



# **Perceived Impact of Perennial Flooding on Livelihood Activities of Rural Dwellers of Orashi Region of Rivers State**

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## **ABSTRACT**

The study examined the perceived impact of perennial flooding on livelihood activities of rural dwellers in Orashi Region of Rivers State. The study area was Orashi Region in Rivers State. Descriptive survey design was adopted. The population comprised of all rural dwellers in Orashi region while 150 rural dwellers in flood affected communities were selected by simple random sampling technique formed the sample. Three research questions guided the study. The instrument was “Impact of Perennial Flooding on Livelihood Activities Questionnaire”, validated by experts in Adult and Community Education with the reliability coefficient of 0.86 determined using test retest method. Mean and standard deviation were the statistical tools for answering the research questions. Findings of the study showed that causes of flooding in rural areas of Orashi region includes prolonged heavy rainfall, overflow of rivers, continued release of excess water from artificial reservoirs, climate change amongst others; the second finding revealed that the impact of flooding on farming are that flooding submerge farmlands, it destroy crops, it destroy irrigation facilities, flooding destroys harvested produce amongst others, finally the impact of flooding on fish farming are that flooding spread infection that causes disease in fishes, it causes pollution of rivers and streams, it destroys fishes and other aquatic animals amongst others. It was recommended that housing agencies should enforce planning regulations on flood prevention and Government should provide financial support to the rural dwellers in the flood affected communities to reconstruct houses with reinforced materials.

**Keywords:** perennial flooding, fishing, livelihood activities, rural dwellers

## **INTRODUCTION**

The world is constantly faced with various forms of disaster which adversely affect life on earth. These disasters could be initiated by the activities of man or occur naturally in different dimensions, times and parts of the world. Among these disasters is flood which occurs due to excess water on the surface of the earth. According to Asthana and Asthana (2013), flood can be defined as the outcome of accumulation of large volumes of water flowing through river channels spilling over the banks and causing extensive damage to human lives and property. There are two major types of flooding; the coastal and urban flooding. The occurrence of a particular type of flood depends on the location. States located along the coastal plains of Niger Delta such as Rivers, Akwa Ibom, Cross River, Bayelsa, Delta and Lagos are usually prone to coastal flooding from the over-flow of rivers in these low-lying belt of mangrove and fresh water swamps. Urban flooding occurs in towns located on flat or low-lying terrain due to heavy rainfall or poor drainage systems in the municipal cities of Lagos, Maiduguri, Aba, Warri, Benin and Ibadan in Nigeria are usually disposed to urban flooding.

Flooding is caused by both natural and human factors (Nwigwe & Embargo, 2014). According to Nwigwe and Embargo, the activities and interventions of human being into the processes of nature such as agricultural practices, deforestation and poor drainage patterns in urban areas can lead to flooding. Flood could also result from burst water from main pipes, dam failures and spills, population pressure,

deforestation, trespassing on water drains, unplanned urbanization, poor sewage management, neglecting warnings from hydrological system data and lack of flood control measures (Efobi & Anierobi, 2013). Natural flooding can be attributed to heavy or torrential rains or rainstorm and ocean storms, heavy rainfall and tidal waves usually along the coast and wildfires which reduce the supply of vegetation that can absorb rainfall (Tabiri, 2015).

Magami, Yahaya and Mohammed (2014) reviewed the causes and consequences of flooding in Nigeria. Evidence from the review showed that many flooding in Nigeria are caused by dam failure such as Sokoto flood in 2011, overflowing of major rivers, coastal storms, ignorance of warning from Nigeria Meteorological Agency (NIMET), delay in evaluation of flood victims and settlement of people at flood prone areas such as riverine areas and sea coast. Furthermore, the causes of flood were attributed to climate change, extraordinary heavy rains and continued release of excess water from artificial reservoirs. Other reasons found from the review were the poor maintenance of drainage channels. Scenes of the flood show settlements and infrastructure such as road at risk during inundation. Similarly, Nwigwe and Embergo (2014) assessed the causes and effects of flood in Nigeria. Evidence from the results of the study identified the following causes of flooding in Nigeria; illegal structure on or across drainage channels, land reclamation or encroachment, poor physical planning, inadequate drainage channels, blockage of canals and drains, collapsed dams and nature of terrain. Tabiri (2015) outlined four main causes of floods in Accra metropolis which include negligence/ignorance or sheer megalomania, poor planning of the city, building on waterways and indiscriminate disposal of waste material and what can be done now to avoid disaster particularly floods in Accra.

