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Flooding and the Socioeconomic Activities of the people of Mbo Local Government Area of Akwa Ibom State, Nigeria

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Abstract

The aim of this study is to investigate the impact of flooding on the socioeconomic activities of the people of Mbo Local Government Area of Akwa Ibom State, Nigeria. The study adopted the survey inferential research design, using the multi-stage random sampling techniques, a sample of 400 respondents was selected from ten communities for the study using 5% of the total population of the ten communities. A structured questionnaire designed by the researchers and validated by three experts was used to collect data from the selected respondents. The instrument was administered by the researchers and same retrieved 100% through the help of the village and community secretaries. Pearson Product Moment Correlation Analysis was used to test the null hypothesis. The result shows a calculated r- value of 0.87 and a critical table value of 0.178 at 0.05 significant level at 398 degree of freedom. The implication of this result is that flooding has a significant influence on the socioeconomic activities/lives of the people of Mbo LGA. It was recommended among others that environmental awareness campaigns should be carried out by relevant authorities including the department of Environmental Health and Sanitation of the local government area to sensitize the people about the effects of their activities on the environment and to also move them aware from flood and other disaster prone areas.
Keywords: flooding, socioeconomic activities, disaster prone areas, alternative sources of livelihoods.

Introduction

Akwa Ibom state and indeed Nigeria has been besieged by a plethora of environmental hazards in recent times. These environmental hazards are largely due to anthropogenic factors orchestrated by man, though some others are significantly caused by nature. Some of these environmental conditions detrimental to man include increased temperature, volcanic eruption,

Tsunami, tornadoes, desertification, shortage of rainfall, erosion, carbon accumulation, flooding, deforestation, poor crop yield as a result of loss of soil fertility, land slide, extinction of most endemic species of both flora and fauna species, global warming, increasing the ambient temperature with its attendant consequences, climate change, tribal war, frequent farmer-herders violent attacks and ethnic violence among others. This trend is not just in Nigeria and the world over, but it is very prominent in Akwa Ibom State and Mbo Local Government Area in particular. Floods are purely environmental hazards that occurs as a result of anthropogenic (man-made) and natural causes, in most cases, floods are often induced by human anthropogenic activities on the earth surface, this occurs as a result of human improper utilization or abuse of the physical environment.

Flood can be defined as the inundation of land by large amounts of water beyond its natural carrying capacity. The Oxford Learner's Dictionary (2008), defined the concept of flooding as an overflow or disruption of a great body of water flowing overland usually submerging adjacent lands. It is an extreme weather event naturally caused by global rising temperature, resulting in heavy rainfall, thermal expansion of the ocean and glacier melt, which also in turn resulting to sea level rise, thereby causing salt water to inundate coastal lands (Bellamy, 2007; Oxford Learner's Dictionary, 2008).

It is also observed that the rise in water level, inundating surrounding and adjoining land may be caused by excessive precipitation (rainfall), melting of snow and ice berg in the Antarctic region, natural stream blockages, and windstorms over a lake or any combination of such conditions. Flooding has become an inherent problem in most urban centers close to the Nigerian coast. In the last decade it has extended to large settlements in the interior parts of the country where rainfall is more sporadic, especially due to the consequences of climate change, (Oriola, 2008). Etuonovbe, (2011) found that flooding is one of the commonest environmental problems in Nigeria. Some flood hazards are natural phenomena, with a lot of damaging effects leading to losses as a consequence of human action (Action Aid International, 2006). Urbanization aggravates flooding by restricting where flood water flows into. Covering large parts of the ground

with roofs, roads and pavements, obstructing sections of the natural channels and drains that ensure that water moves to rivers faster than it did under natural conditions. As more people converge in cities, so the effects intensify. As a result, even quite moderate storms produce high flows in rivers because there are more hard surfaces than drains.

