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EXAMINING RESIDENTS' PERCEPTIONS OF ECONOMIC LOSSES DUE TO FLOODING IN NIGER STATE

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Abstract

Riverine areas of Niger State have suffered floods for decades; the four most recent ones were in 2008, 2009, 2012 and 2018. These caused displacement of people from their usual dwelling places resulting into varying impacts on infrastructure, crops, health, education, environment as well as damage to properties. This paper examines quantity of economic loss due to flooding in the riverine communities in Niger State. The study made use of both theoretical and investigative methods for collection of data, from residents of riverine communities. Nine communities spread across the three geographical zones of the state were sampled. The sampled communities are Muregi, Gbajibo, Essan, Gurmana, Gusuru, Bere, Akere, Wushishi and Maito. Personal observation was carried out in the sampled communities and structural questionnaire was also administered Data collected was subjected to descriptive statistical analysis. The findings show that most of the sampled households (94%) indicated that their crop fields were damaged by floods. It was also evident that most of the damaged crops were main staple crops such as rice, yam, sugar cane, plantains sorghum and millet. Only 6% of respondents said that flood did not affect their farm produce. The finding further reveals that most of the sampled households (64%) indicated that health facilities were damaged due to flooding of their communities. The study recommends that key stakeholders should engage communities in order for them to move permanently to higher grounds as they have expressed a willingness to relocate. The relocation should go with the provision of all the necessary amenities such as schools, hospitals, infrastructure, water and agriculture support for a period of three (3) years to enable the households to settle. Consideration should also be made to introduce alternative livelihood strategies in the new area of settlement.

Keywords: Quantity, Economic loss, Flooding , Perceptions.

Introduction

Many environmental problems threaten the world (Oyegbile 2018). However, flooding is considered to be the most devastating natural disaster worldwide (Komolafe *et al.*, 2019). Peduzzi *et al.* (2019) maintain 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) estimate that '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 (Adetunji and Oyeleye 2017).

Flooding has both natural and human causes (Abolade *et al.*, 2019). MacLeod *et al.* (2021) identified excessive levels of precipitation as the main natural cause of flooding, caused by climate change. It reported that in 2020 flood caused approximately

1,000 deaths in India. Tramblay *et al*. (2021) link flood occurrence in Europe to maximum level of soil moisture rather than maximum precipitation. In Pakistan in 2020 floods destroyed at least 1,200 lives. This problem is more acute in highland areas like Ethiopia under strong environmental degradation due to population pressure. According to UNEP (2016), the major environmental disasters in Africa are recurrent droughts and floods. Their socio-economic and ecological impacts are devastating to African countries, because most of them do not have real time forecasting technology or resources for post-disaster rehabilitation. Rains have caused most rivers to swell and overflow or breach their courses, submerging the surrounding 'flat' fields or floodplains, which are mostly located in the outlying pastoralist regions of the country.

In Nigeria, flood disaster has been perilous to people, communities and institutions (Komolafe *et al.*, 2019). In the past years, flooding in Niger State was limited to communities along river valleys/corridors of Niger and Kaduna especially those living downstream of Jebba, Kainji and Shiroro hydro dams (Abdullahi, 2004; Jude, 2005; Akinwale and Thomson, 2014). However, the recent flooding has extended to other communities in most parts of the state including Bida, Tafa, Suleja and Minna the state capital. Causes of flood in these towns may not be unconnected to flat or low-lying terrains especially where little or no provision has been made for surface drainage or where existing drainage has been blocked by municipal waste, refuses and eroded soil sediments. It also occurs as a result of prolonged rainfall, lack of adequate drainage system/blocking of water ways and unplanned and uncoordinated physical growth of some part of the towns and intensification of land use development (Odemerho, 2013; Nwafor, 2016).

Riverine areas of Niger State have suffered floods for decades; the four (4) most recent ones are in 2008, 2009, 2012 and 2018. This caused displacement of people from their usual dwelling places resulting into varying impacts on infrastructure, crops, health, education, environment as well as damage to property (NSEMA, Assessment of Floods Report, 2013). The general problem of the communities is the frequent flood disaster that occurs yearly and it has been a serious problem which claims a lot of lives and properties. Niger state is an important cultural and agricultural produce area in Nigeria, most communities in the riverine communities in the state face serious problem of flood hazard this poses a serious threat to people socio economic activities. Different research work done at different period shows that flood incidence has being increasing at alarming rate however, no much study has been carried out. Therefore, this paper examines level of economic loss due to flooding in the riverine communities in Niger state.