Flooding has negative impact on the livelihood activities of man because of its devastating nature as it destroys lives, properties and socio-economic activities in the affected areas. However, the level of loss and destruction caused by flood depends on factors such as season and timing of floods, location, damages on the embankment and walking roads, location of river encroachment, status and condition of the drainage system, and prior experience of flood. Flooding affects the livelihood activities of the residents in so many ways, such as collapse of buildings and bridges, submerging farmlands and market places, while crops are destroyed or sometimes washed away. Nwafor 2006, Agbonkhase, Agbonkhase, Alaka, Joe-Abaya, Ochoi and Adekunle (2014) classified the effect of flooding based on categories of livelihood into five: human resource-based, natural resource-based, physical resource-based, monthly income and monetary asset-based.

Several studies have been carried out on the effect of flooding. Oruonye, Yakubu, Wui and Ejah (2017) examined the effect of flood disaster on rural livelihood and coping mechanism in Lau Local Government Areas of Taraba State in Nigeria. Findings from the study revealed that floods have had adverse impact on the socio-economic status and livelihood of the people in the Local Government Area. In terms of livelihood, the study discovered that the flood incident has seriously devastated the economy of the rural community, especially farming which is the major source of livelihood of the people. The study equally revealed that farmlands were submerged and agricultural produce were destroyed which has affected the environment by causing serious gully erosion. In the same vein, Saleem, Muhammed, Barber, Ghazanfar and Mohammed (2013) explored the impacts of flood on livelihood and food security of rural communities in Pakistan using District Muzaffargah which is the major flood affected area in Punjab. The findings of the study revealed that agriculture was the major income sources of the area and flood affected the natural capital which includes land, irrigation, orchards and livestock. Further findings revealed that flood caused food shortage, water contamination and rendered rural dwellers homeless.

Musah and Abayomi (2013) assessed the effect of flooding on household's livelihoods and food security in Tolon/Kumbungu District of the Northern Region, Ghana. The result of the study showed that flood in the district were seasonal occurring in August/September every year and mainly caused by erosion that resulted from creation of gully in the communities and on their farmlands, further evidence revealed that there was a significant level and relationship of the variables of yield before and after flooding which contributes to low crop productivity and food scarcity. Also, Olajuyigbe, Rotowa and Durojaye (2012) assessed flood hazard in Nigeria using mile 12, Lagos State as a case study. The result of the study

showed that the perennial flooding problem in Mile 12 is as a result of consistent high rainfall and water releases from Oyan dam in the neighboring State of Ogun, Nigeria.

Rivers State has witnessed the recurrent problem of flooding in many areas because of its location in the coastal region of the Niger Delta. The associated perennial and devastating nature of flooding has caused untold hardship on the residents as the livelihood activities of rural dwellers who depends primarily on agriculture which is the major source of income is adversely affected. This has attracted a lot of interest by the government and other stakeholders. One of such flood prone areas is the rural communities of Orashi region in Rivers State located near the floodplains of Orashi River that has been ravaged by perennial flooding over the years. Although the flooding menace in this region has been a recurrent issue, there seem to be limited information on the effect of this flooding on the livelihood activities of the affected communities. This necessitated the study which is carried out to assess the impact of flooding on livelihood activities of rural dwellers in Orashi Region of Rivers State.

### **Purpose of the Study**

This study was carried out to assess the perceived impact of flooding on livelihood activities of rural dwellers in Orashi Region in Rivers State. Specifically, the study tends to:

1. Identify causes of flooding in Orashi Region of Rivers State.
2. Determine the impact of flooding on crop farming as livelihood activities of rural dwellers in Orashi Region of Rivers State.
3. Determine the impact of flooding on fishing as livelihood activities of rural dwellers in Orashi Region of Rivers State.

### **Research Questions**

1. What are the causes of flooding in rural areas of Orashi Region of Rivers State?
2. What is the impact of flooding on crop farming as livelihood activities of rural dwellers in Orashi Region of Rivers State?
3. What is the impact of flooding on fishing as livelihood activities of rural dwellers in Orashi Region of Rivers State?

### **METHODOLOGY**

The study was carried out in Orashi Region of Rivers State. Descriptive survey design was adopted. The population of the study was the entire rural dwellers in the four (4) Local Government Areas of Orashi Region in Rivers State. The Four Local Government Areas includes: WeAbua/Odual, Ogba/Egbema/Ndoni, Ahoada East and Ahoada West Local Government Areas. The sample size was one hundred and fifty (150) respondents. Two sampling techniques were adopted. The first one was purposive sampling technique used in selecting ten (10) flood prone communities from the sixty one (61) communities that made up the four (4) Local Government Areas of Orashi Region. Secondly, simple random sampling technique was used to select fifteen (15) respondents from the ten (10) communities given a total of one hundred and fifty respondents (150) used for the study. The instrument for data collection was "Impact of Perennial Flooding on Livelihood Activities Questionnaire (IPFLAQ) rated on a 4-point scale of Strongly Agreed (SA-4), Agreed (A-3), Disagreed (D-2) and Strongly Disagreed (SD-1) and validated by experts in Adult and Community Education. The reliability coefficient of the instrument was 0.86 determined by test-retest method. Mean and standard deviation were statistical tools for answering the research question.