Studies have shown that the ravaging effects of flood cannot be over emphasized, for example in Canada, floods are among the most devastating water-related hazards that threaten water security (Government of Canada, 2015). Each year, communities across Canada experience flooding brought on by a variety of causes; however, indigenous populations are especially vulnerable to the impact of flooding. As of 2006, an estimated 1.2 million Aboriginal (indigenous) people inhabited land across each province and territory in Canada, totaling close to 4% of the overall population (Ford, 2010). Approximately half resided in remote communities either on reserves, in the northern territories, or in rural areas (Ford, 2010). Many of these communities' experience sub-standard living conditions due in part to the inaccessibility of adequate food and water resources. These small and isolated communities are particularly vulnerable to the economic and social consequences of flooding, yet little has been done to explore the magnitude of this issue and the impact on indigenous peoples.

In Makurdi, one of the major problem is the poor drainage system, especially in High Level, Gboko Road, Wurukum, Palm Beach, Ankpa road, Kanshio etc, where flooding occurs in a flat or low lying terrain, especially where little or no provision has been made for surface drainage or where existing drainage has been blocked with municipal waste, refuse and eroded sediments. Due to population growth in urban centers, urban population keeps increasing and pushing more and more people into living in flood prone areas which conveniently increases the death toll and damages to structure and properties during flood actions. Attoe (2010) cited in Efe, (2010) observed that vegetable crops such as potatoes, cabbage, pepper, tomatoes, okro, pumkin, cucumber; green vegetables (types of green leaf), melon and maize were seriously destroyed due to flooding caused by over flow of the Uba River. Deforestation is another human cause of flooding because during deforestation, the river bank is cleared leading to leaving the land bare. The lands

are used to make rooms for settlement, roads and farmlands, where deforestation is carried out, the vegetation is cleared leading to flooding.

In early October of 2012, the River Benue, one of the two major rivers in Nigeria, which rises from North West Cameroun, was flooded due to excess rainfall which prompted the release more water from their dam. The result was increased unprecedented river overflow which flooded the whole country from Adamawa, through Benue, to Cross River, Akwa Ibom, Rivers, Edo, Anambra, Imo, and all the western states in the country. More than 700 persons lost their lives in the process. More than 2 Million homes were destroyed including farms, businesses and other sources of livelihoods (NEMA, 2012).

Ujah (2013) in his study found that the flooding which occurred between 2012-2014 affected more than 25 states in Nigeria, with a far reaching hardship imposed on the people of the affected states. These effects cut across social, economic, infrastructure, human lives and properties and many more facets of human endeavors. Ujah, (2013) further posited that the economic cost of that flood stood at about #2.29 Trillion Naira, about 1.4 percent of Nigeria's 2012 gross domestic product (GDP). Three hundred and sixty-three (363) persons' loss their lives, five thousand, eight hundred and fifty-one (5851) persons were badly injured, three million, eight hundred and ninety-one thousand, three hundred and ninety-four (3,891,394) affected and another three million, eight hundred and seventy-one thousand, five hundred and thirty (3,871, 530) were displaced due to the result of the flooding. These flood contaminated unprotected water sources, exposing people to the risk of water-borne diseases, severely damaged crops and disrupted the planting season (which certainly affected the 2012 and 2013 harvest).

Some areas of the country were cut off, preventing more than a million children from attending school and hindering access to health and other social services. Anibiah (2012) in Altaf, Meraj and Romshoo, (2014) posited that flood is usually associated with heavy loss of lives, properties, famines and diseases resulting to misery and hardship to the people. Etuonovbe, (2011) found that flooding of Ogunpa stream in Ibadan killed several people and completely grounded socio-economic activities. It also submerged 500 houses in different parts of the city. The flood

occurred as a result of heavy rainfall and about 32 people died and 1000 injured from the incident. Flooding also occurred in Illorin, in Kwara state, from 1976 through 1979, 2006-2009 and very recently in 2011-2014. In Makurdi, in 2008-2014, there has been recurring flood activities where millions of houses and residential buildings were submerged and destroyed, millions loss their homes and sources of livelihoods including death. Farmlands were lost, businesses collapsed leaving an impoverished society after two days of heavy down pour of rainfall which was described as disastrous (Mohammed et al., 2018; Kadam et al., 2019; Prabhakar et al., 2019).

