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# Building the Resilience of Community to Disaster: Case Study of Ado-Ekiti, Nigeria

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*Abstract: A disaster is a severe disruption of a community's survival and livelihood system, resulting from people's vulnerability to hazard impacts and involving loss of lives and properties on a scale which overwhelms their capacity to cope unaided. On the other hand, resilience can be referred to as the capacity of a system to absorb disturbance and to restructure itself while undergoing change thereby maintaining its essential function, structure, identity and feedback. The study examined the preparedness of residents of Ado-Ekiti, especially those living in flood prone areas to disaster related issues. Data were collected from the residents of the identified flood prone areas with the use of structured questionnaire. A total of 150 copies of structured questionnaire were administered out of which 120 were retrieved from the respondents who were landlords of houses in the delineated areas. The data were analyzed using simple descriptive statistics such as mean, standard deviation, and simple percentage. In addition, photographs of some features were taken to complement the various data. The findings of the study revealed that there is need to change the orientation of our cities dwellers from the era of relief and rehabilitation to the new order of disaster risk reduction. These could be achieved through education and enlightenment of residents, channelization of the drainage basin of River Ureje and River Ajilosun. The measures suggested for curbing these problems include construction of new storm drains, rehabilitation of the old ones, relocation of illegal structures, adequate implementation and enforcement of Town Planning Laws among others.*

**Keywords:** Hazards, flood, resilience, disaster, vulnerability.

## I. INTRODUCTION

A disaster is a severe disruption of a community's survival and livelihood system, resulting from people's vulnerability to hazard impacts and involving loss of lives and properties on a scale which overwhelms their capacity to cope unaided [1]. Disaster can be sudden such as flash floods or windstorms and can be prolonged or progressive such as drought and desertification [2]. The magnitude of a disaster is determined by the level of devastation that a hazard had inflicted on a community's infrastructure, properties and lives due to the inability of the affected community to prevent, mitigate and or bounce back to life through organized recovery and rehabilitation program.

On the other hand, resilience can be referred to as the capacity of a system to absorb disturbance and to restructure itself while undergoing change thereby maintaining its essential function, structure, identity and feedback. To be 'resilient' refers to something positive to be able to withstand hardship and disturbance to recover from disaster and destruction, to regain one's original shape after deformation, to be cautious enough to prepare for the unforeseen and to deal with risks in an appropriate way [3].

The occurrence of disasters in Nigeria has increased in frequency and intensity especially in recent times. The wide range of hazards in Nigeria includes the following;

- Rise in the number and severity of floods, especially in Jigawa, Kano, Gombe and Southern States like Lagos, Anambra, Oyo, Edo, Rivers, Ekiti, Imo to mention a few due to climate change and rapid urbanization
- Threat of desertification due to uncontrolled use of woods for fuel, pest infestation as in qualla birds and locusts in the Yobe-Borno (North East Nigeria) axis
- Fire disasters across the country, including market infernos in Sokoto, Lagos, Abakaliki markets
- Ethno-religious conflicts in Kaduna, Kano, Plateau States and reprisals in south-eastern Nigeria
- Boko Haram insurgents in the North Eastern States of Yobe, Bornu and Adamawa

This study seeks to reflect on the basic theoretical and conceptual definitions, elements and principles of disaster risk management in Ekiti State with particular reference to Ado-Ekiti Local Government and the need to build a resilient community to address the attendant disaster risks in Ado-Ekiti, an emerging city. Causes of



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vulnerability were identified and recommendations made towards effective urban development strategy to reduce the vulnerability of the city to disaster and their resultant implications, towards the attainment of resilient city to disaster.

## II. METHODOLOGY FOR THE STUDY

Data for this study were collected from primary and secondary sources. The primary sources of data were derived from physical survey and the administration of questionnaires. Stratified random sampling techniques were adopted in the choice of experimental cases, delineating the city into various neighborhoods with peculiar characteristics. Documentary data were obtained from books and published journals, the internet, newspapers and magazines, as well as published and unpublished documents by government establishments and agencies. A total of 120 copies of structured questionnaire were retrieved from respondents who were mostly landlords of houses in the delineated areas. The data were analyzed using simple descriptive statistics.

