

# Impact of Urban Housing Flood in Ondo, Nigeria

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## Abstract

Urbanization is the awkward growth of the urban population caused by lack of provision of infrastructural facilities and poor economic statuses in the rural areas. The urge for better standard of living push people to urban centers from the said rural but the level of penury and economics status to meet basic end means of shelter, food and clothing in the order of priority denied the migrants accessibility to buildable land thus, overcrowding the existing housing stock, frustration from high cost of housing and rents among others tended the vulnerable to move and relocate to available marginal and flooding prone milieu with an unplanned urban built. The foremost factors of urban housing flood are caused by anthropogenic in nature while others are relevant to meteorological, climatological, and geomorphological tectonics. Flooding is a situation that results when land that is usually dry is covered with water of river overflowing or heavy rain. Flooding occurs naturally on the flood plains which are prone to disaster. It occurs when water in the river overflows its banks. It has not only left several people homeless but also has destroyed properties, disrupted business activities, expose residents to an impending cholera, diarrhea, malaria, skin infections and other water-borne diseases epidemic. The aim is to examine urban housing vulnerability to flood in Ondo, Nigeria through the relationship which exists between poor housing quality implications and flooding. Data were collected by direct observation, questionnaires and personal interviews from a sample population of 126 houses in the flooded prone area. This paper intends to look at the causes, impact of urban housing flood and suggest ways to prevent flood disaster in a sustainable way. This paper recommends: an awareness and re-orientation program for residents of flood prone area, plains and other related marginal lands in Ondo; a total clearance of all the encroaching buildings in the corridor and resettlement of all affected households is canvassed for sustainable urban development. The town planning authority should enforce restrictions of buildings on floodplains of the river because of their vulnerability to flood catastrophe. Given the increasing intensity of flooded plains, this study recommends the need for further study on the impact of other urban furniture flood in the urban center.

**Keywords:** Flood, Housing, Urbanization, Ondo, Nigeria.

## 1.0 Introduction

Urbanization is the awkward and uncontrolled growth of the urban population caused by poor economic statuses and lack of provision of infrastructural amenities in the rural areas (Fadaïro, 2013; Basorun and Fadaïro, 2012). This tends to urge people to move to urban centers from the said rural to search for better standard of living (Amao, F. L., 2012; Isma'il, M. et al; Onibokun, 1972) though the level of penury and economics status to meet basic end means of shelter, food and clothing in the order of priority disavowed the migrants accessibility to buildable land to the extent of overcrowding the existing housing stock, high cost of housing and rents among others tended the vulnerable to locate available marginal and flooding prone milieu for a settlement (Olotuah, 2005; Aribigbola, 2001; Amao, 2012; Basorun, Nubi, 2008 and Fadaïro, 2012). Hence, exert unplanned behavior to the built environment. This human interactions and influence on the built-form that causes urban housing flood is termed anthropogenic (buildings, bridges, dams, concrete pavements, roofing among others that deterred percolation of surface water into natural ground level) in nature while other factors are related to meteorological, climatological, and geomorphological tectonics. Whereas flooding itself is a situation that results when land that is usually dry is covered with water of a river overflowing or heavy rain, flooding occurs naturally on the flood plains which are prone to disaster. It occurs when water in the river overflows its banks, or sometimes results from a burst dam. It has not only left several people homeless but also has destroyed properties, disrupted business activities, expose residents to an impending cholera, diarrhea, malaria, skin infections and other water-borne diseases epidemic (Etuonovbe; Olajuyigbe et. al., 2012; Offiong and Eni, 2007; Ayodele, 2006; Arthur, 1991; Oriola, 1994).

Ondo town has developed in term of population over the years; the rapid growth of the town has necessitated the expansion of settlement and infrastructures to accommodate relative increases in population (Onibokun, 1972). Increase in surface runoff, building on flood plains, blocking of drainage, construction of new roads and bridges and other impervious structures along rivers setback and plains has in recent times opened up large areas for the construction of residential houses. Bakare and Adewolu (2014) explored that human increasingly interference with nature and changes in land uses along the floodplain, river setback, flood prone area have resulted in large scale transformation of the landscape with devastating effects which in many cases aids the flood disasters. Floods occur in Nigeria in three main forms: coastal flooding, river flooding and urban flooding (Folorunsho and Awosika 2001).

