

## Evaluation of the Effect of Flooding on Danchitagi Community of Lavun Local Government Area, Niger State, Nigeria

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### **Abstract**

*Niger State and precisely Danchitagi community in Lavun Local Government Area will continue to labour under the pains of flood disaster unless there is a radical approach to avert the disaster. The aim of this study was to evaluate the effects of flooding on Danchitagi community in Lavun Local Government Area of Niger State, Nigeria. The researcher randomly distributed 355 household questionnaires while the instrument of in-depth interviews schedule was administered to the respondents. Frequency percentage statistics was utilized for data analysis and presentation. The finding shows that 193 (54.4%) of the respondents believed that the main cause of flood in the study area is from heavy rainfall, 148 (41.7%) of the respondents agreed that the main cause of flooding is due to flood plain development, poor drainage system ranked third with 13 (3.7%) of the respondents and blockage in the drainage ranked the least with one respondent. The results also shows that about 341 (96.1%) of the respondents said that their farmlands were being affected by flood while 14 (3.9%) said their farmlands were not being affected by flood since their farmlands were located far away from flood plain. Loss*

*of crops on the farmland ranked the highest with 247 (72.4%) of the respondents, loss of livestock ranked second with 61 (17.9%) of the respondents and wash away of un-mature crops ranked the least with 33 (9.7%) of the respondents. In general, a greater proportion (66.8%) of these buildings observed less than 5 meters setback to the river channel, followed by 24.9% building within 6m to 10m and 11m to 20m record the least setback. Specifically, 91.7% of the buildings have a setback of less than 10 meters. It's therefore recommended that flood monitoring and management in Danchitagi community should be encouraged and funded by both Lavun and Niger State Government and non-governmental agencies.*

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## **Introduction**

Flood is any high stream flow which overtops natural or artificial banks of a stream (Giwa, 2015). It is now one of the fundamental environmental challenges that results from interaction between man and his environment. This often emphasizes the extent to which man can go to control nature (Giwa, 2015). Floods normally occur when more rainfall than the soil and vegetation can absorb. That is, excess rain water runs off the land in greater quantities than rivers, streams, ponds and wetlands can contain. Such heavy rains periodically cause rivers or streams to overflow their banks spilling onto the surrounding floodplains (Giwa, 2015; Adewuyi, 2014).

A common environmental problem in Nigeria is flood and it is said to occur when a body of water moves over and above an area of land which is not normally submerged. It could also be seen as the inundation of an area not normally covered with water, through a temporary rise in level of stream, river, lake or sea. Olanrewaju and Fadairo (2013) viewed flood as a natural consequence of stream flow in a continually changing environment. Ogba (2013) defines flooding as unusually high rates of discharging; often leading to inundation of land adjacent to streams, and it is usually caused by intense or prolonged rainfall. The occurrence of flood represents a major risk to riversides populations and floodplains, in addition to causing substantial impacts on the

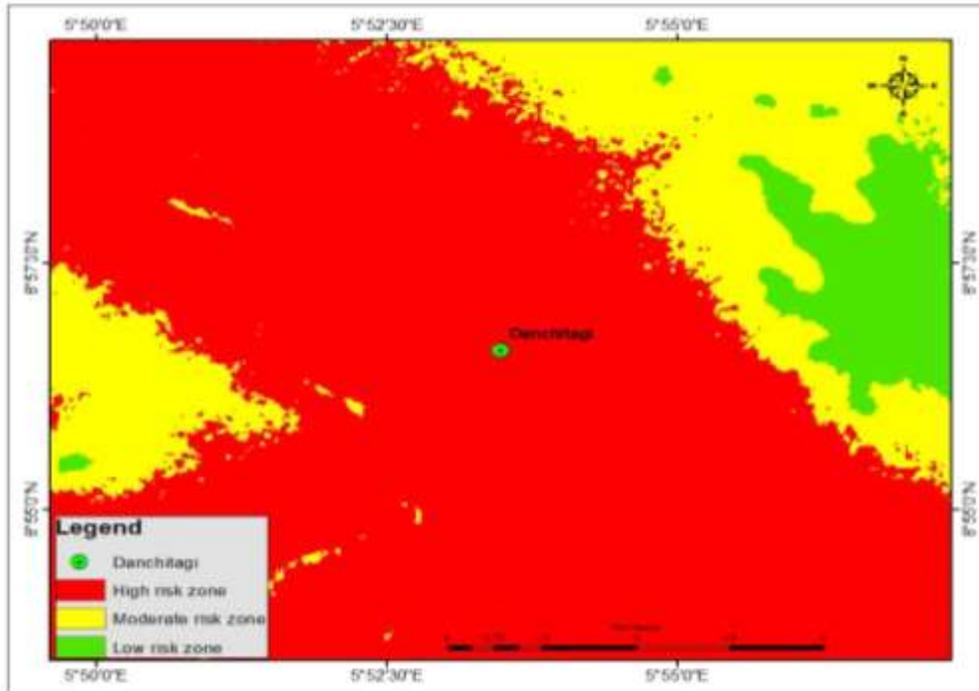
environment, including aquatic fauna and flora, and bank erosion (Bronstert, 2013).

