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## **FLOODING MENANCE IN THE MILLENIUM ERA: SOCIO-ECONOMIC IMPACT OF THE 2018 FLOODING ON UDABA COMMUNITY OF EDO STATE**

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### **Abstract**

*Following climate change and human activities, flooding remains a growing menace all over the world and the people of Udaba community of Etsako Central local government Area of Edo state, Nigeria are not spared. They have had some share of the flooding experience having had two bouts – 2012 and 2018 as at the time of this research; causing severe loss of crops and source of income. This study was done to further reveal the socio-economic impact of flooding on Udaba community alone. The original work covered Agbabu-Ekperi, Osoegbe and Anegbette. A sample size of 270 respondents was randomly selected among the residents of Udaba alone. The data so gathered was analyzed using SPSS. The findings revealed that flooding of these communities was caused by the heavy rains and the overflowing of the river Niger; the help rendered by government was inadequate; the impact of the flood was much because of lack of information concerning the movement of the flood and that the flood brought improved social cohesion to the people. The paper recommends among others that there be adequate and timely information sent to these communities and that government intensify interventions to permanently better the life of these people.*

**Keywords:** *flooding, Udaba, Etsako central, social, economic*

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### **Introduction**

Rains in rural agrarian communities is greeted with much jubilation and ecstatic celebration. The peasant farmers who have tilled the soil rejoice as they see the rains as an approval from mother nature to go-ahead to plant their seeds. The rains bring on a busy season for them. Be that as good as it may, as the rains continue if drainage is compromised, floods can result overtime. Flood is one

of the most devastating natural disasters in the world; claiming human and animal lives as well as damaging properties and natural habitats. (Agbonkhese, Agbonkhese, Aka, Joe\_Abay, Ocholi & Adekunle, 2014 and Etuonovbe, 2011). Flooding results mainly from prolonged and aggressive rainfall which gradually swell water bodies beyond their natural and even man-made limits. Flood as an overflow of water that submerges land that is usually dry. It also occur when a body of water move over an area of land which is usually unsubmerged.

It is the inundation of an area through a temporary rise in level of stream, river, lake or sea (Wikipedia, 2018 & Agbonkhese et al, 2014). Flooding can also be caused by building across flood plains, indiscriminate dumping of refuse on flood plains and drainages. Elenwo (2015) defined flood as a body of water which rises to overflow land while Nkwunonwo (2016) said conceptually, flooding is water over-topping its natural and manmade defenses and overflowing places not typically submerged. All over the world, flooding is a frightening growing menace which is worsened by rapid urbanization; poor urban planning and climate change (Elenwo, 2015 & Nkwunonwo, 2016). Flooding resulting from urbanization comes from building across natural water course. This can be heard across nations during the rainy seasons when rivers swell and overflow their banks. The most common cause of flooding is river flooding which is often caused by excessive rainfall and climate change.

Flooding does nobody any good anywhere in the world; from Europe to America, Pakistan and India to China and even Nigeria. Hurricane Harvel caused the deadliest flood in recent history in Houston/Texas in the United States in 2017. Hurrigan Katrina brought another deadly flooding in the US in 2005. (Grant, 2017). Punchng.com (2018) reported that flood killed 12 persons when rainfall turned rivers into raging torrents in southwest France in October, 2018. Excessive heavy downpour in Japan in June/July 2018 which resulted in devastating floods and mudflows leaving a death toll of over 225 people was reported in Wikipedia (2018). It was recorded as the deadliest fresh water flood-related disaster in Japan. In India when floods hit Chennai in 2015, small businesses were adversely affected. Elrha.org (undated) reported the seven Taluks in the Cuddalore District were underwater. Approximately 450km of village roads were damaged and the death toll reached 94. Everywhere there is flooding, it leave tales of sufferings, loss and deaths.