Study area

The State lies on latitude 80° to 11°:30' North and Longitude 03° 30' to 07° 40' East. The State is bordered to the North by Zamfara State, West by Kebbi State, South by Kogi State, South West by Kwara State, North-East by Kaduna State and South East by FCT. The State also has an International Boundary with the Republic of Benin along Agwara and Borgu LGAs to the North West. In the present political zoning system, it is within the North Central Zone, and occupies It covers an area of 76,363 square kilometres. The state has three senatorial district namely: Zone A, Zone B and Zone C. Figure 1 shows a map of the study area.

The state is named after the River Niger. Two of Nigeria's major hydroelectric power stations, the Kainji Dam and Shiroro Dam, are located in Niger State, along with the new Zungeru Dam. The Jebba Dam straddles the border of Niger state and Kwara state. The famous Gurara Falls is in Niger State, and Gurara Local Government Area is named after the Gurara River, on whose course the fall is situated. Also situated there is Kainji National Park, the largest National Park of Nigeria, which contains Kainji Lake, the Borgu Game Reserve and the Zugurma Game Reserve (NS, 1999).

Methodology

The study made used of both theoretical and investigative method for collection of data as data were collected from residents of riverine communities. Nine communities spread across the three geographical zones of the state were sampled. The sampled communities are Muregi, Gbajibo, Essan, Gurmana, Gusuru, Bere, Akere, Wushishi and Maito. Personal observation was carried out in the sampled communities and structural questionnaire was also used to collect data. Data collected was subjected to descriptive statistical analysis.

Results of Findings

Flood knowledge was found to have a positive association with flood risk perception, which influences flood prevention and management (Bubeck et. al. 2017). Areas with high levels of education and flood awareness have benefited more, and their susceptibility to negative effects and damage has decreased. Majority of the vulnerable areas within the study area are crowded due to the striving economic activities of the areas and conducive climatic condition which may likely increase and pose more danger, as increase in population of young people (Reckien *et.al.* 2017).

Identifying challenges, defining targets, analyzing risks, appraising options, implementation, monitoring, and evaluation are all part of flood disaster risk reduction management (Mwape 2019).

Most of the sampled households (94%) indicated that their crop fields were damaged by floods. It was also evidence that, most of the damaged cropped are main staple crops such as rice. yam sugar cane, plantains sorghum and millet only 6% of respondents said that flood did not affect their farm produce. Although no data on area planted were collected, this show that there was impact of flood on agriculture which is the main source of livelihood and income of the residence (Figure 2).

From the analysis in Table 4. 34.2 percent of the respondent said the flood affected their millet/corn farm,29.6 percent of them said the flood destroyed their rice farm, 18 percent of them said their plantain farm were affected, 8.9 percent of them said their sugar cane farm were destroyed by flood while 8.9 percent of them said their plantain farm were also affected.

Table 1: Major economic concerns affected by flooding in the study area

	Zone "A" Muregi, Gbajibo & Essan		Zone "B" Gurmana, Gusuru & Bere		Zone "C" Wushihi, Akere & Maito	
	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)
Farmlands	47	58.0	52	41.6	60	42.5
Markets	12	14.8	31	24.8	42	29.8
Transportation system	21	25.9	41	32.8	33	23.4
Electricity supply	1	1.3	1	0.8	6	4.3
Total	**81**	**100**	**125**	**100**	**141**	**100**

Table 2: Other economic losses due to flooding

	Zone "A" Muregi, Gbajibo & Essan		Zone "B" Gurmana, Gusuru & Bere		Zone "C" Wushihi, Akere & Maito	
	Frequency	Percent	Frequency	Percentage	Frequency	Percentage
Affected animals	2	25	4	40	0	0
Collapse of houses and shops	6	75	5	50	4	80
Documents destroyed	0	0	1	10	0	0
Reduction of house rent	0	0	0	0	1	20
Total	8	100	10	100	5	100