Flooding is becoming an increasingly severe and more frequent problem in Nigeria. Unfortunately, the impact is more felt by the urban poor in such a way that recovery is unlikely to be achieved without external aid (Bronstert, 2013). In other words, urban poor are most vulnerable to impact of flood because they set up homes in the floodplains. Flooding is one of the most devastating hazards that are likely to increase in many regions of the world partly due to global climate change and poor governance.

Mirza *et al.* (2013) states that flood disaster has different impact on individuals, households and communities. People cope in different ways. Those who have the capacity after being hit by a disaster emerge faster while those without such capacity sink deeper into the spiral of impoverishment. Coping strategies include actions such as migration from floods affected areas, flood forecasting, flood insurance of animals and crops, food stockpiling, providing emergency health services and building flood shelters. They have, however, not been woven systematically into the approach to achieve security from flooding. If the approaches build on coping strategies and seek to identify new ones, they could address the social impacts of flood problems affectively at a lower social, economic and environmental cost than approaches that attempt to manage or control the resource base itself (Mirza *et al.*, 2013).

The gap of this study is that flood menace in the study area has become a normal and re-occurring phenomenon which sometimes has devastating impacts on human livelihoods and infrastructural development. Causes of this problem such as rapid population growth, poor governance, poor drainage facilities and decaying infrastructures, lack of proper environmental planning and management strategies, poor practice of dumping waste/refuse and climate change coupled with inadequate preparedness have been traced and among others, human activities in terms of developmental involvements adjudged to be very important factors in accelerating the rate of this disaster which often leaves in its wake spread of diseases, loss of thousands of lives from various parts of the country and properties worth billions of naira being destroyed. So therefore, this study will evaluate the effects of flooding on Danchitagi community in Lavun Local Government Area of Niger State and proffer short and long time solution to this catastrophic challenges of flood hazard.

Danchitagi is located between latitude  $8^{\circ} 55'N$  to  $8^{\circ} 57'N$  and longitude  $5^{\circ} 50'E$  to  $5^{\circ} 55'E$  on a geographical base of undifferentiated base complex of mainly queiss and magnetite situated at the base of prominent hills in an undulating plan.



**Figure 1: Flood Risk Map of Danchitagi Community, Lavun LGA, Niger State**

### Materials and Methods

Primary data sources include personal observation, questionnaire administration and oral interview. These data sources were used to achieve all the objectives of this study. Secondary data sources include journals, textbooks, newspapers, magazines, encyclopedia, library, etc. Secondary data sources were used to add value to this study.

The study respondents were 398 and simple random sampling was used to distribute the questionnaires among the respondents. Random sampling technique was employed and flood prone area victims of the study area were selected. 355 questionnaires were returned. A frequency-percentage technique was adopted as the techniques for data analysis and the analysis of frequency of responses is one of the first techniques used for analyzing research data that was collected through the use of questionnaire. The frequency-percentage technique

is easy to present, analyze, and interpret. Statistical Package for the Social Sciences (SPSS 19.0) software was used in analyzing the descriptive statistical

$$\text{Frequency-percentage} = \frac{\text{Number of observed}}{\text{Total Number}} \times \frac{100}{1}$$

technique (frequency-percentage) adopted in this study.

## Results and Discussion

### Causes of Flood in the Study Area

The causes of flood in the study area include heavy rainfall, poor drainage system, flood plain development, blockage in the drainage and poor waste disposal as shown in Table 1.

**Table 1: Causes of Flood in the Study Area**

S/NO.	PRIMARY CAUSES	NUMBER OF RESPONDENTS	PERCENTAGE (%)
A	Heavy rainfall	193	54.4%
B	Poor drainage system	13	3.7%
C	Flood plain development	148	41.7%
D	Blockage in the drainage	1	0.2%
E	Poor waste disposal	0	0
	Total	355	100%

Source: Field Survey (2019)

From Table 1, it has been shown that 193 (54.4%) of the respondents believed that the main cause of flood in the study area is from heavy rainfall, 148 (41.7%) of the respondents agreed that the main cause of flooding is due to flood plain development, poor drainage system ranked third with 13 (3.7%) of the respondents and blockage in the drainage ranked the least with one respondent. This indicates that heavy rainfall is the main cause of flood in the study area while flood plain development as well as poor drainage system and blockage in the drainage are the minor causes of flood in the study area. From the study area, it shows that heavy rainfall, illegal building along the River channel, poor

drainage system are the causes of flooding in the study area. The implication of result, show that heavy rainfall was the main cause of flooding in the study area and it occurred during the months of August, September and October.