## III. THE STUDY AREA

Ado Ekiti the capital city and administrative centre of Ekiti State, Nigeria lies on Latitude  $7^{\circ} 35'$  and  $7^{\circ} 38'$  North of the equator and Longitude  $5^{\circ} 10'$  and  $5^{\circ} 15'$  East of the Greenwich Meridian. Ado-Ekiti has witnessed rapid population growth and urbanization since it became the capital city of Ekiti State in 1996 [4]. The city has a population of 308,626 in 2006 according to the National Population Census and a projected population of 1,111,953 by 2030 [5]. Ado-Ekiti is about 48 kilometers from Akure, Ondo State capital and 344 kilometers North-East of Lagos. The town has an area of 2.5 square kilometer in 1956, and by 1996 it has grown to about 19.6 square kilometer. With a total land area of about 700 kilometers square, Ado-Ekiti has an average density of about 441 persons /kilometres square [6]. Using the population growth rate of about 2.5 percent per annum and current population growth, the city has a population doubling period by 31 years. There are some rivers within and around the city. Most prominent among them are Ureje and Ajilosun river which is the main source of water supply to the town and Agbojoa stream, which is characterized by its seasonal flooding. Other river includes Omisanjana, Ajilosun, Omi Kurede and Elewi.

The major landform and landforms systems in Ado-Ekiti region are scarps, pediments, inselberges, regolith matted ridges and hills, flood plains and bamboos, the topography simply described the area of the land. The area is irregular because of the rock out crops and the formation of the land. Ado-Ekiti is a medium sized city situated in the Western part of Nigeria [6].

The land use in the core area of Ado Ekiti is basically commercial, industrial, residential public uses and in some cases mixed uses. Surrounding the major roads at the core area are commercial uses located at the front of the buildings in the area. There are some light industries such as bakeries which are within residential area and are enclosed with either shops or market shed to display products.

## IV. DISCUSSION OF FINDINGS

Flooding has been a threat in some parts of Ado-Ekiti. The areas mostly hit include Basiri, Irona, Old Garage, Oke-Ila, Adebayo Area, Bawa Estate, Adehun, Omisanjana, Atikankan, Nova Road, Peace Avenue, Emirin Community and Ureje areas. It can be said that there are always reasons for a cause. The study carried out substantiated this premise that flooding results from excessive rainfall, blockage of natural drainage channels and overflow of river banks. These and many more are the findings from the survey conducted.

### A. Months of Heavy Rainfall

From the field survey conducted, most of the flooding experienced occurs during the months of June-July. 65 respondents representing 54.17 percent affirmed to this. It has been observed that this period is characterized with heavy rain downpour. The increasing frequency and severity of floods in Nigeria and Ado-Ekiti in particular do not stem from increased rainfall alone; on the contrary there are response to increasing rate of urbanisation in the absence of well articulated and comprehensive physical planning and development control in the cities.

The common feature of flood is the destruction of lives and properties. In several countries, a distinction is made between direct and indirect damage. The direct losses include those which result into loss of lives and properties, while indirect losses consist of damage resulting from the limitation or breakdown of human activities during flood. It is germane to mention here that one of the problems in most Nigerian cities arises



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from poor physical planning, poor environmental awareness and the perception of people are at low ebb, and the city of Ado-Ekiti is without exception (see figure 1).

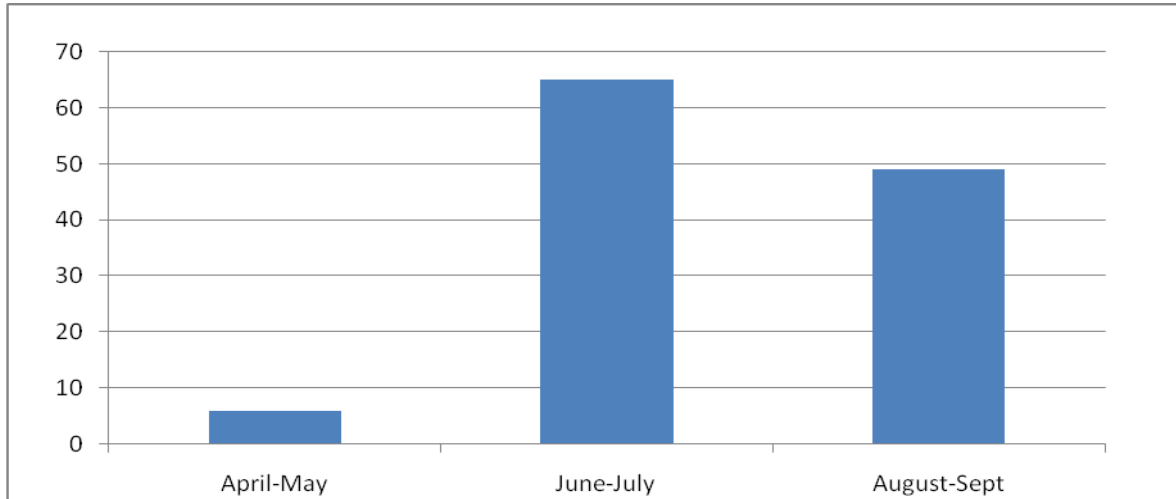


Fig 1: Months of heavy Rainfall (Source: Authors' field survey)