**RESULTS**

**Research Question 1.**

*What are the causes of flooding in rural areas of Orashi Region of Rivers State?*

**Table 1: Mean responses and Standard Deviation of responses of rural dwellers on the Causes of flooding in rural areas of Orashi Region of Rivers State.**

S/No	Perceived Cause of Perennial Flooding	Mean	SD	Rank	Decision
1	Prolonged heavy rainfall	3.12	0.89	2 <sup>nd</sup>	Accepted
2	Overflow of river	3.50	0.78	1 <sup>st</sup>	Accepted
3	Illegal structure on/across drainage channels	1.89	0.84	6 <sup>th</sup>	Rejected
4	Ignorance of warning from relevant agencies	2.78	0.90	4 <sup>th</sup>	Accepted
5	Poor physical planning	3.00	1.09	3 <sup>rd</sup>	Accepted
6	Poor drainage channel	2.14	0.66	5 <sup>th</sup>	Rejected
7	Blockage of canals/drains with refuse and other waste	1.45	0.85	8 <sup>th</sup>	Rejected
8	Coastal storms	1.56	0.65	7 <sup>th</sup>	Rejected
9	Continued release of excess water from artificial reservoirs	3.13	0.89	2 <sup>nd</sup>	Accepted
10	Climate change	2.78	0.90	4 <sup>th</sup>	Accepted
11	Dam failure	3.01	1.09	3 <sup>rd</sup>	Accepted
	<b>Total</b>	<b>2.57</b>	<b>0.86</b>		<b>Accepted</b>

**Source: Field Survey, 2020**

From Table 1 above, the following items with mean responses of 2.50 and above were accepted as perceived causes of perennial flooding in Orashi region of Rivers State: Prolonged heavy rainfall 3.12, over flow of river 3.50, Ignorance of warning from relevant agencies 2.78, Poor physical planning 3.00, Continued release of excess water from artificial reservoirs 3.13, Climate change 2.78, Dam failure 3.01. While four items were rejected; Illegal structure on/across drainage channels 1.89, Poor drainage channel 2.14, Blockage of canals/drains with refuse and other waste 1.45 and Coastal storms 1.56.

**Research Question 2:** *What is the impact of flooding on farming as livelihood activities of rural dwellers in Orashi Region of Rivers State?*

**Table 2: Mean and Standard deviation of responses of rural dwellers on the impact of Flooding on crop farming.**

S/No	Impact of flooding on farming activities	Mean	SD	Rank	Decision
1	Flooding submerge farmlands	3.54	0.34	1 <sup>st</sup>	Accepted
2	Flooding destroy crops	3.10	0.67	2 <sup>nd</sup>	Accepted
3	Flooding destroy irrigation facilities	2.67	0.87	6 <sup>th</sup>	Accepted
4	It causes erosion and reduces soil fertility	3.00	0.89	4 <sup>th</sup>	Accepted
5	Flooding reduces farming activities and productivity	2.74	0.56	5 <sup>th</sup>	Accepted
6	Flooding causes shortage of food items	3.13	1.01	3 <sup>rd</sup>	Accepted
7	Flooding causes infection of crops with disease	2.10	0.97	7 <sup>th</sup>	Rejected
8	It destroys harvested produce	2.56	1.12	6 <sup>th</sup>	Accepted
9	Causes farmers to relocate and abandon their farm land	2.14	0.66	5 <sup>th</sup>	Rejected
	<b>Total</b>	<b>2.77</b>	<b>0.78</b>		<b>Accepted</b>

**Source: Field Survey, 2020.**

From Table 2, the following items with mean responses of 2.50 and above were accepted as the impact of flooding on farming as livelihood activities of rural dwellers in Orashi Region of Rivers State: Flooding

submerge farmlands 3.54, flooding destroys crops 3.10, flooding destroys irrigation facilities 2.67, it causes erosion and reduces soil fertility 3.00, flooding reduces farming activities and productivity 2.74, flooding causes shortage of food items 3.13, it destroys harvested produce 2.56, while two items were rejected: flooding causes infection on crops with disease 2.10 and flooding relocates and abandons farm land 2.14.