### **Effect of Flood Occurrence on Health of the Inhabitants of the Study Area**

This subsection covered objective two of the study and this entailed the present of effect of flood occurrence on health of the inhabitants and nature of the effects.

**Table 2: Present of effect of flood occurrence on health**

S/NO.	RESPONSES	NUMBER OF RESPONDENTS	PERCENTAGE (%)
A	Yes	267	75.8
B	No	88	24.8
	Total	355	100

**Source: Field Survey (2019)**

Table 2 show that 267 (75.8%) of the respondents agreed that the past flood occurrence has affected the health of the inhabitants, while 88 (24.8%) of the respondents disagreed that there is no any pronounce health effects. The health effects in the study area were identified in Table 4.9. This finding agreed with that of Udo *et al.* (2015).

**Table 3: Effects of Flood Occurrences on Health of the Inhabitants**

S/NO.	RESPONSES	NUMBER OF RESPONDENTS	PERCENTAGE (%)
A	Poor health facilities	34	12.7
B	Poor water quality sources	93	34.9
C	Poor health condition of some inhabitants	140	52.4
	Total	267	100

**Source: Field Survey (2019)**

As indicated in Table 3, poor health condition of some inhabitants ranked the highest with 140 (52.4%) of the respondents, poor water quality sources ranked second with 93 (34.9%) of the respondents and poor health facilities ranked the

least with 34 (12.7%) of the respondents. This implies that flood occurrences in study area has affected the health condition of the inhabitants negatively which has leads to various water borne diseases like diarrhea, malaria fever and few instances of cholera as understood by the researcher during oral interview across some selected health centre's in the study area. The hospital record to back up this point was not readily available when finishing this study.



**Plate I: Poor Condition of Hospital Environment in the Study Area**  
**Source: Field Survey (2019)**

Plate I shows the poor condition of some hospitals within the study area and unfriendly is the hospital environment for both the health practitioners and the inhabitants receiving treatment from such hospitals.

### **Measures Put in Place to Mitigate the Effect of Flood in the Study Area**

This subsection covered the objective three of the study.

**Table 4: Availability of mitigative measures against flooding**

S/NO.	RESPONSES	NUMBER OF RESPONDENTS	PERCENTAGE (%)
A	Yes	267	75.8
B	No	88	24.8
	Total	355	100

**Source: Field Survey (2019)**

Table 4 show that 267 (75.8%) of the respondents agreed that they had protective measures against flood around their houses like sand bags, building setback, while 88 (24.8%) of the respondents disagreed that there is no protective measures in their houses. This shows clearly that the houses in the study area have mitigative measures put in place against flood including the upcoming flood and its effects. But how effective is these mitigative measures was identify in Table 5. Flood incidence is further compounded by the fact that most farmlands and buildings were located right within the immediate floodplain of the river. In general, a greater proportion (66.8%) of these buildings observed less than 5 meters setback to the river channel, followed by 20.6% building within 6m to 10m and 11m to 20m record the least setback with 11.2% as shown in Table 4.11. Specifically, 88.8% of the buildings have a setback of less than 10 meters. These findings indicate the weakness of development control mechanism in this community.

**Table 5: Mitigative measure put in place to reduce the effects of flood**

S/NO.	RESPONSES	NUMBER OF RESPONDENTS	PERCENTAGE (%)
A	Less than 5m setback	242	68.2%
B	6m – 10m setback	73	20.6%
C	11m – 20m setback	40	11.2%
	Total	355	26.7%

**Source: Field Survey (2019)**

### **Conclusion**

The causes and effects of flood on the people of Danchitagi community and agricultural practices as well as health of the inhabitants are enormous. It is clear

from the study that floods had adverse effect on the agricultural practices and health of the people in study area. To a large extent, the study has established that livelihood patterns play an important role in settlement patterns. It is also evident that there are varying causes in the study area in respect to flooding and these include heavy rainfall, poor drainage system, flood plain development, blockage of drainage and indiscriminate waste disposal. This poses a challenge for reducing or minimizing vulnerability to flooding in the study area. Proximity to the flood prone area, residing in flood prone area and poverty were identified as being the main underlying causes of vulnerability by the people of Danchitagi community in Lavun Local Government Area of Niger State.

The findings further confirm that building flood resilience dwellings is preferred by the people to relocation. This is because as they put it, their livelihood revolves around the water: farming, fishing, transport and ancestral history.

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