Emergency Preparedness and Response to Ibadan Flood Disaster 2011: Implications for Wellbeing

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Abstract

Purpose –This paper aims to investigate the emergency preparedness and response to Ibadan 2011 Flood Disaster in Oyo State, Nigeria. This is with a view to derive recommendations for improving preparedness for emergency situations to reduce impact of disaster and providing prompt response to victims. Design/Methodology/Approach – Both qualitative and quantitative methods were utilised to collect the data analysed in this research. Key informant interviews were conducted using open ended questions with participants from National Emergency Management Agency (NEMA), Oyo State Emergency Management Agency (SEMA), Nigerian Meteorological Agency (NIMET) and other stakeholders. The survey made use of questionnaires to collect primary data for the quantitative aspect. Triangulation of the data collected was done to enhance credibility. Findings- The respondents agreed that the flood disaster was caused by acts of man and nature. Also the affected community in Ibadan were not effectively informed to enable them prepare. for the flood disaster by the state emergency agencies due to financial constraints and ineffective communication system. Although the various emergency agencies within the state and the country fairly responded when the flood occurred, the disaster could not be managed due to lack of adequately trained personnel for response and rescue operation and inadequate equipment for rescue operation. Flood disaster can often cause short-term or long-term disruptions within the family which could change the lives of family members dramatically and negatively impact the family members' wellbeing. Recommendations were suggested to the public and to the appropriate authorities. Originality value – This study established the gap in preparedness and poor response to disaster and provides recommendations. Flood affects and displaces more people than any other disaster either naturally induced or man-made in Nigeria. It also causes more damage to properties and disrupts businesses. Flood disaster has negative implications on the wellbeing of affected people in the community, society and on the nation as a whole.

Keywords: *Emergency preparedness, response, flood disaster, wellbeing, Ibadan 2011 Nigeria*

1. Introduction

Flood is an extreme weather event naturally caused by rising global temperature which results in heavy downpour, thermal expansion of the ocean and glacier melt, which in turn result in rise in sea level, thereby causing salt water to inundate coastal lands. In Nigeria, floods occur in three main forms: coastal flooding, river flooding and urban flooding (Oriola, 1994; Okoduwa, 1999; Folorunsho and Awosika 2001; Ologunorisa, 2004). Coastal flooding occurs in the low-lying belt of mangrove and fresh water swamps along the coast. River flooding occurs in the flood plains of the larger rivers, while sudden, short-lived flash floods are associated with rivers in the inland areas where sudden heavy rains can change them into destructive torrents within a short period. Urban flooding on the other hand occurs in towns, on 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 soil sediments (Adeoye, Ayanlade and Babatimehin, 2009).

Flooding is the most common of all environmental hazards and it regularly claims over 20,000 lives per year and adversely affects around 75 million people world-wide (Smith, 1996).Across the globe, floods have posed tremendous danger to people's lives and properties. Floods cause about one third of all deaths, one third of all injuries and one third of all damage from natural disasters (Askew, 1999). In Nigeria, the pattern is similar with the rest of world. Flooding in various parts of Nigeria have forced millions of people from their homes, destroyed businesses, polluted water resources and increased the risk of diseases (Baiye, 1988; Akinyemi, 1990; Nwaubani, 1991; Edward-Adebiyi, 1997). Though not leading in terms of claiming lives, flood affects and displaces more people than any other disaster; it also causes more

damage to properties. At least 20 per cent of the population may be at risk from one form of flooding or another. Flood disaster has been perilous to people, communities and institutions.

Recently, in 2011, Usman Danfodio University, Sokoto, Lagos, Delta, Ibadan and other parts of the country have been affected by flooding chasing the inhabitants away from their residence. It has shattered both the built environment and undeveloped plan. It has claimed many lives, and millions of properties got lost due to its occurrences. Ibadan, current capital of Oyo State, according to 2006 census result has a population of 2,550,592 and 11 local government areas. The first flood hit Ibadan, as the headquarters of old western region, Nigeria in 1948. Subsequently, serious flood disasters have occurred in Ibadan in 1963, 1978, 1980, 1985, 1987, 1990 and the most recent flood in 2011 that plagued the ancient city.

According to a statement by the relief organization Tearfund, 'ninety-eight percent of those killed and affected by natural disasters come from developing countries, underlining the link between poverty and vulnerability'" (Cortis & Enarson, 2004). A few problems in developing countries cause vulnerability to develop. First, over half the population in many developing countries is under the age of eighteen years old (Izadkhah & Hosseini, 2005). The lack of experience of such youthful populations, as well as adult dependence in some cases, makes these populations more vulnerable to disasters. Second, the fragile infrastructure of developing countries and the inability to support disaster preparedness projects financially also takes a toll on developing nations. Even disasters of a low magnitude can have extreme effects on ill prepared countries (Cortis & Enarson, 2004). Lastly, developing countries contain a disproportionate number of socio economically challenged populations. These observations are applicable to Nigeria. Nigeria is not an exception among developing nations of the world. Despite the Capability Assessment for Readiness (CAR), which was developed by Federal emergency management agency (FEMA) and the National Emergency Management Association (NEMA) in association with other international bodies, the problems associated with these populations, may have continued to hinder the capacity of developing countries to reduce vulnerability. From the foregoing there is need for more research to provide better understanding of the required preparedness which could positively influence people's response to warning thereby mitigating disaster in emergency situations. This study therefore examines the emergency preparedness and response to Ibadan 2011 Flood Disaster in *Oyo* State, Nigeria. This article is structured into four sections: review of literature, method, result, discussion and implication to wellbeing / recommendation.