Odjugo (2012) also reported the flooding situation in Lagos, where flood forced the residents of some Lagos communities to relocate as a result of heavy rainfall of 7th and 8th July 2011, not knowing that there was going to be a more devastating torrential rain that will result in more disastrous flood in Lagos metropolis in the following week. Flooding in Nigeria have at various time affected Nigeria cities, especially in the densely populated cities like Kano, Lagos, Port Harcourt, Aba, Ibadan, Calabar, Akwa Ibom etc, destroying lives and properties (NEST, 2011).

Causes of flooding

Oriole, (2008) found that flood is generally caused as a result of many conditions working in isolation or in group. Oriola, (2008) further observed that these conditions are either natural or anthropogenic in nature. Natural causes of flooding are enhanced mostly by nature of weather and landscape, while anthropogenic causes of flooding are enhanced by human activities. However, Hoyt, (2009) suggested that floods are natural phenomenon, without man's interference to its occurrence, but conceded that man does not create flood, but his actions and activities of deforestation and urbanization in flood prone areas can inform the condition for flooding to occur. Authors like Wright (2011); UNFCCC, (2008) and Etuonovbe (2011) found the causes of flood to include: heavy rainfall, nature of soil, deforestation, urbanization and infrastructural development, climate change and poor waste disposal among others. Other authors included faulty agricultural practices, melting of ice and glaciers among others. While these have been identified as the causes of flood globally, in Nigeria, the causes and effects of flood are mainly due to excess rainfall,

faulty agricultural practices, urbanization and poor waste disposal. Flooding in Nigeria occurs in three main forms; River flooding, Urban flooding and Coastal flooding (Etuonovbe, 2011).

As noted by Eychancer, (2015) cited on Patel, (2016) the major cause of rain production is moisture moving along three dimensional zones of temperature and moisture contrast known as weather fronts. Patel, (2016) equally added that, if enough moisture and upward motion is present, precipitation fall from convective clouds (those with strong upward vertical motion) such as cumulonimbus (thunder clouds) which can organize into narrow rain bounds. In mountainous areas, heavy precipitation is possible where up lops flow is maximized within windward side of the terrain at elevation which forces moist air to condense and fall out as rainfall along the sides of mountains. Patel, (2016) further observed that on the Leeward side of mountains, a desert climate can exist due to the dry air causing down slope flows which causes heating and drying of the air mass. The movements of the monsoon through an intertropical convergence zone bring rainy seasons to savannah climates.

Dyhouse (2003) cited in Hendrick, (2007) posited that the urban heat island effect leads to increased rainfall, both in amount and intensity, downwind of cities and this increase leads to flooding in most areas. This assertion was further confirmed by Burrus, (2010) who strongly held that rain fall intensity is classified according to the rate of precipitation. This classification can either be light rain, moderate rain, heavy rain and violent rain (Powell, 2009). This classification rate is as follows:

Light rain: When the precipitation rate is less than 2.5mm/0.098 inch per hour (that is, rainfall is less than 2.5 millimeter or 0.0985 inch).

Moderate rain: When the precipitation rate is between 2.5mm (0.098 inch) – 7.6mm (0.30in) or 10mm (0.39in) per hour.

Heavy rain: When the precipitation rate is greater than 7.6mm (0.30 in) per hour or between 10mm (0.39in) and 50mm (2.0 in) per hour.

Violent rain: When the precipitation rate is greater than 50mm (2.00 inch) per hour.

Most times flooding occurs between or during the heavy rain and violent rain due to their aggressive nature (Burrus, 2010).

River overflow: River can overflow their banks to cause flooding. This happen when there is more water upstream to the adjacent low-lying areas (also called a flood plain) there is a burst and water gets into the land (Burrus, 2010).

