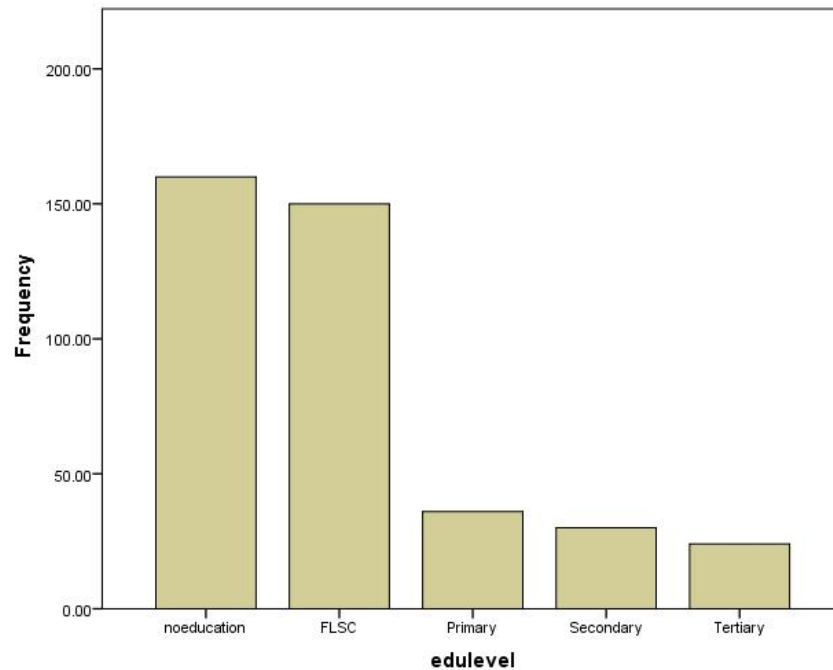


Figure 4: Bar chart showing the educational qualification of respondents in the study area

Source: Fieldwork (2022)

3.2 Effects of flooding on agricultural activities and socio-economic well -being of residents

Table 1 shows the effects of flooding on farming and socio-economic well -being of residents

Table 1: Effects of flooding on farming activities and socio-economic well -being of residents

Communities/ Activities	Nzam	Ibokoye	Oroma - eti	Umuenu nwelu	Umuodora Umuikwu	Oroma	obodola	Nmiata	George Camp	Oranta	Total
Houses	112	127	121	118	110	120	119	116	122	115	1064
Death	5	8	1	2	1	2	3	4	6	3	35
Relocation	4,008	186	3,652	4,098	4,021	3,145	5,031	4,210	2,027	3,305	37,683
Road	1	1	1	1	1	1	1	1	2	2	12
Schools	2	4	1	1	2	2	1	2	3	1	19
Churches	2	5	4	3	4	4	2	2	2	3	31
Health	2	3	1	2	2	1	2	1	1	1	16
Farmlands	82	75	84	93	74	84	62	82	95	73	804
Households	82	65	64	83	74	84	62	82	63	84	736
Markets	1	2	1	1	1	1	1	1	1	1	11

Source: Fieldwork (2022)

3.2.1. The impacts of flood on livestock

Household animals got drown and displaced as a result of flooding. (plate 1).



Plate 1: Livestock that were displaced by flooding

Source: Fieldwork (2022)

3.2.2: The impacts of floods on buildings and farmlands

The deluge, which submerged both residential buildings and farmlands in Plate 2 and Plate 3, has caused residents to evacuate their ancestral homes. Economically they suffer a lot because of the loss of crops and business due to flood waters, thus the agony is endless.



Plate 2: building affected by flood

Source: Fieldwork (2022)



Plate 3: Crops submerged by flood

Source: Fieldwork (2022)

3.2.3: Impacts of Flood on Education Sector in the Area

All respondents from every household said that “all types of educational institutes are closed down during flood period, (Plate 4).



Plate 4: School affected by the flooding

Source: Fieldwork (2022)

3.2.4: Impacts of Flood on Transportation

Field investigation carried out by the researcher in UmudoraUmuikwu revealed that flood occurrence has direct effect on the socio- economic values experienced in the study area. This can be seen in the hike in transportation fare by commuters during the flood event (for those who dare to ply the route) as complained by the respondents. Canoes are relied upon as means of transportation during flooding, (plate 5).