2. Literature Review

Dynes (2004) pointed out that most disaster events, have not been the focus of the research community. He noted that: "The existing research tradition is predominantly Western, community-based, urban, and deals with sudden onset agents from 'natural' causes" (Dynes 2004, p. 2). The concept of emergency preparedness encompasses measures aimed at enhancing life safety when a disaster occurs, such as protective actions during an earthquake, hazardous materials spill, disease outbreak, flood or terrorist attack. It also includes actions designed to enhance the ability to undertake emergency actions in order to protect property and curtail disaster damage and disruption, as well as the ability to engage in post-disaster restoration and early recovery activities. Preparedness efforts also aim at ensuring that the resources necessary for responding effectively in the event of a disaster are in place, and that those faced with having to respond know how to use those resources. According to Flynn (2004), *"while people know that their government can't prevent natural disasters, they do expect their officials to be vigilant in preventing our enemies from killing innocent civilians, tapping landmarks…"* emergency preparedness practices involve the development of plans and procedures, the recruitment and training of staff, and the acquisition of facilities, equipment, and materials needed to provide *active* protection during emergency response (NRC 2006, p. 86). A comprehensive review of many relevant issues related to early warning systems was undertaken and presented by Mileti and Sorensen in 1990. According to these authors: "*A warning system is a means of getting information about an impending emergency, communicating that information to those who need it, and facilitating good decisions and timely response by people in danger."* In their review, the authors paid attention to important aspects such as the factors which affect how people receive and perceive warning information. Thus, they stress the need to focus not only on issues related to the emission of such information, but also on how that information is presented to individuals in order to ensure an adequate response – thereby minimizing the impacts provoked by such events.

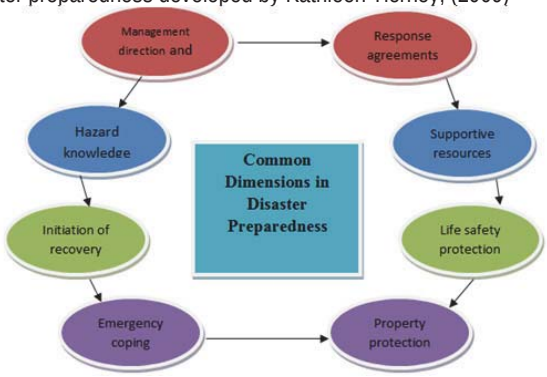
A few years later the International Strategy for Disaster Reduction (ISDR) Secretariat convoked scientists from around the globe to establish the Early Warning Programme of the International Decade for Natural Disaster Reduction (IDNDR). The International Expert Group on Early Warning, which convened the programme, presented the following statement regarding the objective of early warning (IDNDR, 1997): "*The objective of early warning is to empower individuals and communities, threatened by natural or similar hazards, to act in sufficient time and in an appropriate*

manner so as to reduce the possibility of personal injury, loss of life and damage to property, or to nearby and fragile environments." Another view with respect to early warning within the scope of this early warning programme was expressed by Maskrey (1997). He stated that an early warning system should be viewed as*: "An information system designed to facilitate decision-making in the context of national disaster management agencies, in a way that empowers vulnerable sectors and social groups to mitigate the potential losses and damages from impending hazard events".* Basher (2005),a former Director of the Platform for the Promotion of Early Warning established by ISDR in 2003 (ISDR-PPEW), defined early warning to mean: "*The provision of information on an emerging dangerous circumstance where that information can enable action in advance to reduce the risks involved. Early warning systems exist for natural geophysical and biological hazards, complex socio-political emergencies, industrial hazards, personal health risks and many other related risks."*

However, within the Glossary of Terms prepared and published by ISDR (2009), an "early warning system" is defined as: "*The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss*." The notion of early warning therefore, refers to the provision of timely information to an individual, an institution or a community at risk regarding the imminent manifestation of a particular event capable of provoking losses of various kinds. The warning information should however be provided in such a way that it is understandable and provokes response action from the people to which the warning message was sent. It is only in this way that disaster prevention could be ensured.

Disaster response is the second phase of the disaster management cycle. It consists of a number of elements, for example; warning/evacuation, search and rescue, providing immediate assistance, assessing damage, continuing assistance and the immediate restoration of infrastructure. The aim of emergency disaster response is to provide immediate assistance to maintain life, improve health and support the morale of the affected population. Such assistance may range from providing specific but limited aid, such as assisting refugees with transport, temporary shelter, and food, to establishing semi-permanent settlement in camps and other locations. It also may involve initial repairs to damaged infrastructure. The focus in the response phase is on meeting the basic needs of the people until more permanent and sustainable solutions can be found. Humanitarian organizations are often strongly present in this phase of the disaster management cycle. However, disaster management is fraught with inefficiency and ineffectiveness in the area of preparedness and response. According to Abdul- Akeem Sadiq (2012) "*Disaster Management system still has a long way to go and faces innumerable challenges, including poverty, lack of funding for emergency management programs, lack of equipment and marginalization, among many others."* Kathleen (2009) identified some common dimensions of disaster preparedness as shown in figure 1.