Nigeria suffers from floods too. Flood menace has been a recurring decimal in urban areas of cities like Port Harcourt, Kaduna, Lagos, Owerri and other cities with large rivers. (Aliyu & Suleiman, 2016; Elenwo, 2015; Ijigah & Akinyemi, 2015; Emeribeole, 2015). The losses incurred are usually large and varied. The rural areas are not spared even though much of their sufferings go unreported. Emeribeole (2015) reported that between July and October, 2012, flooding in

Nigeria submerged hundreds of thousands of acres of farmland and forced 1.3million people from their homes while over 430 lives were lost. Flooding submerges acres of farmlands and several other losses and even of lives. The teething problems and effects on peasant farmers and communities and possible government intervention is in doubt in Nigeria and it is against this background that the researchers seeks to investigate the socio economic impact of flooding on Udaba community of Etsako Central local government area of Edo state.

### **Causes of Flooding**

B-Air (2018) gave eight common causes of flood. It categorized these eight as human causes and natural causes. The eight causes of flooding include: Heavy rains; Overflowing rivers; broken dams; storm surges, hurricanes and tsunamis; channel with steep sides; a lack of vegetation; melting snow and ice; and Urban drainage basins

According to Nwigwe and Emberga (2014) there are three schools of thought about the prevalence of floods especially in the tropics. The first is that there is global warming and climate change leading to gradual increase in amount of rains and melting ice thereby increasing volume and speed of run-off water. The second posit that there has been a lot of abuse of the physical environment by man (through indiscriminate dumping of refuse, building across natural course of water, over fishing and the use of chemicals that loosen the soil making it susceptible to erosion); while the third school of thought combines the submission of the two earlier schools and posit that flooding is as a result of climate change and abuse of the physical environment.

Flooding in rural communities is usually as a result of river flooding at the peak of rainy seasons when rivers may overflow their boundaries. Rural communities rarely build to block natural water courses and most of their roads are built without drains. These rural communities experience very high crop loss due to these floods amongst other measurable and immeasurable losses probably due to lack of adequate information about the movement of floods.

Subhashree (2014) in his paper categorized flooding based on duration and location. By duration he indentified three types of flooding viz slow onset flooding, rapid onset flooding and flash flooding. Under location he identified coastal, arroyos, river and urban flooding. He was interested in urban flooding which he submitted is caused by flash flood, coastal or river floods as well as a lack of drainage in urban areas,

### **Flooding In Nigeria**

Nigeria has large coastal regions as well as mountainous highlands which make her susceptible to all types of flooding during the rainy seasons. Communities in Nigeria have always experienced flooding in varying degrees. Many of these

are periodic with the rainy season and often go unnoticed because they are not severe as the flood is low in volume and velocity. Prekeyi, Megbuwe and Adams (2015) reported that flood waters from Cameroun entered Nigeria through rivers Benue and Niger on its way to the sea. This brought historic flooding in Nigeria in 2012 which was described as the worst in 50 years by a World Health Organization (WHO) report on [www.reliefweb.int](http://www.reliefweb.int) (2012). They reported that the flood remained in many communities in Nigeria's Niger delta till November 2012, even though Cameroun released their waters between July 2<sup>nd</sup> and September 17th 2012. The floods were quite destructive. The water was slightly acidic with pH of between 5.4 and 6.9. It also had the presence of heavy metals like chromium.

The 2012 Nigeria flooding severely affected the people of Edo North living around the river Niger. Hunters began to come home with animals only seen in the real wild forests till the floods got near and they realized the animals were displaced by the flood. It is important to note that these communities are left at the mercy of the river Niger and Benue; without construction of any levee.

### **Social and Economic Impact of Flooding in Nigeria**

Floods have great social and economic consequences both for individuals and communities. Flooding has caused severe loss of lives and properties in developed and developing countries (Kwari, Paul and Shekarau 2015). Action Aid (2006) perceived flooding as a hindrance that prevents Africa from achieving significant improvement in the lives of Urban slum dwellers. Flooding can lead to disruption in industry which further leads to loss of livelihoods and trauma experiences for the flood victims. The destruction to infrastructure, clean water supply, electricity and transport as a result of flood is widespread. The death of children through drowning caused by flooding was quite traumatizing as captured in a study about Ibadan, Nigeria by Agbonkhese et al (2014) with a picture of four children under 10years who were drowned in the floods.