Strong wind in coastal area: Sea water can be carried by massive winds and hurricanes on to dry coastal lands and cause flooding. Sometimes this is made worse if the winds carry themselves. Sometimes water from the sea resulting from Tsunami can flow inland to cause damage. According to Diakakis, (2011) widespread inundation of coastal areas can occur when strong and persistent winds blows from the sea toward the land, pushing ocean water toward the shoreline. This becomes apparent as an abnormally high tide, called a storm surge or strong wind, which can extend for a considerable distance inland (O'Brien, 2011).

Large waves accompanying the high water can also produce significant beach erosion, allowing water to encroach even further in land.

This effect, combined with the driving forces of the winds, can result in massive sea water flooding along coastal areas, destroying communities and livelihood.

Dam breaking (rapture dam or levee): (Embankments, known as levees), are built along the side of a river and are used to prevent high water from flooding bordering land. Dams are man-made, blocks mounted to hold water flowing down from a high land (Burby, 2006). The force produced by the water is used to turn propellers to generate electricity. Sometimes, too much water held up in the dam can cause it to break and overflow the area. Excess water can also be intentionally released from the dam to prevent it from breaking and that can also cause floods (Javed, Khanday & Rais, 2011).

For example, it was reported on Vanguard Newspapers (2012) that water from Lagdo Dam in Cameroon displaced more than 12,000 people in Cross River, Adamawa, Taraba, Benue Kogi and Akwa Ibom States. According to the Vanguard Newspapers (2012), the rivers are charged, farms destroyed, properties worth billions of Naira destroyed and huge number of loss of lives

were recorded. In addition, there was invasion of reptiles, including crocodiles and snakes in many communities and it equally affected a large section of agricultural communities and expressed fear that there might be a poor harvest in the 2012/2013 farming season (Johnston, Needham & Tovey, 2011).

This is exactly what happened in Mbo LGA. There is perennial flooding occurrence in Mbo as a result of heavy rainfall, deforestation, poor drainage as well as urbanization. Heavy rainfall leads to tremendous damage of settlements and properties as witnessed in most communities in Mbo in October 2012 and 2013, 2014-2019. The ability of plant roots to tolerate long period of being submerged in flood water, depends on the period of occurrence, duration of the flood event, as well as the soil and species sensitivity to flooding. It is also observed that during flooding, the top soils are removed, the removal of the top soil is always a loss to agricultural productivity. As the soil is the part of the earth horizon containing higher level of organic matter, nutrient and better structure supporting agriculture are usually destroyed or washed away, (Wright, 2011; Allaire, 2018). Excessive moisture in the soil causes decrease in oxygen level in the soil, these impedes and inhibit proper root and plant growth.

Ice and snow-melt: In many cold regions, heavy snow over the winter usually stays unmelt for sometimes. There are also mountains that have ice cap on top of them. Sometimes the ice suddenly melts when the temperature rises, resulting in massive movement of water into places that are usually dry. This is usually called a snow-melt flood (Roche, McAneney & van den Honert, 2010).

Characteristics of flood

Scholars like Akin (2009) and Gabler, (2010) found that a lot of factors are used to describe the extent to which flooding can be identified or characterized. Some of these factors include the duration of rainfall, rainfall direction, coverage, flow speed, geomorphology of the land and drainage pattern, nature of soils, slope style and type, flood discharge volume and quantity, etc. However, Akin (2009) posited that flood duration, flood frequency, flood seasonality and flood velocity were the basic characteristics of flood. The author further defined these characteristics thus

The duration of flood is the length of time an area is under the highest inundation by water discharge or runoff. Most flood are known for rising and receding within a short time, say an hour. While other flood areas remain at thigh stage for several days, especially in the rainy season at the coastal areas. A flood hydrograph shows the continuous trace of discharge against time during a flood event. The frequency of flood is a statistical measure of the probable occurrence of flood of a given magnitude. Magnitude of every flood is defined by its frequency. Large flood occurrences are relatively infrequent and they have long reoccurrence intervals of perhaps about ten years. On the other hand, small floods occur more frequently at least about four times yearly having a small return period or reoccurrence period (Akin, 2009).