Figure 1: Dimensions in disaster preparedness developed by Kathleen Tierney, (2009)



Hazard Knowledge: Conducting hazard, impact, and vulnerability assessments; Using loss estimation software, scenarios, census data; Understanding potential impacts on facilities, structures, infrastructure, populations; providing hazard information to diverse stakeholders.

Management, Direction and Coordination : Assigning responsibilities; Developing a division of labor and a common vision of response-related roles and responsibilities; Forming preparedness committees, networks; Adopting required and recommended management procedures (e.g., National Incident Management System); Providing training experiences, conducting drills, educating the public.

Formal and Informal Response Plans and Agreements: Developing disaster plans, evacuation plans, memoranda

of understanding, mutual aid agreements, collaborative partnerships, resource sharing agreements; Participating in broader and more general planning arrangements (e.g., neighbourhood and community preparedness groups, Urban Area Security Initiative regional plans, industry-wide preparedness initiatives).

Supportive Resources: Acquiring equipment and supplies to support response activities; Ensuring coping capacity; Recruiting staff; identifying previously unrecognized resources; Developing logistics capabilities.

Life Safety Protection: Preparing family members, employees, others to take immediate action to prevent death and injury, e.g., through evacuating, sheltering in place, using "safe spaces" within structures, taking emergency actions to lessen disaster impacts on health and safety; containing secondary threats, e.g. fire following earthquakes.

Property Protection: Acting expediently to prevent loss or damage of property; protecting inventories, securing critical records; ensuring that critical functions can be maintained during disaster containing secondary threats

Emergency Coping and Restoration of Key Functions: Developing the capacity to improvise and innovate; developing the ability to be self-sustaining during disasters; ensuring the capacity to undertake emergency restoration and early recovery measures.

Initiation of Recovery: Preparing recovery plans; developing ordinances and other legal measures to be put into place following disasters; Acquiring adequate insurance; Identifying sources of recovery aid.

Selecting indicators for a comprehensive disaster preparedness model can also pose problems, particularly when in the process of selecting indicators. Attempting to include all viable indicators can easily become an overwhelming undertaking as innumerable indicators are available, many of which would provide a comprehensive measure. Therefore, maintaining a manageable selection of indicators becomes a crucial component of creating a comprehensive disaster preparedness measure. The formulation of disaster preparedness metrics and the construction of disaster preparedness models should be approached cautiously. The selection of data, indicators, index numbers, mathematical formula, and model development can be very difficult if experience and aptitude are not equally utilized. The difficulty of creating a model is perhaps one factor contributing to the lack of advancement in the development of a generally applicable disaster preparedness model. In fact, a generally applicable disaster preparedness model is yet to be accepted by the entire disaster preparedness community, though multiple efforts are underway. (Covington, Simpson, 2006).

A comprehensive review of many relevant issues related to early warning systems was undertaken and presented by Mileti and Sorensen in 1990. According to these authors:

> *"A warning system is a means of getting information about an impending emergency, communicating that information to those who need it, and facilitating good decisions and timely response by people in danger."*

In their review, the authors paid attention to important aspects such as the factors which affect how people receive and perceive warning information. Thus, they stress the need to focus not only on issues related to the emission of such information, but also on how that information is presented to individuals in order to ensure an adequate response – thereby minimizing the impacts provoked by such events. Scientists from around the globe established the Early Warning Programme of the International Decade for Natural Disaster Reduction (IDNDR). The International Expert Group on Early Warning, which convened the programme, presented the following statement regarding the objective of early warning (IDNDR, 1997):

> *"The objective of early warning is to empower individuals and communities, threatened by natural or similar hazards, to act in sufficient time and in an appropriate manner so as to reduce the possibility of personal injury, loss of life and damage to property, or to nearby and fragile environments."*

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The first critical issue to be considered in this context is whether the information is getting across from its source to

the recipients or end-users. This issue was highlighted by Mileti and Sorensen (1990) and later by Lee and Davis (1998) in the context of the Flagship Programme on Forecasts and Warnings sponsored by the United Kingdom's National Coordination Committee for IDNDR. These authors commented that (Lee and Davis, 1998): "*Despite the progress made in new scientific and technological development to cope with natural disasters, many lives are lost because forecasts of such disasters are not effectively communicated to the population at risk ...*"

In the Third International Early Warning Conference held in Bonn, Germany in 2006, the International Strategy for Disaster Reduction presented the results of its *Global Survey of Early Warning Systems*. The survey highlighted notable advances in the capacity of agencies in many countries to forecast potentially catastrophic events, as well as the fact that early warning systems have been implemented for a broad variety of hazards. However, the survey also noted that there were differences in the degree of advancements from region to region and from country to country, and numerous gaps and shortcomings still persisted, especially in developing countries. In many developing countries, such as Nigeria, warning systems lack infrastructure, adequately trained staff and resources.

Other researchers point out the need to ensure that those at risk and those who have to respond in case of a warning understand the warning messages (Paton et al., 2008; Haynes et al., 2008; Kelman, 2006). One of the cases regarding such a failure in communication was the 26 December 2004 Indian Ocean tsunami, where thousands of people lost their lives in coastal cities and communities due to a lack of an efficient and timely warning (Chang Seng, 2010; UN, 2006; UNESCO-IOC, 2006; ISDR, 2006; ISDR-PPEW, 2005a). But how people at risk and authorities perceive and make use of that information is another story. As stated by Maskrey (1997), *"the usefulness of an early warning system should be judged, less on the warnings that are issued per se, but rather on the basis of whether such warnings facilitate appropriate and timely decision making by those people who are most immediately at risk."*

In this context, Mileti and Sorensen (1990) identified four sequential processes which should take place once the warning is issued: 1) People receive the warning message 2). The warning message is understood 3) the warning message is believed; 4) the warning is then personalized. According to Mileti and Sorensen, only when the warning is personalized and those at risk deem it necessary should one expect people to react via the execution of specific activities such as an evacuation.