**B. Loss due to flooding**

The city of Ado Ekiti has been characterized with endemic flooding over the past five years. The aftermath have been very serious in intensity and magnitude considering the lost of properties and human lives. This situation have been so pathetic that with little downpour of rainfall houses are flooded. The field survey revealed that 51.6 percent of the respondents affirmed that they have experienced one form of financial loss or others during flooding while 48.4 were of the opinion that they have not actually loss so much to flooding in their areas.

**C. Flooding Experienced**

The occurrence of flooding has become endemic; this might not be unconnected with the increased global warming and the rate of deforestation to forest reserves. Also, the majority of urban dwellers paved their surroundings which make percolation of rain water difficult and hence increase in the runoff. The survey carried out revealed that 78 respondents representing 65 percent observed that flooding to the properties has been an annual occurrence, while 30.83 percent of the respondents said that they experience flooding seasonally. 4.17 percent of the respondents were of the opinion that they have not experienced floods in their areas. It was observed that, residence contributes greatly to flood problems of their areas and their act jeopardizes the environment which attracts many people for economic, social and recreational facilities. Figure 3 presented on this paper refer.

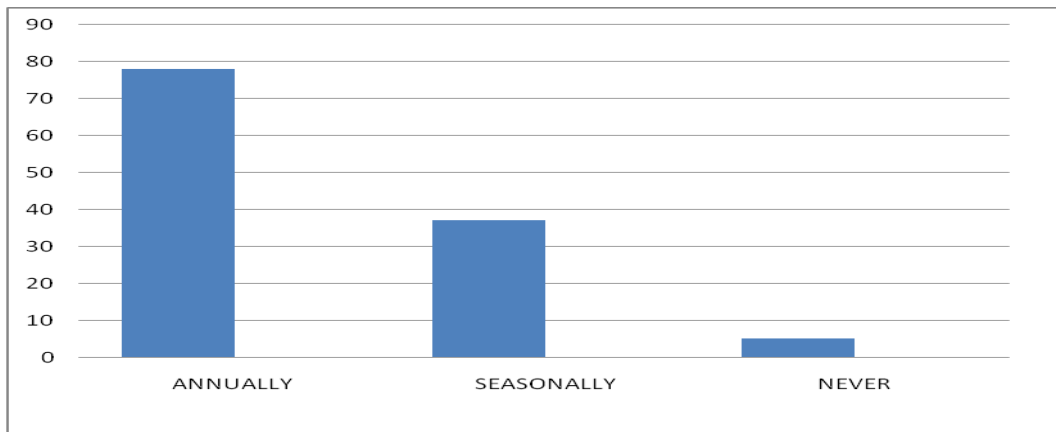


Fig 2: Flooding Experienced (Authors' Field survey, 2014)



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#### D. Type of Assistance Preferred

The orientations of the residents have changed rapidly from what it used to be in the area of assistance received from the government. It was revealed from the survey conducted that the era of donation of relief materials and rehabilitation are no longer acceptable to the residents. Figure 4 shows the graphical presentation of assistance preferred by residents 79 of the respondents representing 65.83 percent now preferred a form of disaster risk reduction interventions and channelization of the rivers in their areas to the given of material assistance. The remaining 41 respondents representing 34.17 percent still prefer donations of relief materials and rehabilitation. See Figure 3.