Floods have increasingly become an environmental and housing problem, it has resulted in the destruction of bridges, roads, houses, infrastructures and farmlands, floods are among the most devastating natural disasters in the world, claiming more lives and causing more property damage than any other natural phenomena (Fadairo & Ganiyu 2012; Bakare, 2014; Etuonovbe, 2011; Adedeji et. al., 2012; Olajuyigbe et. al., 2012; Offiong, 2007). Observations noted on field are cracked walls, scaling on walls, collapsed walls, rising damp, molded walls and swampy environment. The foul, air quality, a stagnant pool, the sordid sight, squalid it presents, the extra cost of cleaning and maintenance are some of the negative effects of flood on housing utility. Thus, the risk of sudden losses of properties, lives, disruption of business activities and its social-economic impact need urgent attention among the researchers and its implementation of recommendations by the concerns.

### **1.1 Statement of Problem**

Overtime, it was recorded that the increase in population, increase in number of buildings, encroachment on flood plains, poor refuse disposal and increase in impervious surfaces of the urban landscape has put more urban housing dwellers at risk against extreme weather like non-stop or heavy rainfall that causes flooding. Also, topography, rainfall characteristics (including other element of weather), and land use have been proved by Akintola (1978; 1982), Enendu (1981), Olaniran (1983) and Oriola (1994) for causing floods in Nigerian towns and cities and published works on flooding in Ondo town has mainly been on the causes, effects, frequency, magnitude, and resultant havoc (Oriola, 1994; Babatolu, 1997; Okoko, 2008 and Bakare and Adewole 2014) in the past few years with little emphasis on urban housing quality and its vulnerability to flood in Ondo town.

This paper examines the events of flood in Ondo town, impact of housing quality as results from economics status and level of household income in the urban center of Ondo.

### **1.2 Aim**

The aim of this paper is to study the occurrence, the impacts, the corrective measures for the purpose of sustainable urban housing stocks in the areas identified to be prone to flood in Ondo town, Ondo state.

The objectives of the study are to:

- i. Identify the area prone to flooding in Ondo town
- ii. Evaluate the housing qualities, effect from flood and
- iii. Advance poverty eradication of the urban vulnerable and less privilege

### **2.0 Literature Review**

Urbanization level in developing world indicates that more people live in urban area than in rural areas (Fadairo, 2013). Nigerian cities experience rapid population growth and urban explosion which translate into high pressures on available lands such as plains, flood prone and disaster tendency or marginal land. Basorun and Fadairo (2012) observed that housing problems in many Sub-Saharan African countries arise mainly from urban growth without economic growth. Rural economy is principally agrarian. Rural population migrates to urban areas for job security, higher education, higher income, better health and longer life.

This movement induces pressure on the old settlements accompany with congestion and crowding, new formations emerge without preliminary design and planning, and without infrastructure with rapid deteriorating environment. These have created not only demand on housing stocks leading to high rents, overcrowding and development of slums settlements (Onibokun, 1972; Olotuah, 2005; Nubi, 2008) but also economic downturn, decay of urban infrastructure and poor housing quality (World Bank, 2005). Ononugbo et. al. (2010) observed that in most of the third world countries like Nigeria, urban populations have expanded without any commensurate expansion in the basic amenities for adequate healthy urban environment. Moreover, rapid urbanization has resulted into housing related problems such as rising cost of affordable housing, environmental pollution, and inadequate basic amenities. Isma'il et. al. and Nubi (2008) confirmed that the increasing cost of affordable housing has made it gradually more difficult for low-income households to live in decent accommodation, thereby pushing them to live in slums usually prone to disaster such as low land, flooded area, and coastal region.