However, whether or not people believe the warning message will depend initially on the degree of credibility or trust concerning the imminent event (such as a flood, tornado or landslide, etc.) which people assign to the institution or source of the information that is provided (Patton, 2008; Haynes et al., 2008). Therefore, credibility is essential if institutions expect people to react to the warnings they may issue. Indeed, as has happened on several occasions, people have disregarded such warnings because they did not trust the information provided by the institution. As expected, credibility is gained through accurate forecasts and may be lost on account of false alarms. In addition, people may react to warnings in situations where they believe that an event is imminent and could have severe consequences. However, there are also situations where people may not necessarily be aware of the degree of risk they are exposed to, and consequently may not respond to such a warning. An important and critical issue, which is being addressed by ISDR and other agencies, relates to whether people understand the warnings or not. Warnings may be issued in a format which may or may not be understood by those who need to respond. A case in point may be the recent 26 December 2004 tsunami. The "warning sign" manifested by the sea through its recession prior to its landfall was likely only understood by a few. As stated in the Global Survey of Early Warning Systems published by ISDR (UN, 2006), the dissemination of warnings using different alert stages or levels varies from hazard to hazard, from country to country, and such an inconsistency may also lead to confusion regarding how to respond in case of an event.

Nevertheless, important examples regarding the positive reaction from authorities and communities at risk have been witnessed on several occasions in the context of hurricanes in Cuba and more recently in Mexico and Mauritius. In comparison with other countries of the world, Cuba has a tremendous capacity to mobilize people to safe areas when hurricane warnings are issued by the Cuban Meteorological Department. This was demonstrated during the hurricane seasons in 2005 and 2008, when severe hurricanes battered the nation. As stated by ISDR-PPEW (2005a; 2005b) and by Villagran de Leon et al. (2006), there are four basic elements which must be incorporated into every early warning system to make it effective:

1) Prior knowledge of the risks faced by communities 2) Technical monitoring and warning service for these 3) Dissemination of understandable warnings to those at risk; and 4) Knowledge and preparedness to act.

2.1 Theoretical perspective of disaster

How one perceives disaster could have a bearing on what about one does about disasters. The theory of disaster as intersection of society and nature is adopted for this study.

Disaster as Intersection of Society and Nature Theory Dynes (1993, 175 & 178), "I argue that disaster is a social, rather than a 'natural' happening. Thus, any effort at disaster reduction involves planning and action by various social units…The direction of that planning effort will depend on the nature of the social unit, not on the nature of the physical agent." A catastrophic event, whether precipitated by natural phenomena or human activities, assumes the state of a disaster when the community or society affected fails to cope. Natural hazards themselves do not necessarily lead to disasters. Natural hazards like typhoons, and earthquakes, however intense, inevitable or unpredictable, translate to disasters only to the extent that the population is unprepared to respond, unable to cope, and, consequently, severely affected. The vulnerability of humans to the impact of natural hazards is to a significant extent determined by human action or inaction. Even the occurrence of recent climatic anomalies attributed to global climate change is traced to human activities.

However, disasters could, in fact, be reduced, if not prevented. With today's advancements in science and technology, including early warning and forecasting of natural phenomena, together with innovative approaches and strategies for enhancing local capacities, the impact of natural hazards, somehow could be predicted and mitigated, its detrimental effects on populations reduced, and the communities adequately protected.

An early scholarly insight on disasters, which, I believe, bears much relevance to the study of disasters today, is that of disaster sociologist Carr (1932) who first endeavoured to understand disasters in terms of social action. This is evident in his passage:

> *Not even windstorm, earth-tremor, or rush of water is a catastrophe. A catastrophe is known by its works; that is, to say, by the occurrence of disaster. So long as the ship rides out the storm, so long as the city resists the earth-shocks, so long as the levees hold, there is no disaster. It is the collapse of the cultural protections that constitutes the disaster proper. (Carr 1932:211)*

Carr's conclusion indicates that disasters are the collapse (i.e. failure or inadequacy) of cultural protection, a result of human activities and not of natural or supernatural forces; therefore, they are essentially human-made. This assertion assumes that human societies have the capacity to recognize the risks and factors that could lead or cause disasters and the appropriate interventions to control or manage them. It, therefore, conveys that disasters can be prevented or their impact on peoples and communities mitigated, and that human action or inaction to high risk and vulnerability to natural hazards could spell the difference. Significantly, this view enables society to recognize the importance of community action such as capacity and capability building, including planning for the response to potential disasters, managing and mitigating their effects, as well as possibly preventing their occurrence or recurrence. Therefore, regarding disasters as events that can be managed rather than acts of God that are responded to when necessary, allows for purposive social action, including adoption of innovative development strategies, to prevent or reduce the loss of lives, limbs, property and the harm to the environment and the economy.

This notion of disasters as principally human-made and not attributable to fate presents a challenge to practitioners to reconsider the common use of "natural" and "human-made" in typifying disaster incidents.