Seasonality of flooding is the measure of the seasonal nature of flood of any magnitude. Floods are most common in rainy or wet seasons especially in the tropical regions of the world. This is so because large rivers are known to attain their peak flow during the rainy season, while conventional rainfalls can also cause streams to flood.

The velocity of flood is the speed with which the flood occurs or moves with the runoffs. It is usually ascertained by measuring the distance of the flood water flow compared to the time duration of flow. Flood velocity is usually determined by the nature of the area.

Studies have shown that the economic and environmental costs of extreme flooding events continue to rise dramatically around the world (Ford, 2010; Patel, 2016; Allaire, 2018). It is observed that effective mitigation of flood risks requires a comprehensive understanding of the disaster impacts on society. Serious studies are required to ascertain the social and economic cost of the impacts of flooding on the lives of the people. Frequently, the evaluation of flood impacts is limited to property and infrastructure damage. What is lost in these analyses is the wide variety of social and business impacts also borne by communities. Full impacts of floods and related disasters also include health, interruption of public services, and foregone production. Flood cost had always been neglected in most of the studies so far carried out on these endemic ecological problem. This wide spread negligence of the social and economic cost of flooding has always

affected proper decision making and policy formulation (Yonnana, Dzarma, Nakama, Soyi & Ja'afaru, 2020).

Coates, Haynes, Gissing, Radford, (2011) however found that flooding has some devastating effects on the socioeconomic activities of the people where flooding occurs. Coates, et al. (2011) therefore opined that some of the effects of flooding include the following:

Economy: During floods (especially flash floods) roads, bridges, farms houses and automobiles are destroyed, people become homeless (Mishra, Dubey and Tiwari,2011). Additionally, the government deploys firm, Police and other emergence management agencies to help the affected communities. All these come at a heavy cost to people and government. It usually takes years for affected communities to be rebuilt and business to come back to normalcy (Johnston, Needham, Tovey, 2011; Mishra, et al., 2011).

Environment: Johnston, Needham & Tovey, (2011) opined that the environment also suffers when floods happens. Chemicals and other hazardous substance end up in the water and eventually contaminate the water bodies, in situations like this, flood end up destroying all valuable resources in the affected area. Flood also caused massive leakage in nuclear plants and has since caused high radiation in that area. Additionally, flooding causes the killings of animals and other aquatic lives, other insects are introduced into affected areas, destroying the natural balance of the ecosystem. During this process, exotic species are introduced into new ecosystems thereby competing with endemic species, in most cases; the endemic species undergo genetic erosion and are overtaken by invasive species which are alien to the new environment (Crompton & McAneney, 2008)

People and animals: Many people and animals have died in flash floods, many more are injured and others made homeless (Jasmin & Mallikarjuna, 2013). Water supply and electricity are disrupted and people struggle and suffer as a result. In addition to this, flooding brings a lot of disease and affliction including Malaria, fever, pneumonic plague, typhoid, dermatopathia and dyentry. Sometimes insects and snake make their ways to the area and cause a lot of havoc (Crompton & McAneney, 2008).

Agriculture: Predominantly most Mbo citizens are farmers, fishermen or petty businessmen.

During flood, the subsistent farms they cultivate to earn a living are swept away to the rivers, river overflow so much so that the fishermen cannot fish again, in addition to releasing of chemical substance that kill the fishes and other valuable aquatic animals, the small business engaged by the people to sustain their living are damaged in one way or another by the floods. Farms are washed away and crops are destroyed even before there are ready for harvest. In most cases, famine sets in and the people are exposed to untold hardship and horrors (Roche, McAneney &van den Honert, 2010).