### **2.1 Reviews on Housing Quality in Nigeria and Indication for Evaluation**

Housing qualities include the physical condition of the building and other facilities and services that make living in a particular area conducive. The quality of housing within any neighborhood should be such that satisfies minimum health standards and comfort standard, but should also be affordable to all categories of households (Okewole and Aribigbola, 2006). Amao (2012) concluded that housing is a multidimensional package of goods and services extending beyond shelter itself. An indicator for evaluating housing quality depends not only on the user and his or her desires, but also the overall perception which the individual holds towards what is seen as the significant elements at a particular point in time (Anantharajan, 1983; Olayiwola et al., 2006). Ebong (1983) certified aesthetics, ornamentation, sanitation, drainage, age of building, access to basic housing as relevant

indicators for qualitative evaluation in residential development

However, the low income earners of the urban center are push to relocate to vulnerable land occasionally marginal land that are expose to danger and disaster such as building under power line, river bank and its set back, coastal region, stagnant water bodies with poor drainage, low land that are avoidable due to it potential nature to be easily washed away, they require additional cost for build-up (i.e. not economical for buildup), most are recognized as setback, buffer zone or free trade zone by the Development Control and are occupied knowingly or unknowingly to the treat. The review, generation and impact of flood is hereby discussed has one and major natural and man-made disaster.

## 2.2 Generation of Flood and its Impact in Ondo Town

Floods are natural phenomena, but their magnitude and impacts can be intensified by human activities, The Encarta Dictionary (2006) defined Flood as an overflow of water that submerges land which is normally dry. Floods are natural events caused by either anthropogenic (the man's interaction and influence to the environment), climatology (imposition and element of weather: temperature, rainfall, snow, humidity and climate condition), geomorphological tectonics (landforms pertaining to the shape or structure of the surface of the earth) and meteorology (atmospherically conditions and its phenomenon especially the weather, heavy rainfall, sea swells, hurricanes). Also, geological (bursting of levee, dam and tsunamis)

Amongst all, it is the activities of man that can be control and it is the most causes of flooding in the city of Ondo. Bakare and Adeolu (2014) earlier research on Ondo opined that the result of man's activity in the establishment and expansion of a city, urban areas experience more frequent and larger floods as the natural surfaces are replaced by buildings, less water infiltrates through soils and into the drainage basin as a result of more impervious surfaces (pavement, concrete and building roofs do not allow for infiltration) which do not allow other substances, water for instance to pass through thereby leading to more surface runoff, which in turn increases floods in watershed. The structures built by man on the floodplain are subjected to damage and loss when inundated by flood water. There are many building on so many floodplains in Ondo hence, vulnerable to flooding whose magnitudes and impacts are intensified by human activities.

The flooding in urban housing area is also greatly intensified by other human activities such as waste disposal. Wastes disposed into river channels leads to blockage of the river channel and as well obstructing runoff and flow on the various parts of the landscape. This causes a reduction in the river's capacity to transport volume of flood down the stream hence cursing overflowing from it course and bank with flash flood, it leads to catastrophe and damage potential upstream, (Ayodele, 2006)

## 2.3 Study Area

The most populated city in Ondo state after Akure is Ondo Town with 113,900 during the 1991 population census located on latitude 06°30'N and longitude 04°45'E. The town is bounded on the north by Ile-Oluji/Okeigbo local government area and on the east by Idanre local government area why on the south-west is Odigbo local government area. Ondo falls within the 'tropical wet and dry climate which range between March and October and dry season comes between November and February respectively with mean annual rainfall of about 1615mm. The annual mean temperature is 27°C, with a maximum of 30°C. The town has no major river; rather several streams with fairly wide flood plains generate from the bottom and valley of hills, also runoff from the peak of granite outcrop of igneous and metamorphic rocks landscape with their summits ranging between 250 and 500 meters above sea level (Akintola, 1982). Bisola Oyewole, a local petty trader, lamented over the perennial rainfall, adding that those badly affected by the disaster are those whose means of livelihood are hanging in the balance. The respondent mentioned areas affected by the incessant flood in Ondo town include Holy Trinity Junction, New Town, Ore and Ife Interchange among other popular area. The study concentrate on selected flood-prone parts of Ondo town which suffer incessantly from unmitigated flooding, often resulted to disruption of transportation, communication, structural damage to buildings and loss of lives and properties. Most popular streams that cause catastrophe are Oke-Odunwo, Lipakala, Odojomu, Lisaluwa, Yaba, Oduduwa, Gani Fawehinmi, Mode, Luwa, Adeyemi College and Itanla

Plate 1, showing the over flow of rainwater over the Ibadan –Ife garage road in Ondo, the river flows into the compound of adjoining buildings and pull down the wall fenced of the Esport Hotel built along and within the river set-back. It is noted that catastrophe can only be averted by strict adherence to stipulated building set-back by the developer to prevent future occurrence.