> *"Secure societies are those that have learned to live with their land, as well as from it. Disaster reduction strategies will have succeeded when people – governments, specialists, leaders and citizens – understand that a 'natural disaster' is more a failure of foresight or evidence of their own neglected responsibility rather than the presumed consequence of natural forces or some other-worldly act of god." (ISDR 2002, 8).*

Russell Dynes (1993, 197) states: *"The fact that 'natural' disasters are social, rather than natural, phenomena has a number of implications.*

1. *Prevention and mitigation must stress social rather than physical solutions.*
2. *Disaster planning is not primarily the search for the implementation of technological solutions.*
3. *Emphasis on the social allows for proactive, rather than reactive strategies. Thus, it is possible to take actions prior to the appearance of the physical agent.*
4. *Emphasis in planning can be on internal, rather than external, factors. The potential threat is not 'out there,' but resides in the 'internal' flaws within the social system.*
5. *The view of disasters as social phenomena allows such happenings to be incorporated as a part of the nation's development process."*

3. Aims and Objectives of Study

The aim of this work is to assess how efficient and effective the emergency agencies prepared and responded towards the 2011 Ibadan flood disaster.

Specifically the objectives are as follows:

1. To investigate the respondents' understanding of emergency preparedness and response to disaster

2. To explore the elements and dimensions of disaster preparedness and response
3. To understand the concept of early warning and early response.
4. To assess the response of emergency agencies in tackling the Ibadan flood disaster.
5. To identify the challenges of emergency agencies in managing disaster

4. Research Questions

The research questions for the research are as follows:

1. What are the characteristics of people affected by flood disaster?
2. What are the expectations for emergency preparedness in case of any situation of disaster
3. What is early warning and response system?
4. In regards to the Ibadan flood disaster, how can the emergency agencies efficiency and effectiveness be rated?
5. What are the factors responsible for the flood disaster? Is it the acts of nature or acts of humans?
6. What are the challenges encountered by the emergency agencies in managing disaster?

5. Methodology

Ibadan is located in Southwestern Nigeria in the Southeastern part of Oyo State about 120 km east of the border with the Republic of Benin in the forest zone close to the boundary between the forest and the savannah. The city is located on geographic grid reference longitude 3o 5E, latitude 7o 20N. The city ranges in elevation from 150 m in the valley area, to 275 m above sea level on the major north-south ridge which crosses the central part of the city. The city's total area is 1,190 sq mi (3,080 km^2). The city is naturally drained by four rivers with many tributaries: Ona River in the North and West; Ogbere River towards the East; Ogunpa River flowing through the city and Kudeti River in the Central part of the metropolis. Ogunpa River, is a third-order stream with a channel length of 12.76 km and a catchment area of 54.92 km^2.

Ibadan has a tropical wet and dry climate (Koppen climate classification *Aw*), with a lengthy wet season and relatively constant temperatures throughout the course of the year. Ibadan's wet season runs from March through October, though August sees somewhat of a lull in precipitation. This lull nearly divides the wet season into two different wet seasons. November to February forms the city's dry season, during which Ibadan experiences the typical West African harmattan (Olaniyan and Adegbola, 2012). Ibadan experiences a mainly tropical climate with an estimated annual rainfall of about 1250 mm. The mean total rainfall for Ibadan is 1420.06 mm, falling in approximately 109 days. There are two peaks for rainfall, June and September. The mean maximum temperature is 26.46 C, minimum 21.42 C and the relative humidity is 74.55% (Olaniyan and Adegbola, 2012).. There are eleven (11) Local Government in Ibadan Metropolitan area consisting of five urban local governments (Ibadan North, Ibadn North-East, Ibadan North-West, Ibadan South-East, and Ibadan South-West) in the city and six semi-urban local governments in the less city(Akinyele, Egbeda, Ido, Lagelu, Ona-Ara and Oluyole). The population of central Ibadan, including five LGAs, is 1 338 659 according to census results for 2006, covering an area of 128 km^2. Local governments at present are institutions created by the military governments but recognised by the 1999 constitution and they are the third tiers of government in Nigeria.

The study is a survey design in which both qualitative and quantitative methods were used in collecting data for the study. The research work is limited to Ibadan, basically the mostly affected areas which are: Ido local government (Apete), Ibadan south west (Oluyole, Odo-Ona Apata, Odo-ona Elewe), Ibadan north (Agbowo/UI). A total of 400 questionnaire was administered, respondents were selected from the affected population including, local officials, local (non-official) leaders and experts, local media sources and leaders of the affected population. Each of these respondents responded to a 27-item questionnaire. Key informant interview using open ended questions among respondents selected from National Emergency Management Agency (NEMA), Oyo State Emergency Management Agency (SEMA), Nigerian Red Cross Society, Oyo State branch, Nigerian Meteorological Agency (NIMET). The focus is on obtaining factual information that is crosschecked with other sources.

6. Results

The results presented are from both the quantitative and qualitative data collected from the respondents in this study. Table 1 indicates the demographic information of the respondents as in Appendix I.