Live and property: Lives and properties are other effects from flooding. During flood, people, mostly children are drowned and die, homes, buildings, schools, market structures are all destroyed, compounding the hopelessness of the people. But, there is also something good about floods, especially those that occur in flood plains and farm fields. During flooding, flood water carries lots of alluvial deposits, which are very rich in plant nutrient that are deposited in the plains. Farmers love such soils, as they are perfect for cultivating some kinds of crops (O'Brien, 2011).

So during and after flooding, how does the impacts affect people' socioeconomic activities and benefits? Socioeconomic activities or lives here describe the sources of livelihoods and what people do to earn a decent living within the ambit of law in any given society. It involves their culture, their economic activities, their business ventures, their trade and the wares with which they trade, the market and the people involved. Socio-economic lives describe the aspect of the social, economic and infrastructural position of people in any given country or nation within a given period of time. It is a culturally specific and dynamic constructs (Das, 2014). Societies vary considerable in the extent of inequality associated with social and economic values, the nature and operation of institutions and cultural practices that maintain social stability and the potential for upward and downward mobility in nature. When flood occurs, the people are affected by the effects like drowning or washing away of farms and farm produce, disruption of economic activities and destruction of infrastructures and other properties and above all the loss of lives, (Das, 2014).

Mbo communities' socio-economic live is strongly tied to it culture, norms and values, infrastructural construction competing with urbanization, marketing of their raw/petty product such as fish, timber, cocoa, palm oil etc. As a consequence, flooding has shaped and re-shaped in totality their economic values and part of their social norms, this is done in areas that markets and other sale joint has to be re-located to a safer place for fear of flood destroying the former market places and sale joints. Moreso, schools and other development institution has been evacuated due to flood occurring consistently in such areas, in some cases; farmers have to move their farms to more secure places. Most often, there's the struggle for productive lands among farmers where most farmers find themselves in perpetual conflict with one another over scarce agricultural lands leading to community conflict in struggling for farmland and settlement space, (Bellamy, 2007; Avinash, Jayappa & Deepika, 2011; Williams, 2011).

Arising from the afore mention causes and effects of flooding in some communities, this research wants to investigate how flood affect the socioeconomic lives of the people of Mbo LGA of Akwa Ibom Sate, Nigeria?

To guide the study, the researchers asked this research question thus: How does flooding influence the socioeconomic activities and lives of the people of Mbo LGA of Akwa Ibom state, Nigeria?

A commensurate null hypothesis was also designed to guide the study thus: Flooding does not significantly influence the socioeconomic activities /lives of the people of Mbo Local Government Area of Akwa Ibom State, Nigeria.

Research design

This research adopted the survey inferential design. The study area is Mbo Local Government Area of Akwa Ibom state. Mbo local government area is one of the 31 local government areas that makes up Akwa Ibom state, the area is a coastal community extending from Latitudes 4^0 $39^{''}$ and $4^0 45^{''}$ North of the equator and Longitudes 8^0 $12^{''}$ and 8^0 $20^{''}$ East of the Greenwich Meridian, with a land mass of about 372.13Km^2. Mbo Local Government Area is located along the coastal shorelines, which is covered by beaches, ridge, sand, mangrove swamp and flood plains with recent alluvial accumulation deposit. The geomorphic classification of Mbo is made of

sedimentary rock formation. Mbo local government area experiences two distinct rainfall pattern of double maxima rainfall, with the heaviest peaks in May-June and July, and driest peaks between November and February. The local government area experiences an annual rainfall of about 2500mm^3-3500mm^3, fresh water and salt water vegetation is the most dominant vegetation type. The area is richly blessed with marshy mangrove forest covered mostly by Nippa palms, raffia palms and oil palms. Because of the geographic location of the local government area, fishes abound in different species. The major socioeconomic activities of the people of Mbo Local Government Area is predominantly farming, fishing, hunting, timber, palm wine tapping, trading, artisan and other occupations. The local government area is economically viable and business thrives very well here.