Plate 1. Flooding impact at Esport Hotel, along Ife Motor Park, Ondo Town  
Source, Author's archive



Plate 2, The washing away effect of Flooding at Lipakala, Ondo Town.  
Source, Author's archive

Also, Plate 2 shows the displacement and washing away of properties such as car, kiosk, house furniture among others at Lipakala junction, along Ore to Ife road.

The avoidable developmental area by the less privilege but with low terrain topography demerit is showing in Plate 3 with poor drainage facilities as water flooded the only accessible road at New Town, Ondo hence, denied community dwellers access to their homes.



Plate 3, New Town accessing road Flooded with stagnant surface water  
Source, Author's archive

Impact of incessant flooding has depreciated the value and lifespan of houses at New Town and other prone area of the town as shown in Plate 4. The houses are immersed and have high tendency to collapse soonest.



Plate 4, Flood at New Town devaluing Housing quality, Ondo Town  
Source, Author's archive

### 3.0 Research Method

The survey was carried out on selected flood-prone area of Ondo town with distribution of structured questionnaire for basic statistical analysis to obtain information and perception of flood hazard by the inhabitants. The part of the town that was devastated during 2003 flood incident was used as point of study which includes Oke-Isegun/Temidayo, Oke-Odunwo/Odojomu/Oka, Lipakala/Laje, Lisaluwa/Adeyemi College and Yaba

The levels of the degradation of the locations constitute the sampling areas for the research. 126 respondents were randomly selected from the study areas. A direct interview was conducted simultaneously with structured questionnaires to one adult respondent per household in the study area to seek information on household size, socio-economic value, household vulnerability, housing quality, building setback from river, frequency of flood occurrence and its impact. The secondary data were derived from documented sources which include published works, unpublished, magazines and journals, internet searching, books, newspapers, films, television, art and transcript of conversations.

### 4.0 Discussions and Findings

#### 4.1 Socio-economic Characteristics of Respondents from Table 1

Female household heads (53.6%) are more than male household heads (43.7%) in the study area and agree to the facts that women are more than men in Nigeria (NPC, 2006). The preponderance of female over male inhabiting flood prone, plains and marginal land in Ondo is a reflection of female marginalization in access to buildable and legal land in the study area (Bako, 2012). UNCHS (1985) opined this experience as a violation of human right and contributes significantly to women's increasing poverty. Researcher noted that women including poor female household heads that are divorced, widowed, single working mothers and separated are vulnerable group particularly in the area of land and housing resources.

The average age stood at 37 as 60% of respondents are above 30 years of age. The implication is that a greater proportion of the active population who migrated to Ondo is not properly accommodated.

Furthermore, about 38.1% of respondents are single while majority of respondents are 61.9% married and active, the rate of procreation is likely to aggravate existing overpopulation, thus compounding the problem of housing and stressing the existing infrastructure that are not adequate (Olamiju, 2014).

Household size data shows that 12.7% of respondents have building occupant size of less than 3; 17.5% have 3-4, 46% have 5-6 and 23.8% have 7-8. The mean household size is 4.8 which imply that an average of 5 people makes up a household in the study area. Hence, this shows that about 630 people and properties were exposed to flood catastrophe.

Also, majority of respondents (55.6%) are non-indigenes while 44.4% are indigenes from Ondo confirm that occupants of flood prone, plains, river setbacks are immigrants from neighboring towns who drifted to Ondo for job opportunities at University of Medical Science (Unimed), Adeyemi College of Education (ACE), and Wesley University, General Hospital, Trauma Centre among other Institutions.