From table 1 Apete has the highest number of respondents with 25.5% followed by Odo-ona Apata with 22.0%. The location with the lowest number of respondents is Oluyole with 12.5%. Apete, Odo-ona Elewe, Odo-ona Apata had

high responses because these locations are the mostly affected during the flood disaster hence their enthusiasm in accepting and filing the questionnaire. Age distribution shows that most of the respondents aged between 20-40 years formed a majority totalling 205 out of 400. In other words, 54% (N = 205) of the respondents are youths and able bodied who belong to the category of the population classified as the working class. It can be deduced that these category of people have their working place affected by the flood which automatically crippled their means of survival temporarily. Also from the table, 47.1 % of the respondents are males while 52.9 % are females. Table 1 also reveal that 49.0% of the respondents are married, 41% are single, 6.7% are widows while just 3.1% are widowers. Most of the respondents 38.5% had university education and above followed by those with NCE and Diploma with 23.7%. Those without any educational background are 6.3%. Based on this, it can be deduced that that the highest number of the respondents are educated. . Table 2 (see Appendix II) reveal that 57.7% of the respondents were not personally affected by the flood while 42.3% claimed to be personally affected.

Table 3 shows the respondents' responses on emergency preparedness as indicated in Appendix III. Table 3 indicates that 52.1% of the respondents agreed that emergency preparedness involves adequate plan to prevent an occurrence, 46.6% strongly agreed to this notion while .3% are against the notion. It can be deduced that majority of the respondents are of the opinion that emergency preparedness must be geared towards planning to prevent a disaster from occurring. According to a principal officer of Oyo State emergency management agency, *"Emergency preparedness refers to ability to anticipate a situation and making adequate plan either to* ***prevent*** *occurrence of phenomenon or to* ***curtail*** *or* ***mitigate*** *excesses of a phenomenon."* While the disaster risk coordinator of Nigerian Red Cross Society, Oyo State branch quipped that, "*Emergency preparedness refers to a set of interrelated activities of a state in readiness to combat disaster."* Fifty-six percent (56.4%) agreed to the fact that emergency preparedness involves mitigating the impact of a disaster and 39.6% of the respondents strongly agreed to it. 2.3% were undecided while 1.5% and .3% disagreed and strongly disagreed to it respectively.

Based on the responses in table 7 and 8, we can deduce that emergency preparedness involves prevention of disaster (if it is preventable) and mitigation of impact of disaster if it is not preventable. Most of the respondents did not understand early warning system (EWS). Majority of the respondents (39.3% and 33.3%) agreed that EWS was reliable because prior to the flood disaster, they heard that rain would be much and heavy that year but they didn't take cognizance of the warning or probably were ignorant of what and how it might affect them. 15.8% were undecided while 8.3% and 3.3% disagreed and strongly disagreed respectively. According to the head of international relations of Nigerian Meteorological Agency (NIMET), *"It was anticipated that the possibility of rainstorms and gustiness may exacerbate the prospect of coastal flooding and erosion which may result in landslide and loss of lives and properties. The flood was anticipated especially in the vulnerable areas of which Ibadan was one of the towns. Ibadan is still vulnerable to flooding. This information was given to the stakeholders involved in disaster management but they were non-challant about it."*

The disaster risk coordinator of National Emergency Management Agency (NEMA), South/West Zone attested to the above statement. She said: "We *received the early warning message from NIMET and disseminated the information to the various states*" Causes of the disaster: Evidently as presented in the tables, 42.8% of the respondent strongly agreed that the flood disaster was an act of man, 39.0% agreed, 6.3% were undecided, 9.3% disagree while 2.8% strongly disagree. From the table, it is evident that the act of man is the major cause of the Ibadan flood. The branch secretary of Nigerian Red Cross, Oyo State chapter is of the opinion that: "*building houses near flood plain, blocking of drainages, jettisoning of environmental sanitation, which are all acts of man is the major cause of the flooding. He said further that it was not only in Ibadan that it rained heavily and that all of us are responsible for the flood, people buy pure water and throw the sachet in the drainage, we dump refuse at the wrong place and the state government cannot even provide adequate refuse truck to evacuate refuse."*

As presented in the table, the fact that Ibadan flood is an act of nature is supported by 73% of the total opinion, 5.3% were undecided and 21.5% were not in support. The majority of the respondents agreed that the flood disaster is caused by both the act of nature and man that is, coupled with the torrential rainfall of that day the acts of man by dumping refuse on drainages and hereby blocking it, building on flood plains etc; caused the flood disaster. While 8.0% were undecided and the remaining disagreed. It could be concluded from the responses of the respondents from table 3 that inadequate funding hinders effective preparedness.

All the officials interviewed from the various emergency management agencies agreed that inadequate funding is a major challenge to effective and efficient disaster preparedness and response. Furthermore, the table affirms that inadequate equipment is also responsible for bringing setback to emergency preparedness. 48.1% strongly agreed, 48.4% agreed, 1.0% was undecided while 2.5% disagreed. In addition to these, the data in table 3 shows that lack of adequately trained personnel hinder effective preparedness and response towards disaster.

Table 4 indicates the descriptive response of the participants with respect to emergency response scale items. See

Appendix IV As indicated in the table, 53.4% of the respondent agreed that there should be an establishment of rules regulating emergency preparedness and response in the country while 1.0% disagreed. According to a principal officer of the Oyo State Emergency Management Agency,

> *"There should be an establishment of institutional framework so that the actions of personnel involved in disaster managements and citizens could be regulated by operative laws" The findings from the study showed 52.8% agreed that there should be coordination of efforts between the private and public sectors. A principal officer of the Oyo State Emergency Management Agency notes that, "Emergency response programme should be monitored at both the public and private level. Those in government should ensure that organizations that are involved in emergency rescue operation are made to perform their statutory functions and the masses should also cooperate with them because disaster management is an activity that requires cooperation of both public and private sectors."*

As pointed out above, Public and private sector should collaborate to combat disaster, adequate funding is needed for effective and efficient response to disasters are needed for effective and efficient response to disaster. 55.4% of the total respondents strongly agreed that emergency management agencies should be well equipped for effective operation.