Plate 5: Canoes as means of transportation during flooding

Source: Fieldwork (2022)

3.2.5: The effects of flood on male and female residents

Women generally have limited access to farm land in the communities for subsistence farming, (Table 2)

Table 2: The effects of flood on male and female residents in the study area

Communities/ Activities	Nzam	Ibokoye	Oroma - etiti	Umuenu nwelu	Umuodora Umuikwu	Oroma	obodola	Nmiata	George Camp	Oranta	Total
Affected Women	702	607	901	808	911	720	819	716	683	615	7,178
Affected Men	260	507	291	358	481	401	379	396	608	475	4,176
House headed by Women	7	9	4	8	11	4	11	16	8	5	83
House headed by men	17	19	14	18	19	14	14	17	18	15	165
Farmland owned by women	57	59	64	48	41	64	51	36	45	55	520
Farmland owned by men	12	9	14	18	12	11	18	16	23	13	146

Source: Fieldwork (2022)

3.2.6: Effect of flooding on various age groups

The people most vulnerable to flooding are usually between the age ranges of 0-14 and 70 and above. The majority of the people within these age groups are children (mainly infants and toddlers) (Plate, 4.6) and older people who are often isolated, infirm or totally dependent on care givers, (Table 3).

Table 3: The effect of flooding on the various age groups in the study area

Communities/ Activities	Nzam	Ibokoye	Oroma - etiti	Umuenu nwelu	Umuodora Umuikwu	Oroma	obodola	Nmiata	George Camp	Oranta	Total
Children	457	409	404	488	451	404	401	476	422	415	4,327
Adolescents	157	129	124	138	151	134	141	166	142	145	1,427
Adults	147	139	134	148	131	124	112	146	122	125	1,328
Elder's	215	204	206	218	211	223	205	217	212	201	2,112

Source: Fieldwork (2022)



Plate 6: Children affected by flooding
Source: Fieldwork (2022)

3.3: The coping strategies for resilience and mitigation of flood incidence in the area

Table 4: Measures for resilient adaptation to flood incidents in the study area

Items	%
What coping strategies do individual household use for flood adaptation?	
Use of sand bags and tree logs	25%
Raised their doorsteps and pits latrines	45%
Construction of protective walls and elevation of house foundation	15%
Provision of pipe outlets	5%
Timely harvest of farm produce	10%
What coping strategies do the communities use for flood adaptation?	
Control of housing development	55%
Use of canoe for transportation	45%
How would you assess the level of government involvement in flood control in your community?	
Excellent	1.4%
Good	17.4%
Fair	23.2%
Poor	23.2%
Absent/No government involvement	34.5%
Has government made any efforts in flood control through any of the following in your community?	
Public awareness/education	37.5%
Cleaning of drainage basin by the local government officials	52.5%
Regulation of indiscriminate dumping of refuse in the drainage basin	10.0%
Effort of your community in effective flood control is adequate?	

Yes	7.5%
No	92.5%
What is the level of assistance to flood victim	
Adequate	9%
Not adequate	69.5%
Not sure	21.5%
What in your opinion is responsible for lack of success in halting the flood menace through your community efforts?	
Corruption	9%
Lack of cooperation at community level to control flood	68.5%
Ignorance of how to control flood effectively	22.5%
Government effort in flood control in the area is effective?	
Yes	7.5%
No	92.5%
What opinion is responsible for lack of success in halting the flood menace by the government in your community?	
Political issues	7.5%
Lack of governmental presence at the community level	67.5%
Corruption	25%

Source: Fieldwork, 2022

3.3.1 Hypotheses Testing

Hypotheses I

Flooding impacts is not significantly different across communities in the area. The null hypothesis was tested using Analysis of Variance (ANOVA). The results of computation are presented in Table 5.

Table 5: ANOVA Table Impacts of Flooding on Residents

Model	Sum of Squares	Df	Mean Square	F	p-value
1 Anova	2.940	1	2.940	211.328	.021
Residual	5099.407	379	15.038		
Total	5104.346	380			

Source: Fieldwork, 2022

The null hypothesis which states that flooding impacts is not significantly different across communities in the area was rejected at .05 level of significance with a p-value of .021, and the alternative accepted. This implies that some communities are seriously affected by flooding in the area than others.

Hypotheses II

Flooding has no significant impacts differently on gender or residents in the area. The null hypothesis was tested using Analysis of Variance (ANOVA). The results of computation using SPSS version 23 is presented in Table 6.