It can be concluded that the level of education of respondents is high as only 15.9% has no formal education which implying that they are not ignorant of the consequences of encroaching on flood prone housing area.

Data on respondents' occupation shows that 20.6% are traders; 43.1% are artisans; 19.8 are civil servants while 17.5% are unemployed which means less than 20% of respondents are gainfully employed which is a major causes of poverty influence on the respondents. Most traders and artisans are educated but forced to slum.

Most respondents (79.4%) acquired the prone or marginal area by purchase from individual/family land owners, guarantee them to build but ignore stipulated setback and those who acquired their land or building through rent (16.7%) may also be confident of their legal right to such land. Further observation reveals that

majority of buildings marked for demolition are later compromised by the Development Control Officials (DCOs) due to financial inducement by the illegal developers. Olamiju (2014) then opined that such trend deterred the Development Control Department (DCD) to effectively apply development control apparatus in the study area. The Land Use Act of 1978 which entrusted all land in the Governor of the state is not effective. Families and individuals still sell land without approval even after government have acquired such lands as government did not sell land to anyone from prone corridor.

#### 4.2 Buildings Characteristics of the Study Area from Table 2

Housing is one of the most important basic necessities of mankind tremendously known to affect human health and wellbeing (Coker et. al., 2007). The building characteristics in the study area were studied and the result shows 51.6% of respondents are tenants while 48.4% are landlords. Thus, researcher attests that the present occupants in the study area are not the original owners of the buildings as most of the land were acquired by purchase (79.4%) and the residents are mostly immigrants from other towns (52.5%). Hence, the buildings must have passed from generation to generation (dilapidating) with long period of encroachment. Since over 50% of residents are tenants who can decide to change accommodation while other tenants take over, many more people could become vulnerable overtime to flood disasters.

Table 1, Distribution of socio-economic characteristics in Ondo, Nigeria

Variable	Frequency	Percentage
<b>SEX</b>		
Male	55	43.7
Female	71	56.3
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>AGE</b>		
16-20	22	17.5
21-30	26	20.6
31-45	40	31.7
46-65	38	30.2
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Mean = 37.2</b>		
<b>Marital Status</b>		
Single	48	38.1
Married	78	61.9
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Nativity</b>		
Ondo (Study Area)	56	44.4
Other Towns	70	55.6
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Education</b>		
Non-formal	20	15.9
Primary	19	15.1
Secondary	47	37.3
Tertiary	40	31.7
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Occupation</b>		
Trading	26	20.6
Artisans	53	43.1
Civil Servants	25	19.8
Unemployed	22	17.5
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Household Size</b>		
1-2	16	12.7
3-4	22	17.5
5-6	58	46.0
7-8	30	23.8
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Mean = 5.11</b>		
<b>Health center visit</b>		

Weekly	2	1.59
Monthly	18	14.29
Quarterly	23	18.30
Yearly	33	26.19
Never	50	39.68
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Household Income</b>		
0-40,000	74	58.7
40,001-80,000	23	18.3
80,001-100,000	19	15.1
>100,000	10	7.9
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Housing problem</b>		
Over population	16	12.7
Poor ventilation	22	17.5
High cost of rent	58	46.0
Poor amenities	30	23.8
<b>Total</b>	<b>126</b>	<b>100.0</b>

Source: Authors' Fieldwork, 2018

It is noted that 71.4% of buildings in the study area are for residential while only 8.7% is for commercial, 2.4% industrial and 17.5% mixed use. Mathematically, buildings need for residential purpose justify individual's needs to meet housing problem shortage also for higher institution communities in Ondo.

Major building types in the study area are rooming (face-to-face), 58.7%; Flat System, 18.3%; story, 15.1%; and duplex 7.9%. A cumulative of 77.0% of rooming and flat system with no good toilets and kitchen which further compound the health condition of residents is for the low income earners also shows the level of poverty. Generally, people who build on marginal lands with no title document and infrastructure are considered poor (Nubi, 2008). It is therefore appropriate to state that occupants of flood prone area are the poor in the society.

Observation shows that 58 buildings (43.03%) are found within 30m setback of the river banks while 68 buildings (66.97%) are between the 30m buffer line and the statutory 60m setback. The mean building distance is 30.1; this value is half the statutory 60m setback to seasonal river.