Table 3: Basic amenities affected by flooding in the study area

	Zone "A" Muregi, Gbajibo & Essan		Zone "B" Gurmana, Gusuru & Bere		Zone "C" Wushihi, Akere & Maito	
	Frequency	Percent	Frequency	percentage	Frequency	Percentage
Roads	41	27.9	47	31.6	43	27
Water supply	18	12.2	40	26.8	36	22.6
Health facilities	5	3.4	2	1.3	7	4.5
Schools	34	23.1	6	4.0	9	5.6
Houses	48	32.7	53	35.6	64	40.3
Documents	1	0.7	0	0	0	0
Student activities	0	0	1	0.7	0	0
Total	147	100	149	100	159	100

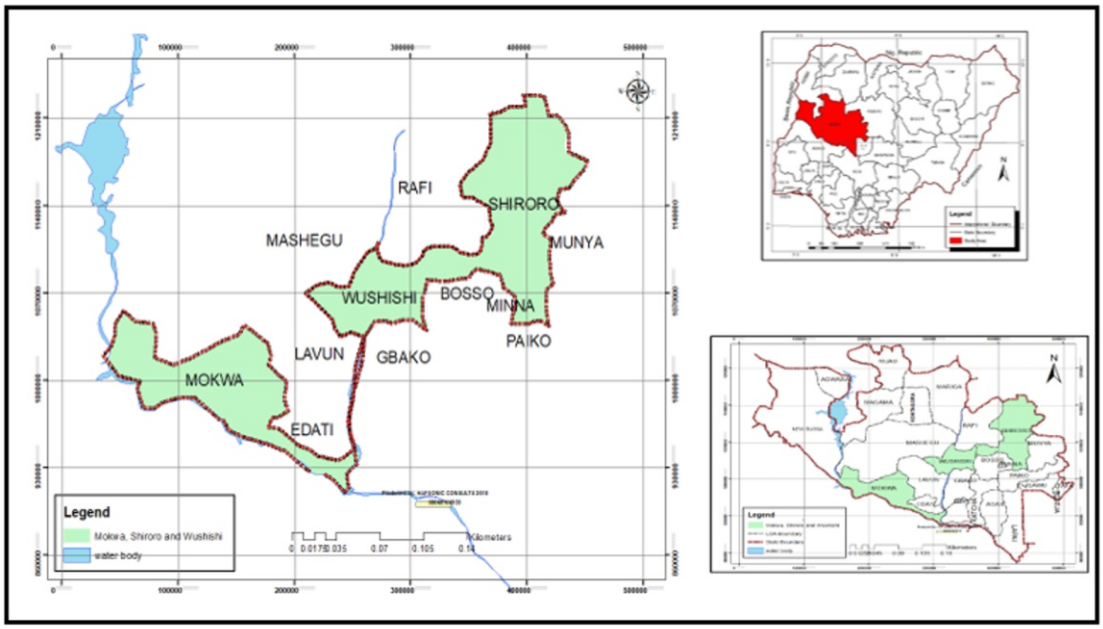

Figure 1: Selected LGA for the study area
Source: NIGIS, 2023

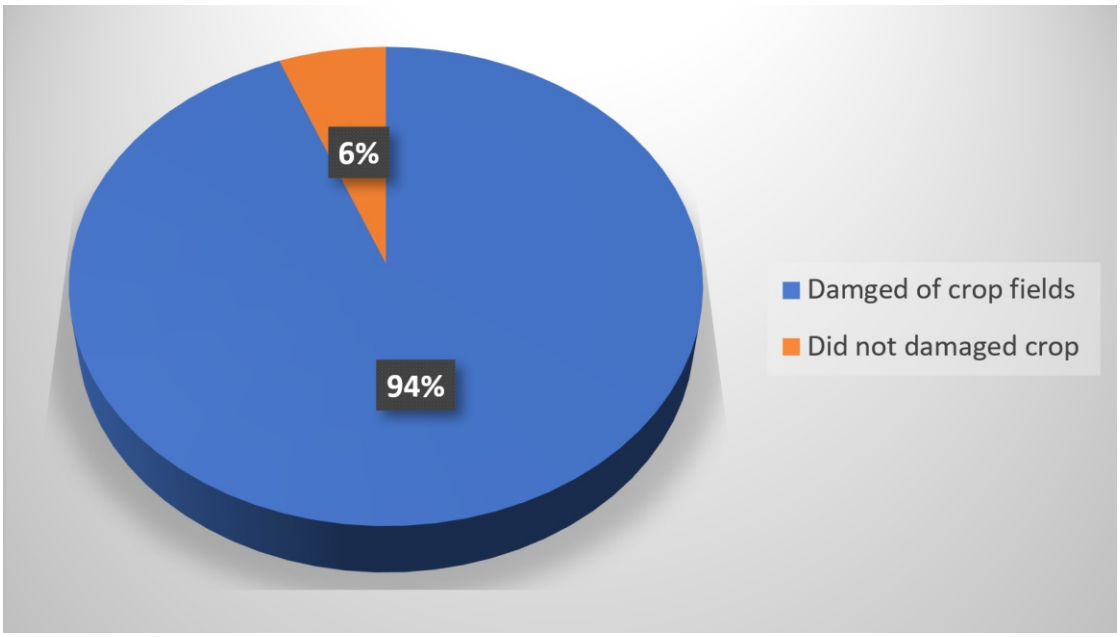

Figure 2: Impact of Floods on Agricultural Land

Table 4: Agricultural Loss

Communities	Farm Size	Estimated Lost
Muregi	11 Hectares	9,000,000.00
Gbajibo	61 Hectares	58,000,000.00
Essan	43 Hectares	88,000,000.00
Gurmana	8 Hectares	3,000,000.00
Bere	11 Hectares	6,000,000.00
Gusuru	14 Hectares	8,600,000.00
Akare	9 Hectares	7,800,000.00
Wushishi	11 Hectares	6,000,000.00
Maito	19 Hectares	10,000,000.00

Source: Niger State Emergency Management Agency, 2022

The research revealed that most of the sampled households (64%) indicated that health facilities were available in their communities. Furthermore, very few households (5%) had indicated that health facilities had been damaged by flooding in their communities. The study further revealed that 31% of the sampled households experienced disruption in access to health services due to damaged roads. Disruption in accessing health services implied an increase in disease incidence due to lack access to appropriate medication. (Figure 4.20)