Table 6: ANOVA table of impacts of flooding on Female and Male Residents

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 ANOVA	4.940	1	4.940	111.328	.011
Residual	5199.407	379	13.718		
Total	5104.346	380			

Source: Fieldwork, 2022

Table 6 shows that the null hypothesis which states that flooding has no significant impacts differently on gender of residents in the area with significant level of .011 was rejected and the alternative accepted. This simply means that flood affect male and female residents differently.

Hypotheses III

The impacts of flooding in the area are not significantly different on various age groups. The null hypothesis was tested using Analysis of Variance (ANOVA). The results presented in Table 7.

Table 7: ANOVA Table of Impacts of Flood on Age Groups

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	ANOVA	3.940	1	3.940	118.328	.002b
	Residual	5699.407	379	15.038		
	Total	5704.346	380			

Source: Fieldwork, 2022

Table 7 shows that at 0. 05 level of significance the null hypothesis which states that flooding has no significant impacts differently on age groups in the area was rejected and the alternative which states that flooding has significant impacts differently on age groups in the area was accepted. This simply means that flood affect the age groups differently.

4. DISCUSSION

Results show that 68% of respondents in the study area are farmers, 15% fishermen artisans 7.5%, traders 3.8% and civil servant 5%. 65 % of the respondents have no formal education, 12.5% of the respondents had FSLC, 9% of the respondents have secondary education; while only 6% of the respondents had tertiary education, The level of education of most respondents was either primary or secondary education as their highest academic qualification, (Figure 3&4) Thus, the literacy level of the sampled population greatly influenced the nature of the occupation and the status of their livelihoods.

Results showed that a total of 1064 houses in the area were affected by flooding, 122 houses in George camp, 120 in Oroma, 115 in Oranta, 112 in Nzam, 127 in Ibokoye, 121 in Oroma-Etiti, 118 in Umueunwelu, 110 in UmudoraUmuikwu, 116 in Nmiata and 119 in Obodola. Total of 35 persons have died in the area as a result of flooding and a total of 37,683 persons have been forced to relocate to other places, 5,000 persons in George camp 2,145 in Oroma, 1,305 in Oranta, 1,008 in Nzam 2, 1,786 in Ibokoye, 1,652 in Oroma-Etiti, 1,098 in Umueunwelu, 1,021 in UmudoraUmuikwu, 1,210 in Nmiata and 1,031 in Obodola. A total of 12 roads, 19 schools, 31 churches, 16 health facilities, 804 farmlands, 736 households and 11 markets were affected by flooding in the study area, (Table 1).

The findings also showed that a total of 7,178 women were affected by flooding, 4176 men were affected 83 households headed by women were affected, 165 household headed by men were affected, 520 farmland owned by women were affected and 146 farmlands owned by men were affected by flooding in Anambra West L.G.A (Table 2).Field observation by the researcher in Ibokoye also revealed that women strive to ensure that they can feed their households with the little resources available. The women face many problems related to poverty. Traditionally, women in this area do not own lands, houses and other assets. Women generally have limited access to farm land in the communities for subsistence farming.

The finding further shows that total of 4327 children, 1427 adolescents, 1328 adults and 2112 number of elders were affected by flood in the study area, (Table 3). Field observation by the researcher in Obodola

also revealed that many parents find it difficult to take care of their children during the period of flood. Also, during the time of flooding female adolescents are more affected than male adolescents. Furthermore, adolescents find it difficult to cope because visiting their friends and play mates becomes more difficult. Most adolescents are separated from their parents during flooding. When the area is flooded most adult lives styles changes. In addition, during the time of flood most elders / aged residents depend on people for survival. The researcher also observed that flooding impacts prevented school adolescents from going to school as a result of impassable roads and schools being submerged.

The finding shows that 25% of the respondents reported that most individual household and members use sand bags and tree logs for flood adaptation and coping strategies. 45% indicated they raised their doorsteps during the time of flooding, 15% of the respondents' indicated residents construct protective walls and elevation of house foundation during flooding, 5% of the respondents reported residents construct pipe outlet to channel away water during flooding; while 10% of reported residents timely harvest their farm produce during flooding, (Table 4). 45% of the respondents reported the use of canoe for transportation during the period of flooding in the area. 37.5% of the respondents reported that communities get best educated on flood control through public awareness.