The Nation newspaper reported how a man and his two children got hospitalized following the collapse of a school fence on them following a flood. A man lost eight children at Ibadan while over 100 families were rendered homeless at Katsina. The story of loss of human lives following floods are better heard than experienced. The report of Nkwunonwo (2016) showed that the July 2012 flood affected 32 states (including Edo) in Nigeria. Farmlands were extensively destroyed leaving over 2million displaced person with economic loss placed at US\$16.9 billion. The 2012 flooding brought the heaviest financial loss and affected the largest number of persons in Nigerian flooding history. It affected 7,705,378 persons.

Kwari et al (2015) revealed that Yola in Adamawa state was severely affected by flood in 2012 leading to deaths, loss of farmlands and inundation of schools. Socio-economic activities had to be put on hold. This led to losses running into millions of naira. In rural communities, the immediate effects of flood include loss of livestock, destruction of crops and health challenges. Ogunbiyi in Vanguard newspaper (2011) decried that Lagos being a coastal city has a peculiar flooding challenge. A lot of money had to be spent constructing new canals and drains and re-enforcing old ones.

The flooding of Udaba community brought hardship to the people. In the 2012 flooding, many persons were displaced, buildings and farmlands were also submerged. Many were caught unprepared as it was the first time they experienced flooding. The community were partially submerged for over two weeks. Many residents in the community never expected another flooding which came in 2018. This time their farms were larger and so the losses were more. See Appendix.

### **Government Interventions on Flooding in Nigeria**

In Nigeria, the Federal government intervention projects are meant to reduce the dangers associated with erosion and floods across the country. These projects fall under the Ecological Fund Office ([pnmewsnigeria.com](http://pnmewsnigeria.com), 2018) in the office of the Secretary to the Government of the Federation. The Ecological Fund originally established in 1981 was intended to be an intervention facility established to address the multifarious ecological problems ravaging communities across Nigeria. ([ecologicalfunds.gov.ng](http://ecologicalfunds.gov.ng), 2019)

The Nigerian government also has the National Emergency Management Agency (NEMA) who usually does a needs assessment for adequate government response to flooding. ([www.reliefweb.int](http://www.reliefweb.int), 2018). The Nigerian Red Cross and other non-governmental organizations (NGOs) usually join in to assist flood victims in Nigeria. Government always moves to create camps for displaced persons. Some communities have permanent displacement camps which are maintained and used anytime the floods come in. One of such exists in Udaba community. (see Appendix).

Ebipade (2017) reported that Bayelsa state plans to approve funds for canalization to trap and empty flood waters into a central drain at different locations. They also plan other interventions like sand filling of some communities to lift them above water level.

### **The Study Area**

Udaba community is located in Etsako Central local Government Area of Edo State, Nigeria. Etsako Central has an area of 660km<sup>2</sup> and a population of over 94,575 as reported in the 2006 census. The study community is among the

many other rural areas being ravaged by flooding for some years now. They are sited around the bank of the Rivers Niger and Orle river. The region has a fair share of rainfall hence their main cash crop is rice.

Destructive flooding was first experienced in the study area in 2012 when the Cameroons released excess waters from the Lagbo dawn into the river Benue and Niger. After the 2012 flooding the communities did not experience any flooding up till 2018. The 2018 flooding was due to a shift in rainfall patterns as the Nigeria metrological Agency (NiMet) warned would cause floods. This shift they attributed to climate change. (Vanguard, 2018). NiMet also predicted the 2012 floods which ran true in the study area bringing much havoc to farmlands, houses and people we rendered homeless. NiMet and the Nigeria Hydrological Services Agency (NIHSA) were reported to have identified and presented to the public the flash points of the 2018 flooding. However most of the residents claimed the 2018 flood came to them unprepared.