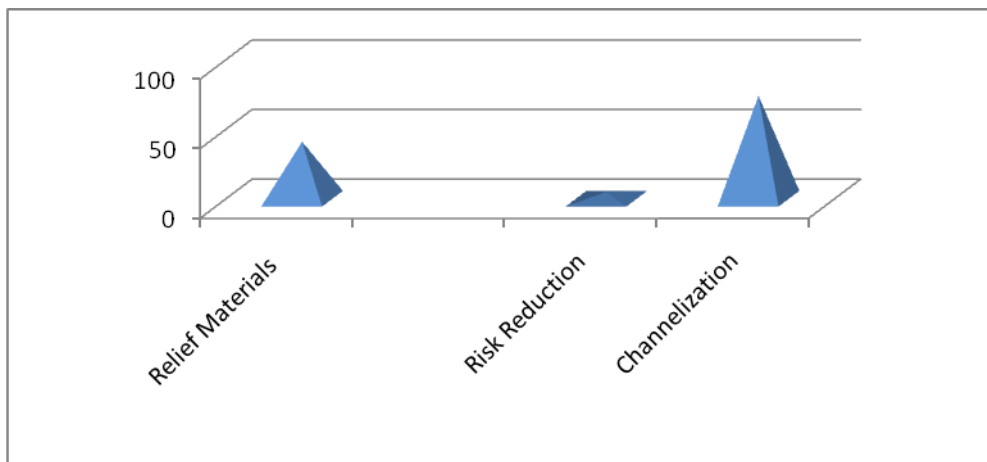


Fig 3: Types of Assistance Preferred (Source: Authors' Field survey, 2014)

### V. EFFECTS OF DISASTERS

**A. Disruption:** Schools and other social services are often disrupted during floods; women and children are left with heavier responsibilities and workloads, resulting in poorer health

**B. Loss in terms of properties:** Over the years, incessant flooding has been a source of concern to the residents of Ado Ekiti because of the huge amount of expenditure on its resultant effects. From the survey conducted 108 respondents representing 98.33 percent observed that they have lost between ₦100, 000 (\$614) and ₦500,000 (\$3,068) to flooding. Thus, it is also of concern because, the huge expenditure have not yielded much desired result due to mismanagement and natural factors. Losses due to flooding are enormous and can be categorized into economic and social losses. Economic losses can be quantified and this includes loss of economic goods like crops, crop damage occurs; when flood come earlier, rise or occur rapidly. Also, the uprooting of economic trees by the forces of erosion and flooding leads to reduction of construction materials, as such, the forest and soil becomes denuded. Owing to lack of capacities in the soil, surface rainfall runoff and flood peaks become higher.

**C. Human Actions.** The impact of natural and manmade disasters on people and human settlements in Nigeria are becoming greater and the problem is frequently caused by vulnerabilities created by human actions such as uncontrolled or inadequately planned human settlements, lack of basic infrastructure and the occupation of disaster prone areas. In the search for the root cause of urban disaster risks and vulnerability, human actions are found to be the agents of causation more often than not. Flooding as a principal agent of environmental degradation is an environmental issue, which remains threatening to most cities; it has been the result of human interference with the natural environment. The survey carried out revealed that 78.33 percent of the respondents observed a distance less than 15 metres as setback of their buildings to streams and rivers, while the remaining 21.67 percent of the respondents have more than 15 metres to their buildings.

### VI. IMPLEMENTATION STRATEGIES FOR DISASTER RISK REDUCTION

#### A. Legal and Policy Framework

The enabling legislation for disaster management in Nigeria remains the National Emergency Management Agency (established, etc) Act No. 12 of 1999 [7] as amended by Act 50 which established the National Emergency Management Agency (NEMA). Prior to this law, there was the National Emergency Relief Agency



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that was established in 1990. However, the enabling Act No.12 of 1999 redesigned and refocused the agency from being just a relief agency to one that manages disaster in all its ramifications.

A broad-based, multi-sectoral, national policy for disaster management drawn up through a genuine national consultative process, with the active participation of diverse stakeholders, development partners, and other tiers of government (legislative) is now necessary for a successful implementation of a Disaster Risk Reduction (DRR) program for the country [2]- [8].

**B. Disaster Risk Reduction and the Development Process**

Without going into controversies in the meanings and interpretations of development, we like to see it as referring to situations where economic growth is accompanied by improved living standards. Consequently, development may be seen as improving the society in terms of the provision of social services, acquisition of economic assets, improved productivity and reducing vulnerability [9]. However, sustainable development narrowly defined may focus on conditions for economic growth while maintaining the stock of natural resources at or introducing new technologies may reduce risk while the occurrence of disasters may create new opportunities for doing it right.

**C. Community Based Disaster Risk Reduction Projects**

In accordance with the general International Strategy for Disaster Reduction (ISDR) goals, the Community-based Disaster Reduction Project for Nigeria aims to significantly reduce the costs as well as the risk of loss of human lives properties and natural resources from natural hazards, and also to forge and strengthen partnerships among various stakeholders; unleash the innate and indigenous knowledge-capacities of communities in the area of early arming, safety and general disaster management [9] .