The branch secretary of Nigerian Red Cross society opines

> *"What mattered most for effective monitoring of emergency management is adequate funding"*

From the table, 57.3% strongly agreed that emergency management agencies should be well supervised. According to the disaster risk coordinator of National Emergency Management Agency (NEMA), South/West Zone . "*Personnel in disaster management should be well supervised during response operation*" It is very necessary that the masses cooperate with the emergency agencies in combating disaster because mostly, they are always at the receiving end. 62.4% respondents strongly agreed with this notion while just .5% of the respondents disagreed. The table shows that safety of lives is the major priority in emergency response. 73.1% of the respondent attested to it. Introduction of weekly environmental sanitation should be introduced in Oyo State as one of the measures in forestalling future occurrence.57.1% of the respondents strongly agreed to this item. 57.6% strongly agreed that the public should be enlightened and sensitized about disaster management issues while .3% disagreed and 2.5% are indecisive.

Four out of the respondents interviewed from the various emergency management agencies were of the opinion that the pre-disaster preparation was lacking and that was why the negative impacts of August, 2011 Ibadan flood disaster was much. Although they fairly responded to the disaster but it would have been less hazardous if adequate preparation were to be in place. According to the table, 26.1% 0f the total respondents strongly disagree that Emergency agencies prepared and responded efficiently to the 2011 Ibadan flood disaster 26.1% disagree, 11.6% strongly agreed and 19% agreed while 19.1% of the total respondents were indecisive.

7. Discussion

The different dimensions of disaster management were identified in this study which also agrees with dimensions in disaster preparedness developed by Kathleen Tierney, (2009). Emergency preparedness involves activities to prevent a disaster from occurring and if it cannot be prevented then the impact can be mitigated through adequate planning. Also, early warning system is an integral part of disaster management and it must be timely and properly disseminated. This research, also found out that the people of Ibadan do not really understand the nitty-gritty of what disaster management entails. From the findings, it is obvious that the people of Ibadan were not properly informed to be prepared for the flood disaster by the state emergency agency. Although NIMET claimed to have sent an early warning message to the appropriate authorities and this was corroborated by NEMA, who also further claimed to have notified the Oyo state government, yet little or nothing was achieved in mitigation.

According to Maskrey (1997),

> *"Early warning needs to be supported by information about the actual and a potential risk that a hazard poses as well as the measures people can take to prepare for and mitigate its adverse impacts. Early warning information needs to be communicated in such a way that facilitates decision-making and timely action of response organisation and vulnerable groups."*

Kent (1994) opines that

> *"Disaster preparedness and response depends on gathering, analysing and acting on timely and accurate information. This requires pre-determining what information needed, how it will be collected, who will analyse it and how it will be integrated into a timely decision-making process."*

Looking at the above statements, it can be deduced that what happened in Ibadan 2011 flood was at variance with the accepted norms in disaster management. The findings of this study indicate that though some early warning on the Ibadan flood were provided to the people who were at risk, appropriate and timely decisions were not made by the people. This agrees with Maskrey (1997). As stated by Maskrey (1997),

"the usefulness of an early warning system should be judged, less on the warnings that are issued per se, but rather on the basis of whether such warnings facilitate appropriate and timely decision making by those people who are most immediately at risk."

Also the respondents in this study did not seem to even understand the warning message provided by the government agencies neither were they able to personalise it in a way that could lead to appropriate decision making and action. This is in line with the processes identified by Mileti and Sorensen (1990). They identified four sequential processes which should take place once the warning is issued: 1) People receive the warning message 2). The warning message is understood 3) the warning message is believed; 4) the warning is then personalized. According to Mileti and Sorensen, only when the warning is personalized and those at risk deem it necessary should one expect people to react via the execution of specific activities such as an evacuation. In addition as noted by Chang Seng (2010) inefficient early warning information will not bring out the expected response from the people.

Both the acts of man and nature caused the flood disaster but the acts of man which include dumping of refuse on drainages and thereby blocking it, building on flood plain, worsen the situation and caused more havocs. This agrees with Carr's (1932) conclusion which indicates that disasters are a result of human activities and not of natural or supernatural forces; therefore, they are essentially human-made. This assertion assumes that human societies have the capacity to recognize the risks and factors that could lead or cause disasters and the appropriate interventions to control or manage them. The study further revealed that inadequate funding is a major bane of disaster management in the country. Added to this are lack of adequately trained personnel for response and rescue operation, inadequate equipment for rescue operation and ineffective communication system. Furthermore, there is no fully functional local emergency management agency that can relate directly with the populace but an adhoc local emergency committee. This finding supports Russell Dynes (1993, 197) suggestions on disaster management. "*Emphasis on the social allows for proactive, rather than reactive strategies. Thus, it is possible to take actions prior to the appearance of the physical agent.*

Emphasis in planning can be on internal, rather than external, factors. The potential threat is not 'out there,' but resides in the 'internal' flaws within the social system. The view of disasters as social phenomena allows such happenings to be incorporated as a part of the nation's development process."