Similarly, 1.3% of respondents said that the level of government involvement in flood control in their community is excellent, 25% of respondents said that the level of government involvement in flood control in their community is good, 20 % of respondents said that the level of government involvement in flood control in their community is fair, 25 % of respondents said that the level of government involvement in flood control in community is poor; while 23.7 % of respondents said that there is no government involvement in flood control. Also, 24% of respondents said that government made efforts in flood control through public awareness/education, 16% of respondents said that government made efforts in flood control through cleaning of drainage channels by the local government officials, 22 % of respondents said that government made efforts in flood control through regulation of indiscriminate dumping of refused in the drainage basin; 15% of the respondents were not sure; while 28% of the respondents said that these was no intervention by the government. 7.5% of respondents said that community effort in flood control is effective, while 92.5% of the respondents said community effort at flood control is not effective. 7.5% of respondents said that community effort in flood control is effective, while 92.5% of the respondents said community effort at flood control is not effective. 9% of respondents said that victims have received assistance from the government after a flood disaster, 69.5% of respondents said that victims have not received assistance from the government after a flood disaster; while 21.5% of the respondents were not sure if the victims have received any assistance from the government.

In addition, 20% of the respondents said corruption is responsible for lack of success in halting the flood menace through community efforts, 22.5% of the respondents said lack of cooperation at community level to floods control is responsible for lack of success in halting the flood menace through community efforts, 25% of the respondents said ignorance of how to control flood effectively is responsible for lack of success in halting the flood menace through community efforts, 17.5% of the respondents said they don't know what is responsible for lack of success in halting the flood menace through community efforts; while 15% of the respondents said people feeling unconcern about the flood is responsible for lack of success in halting the flood menace through community efforts. Furthermore, 7.5% of the respondents said that efforts of government in flood control in the various communities are effective; while 92.5% of the respondents said that efforts of government in flood control in the various communities are not effective. This implies that the efforts of government in flood control in the various communities is not effective.

Similarly, 20 % of the respondents said that political issue is responsible for lack of success in halting flood menace by the government in various communities, 25% of the respondents said that lack of

government presence at the community is halting flood menace by the government in various communities, 30% of the respondents said they do not know what is responsible for lack of success in halting flood menace by the government in various communities in the area, 20 % of the respondents said that shortage of fund is responsible for lack of success in halting flood menace by the government in various communities; while 5% of the respondents said lack of co-operation from the community leaders causes lack of success in halting flood menace by the government in various communities.

5. CONCLUSION

Flooding has impacts on agricultural activities and socio-economic well-being of residents in the area. The corresponding hypothesis revealed that the impacts on agricultural activities and socio-economic well-being of the residents is significant. Women were more vulnerable due to poverty and less ownership of fragmented croplands. The corresponding hypothesis revealed that the impact of the flood on male and female residents in the area is significantly different with women mostly affected. The majority of the people within these age groups are children (infants and toddlers mainly) and older people who are often isolated, infirm or totally dependent on care givers. However, people most vulnerable to flooding are usually between the age ranges of 0-14 and 70 and above. The corresponding hypothesis shows that the impact of flood on age groups in the area is significantly different.

Residents use sand bags to make roads a bit passable during floods and make up wooden constructions as a means of gaining access to their houses as coping strategy, where many relocate to other places for safety. The persistent floods in the area have constituted a significant source of threat to life, property, livelihoods, and social amenities. The inhabitants of the area and even people from distant places who depend on these activities are in serious danger of losing their means of livelihood. The most adverse impact of flooding on livelihood recounted by the people includes human and animal lives; agricultural lands and products; housing, education, transportation commerce and other infrastructure.

This study therefore recommends that farmers in the area should be encouraged to embark on early planting or cultivation of more water tolerant crop species and crops species that can mature early enough so that they can be harvested on time. This can be achieved by providing farmers in the area with improved varieties of crops from the Ministry of Agriculture. The government should build embankments, if possible, along the coast of the rivers that traverse the study area to reduce the over flow of the river into the hinterland.

Early warning systems should be provided by the government in the study area to the populace to mitigate the impact of flooding. It is also necessary to discourage inhabitants where possible from occupying flood prone areas, especially, if flood resistant structures and warning systems are not available. The inhabitants should be educated by the government on the workability of the early warning systems in case they are installed.

Residents dwelling within flood risk zone should construct earthy ridges and barriers, and try to build their houses on elevated sites some distance away from flood prone areas. Affected households have to vacate homes to refugee camps or transfer their important valuables and seeking temporary refuge with neighbours, friends and relatives whose homes are relatively safe.

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