Also, the mode of solid waste disposal shows 9.5% of respondents use dustbin, 19.9% use incinerator and open air burning, 23.8% dispose their wastes in drainage and river channels, while over 50% use refuse dumps. This trend mostly contributes blockage of water, flooding and environmental degradation with consequent health hazards in Ondo.

#### 4.3 Health Assessment of Respondents

The Health condition of respondents prior to flooding was analyzed. It is clear that the rate of respondents' visitation to health center in the study area is not frequent as 26% visit and complain about their health in a year and 40% never complain about their health. This study has been carried out at the appropriate time when vulnerable could be relocated with minimal damage to their health. The author concluded that there could be generally high increase in the number of cases of cholera, malarial, water-borne, measles among residents in the study area. From the on-going, it is clear that there is no correlation between the prevalent diseases in the study area and dwellers of water prone area.

The high frequency and severity of flood event is alarming and the condition of the urban dweller has made them adamant to relocated rather accept fate that regularly accompany flood. It is a clear statement that vulnerable and flooded prone milieu is mostly occupied by urban poor because of inability and avoidability to avoid good housing quality.

One of the victims in the town, Babalola Ayedotun, who became furious following the heavy downpour, said he lost his entire property to the disaster. "I am very sad. I lost my whole life to this flood. Look at my property being washed away into the erosion," the pensioner said.

Table 2, Characteristics of buildings in Ondo, Nigeria

Variable	Frequency	Percentage
<b>Ownership Status</b>		
Tenant	65	51.6
Landlord	61	48.4
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Building Use</b>		
Residential	90	71.4
Commercial	11	8.7
Industrial	3	2.4
Residential/Commercial	22	17.5
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Building Type</b>		
Rooming (face-to-face)	74	58.7
Flat System	23	18.3
Story Building	19	15.1
Duplex	10	7.9
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Bldg. Setback to river</b>		
0-10m	20	15.9
11-20m	26	20.6
21-30m	12	9.5
31-40m	31	24.6
41-50m	17	13.5
51-60m	20	15.9
<b>Mean = 30.1</b>		
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Solid Waste Disposal</b>		
Dustbin	12	9.5
Incinerator/burning	20	19.9
Drainage Channels	30	23.8
Refuse Dump	64	50.8
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Land Acquisition</b>		
Inherited	25	19.8
Individuals Purchase	23	18.3
Purchase from Family	57	45.2
Government Purchase	0	0.0
Rent	21	16.7
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Toilet facilities</b>		
Share	74	58.7
Exclusive	19	15.1
Bush / river	23	18.3
Water system	10	7.9
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Building location</b>		
Low land (dry)	74	58.7
Low land floodable	23	18.3
River valley	19	15.1
Upland area	4	3.2
Dam burst area	0	0
Pipe failure area	0	0
Drainage/overflow path	6	4.7
<b>Total</b>	<b>126</b>	<b>100.0</b>

Source: Authors' Fieldwork, 2018



Table 3, Characteristics and impact of flood hazard in Ondo, Nigeria

Variable	Frequency	Percentage
<b>Frequency of flood hazard</b>		
Rarely	23	18.2
Seldom	34	27.0
Quite often	45	35.7
Very often	24	19.1
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Severity of flood event</b>		
Extremely	24	19.1
severity	45	35.7
Fairly severe	34	27.0
Not severe	23	18.2
<b>Total</b>	<b>126</b>	<b>100.0</b>
<b>Impact</b>		
Damage to Roads	51	13.9
Movements Disruption	53	14.5
Environmental pollute	42	11.5
Community Inundation	40	10.9
Daily activity restrict	39	10.7
Loss farmland	48	13.1
Loss of properties	50	13.7
Loss of lives	43	11.7
<b>Total</b>	<b>366</b>	<b>100.0</b>
<b>Coping mechanisms</b>		
Govt. housing scheme	40	12.2
Relocation	13	3.9
DCD Monitoring	15	4.5
Urban amenities	20	6.1
Govt. acquiring land	35	10.7
Employment	57	17.4
Sensitization	23	7.5
Health accessibility	19	5.8
Incentives	59	18.1
Sanitization	35	10.7
Others	10	3.1
<b>Total</b>	<b>326</b>	<b>100.0</b>