### **Methodology**

The study utilized primary data obtained through questionnaire, personal observation and interviews with the residents of the study communities. The population consisted of households whose farmland/properties were submerged by flood. Community leaders were interviewed to find out of any government intervention during the flooding period. People whose farmlands and homes were submerged in these communities are about 9,800 which constitute the study population. A simple random sampling technique was used to select 270 respondents which form the sample size for the study. The respondents are family heads of their households.

### **Research Questions**

In guiding this study, the following research questions were raised

- a. How has the flood affected the economic life of the people of the study communities?
- b. How has the flood affected the social life of the people of the community?
- c. How far has the government helped in alleviating the sufferings of these people?

### **Questionnaire Instrument**

The questionnaire consist of 21 items structured by the researchers to elicit information from the respondents on the socio-economic impact of flooding in their community. A two point likert scale was used. Agree (A) and disagree (D). SPSS was used to arrange and analyze the data.

**Results and discussion of findings**

Table 1: Demography of the respondents

<b>Characteristics</b>	<b>frequency</b>	<b>Percentage(%)</b>
a. Gender		
<b>Male</b>	159	58.9
<b>Female</b>	111	41.1
<b>Total</b>	270	100
b. Age		
<b>25-30</b>	48	17.8
<b>31-35</b>	31	11.5
<b>36-40</b>	156	57.8
<b>Above 40</b>	35	13.0
<b>Total</b>	270	100
c. Marital status		
<b>Single</b>	61	22.6
<b>Married</b>	197	73
<b>Separated</b>	12	4.4
<b>Total</b>	270	100
d. Occupation		
<b>Fishing</b>	97	35.7
<b>Farming</b>	124	45.9
<b>Trading</b>	13	4.8
<b>Civil servant</b>	34	12.6
<b>Any other</b>	2	0.7
<b>Total</b>	270	100

e. Number of persons in household		
<b>Less than 6</b>		
<b>7-10</b>	35	13
<b>11-15</b>	174	64.4
<b>Above 15</b>	47	17.4
<b>Total</b>	14	5.2
	270	100

We had 159(58.9%) male respondents and 111(41.1%) were female. Of the 270 respondents, 48(17.8%) were within the age of 25 and 30 years; 31(11.5%) were within 31 and 35 years; 156(57.8) were within 36 and 41 years old while the remaining 35(13%) were above 40years old. Also of importance is that 61(22.6%) of the respondents were singles; 197(73%) were married while 12(4.4%) were divorced. The table also reveals that 97(35.9%) were into fishing; 124(45.9%) are farmers; 13(4.8%) were into various types of trading; 34 (12.6%) were civil servants while the remaining 2(0.7%) were in other types of occupations.

**Table 2**

Question	Freq	percent
<b>1. Was your household affected by the flood/</b>		
<b>Yes</b>	270	100
<b>No</b>	0	0
<b>2. if yes, what type of loss</b>		
<b>House flooded</b>	23	8.5
<b>House collapse</b>	3	1.1
<b>Water source polluted</b>	82	30.4
<b>Farmland submerged</b>	162	60.0
<b>Loss of life</b>	0	0
<b>3. How much income did you make before the flood?</b>		



<b>Less than 100k</b>	76	28.1
<b>100-200k</b>	59	21.9
<b>200-300k</b>	54	20.0
<b>300-400k</b>	81	30.0
<b>4. how much income did you make while the flood lasted</b>		
<b>Less than 100k</b>	188	69.6
<b>100-200k</b>	82	30.4
<b>200-300k</b>	0	0
<b>300-400k</b>	0	0
<b>5. where did you stay during the floods?</b>		
<b>Camp</b>	79	29.3
<b>My home</b>	141	52.2
<b>Dry part of my community</b>	50	18.5
<b>6. How did you get food during the flood?</b>		
<b>Government aid</b>	77	28.5
<b>Personal effort</b>	193	71.5

Table 2 item 1 revealed that all the respondents had their household affected by the flood. The effects were varied and categorized by item 2 into five. 23(8.5%) of the respondents had their houses flooded with water; 3 (1.1%) had collapsed houses; 82(30.4%) had their water sources polluted while 162(60%) had their farmlands submerged. No life was however lost to the flood among the respondents.