The multi-stage random sampling technique was used for sample selection, a sample of 400 respondents was drawn from the total population of eight thousand and two (8002) persons from ten (10) communities, where 5% of the community members were drawn for the study.

The instrument for data collection is a structured questionnaire, made up of two sections; Section A elicits information based on respondent's socio-demographic characteristics, while Section B elicits information based on the variables under study. The instrument (questionnaire) was personally administered by the researchers with the assistance of community secretaries. A total of four Hundred (400) questionnaires were administered and same were retrieved by the researchers through the village secretaries. Pearson Product Moment Correlation was therefore used for data analysis.

Results and discussion

The result on Table 1 shows that the calculated r value of 0.87 is higher than the critical r-value of 0.178 at 0.5 level of significant with 398 degree of freedom, the result is therefore significant implying that flooding incidence does significantly influence the socioeconomic activities/lives of the people of Mbo local government area of Akwa Ibom state, Nigeria.

Table 1: Pearson Product Moment Correlation Analysis of influence of flooding on the socioeconomic activities of the people of Mbo local government area, N=400

Variables	∑X	∑X² ∑Y²	∑XY	r-val
Flooding incidence	2121	4287	5975	0.87
Socioeconomic activities of the people of Mbo Local Government Area	1894	2585		

Significant 0.05 level, critical r=.178, df =398.

Discussion of findings

The result on Table 1 shows that the calculated r value of 0.87 is higher than the critical r-value of 0.178 at 0.5 level of significant with 398 degree of freedom, this implies that flooding incidence significantly influence the socioeconomic activities of the people of Mbo local government area of Akwa Ibom state, Nigeria. This finding is in line with the earlier findings of Burby, (2006) who found that in flood prone areas and in areas where flooding occurs, there is the disruption of socioeconomic activities and destruction of lives. This study has further confirmed the findings of Roche, McAneney and van den Honert, (2010) who in their study found out that floodwater can seriously disrupt public and personal transport by cutting off roads and railway lines, as well as communication links when telephone lines are damaged.

Floods disrupt normal drainage systems in cities, and sewage spills are common, which represents a serious health hazard, along with standing water and wet materials in the home. Bacteria mold and viruses, cause disease, trigger allergic reactions, and continue to damage materials long after a flood. This result is also similar to the finding on the effects of flooding on the socioeconomic lives of the people, Johnston, Needham & Tovey (2011) observed that floods can distribute large amounts of water and suspended sediment over vast areas, restocking valuable soil nutrients to agricultural lands. In contrast, soil can be eroded by large amounts of fast flowing water, ruining crops, destroying agricultural land / buildings and drowning farm animals. Severe floods not only ruin homes / businesses and destroy personal property, but the water left behind cause's further damage to property and contents. The environment and wildlife is also at risk when damage to businesses causes the accidental release of toxic materials like paints, pesticides,

gasoline etc. Unfortunately, flooding may not only disrupt many people's lives each year, but it frequently creates personal tragedies when people are swept away and drowned.

The issue of flooding disrupting socioeconomic activities in most rural communities has been documented by many researchers, Burby, (2006) in his view said flood incidence leads to loss of lives and properties, Box, Thomalla, van den Honert and McAneney, (2012) posited that annually, the cost of properties lost stands at about $1B, and more than two hundred (200) lives are lost. The amount and quantity of animal's lives, crops and the rest are hardly captured in this regards. Besides the normal effects of flooding like loss of lives and properties, there are some other forms of lost like the loss of arable crop land, crop failure, submergence of agricultural land leading to the death of crops and other plants and animals. There is also the submergence of market or business shops like those that occurred in Lagos, Yola town, Makurdi, etc, here business activities were truncated for weeks, with businessmen and their families starving for food and cash to acquire them or meet their medical obligations.