Source: Authors' Fieldwork, 2018

#### 4.4 Impact of Flooding and Coping Structure from Table 3

Flood impacts reported include disruption of movement (14.5%), damage to roads (13.9%), loss of properties (13.7%), loss of farmlands and produce (13.1%) and environmental pollution (11.5%) from Table 3. These analyses justify the severity of the flood impacts that cut across virtually all aspects of respondents' livelihoods. Thereafter, 11.7% of the respondents reported loss of lives as one of the impacts fatalities.

Respondents rated the various mechanisms adopted to cope with post-disaster perturbations. Less significant number (3.1%) of sampled households reported keeping children at home during the flood, taking available unaffected routes as the mechanisms adopted to mitigate the adverse effects of the flood, construction of wooden bridges for Others while clearing of blocked drainage channels and sanitations (10.7%). It was discovered that poor economic and income value has an influence on housing quality with serious adverse effects on environment and the health of city residents. The exclusive mitigation for urban sustainability that was address are government housing provision, government acquisition of land, provision of better income opportunity, incentive or relive materials to the affected flooded area but among others.

#### 5.0 Recommendations

It is therefore strongly recommended that flood disaster awareness and mitigation programmes be put in place to sensitize flooded prone, riverine communities and urban center. Stream has tendency of becoming a big river and it should be marked as flood prone area as well.

The government at State and Federal levels should also provide the legal, institutional framework and regulations for responding to disaster in addition to existing structural measures. They should acquire land for proper monitoring with quality housing provisions.

Strict regulation of development in and around the low land, flooded plain, and river valleys should be enforced to prevent people from settling in high risk areas.

Also, efficient effort for adequate delivery of relief materials to those affected, as residents reported the late arrival and poor handling of relief materials.

Residents should avoid activities and practices that can increase their exposure or vulnerability to flooding. Such practices include blocking of drainage, expanding building on floodable lands and failure to heed early warning instruction

Though, housing is one of the urban furniture hence, need to study other form of urban furniture aside Urban Housing such as impact of Urban Drainage flood, impact of Urban Landscape flooding, impact of Urban Explorations and farming, Impact of Green House, Since attempts to tackle the disaster appear to be limited, further study can also be encouraged on Limitations to Urban Flood; Recovery or Regeneration in Nigeria.

## 6.0 Conclusion

It has been argued that the risks, disasters and severity of the impacts of a flood event are directly related to the socio-economic characteristics of households and individuals (Heryanti, 2012; Adelekan, 2010). The ability of households and individuals to resist and recover from perturbation depends on their income. Although variations existed in income distribution among the households but the income level was generally low. Many of the households could barely meet their subsistence needs less alone have savings that they could fall back on aftermath flood event. Responses from neighborhood representatives attested that poverty was dominant among the residents.

Despite the unsafe and prone location, resident's level of income that will depict the quality of their housing facility has only added injury to the havoc as their high exposure and vulnerability to flooding is hopeless resolved. Judging by the nature and magnitude of loss reported by respondents, the flood event under study was severe and the affected people lacked a coordinated approach to mitigate disasters. All efforts for mitigation are in no doubt a function of the socio-economic well-being of individuals and communities.

Man interference on the built form is inevitable, its alteration on the ecosystem is catastrophe if not well planned. Its disasters can then be minimized if the mitigations, coping mechanism and recommendation are exercised along urban growth and development. Hence, the way forward to ameliorate the artificial interference on the ecosystem thus include framework for policy making, policy enforcement, penalty for policy violators, enactment of law and regulations, public enlightenment, poverty alleviation and improving standard of living, economic revitalization (through education, infrastructures), alternate source of energy, afforestation also through preservation and conservation of nature our heritage, which will not only go a long way to reduce the possible factors and occurrence of flood but also reduce its impact on the environment (that is everything around us, physical surrounding, living thing and non-living thing, natural and man-made).

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