



# CROP FARMERS' PERCEPTION OF FLOODING ON LIVELIHOOD ACTIVITIES IN IKOM AGRICULTURAL ZONE, CROSS RIVER STATE, NIGERIA

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## ABSTRACT

The study examined crop farmers' perception of flooding on livelihood activities in Ikom Agricultural Zone, Cross River State, Nigeria. Specifically, the study sought to; ascertain causes of flood in the study area, identify the types of flood prevalent in the study area, ascertain the frequency of occurrence of flood in the study area, examine the perceived effect of flood on respondents' livelihood activities and identify the constraints encountered by crop farmers toward controlling flood. A Multi-staged sampling technique was used to select respondents and a total number of 245 crop farmers were sampled using structured questionnaire. Data collected were analysed using descriptive statistics. The study revealed that causes of flood in the study area were: Heavy and prolonged rainfall with mean score of 3.17 and construction of settlement in flood plains with mean score of 2.81. The flood types prevalent in the study area were river flood and surface water flood as it ranked 1<sup>st</sup> with mean score of 3.60 and 2<sup>nd</sup> with mean score of 3.05. The result on the frequency of occurrence of flood showed that a larger proportion (57.6%) experience flooding every year. Some of the perceived effect of flood on livelihood activities as indicated by the respondents were loss of crops, loss of income and hunger and starvation as they ranked 1<sup>st</sup> with mean score (2.88), 2<sup>nd</sup> with mean score (2.76) and 3<sup>rd</sup> with mean score (2.57) respectively. Major constraints encountered by respondents were inadequate fund for controlling flood with mean score of 3.55 and inadequate information on the occurrence of flood with mean score of 3.51. It is recommended that, the government should provide adequate infrastructures such as good drainage systems, crop resistance varieties should be made available to farmers in flood prone areas and construction of houses in flood plain area should be discouraged.

**KEYWORDS:** Perception, Flooding, Livelihood, Crop farmers

## INTRODUCTION

Flood is becoming one of the major devastating natural disasters worldwide. Cross River State is one of the States in Nigeria which is most climate-vulnerable (especially related to flood). The State is crisscrossed by many rivers and as such its population is primarily distressed by flood due to their reliance on agriculture for livelihoods sustenance.

Djimesah, Okine and Mireku (2018) described flooding as excess water flowing onto land which is usually dry.

Floods according to Eni, Atu, Oko and Ekwok (2011) are purely environmental hazards of meteorological phenomena, but very often induced by man's improper utilization or abuse of the physical environment. Trambly, Villarini, Khalki, Gründemann and Hughes, (2021) link flood occurrence to maximum level of soil moisture rather than maximum precipitation. Agriculture sector is mostly affected during flood. The foremost adverse effect of flood on agriculture is water logging in the cropping area.

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Crops do not survive under water after a certain period and crops production gets affected severely after that period. Flood is a long-lasting disaster and cash crops are easily damaged by flood which ultimately pose an adverse effect on overall living condition.

Peduzzi, Herold and Mouton (2009) maintained that the rate of flood occurrence in recent times has been unprecedented, with 70 million people globally exposed to flooding every year, and more than 800 million living in flood-prone areas. Rentschler and Salhab (2020) estimated that about 1.47 billion people, or 19% of the world population, are directly exposed to substantial risks during 1-in-100-year flood events. In developing countries, flooding results from climate change, excessive precipitation, building on waterways, sea-level rise, soil moisture regime, dam operations, especially along borders, uncontrolled rapid population growth, inadequate preparedness, and lack of political will. Flooding has both natural and human causes MacLeod, Dankers, Graham, Guigma, Jenkins, Todd, Kiptum, Kilavi, Njogu and Mwangi (2021) identified excessive levels of precipitation as the main natural cause of flooding, caused by climate change. Mfon, Oguike, Eteng, Etim (2022) observed that poor environmental planning/monitoring, housing development in flood prone areas, deforestation, haphazard developments resulting in the blockage of drains, poor waste disposal practices, negligence by government in designing and implementing policies at various levels as well as poor environmental planning and weak enforcement of policies are the major causes of flood by human. The magnitude of the floods depend upon a number of factors like intensity and duration of rainfall, ground conditions, drainage characteristics, siltation of river-bed, erosion of banks, and human settlements in flood plains and on river banks. Flood as opined by authors can either be a natural occurrence as well as induced by human activities which can pose a serious obstacles in the achievement of sustainable social and economic development.