Other effects which has been brought about by flooding include the covering of farm lands and crops grown there by flood water, here crops can no longer grow especially crops that do not like water like groundnut, potatoe, cassava, yams, vegetable farms among others, here these farmers are unnecessarily exposed to hard times due to their inability to meet their dietary needs and lack of resources to buy some items for their family needs. Others include the spread and transfer of diseases both communicable and non-communicable diseases. The most worrisome of such effects of flood include the impoverishment of people who were ordinarily not poor as a result of the flood disaster. Many households became poor since their means of livelihood has been destroyed by flood. The case is even worst when the volume of water becomes too large for the fishing communities that they hardly go into the deep sea, talk less of getting any fish to harvest for their family use and for sales in the local market. Since most persons are traders and most of their market commodities are bought from the local markets and taken to markets in other cities or towns, the spiral effect is both local and viral too.

The last flood incidence that occurred in Mbo left hundreds of households and communities

homeless, farmless and their socioeconomic activities were truncated for months, most families were relocated and they lost so much within this short timeframe. Farm lands and crops were submerged and this led to shortage of food supply and most crops were planted late due to the delay in the flood to dry up. Most farmers became fishermen just to survive the period. This had a considerable impact on the entire Mbo local government area for a reasonable time. Solid wastes, when improperly disposed off into running water or gutters can be an environmental hazard in that the surrounding environments as well as the fishes and other aquatic lives are affected. This improper dumping can lead to death of fish as well as diseases to man e.g. diarrhea, typhoid, cholera, dysentery, malaria and so on. When residents put their trash bins on the kerb, the containers sometimes block storm drains, leaving water to form puddles in low-lying areas or flow down the street. A relatively small amount of fast-moving water can also knock a trash bin over and carry the bin or its contents to another location, where it can clog the system and hasten flooding.

Conclusion

This research therefore found that human activities like faulty agricultural practices, deforestation, bush burning, over grazing, unsustainable and poorly planned infrastructural development amongst others have impacted negatively on the environment and its ecosystem, hence leading to flooding in Mbo. The study further found that dumping of waste especially in narrow gutters and water ways block such drainages leading to water overflowing it banks and subsequent submergence of low lying lands leading to flooding. This study therefore concluded that when situations like this happens, socioeconomic activities are impeded and agricultural activities, crops and animals are either submerged and are choked for lack of oxygen leading to their death, hence hunger or famine sets in leading to poverty. In some cases, people are infected by diseases, while in some cases, loss of properties and lives. External costs are borne by the people from paying their hospital bills to starvation among others. On this note, human activities should be checked regularly including infrastructural development and dumping of waste into drainages in order to reduce the incidence of flooding and other environmental hazards in Mbo LGA.

Recommendations for policy directions

1. There should be awareness campaigns carried out by the Environmental Health and Sanitation Department of the Local Government Area on the causes and dangers of flood to human lives and properties. Public education initiatives would increase the population's awareness of the hazard and what they can do to mitigate against it. Such initiatives would make people better aware of the risks that they face, especially those living in high risk or flood prone areas.
2. Build proper drainage systems to ensure that there is proper drainage or expand on existing drainage systems whenever there are new settlements or structures being constructed. Town Planning Unit should be consulted when infrastructural development projects are to be carried out, so that they can be guided properly on the choice of location to be made.
3. Youth organizations should be proactive by carrying out sanitation and clearing drainages and gutters and also making drainages to channel water out of the communities into the rivers to avoid overflow of water in compounds.
4. Fines should be instituted for anybody caught dumping waste into gutters and drainages
5. Tree planting campaigns should be carried out with fast growing saplings procured by government to these communities to plant.
6. Alternative sources of energy should also be provided to reduce pressure put on forest wood for fuel wood.
7. Surroundings should always be kept neat and clean to avoid blockage of drains.
8. Farmers should be taught to cultivate across slopes in sloppy areas but avoid cultivation across water channels.
9. Alternative sources of livelihoods should also be explored to diversify their sources of income and business venture. This will reduce the economic pressure caused during hard times by flooding.

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