Item 3 on table 2 revealed that 67(28.1%) had an income of less than N100,000; 59(21.9%) had income between 100,00 and 200,000; 54(20%) had between 200,00 and 300,000 and 81(30%) between 300,000 and 400,000 before the flood. However after the flood, item 4 revealed that 188(69.6%) had income less than 100,000 and 82(30.4%) had income between 100,000 and 200,000. No household among the respondents got beyond 200,000 while the floods lasted.

From item 5 on table 2, it was discovered that 79(29.3%) of the respondents stayed in the displaced people's camp; 141(52.2%) remained in their homes while 50(18.5%) stayed on the dry parts of their community while the floods lasted. On the item 6 about feeding during the floods it was revealed that 77(28.5%) of the respondents got their food through government aid while 193(71.5%) got fed by personal means.

Table 3 below shows the means and standard deviation of the likert scale questions in the questionnaire. A means score of 1.5 was considered as agreed. The mean scores ranged between 1.12 and 2 with low standard deviations.

Table 3: Means and standard deviations of likert scale questions

	N	Mean	Std dev	Remark
1. The flood was caused by heavy rains	270	1.99	0.086	Agreed
2. The flood was caused by overflow of the river	270	1.99	0.105	Agreed
3. The help offered by government agencies during the flood is adequate	270	1.46	.499	Disagree
4. The level of information dissemination by government regarding the movement of the flood was good	270	1.41	.494	Disagree
5. The flood has negative effects on our finances/sources of income	270	1.98	.135	Agree
6. The flood has negative effects on our social life in this community.	270	2.00	.000	Agree
7. The flood has increased government presence in our community	270	1.47	.5	Disagree
8. Life at the displacement camp is fair enough	270	1.12	.324	Disagree
9. While the floods lasted, the cooperation among the villagers improved.	270	1.87	.341	Agree

<b>10. After the floods I am better prepared to do better in case of another flooding.</b>	270	1.98	.135	Agree
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Items 1 and 2 on table 3 showed a mean of 1.99 (S.D. = 0.086) and 1.99 (S.D. = 0.105) respectively indicating that the flooding of these communities were caused by heavy rains and overflow of the river Niger in their vicinity.

Item 3 indicated that they received help from government, which was inadequate. This was reflected in a mean score of 1.46 (SD = 0.494). The level of information dissemination by government regarding the movement of the flood was also poor. Mean score of 1.41 (SD = 0.494). Items 5 and 6 revealed that the flood had negative social and economic impact on the study community.. Item 7 (means score = 1.47, SD = 0.5) showed a failure to agree that the flood increased government presence in Udaba community. Life at the displacement camp was also not fair enough as the data revealed. The flood however brought improved social cohesion among the villagers and they are better prepared in case of another flooding.

Vividly, a combination of items 3, 4 and 7 creates an idea that the Community seriously lacks government presence. These are the only issues that concern government and all of them returned with a disagreement. Item 5 and 6 also reveal that the social and economic life of the people was adversely affected by the flooding of the Community. The appendix attached shows some few pictures of the flooding that took place at Udaba in 2019.

### **Conclusion and recommendation**

The social and economic costs of flooding is huge and especially in rural areas like Udaba which are mainly agrarian. The researchers experienced the pain of the people of Udaba community firsthand.

Based on the findings, this study recommends amongst others that

- a. Urgent steps need to be taken to either dredge the rive Niger or relocate the community while giving out information through traditional means (such as through a town crier) of the expected movement of flood water as revealed my NEIMET.
- b. For every flooding that takes place government has to pay some compensation to the people.
- c. The community needs better presence of government in driving the course of social and economic betterment of Udaba.

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**Picture Appendix**



Submerged cassava at Udaba



The King of Udaba's palace overtaken by the 2018 flood



Submerged rice farm at Udaba Community



Private school submerged at Udaba by the 2018 flood



Flooded fenced compound at Udaba



Transportation by Canoe along submerged streets in Udaba



Small remaining dry land at Udaba