Livelihood is sustainable when it can cope with and recover from stresses and shocks, and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base (Department for International Development (DFID), 2000). There is therefore need for the government and major stakeholders to be proactive and reactive in the management of flood so as to control and cushion the effect resulting from it.

Flood is one of the most threatening environmental issues affecting the rural population, especially those

living along the river bank in Nigeria whose occupation is mainly farming. This is so because when it occurs not only crops are damaged but both lives and property are also destroyed depending on the severity. Although studies have been carried on impact of flood but there is a dearth of information on crops farmer perception of flooding on livelihood activities in Ikom Agricultural zone in Cross River State. It is against this background that this study sought to;

- 1) ascertain causes of flood in the study area.
- 2) identify the types of flood prevalent in the study area.
- 3) ascertain the frequency of occurrence of flood in the study area.
- 3) examine the perceived effect of flood on respondents' livelihood activities
- 4) identify the constraints encountered by crop farmers toward controlling flood.

#### METHODOLOGY

The study was conducted in Ikom Agricultural Zone, Cross River State, Nigeria. The Zone consist of six blocks (Abi, Yakurr, Obubra, Ikom, Etung and Boki) and crisscrossed by many rivers as such some of the locations are prone to flood during the rainy season. Four (4) communities each were purposively selected from the two (2) Local Government Areas (LGAs). The study area shares an international boundary with the republic of Cameroon to the East, Obanliku and Obudu to the North, Ebonyi State to the West, Biase and Akamkpa to the South. It covers an approximate land mass of 16,280.02 km<sup>2</sup> and lies at 5<sup>o</sup>32'N and 4<sup>o</sup>27' N and between longitude 7<sup>o</sup>50'E and 9<sup>o</sup>28' E. the area is on approximately 25m above sea level, with annual temperature range of 27<sup>o</sup>C-33<sup>o</sup>C while rainfall varies between 1500mm-2000mm per annum. The inhabitants rely mainly on agriculture for their livelihood. (Cross River State Geological Survey Agency(2010)).

All arable crop farmers in the selected blocks (LGAs) constituted the sampling frame for the study. A structured questionnaire was used to elicit information from respondents. A multistage sampling procedure was used to select respondents. In the first stage random sampling technique was used to select two blocks (Abi and Obubra LGA) out of six(6). In the second stage, four cells (communities) were also purposively selected from each block since they are located near river bank as well as experienced flood disaster, that is a total of eight cells (communities) were used for the study; the third stage involved a proportionate sampling of 15% of the population of crop farmers in each selected cell (community). Hence a total of 345 respondents were used for the study

## RESULTS AND DISCUSSION

Table 1: Causes of flood

Causes of flood	Men score	STD deviation	Rank
Heavy and prolonged rainfall	3.17	.662	1 <sup>st</sup>
Deforestation	1.82	.767	4 <sup>th</sup>
Improper agricultural practice	1.45	.589	5 <sup>th</sup>
Inadequate design & maintenance of drainage channels	2.25	.835	3 <sup>rd</sup>
Construction of settlement in flood plains	2.81	.825	2 <sup>nd</sup>
Broken dams	1.32	.612	6 <sup>th</sup>

Source: Field survey, 2023

Table 1 above shows causes of flood. The results revealed that heavy and prolonged rainfall has the highest mean score of 3.17 as it ranked first, followed by construction of settlement in flood plains which has mean score of 3.12 as it ranked second while inadequate design of drainage channels is ranked third with a mean score of 3.11. the least amongst them is deforestation as it ranked seventh with mean score of 2.35. This shows that heavy and prolong

rainfall, construction of settlement in flood plains and inadequate design of drainage channels were the major causes of flood in the study area. This finding is in line with MacLeod, Dankers, Graham, Guigma, Jenkins, Todd, Kiptum, , Kilavi, Njogu and Mwangi (2021) and Mfon, Oguike, Eteng, Etim (2022) study which reported that extreme floods are caused by heavy or persistent precipitations as well as housing development in flood prone areas