**D. The New Paradigm for Disaster Management**

Disasters are not isolated events but rather are outcomes of processes of risk accumulations deeply embedded in contemporary and historical development decisions. They result from a combination of hazards which are potentially damaging events or processes; and people’s vulnerability to those hazards [10]. [11], a world renowned expert on disaster management wrote about disasters and hazards as follows: “Strictly speaking, there is no such thing as a natural disaster; but there are natural hazards, such as cyclones and earthquakes. The difference between a hazard and a disaster is an important one. A disaster takes place when a community is affected by a hazard (as we have seen, it is usually defined as an event that overwhelms that community’s capacity to cope)”. In other words, the impact of the disaster is determined by the extent of a community’s vulnerability to the hazards It is the human dimension of disasters, the result of the whole range of economic, social, cultural, institutional, political and even psychological factors that shape peoples’ lives and create the environment”[11].

**Table 1.0: Traditional Disaster Management and New International Thinking on Disaster Risk Reduction.**

Disaster Management (Traditional)	Disaster Risk Reduction
Primary focus on HAZARDS	Major focus on <i>Vulnerability</i>
Single even-based scenarios	Dynamic multiple risk issues
Basic responsibility to respond to an event	Fundamental needs to assess update
Often fixed, location-specific conditions	Extended, shared or regional locales
Responsibility in single authority of agency	Multiple interests, actors, responsibilities
Command and control, directed operations	Situation-specific functions, free association
Established hierarchical relationships	Shifting, fluid and managerial relationships
Urgent, immediate-to-short time frames in outlook, planning, attention, returns	Comparative moderate-to-long time frames in outlook, planning return values.
Rapidly changing, dynamic information usage. Often conflicting or “sensitive”	Accumulated, historical layered-updated comparative, information. Open or public
Primary “authorized” or singular sources	Multiple and diverse or changing sources
Need for definitive “facts”	Differing perspectives points of view

Source: Van Niekerk, 2004

The Disaster Risk Reduction Concept proposed by Van Niekerk 2004 was adopted for the research work. It is a concept that Compare Traditional Disaster Management and New International Thinking on Disaster Risk



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Reduction which provides a broad conceptual framework for considering the factors that influence the resilience of a community to disaster and other catastrophes. From the survey conducted it was discovered that the city of Ado Ekiti and other Nigerian cities have a long way to go when compared to other nations in terms of preparedness and early warning to disaster such as flooding which is the main focus of this discourse. Looking at the table 1.0 above it is not too late for the governments at the 3-tiers of government to commence a serious study into disaster reduction approach than the era of relief and rehabilitation in consonance to what is obtainable in other cities of the world in order to build a relent cities and towns

## VII.RECOMMENDATIONS AND CONCLUSION

### A. Conclusion

As in many cases of successful planning, the ability to introduce disaster risk reduction as a major goal of disaster planning requires good governance. Good governance involves the existence of political commitment and strong institutions as a key area for the success of effective and sustained disaster risk reduction. Good governance will elevate disaster risk reduction as policy priorities allocate the necessary resources for disaster risk reduction: enforce implementation of disaster risk reduction measures and assign accountability for failures and facilitate participation from civil society.

Furthermore, good governance will link the economic, political and administrative components of governance more directly with disaster risk reduction through policy and planning; appropriate legal and regulatory frameworks; and through the mobilization of resources and structures. The absence of good governance makes inhabitants to want to emigrate at all costs to fight over land and other resources to start civil wars or to cause ethnic conflicts and other form of civil disturbances.

### B. Recommendations

1. Risk assessment and identification and the establishment of community-based early warning and prediction in accordance to what is obtainable in developed countries to commence immediately
2. The Development Control Department of the Ministry of Physical Urban & Regional Planning must brace up with the incessant flooding challenges by ensuring that setbacks and other regulations are adhered to strictly.
3. There is a need to have community-based disaster preparedness. Hazards are events that happen without informing anybody, to this end the community must adequately prepared for this in order to have a bounce back after the occurrence
4. Advocacy, education and awareness-raising at all levels of government and NGOs, CBOs, Red Cross Society must be vigorously pursued
5. Construction of new storm drains and rehabilitation of the old ones in the city of Ado Ekiti becomes imperatives
6. Relocation of illegal structures which poses extreme dangers to lives and properties
7. Partnerships with international, governmental, non-governmental and community based organization
8. Adequate implementation and enforcement of Town Planning Laws and regulation

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