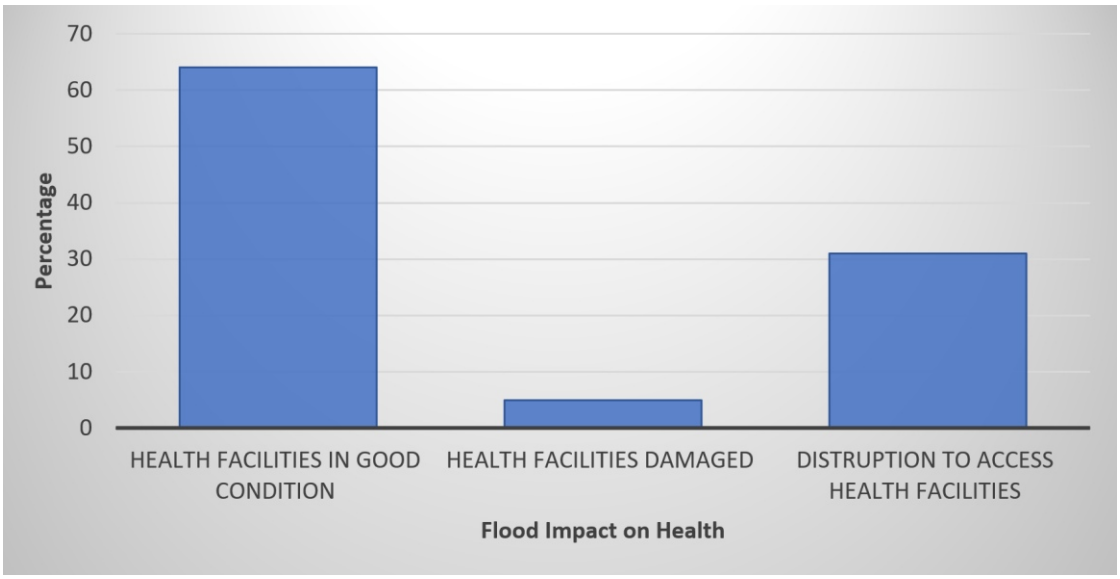

Figure 3: Impact of Floods on Health Facility

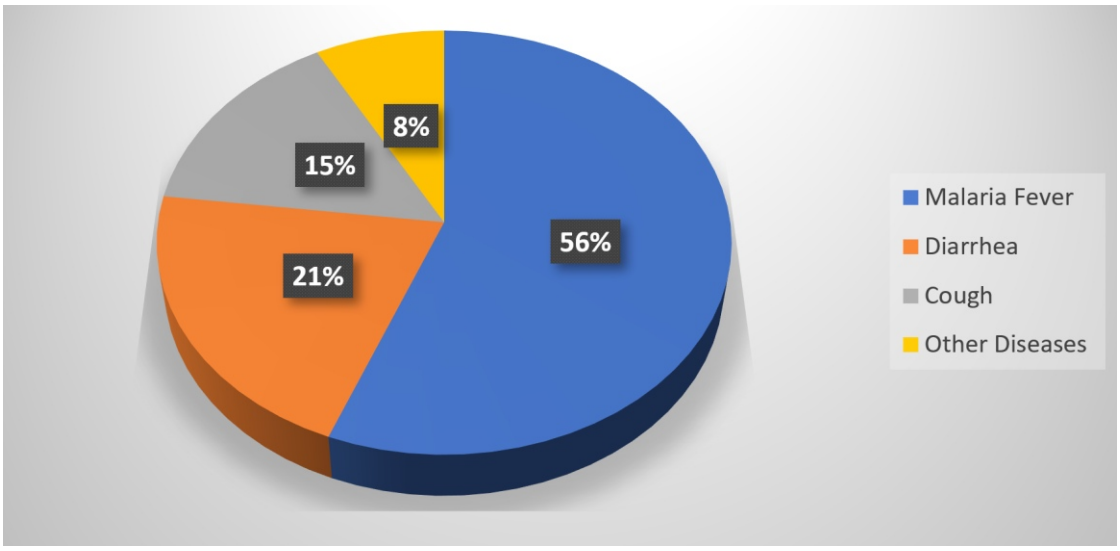

Figure 4: Diseases Experienced

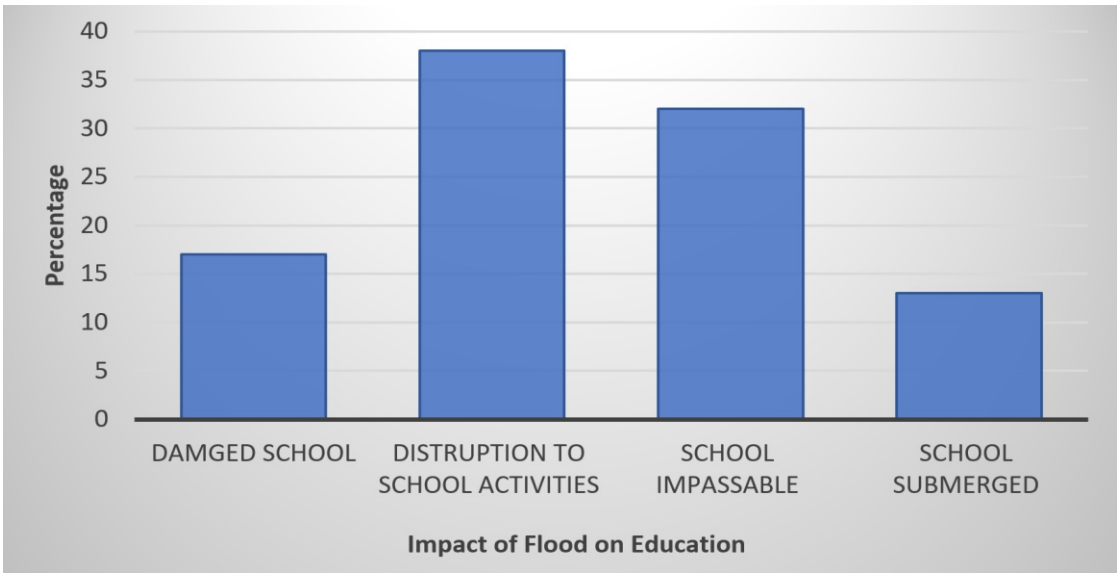

Figure 5: Impact on Education

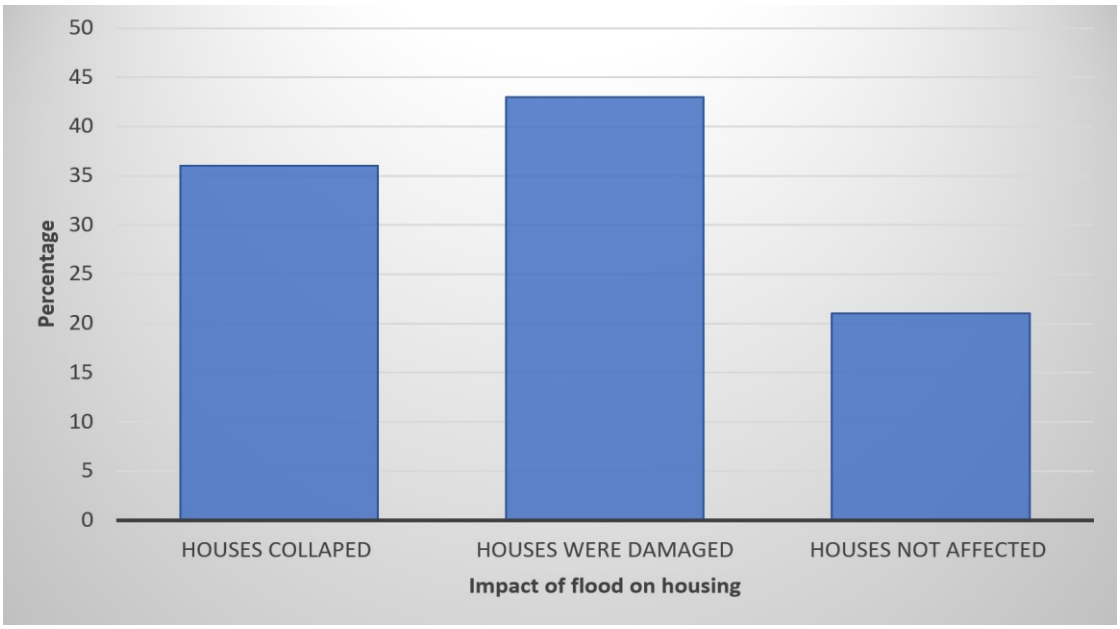

Figure 6: Impact on Housing

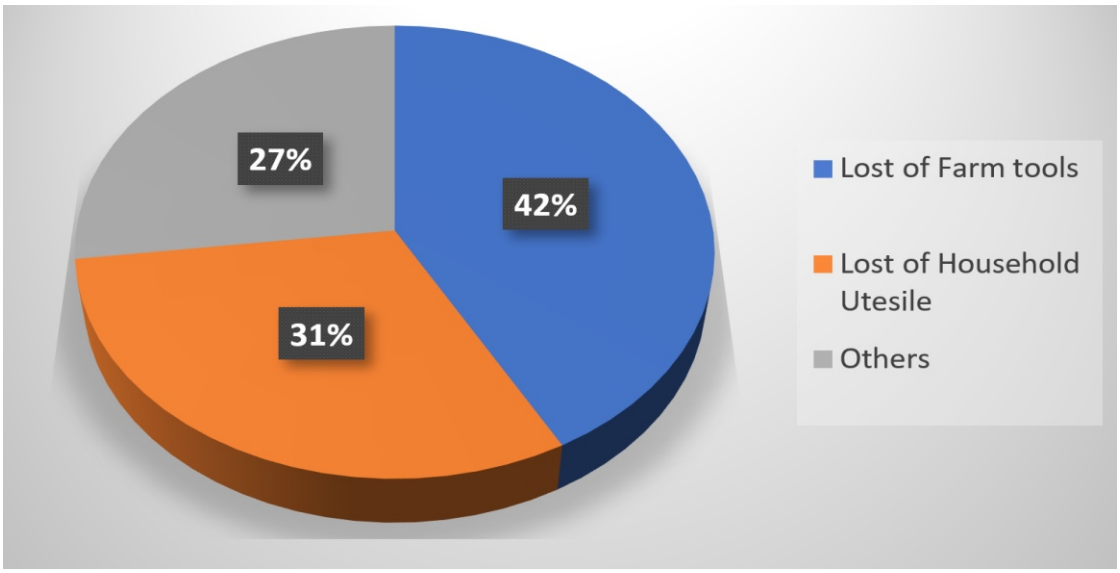

Figure 7: Impact on Property and Assets

The research also revealed in Figure 3 show that; out of the sampled households, 77% indicated having at least one member of their household felled sick during the floods. The most significant diseases experienced among the sampled households were, malaria/fever (65%), diarrhea (21%) and cough (15%). Furthermore, 8% of the sampled households indicated that they experienced other disease outbreak such as scabies, sores and rash during the floods.

All the sampled households indicated availability of education facilities in their communities. Furthermore, 17% of the sampled households indicated that school infrastructures were damaged due to floods in one way or another. The study showed that 38% of the sampled households indicated that school going children experienced disruption due to floods. The disruption was attributed to various reasons such as road being impassable (32%) and school being submerged (13%).

Among the sampled households, 36% indicated that their houses collapsed due to excessive impacts of floods while the rest had their houses intact thus the houses were submerged for some days. During discussions, residents of these communities revealed

Plate i: Effect of Flood on Agricultural Land Essan Community