Table 2: Types of flood

Types of flood	Mean scores	STD deviation	Rank
River flood	3.60	.851	1 <sup>st</sup>
Ground water flood	3.00	.868	3 <sup>rd</sup>
Surface water flood	3.05	.857	2 <sup>nd</sup>
Reservoir flood	2.02	.896	4 <sup>th</sup>
Urban flood	1.67	.775	5 <sup>th</sup>

Source: Field survey, 2023

Table 2, revealed that the major types of flood prevalent in the area were river flood and surface water flood as they ranked first and second with mean

score of 3.60 and 3.05 mean score respectively. The implication of this result is that, the area is prone to flooding, as a result of nearness to river bank.

Table 3: Frequency of flooding

Frequency of flooding	Frequency	Percentage
Twice in a year (more severe)	23	9.4
Once in a year (severe)	141	57.6
Once in two years (less severe)	81	33.1
Total	245	100

Source: Field survey, 2023

Table 3 shows the frequency distribution of respondents based on the occurrence of flooding. The result revealed that a larger proportion (57.6%) of the respondents experienced flooding every year, while only few (9.4%) experienced flooding twice in a year.

The implication of this result is that majority of the respondents are consistently affected by flood every year, which is quite devastating as it takes time for a crop farmer to recover from the shock as most of the crops are annual crops.

**Table 4: Perceived effect of flood on livelihood**

S/N	Effect of flood	Mean Score	Std	Rank
1	Loss of farmland	2.19	.681	5 <sup>th</sup>
2	Loss of crops	2.88	.342	1 <sup>st</sup>
3	Loss of family member	1.50	.717	9 <sup>th</sup>
4	Hunger and starvation	2.57	.543	3 <sup>rd</sup>
5	Damages of roads	2.08	.690	6 <sup>th</sup>
6	Loss of income	2.76	.457	2 <sup>nd</sup>
7	Contamination of drinking water	2.38	.636	4 <sup>th</sup>
8	Damages of buildings	2.01	.650	7 <sup>th</sup>
9	Damages of bridges	1.64	.711	8 <sup>th</sup>

Source: Field survey, 2023

Table 4 shows that loss of crops, loss of income and hunger /starvation were perceived by respondents to have effect on their livelihood as they ranked first, second and third, with mean score of 2.88, 2.76 and

2.57 respectively. The implication of this result is that, flooding is a major threat to crop production and income in the study area.

**Table 5: Constraints encountered by respondents towards controlling flooding**

Constraints	Mean	Std	Rank
Low awareness	2.00	1.014	5 <sup>th</sup>
Inadequate fund for controlling flood	3.55	.616	1 <sup>st</sup>
Complexity of the control measure	2.89	.859	4 <sup>th</sup>
Inadequate information	3.51	.611	2 <sup>nd</sup>
Risk of being drown	3.31	.827	3 <sup>rd</sup>

Source: Field survey, 2023

Table 5 shows that the major constraints encountered by respondents when controlling flooding were financial constraints, inadequate information and the risk of being drowned as they ranked first, second and third with mean score of 3.55, 3.51 and 3.31 respectively. The implication of this result is that most of the respondents are not adequately supported financially to cushion the shock of the flood.

## CONCLUSION

The study concluded that respondents in the study area perceived flooding as one of the major threats affecting their livelihood activities especially crop production, income generation resulting to hunger/starvation.

## RECOMMENDATIONS

Based on the findings the following recommendations were made:

- i) Since the major causes of flooding in the study area were heavy and prolonged rainfall, and construction of settlements on flood plains, government and other stakeholders should construct a good drainage system as well as discourage the building of houses in flood plains so as to reduce risk of flooding.
- ii) Since river flood is one of the types of flood prevalent in the study area, farmers cultivating crops close to the river banks should be supported

financially to build embankment so as prevent water flow from the river into their farms during raining season.

iii) Since occurrence of flood is mainly yearly, crop varieties, resistant to water logging should be introduced to farmers.

iv) Government should provide adequate relief materials to farmers affected by floods to enable them recover fast from the shock and stress.

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