**Research Question 3**

*What is the impact of flooding on fishing as livelihood activities of rural dwellers in Orashi Region of Rivers State?*

**Table 3: Mean and standard deviation of rural dwellers on the impact of flooding on Fishing.**

S/No	Impact of flooding on fishing activities	Mean	SD	Rank	Decision
1	Flooding spread infection that causes diseases in fishes	2.89	0.89	4 <sup>th</sup>	Accepted
2	It causes pollution of Rivers and streams	2.94	0.78	3 <sup>rd</sup>	Accepted
3	Flooding destroys fishes and other aquatic animals	3.21	0.74	1 <sup>st</sup>	Accepted
4	It disrupts fishing activities	2.98	0.67	2 <sup>nd</sup>	Accepted
5	It washes away fish reproduction sites	2.67	0.56	5 <sup>th</sup>	Accepted
6	It causes loss of boats and fishing gears	2.56	1.12	6 <sup>th</sup>	Accepted
7	Incessant flooding forces fishermen to find alternative to fishing	3.00	1.09	3 <sup>rd</sup>	Accepted
8	Flooding causes scarcity of fish produce due to fish migration away from the river	2.74	0.56	5 <sup>th</sup>	Accepted
<b>Total</b>		<b>2.87</b>	<b>0.80</b>		<b>Accepted</b>

**Source: Field Survey, 2020**

From Table 3, the following items with mean responses of 2.50 above were accepted as the impact of flooding on fishing as livelihood activities of rural dwellers in Orashi Region of Rivers State. spread infection that causes diseases in fishes 2.89, causes pollution of Rivers and streams 2.94, destroys fishes and other aquatic animals 3.21, disrupts fishing activities 2.98, washes away fish reproduction sites 2.67, causes loss of boats and fishing gears 2.56, flooding causes scarcity of fish produce due to migration away from the river 2.74 and finally incessant flooding forces fishermen to find alternative to fishing 3.00.

**DISCUSSION OF FINDINGS**

The findings in research question I revealed that rural dwellers in Orashi Region were of the opinion that prolonged heavy rainfall, overflow of rivers, illegal structure on/across drainage channel, ignorance of warning from relevant agencies, poor physical planning, poor drainage channel, blockage of canals/drains with refuse and other waste, coastal storms, continued release of excess water from artificial reservoirs, climate change and dam failure are causes of flooding which disrupt livelihood activities in Orashi Region of Rivers State. The study corroborated those of Nwigwe and Embergo (2014) who in their study of assessment of the causes of flooding in Nigeria found out that illegal structure on/across drainage, poor physical planning, inadequate drainage channels, blockage of canals and drains, collapsed damns and nature of terrain are some of the causes of flooding in the study area. Similarly, Tabiri (2015) outlined four main causes of flooding which are: negligence/ignorance or sheer megalomania, poor planning of the city, building on waterways and indiscriminate disposal of waste material.

Result from research question 2 revealed that the impact of flooding on farming includes: submerging of farm lands, destruction of crops, destruction of irrigation facilities, reduction of farming activities and productivity, shortage of planting materials, shortage of food items, infection of crops with disease, destruction of harvested produce and relocation and abandonment of farm land. The finding agrees with

that of Oruonye, Ahmed, Yakubu, Wui and Ejah (2017) who in their study found that flooding seriously devastated the economy of the rural community, especially farming which is the major source of livelihood of the people of Orashi Region.

Findings in research question 3 showed that infection that causes diseases in fishes, pollution of rivers and streams, destruction of fishes and other aquatic animals, disruption of fishing activities, loss of boat and fishing gears amongst others are the impacts of flooding on fishing activities in Orashi Region of Rivers State. The findings aligns with that of Saleem, Muhammed, Barber, Ghazanfar and Mohammed (2013) who revealed that flood affected the natural capital which includes land, irrigation, orchards, livestock and water bodies which results to shortage of food, water contamination and rendered rural dwellers homeless.

## **CONCLUSION**

From the findings, it was deduced that flooding could occur naturally or provoked by man through his activities, which has devastating effect on the livelihood activities of the inhabitants of the flooded areas, especially agricultural activities, the mainstay of the livelihood.

## **RECOMMENDATIONS**

The following recommendations were made based on the findings of the study.

1. Housing agencies should enforce planning regulations on flood prevention, to avoid building on water channels causing obstruction to free flow of water.
2. Government should provide financial support to the rural dwellers in the flood affected communities to ameliorate the impact of flooding on their livelihood.
3. Government and voluntary agencies should embark on awareness campaign to educate the inhabitants on flood management and coping strategies to get prepared in case of eventuality.

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