However, effective emergency preparedness is a task that is never done, but requires continuing commitment. Disaster management agencies are not properly incentivised for preparedness and have no established institutional priorities; they lack timely and sufficient funding; inefficient safe recovery and response processes and procedures. The capability Assessment for readiness which was developed by Federal emergency management agency (FEMA) and the National emergency management agency association (NEMA) identifies finance as one of the elements that should be addressed by state in their preparedness efforts.

The study also revealed that disaster management should be well supervised and monitored by the appropriate bodies so as to ensure effectiveness and efficiency. All stakeholders both in the private and public sectors should collaborate and cooperate in combating disaster in the country.

The study revealed that people were more vulnerable to the negative impacts of the flood experience due to poverty and the mostly vulnerable are the women and children.

According to International Federation of Red Cross and Red Crescent Societies (IFRC):

"Vulnerability is most often associated with poverty, but it can also arise when people are isolated, insecure and defenseless in the face of risk. People differ in their exposure to risk as a result of their social group, gender, ethnic, age and other factors."

Lastly the study revealed that the 2011 flood disaster in Ibadan showed a gap in the level of preparedness of emergency agencies, therefore the disaster could not be managed. The pre-disaster preparedness was lacking, although the various emergency agencies within the state and the country fairly responded when it occurred. Disaster management depends to a large extent on adequacy of preparation.

8. Conclusion

Discussions have been made around key dimensions of preparedness, activities associated with those components of preparedness. Nigeria is in a unique position to improve its national disaster management framework using currently available information on predictions for natural disaster that threatens its territory as well as drawing on lessons learnt from past experiences within and in other regions of the world. Secondly, it is vital for NEMA to continue to collaborate with other important and relevant stakeholders and strengthen existing ties. Registration of non-governmental organization (NGOs), community service organization (CSOs), faith-based organization (FBOs), and community-based organization (CBOs) interested in disaster risk reduction is a step in the right direction. The next step should be to leverage the resources-personnel, finance, time, expertise, etc-of these organizations to reduce disaster risks.

In conclusion, there is an urgent need for a collaborative effort of both government and stakeholders to support town planning, engineering and other professional agencies to combat flooding in Nigeria to avoid its long-range consequences. The information on early warning signs should be communicated to the people at risk in a way that will be taken to be the truth and believed, understood and personalised.

9. Implications to Wellbeing / Recommendation

Disasters, whether natural or human-made, often leave today's families facing difficult times due to loss of parental employment, relocation, divorce, death of a family member and other catastrophic events that create stress for all members of the family. These events can often cause short-term disruptions within the family or they can be long-term and change the lives of family members dramatically. In addition to all damages on the infrastructure flood disasters can cause significant psychological and social suffering to the population that has been affected. The psychological and social impacts of flood disasters may be acute in the short term, but they can also undermine the long-term mental health and psychosocial well-being of the affected population. These impacts may threaten peace, human rights and development.

Based on the experience of the 2011 flood disaster and the findings, the following recommendations are put forward for proper considerations and implementation so as to ensure an effective and proper preparedness and response plan:

Institutional approach to disaster management should be given priority by the state government. Although we already have NEMA and SEMA at the national and state levels respectively, these should be replicated at the local government levels. Local government should establish their local emergency management committee and even at the ward level. Community emergency response squad should be recruited, trained and introduced into every strata of our social life for disaster risk management to enable everybody get informed.

Disasters require inter-organizational coordination and cooperation for an effective response; therefore preparedness efforts should include all of the groups responsible for the various emergency management functions. Preparedness efforts should include representation from emergency management, law enforcement, fire, city management, public health, citizen and voluntary groups, schools, nursing homes, hospitals and health care organizations, the business community, and other sectors in order to create a network of organizations to support essential functions in a disaster event.

There should be increased collaboration between the Federal Government and the governments of countries like the U.S., Japan, Britain, and Israel. Such collaboration can focus on training Nigeria's law enforcement agencies and first responders about the relevant skills needed to prepare, prevent, mitigate, respond to, and recover from disasters. For example, training on the Incident Command System given to NEMA officials by the U.S. Environmental Protection Agency on March 26, 2009 and the Pandemic Disaster Response Exercise hosted by the Federal Government and organized by U.S. Africa Command with support from Disaster and Humanitarian Assistance Medicine and funded by the United States Agency for International Development on October 24, 2011 (Lapierre 2011) are a great start. The four basic elements as suggested by Villagram and his colleagues must be incorporated into every early warning system to make it effective:

1) Prior knowledge of the risks faced by communities 2) Technical monitoring and warning service for these 3) Dissemination of understandable warnings to those at risk; and 4) Knowledge and preparedness to act Villagran de Leon et al. (2006).

The government of the state should make provision for adequate disposal facilities within the state. People should be enlightened to inculcate the habit of disposing their refuse properly and anybody caught doing otherwise should be punished according to the operative laws. Government should adequately provide response and rescue operation equipment and officials should be well trained on how to use them. Goethe opines that "*Knowing is not enough; we must apply. Willing is not enough; we must do.*" The findings in this research must be considered as a preliminary to further studies and clearly required replication in other parts of Nigeria.

One of the priorities in emergencies is to protect and improve people's mental health and psychosocial well-being.

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