Plate ii: Effect of Flood on Agricultural Land and Human Life in Gbajibo Community

Plate iii: Impact of Floods on Health Facility

Plate iv: Partial Collapse of School Building in Gurmana

Plate v: Partial Collapse of School Building in Gurmana

Plate vi: Partial Collapse of School Building in Maito
Source: NSEMA

that some displaced households sent their children to stay with other relatives. This disrupted their pattern of life and social networks.

For those who have moved temporary to higher grounds, they have returned to their usual residence. Discussion with these households indicated a positive will to move permanently to safer havens should alternative fertile land be secured by relevant authorities. It is worth mentioning that some households have shifted to a new area altogether.

This research revealed that a substantial number of productive and non-productive assets were damaged by floods. Of the productive assets which were loss farming tools 45%, 31% loss household utensils and 27% loss others things not specified. This indicated that they loss other properties such as clothes and

Plate vii: Effect of Flood on Farm produce in Gbajibo Community

Plate viii: Effect of Flood on Farm produce in Muregi Community

Plate ix: Impact of Floods on School Building in Bere Community

Plate x: Impact of Building on Properties in Akare Community

blankets. Most of the losses to these assets were attributed to households' proximity to flood prone areas. Discussions with the communities revealed that some households indirectly loss their assets after their houses collapsed, some of the income sources got disturbed. This forced them to off-load some assets to raise money to meet other household basic requirements.

Conclusion and Recommendation

Natural disasters like floods are a phenomenon that cannot be prevented from occurring but its impact can be minimized if effective step of measure is taken to reduce their severity and frequency. Flood is dynamic and natural process which as adverse impact on livelihood of rural communities as houses and homesteads are destroyed, cultivated land were wiped out the employment opportunities are reduced. Agriculture is the main source of the communities. It is very well known to everyone that half of the population of the people live in rural areas directly depend on agriculture. So, any loss of land, house is devastating. The unpredictable and abnormal floods which cause a seriously abrupt human settlement and activities. That resulted in to displacement of people, food security, waterborne disease, agriculture loss etc has adverse socio-economic impact on people by the river are very much subject matter to study which has much evident in the area. The study recommends that key stakeholders should engage communities in order for them to move permanently to higher grounds as they have expressed a willingness to relocate. The relocating should go with the provision of all the necessary social amenities such as Schools, hospitals, infrastructure, water and agriculture support for a period of three (3) Years to enable the households to settle. Consideration should also be made to introduce alternative livelihood strategies in the new area of settlement.

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