

Promoting Effective Organizational Structure as a Means of Enhancing Disaster Management in Nigeria.

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ABSTRACT

Disaster for a very long time has been an integral part of existence as well as the greatest concern to humanity, irrespective of the level of civilization-(developed, developing, or underdeveloped); religious affiliation (traditional, Christianity, Islam, etc.); or political inclinations. In our study of disaster management in Nigeria, our results showed a correlation value of the model is 0.568, that is there is strong relationship between the effectiveness of the Nigerian National Emergency Management Agency (NEMA) and the variables, and R-squared 0.323 indicate that the independent variable account for 32.3% of the dependent variable. The study suggested that factors that are significant to the promoting effectiveness of the organization with respect to disaster management are: preparedness, organization structure, search and rescue, and information dissemination. It therefore recommended strong need to improve them in order to enhance disaster management in Nigeria.

(Keywords: organizational structure, disaster management, NEMA, NERA, information dissemination, government)

INTRODUCTION

Nigeria, like the rest of the world, is exposed to a wide range of natural or human-induced disasters. While some of these disasters are rapid, others are slow-onset, resulting in catastrophic situations

leading to loss of lives and property and degradation of environment. These disasters occur in form of drought, desertification, flooding, epidemics, coastal erosion, dam failure, building collapse, oil spillage, maritime collision or accidents, explosions, communal clashes, fire, air crashes and mishap, amongst others.

The vulnerability of Nigerians to hazards is a function of several factors. These include the level of poverty; population growth and distribution; and the condition of human settlements and their infrastructure. Other causative factors include: the level of environmental degradation, level of public awareness, the dynamics of public policy and environment on disaster management.

There were technological disasters ranging from, the 2002 Ikeja bomb explosion (Lagos State); the 2002 West African Rubber Product Company fire in Ikorodu (Lagos State); the 1992 Hercules C-130 military air-crash at Itokin (Lagos State); the 2002 ADC air-crash at Ejirin (Lagos State); the EAS air-crash in Kano State; the 2005 Bellview air-crash in Lisa village (Ogun State); the 2005 Sosoliso aircrash in Port Harcourt (Rivers State); the ADC aircrash in Abuja. Other technological disasters include the several pipeline explosions and vandalization in the Niger Delta, and series of road traffic crashes among others.

The need to promote disaster management and importance of disaster management in the social and economic progress of people can be vast.

This is because it ensures continuity from setbacks arising from unexpected environmental hazards in any society for the purpose of development. As a result of these unexpected hazards, disaster needs to be reduced to enhance agricultural development, good communication and tourism amongst others.

The necessity for the establishment of the National Emergency Management Agency (NEMA) was as a result of the limited scope of the National Emergency Relief Agency (NERA) which only mobilizes and distributes relief supplies to disaster victims. No matter how technical and highly professionalized a country is, it cannot prevent the existence of disaster. It then follows that for an organization like NEMA to be able to achieve the purpose for which it is established, there is a need for an effective organizational structure with appropriate job description to enhance continuity. Disaster cannot be managed without a proper situation of events; hence, an organizational structure needs to be in place.

The organizational structure therefore, defines the activities to be performed by each member of the organization and at different levels of operation in relation to specialization and standardization. Without this, disaster cannot be managed and will continue to spread across the country rendering many people homeless, resulting to loss of lives and properties, causing poverty and a great level of increase in diseases and infections. This structure however, depends on the size, technology, strategy of operation and the environment within which the organization operates.

An issue of consensus was that occurrence of disasters and emergencies in Nigeria like in most countries have been on the increase in recent times, particularly due to communal conflicts like in the Plateau state crisis which started September 2001 up till today, mechanical and technological malfunctions and most especially improper management of organization of NEMA. As a result of these, disasters that were not properly managed have contributed significantly to loss of lives and properties, diversion of scarce resources, destruction of infrastructure, negative investment climate and political destabilization. The study therefore seeks to promote effective organizational structure as a means of enhancing disaster management in Nigeria using National Emergency Management Agency (NEMA) as a reference point.

HYPOTHESES FORMULATED

Ho₁: Promoting effective organization structure will not enhance disaster Management in Nigeria.

Ho₂: National Emergency Management Agency has no significant effect on disaster factors (risk management, reduction, search and rescue, etc.)

LITERATURE REVIEW

Conceptual Review

Vulnerability to disasters describes the degree to which a socio-economic system or physical assets are either susceptible or resilient to the impact of natural hazards (Birkmann, 2006).

Blaikie (1994) on the other hand define vulnerability as the characteristics of a person or group in terms of their capacity to anticipate, cope with, resist and recover from impacts of a hazard", while UNDP (2004) said that it is "human condition or process resulting from physical, social, economic and environmental factors, which determine the likelihood and scale of damage from the impact of a given hazard". It is determined by a combination of several factors, including awareness of hazards, the condition of human settlements and infrastructure, public policy and administration, the wealth of a given society and organized abilities in all fields of disaster and risk management.

Recent studies especially in developed countries have emphasized the significance of people's vulnerability to hazards, rather than retaining a narrow focus on the hazards themselves (Michalski, 2004). It is particularly important to operational the term vulnerability. In addition, it is equally vital to crucial to recognize that vulnerability is balanced by peoples' capabilities and resilience, and that if they are perceived only or mainly as victims then the problem of what causes vulnerability may be evaded (Cannon, 2000). Vulnerability, according to Waller 2000 can be considered in terms of five components:

a. Initial Well-Being: This appraises the initial nutritional and health status (both physical and mental) of people in everyday life (or before the impact of a hazard). It is indicative of their

capacity to cope with illness and some types of injury resulting from a hazard such as flood.

b. Livelihood Resilience: It is a measure of the capacity of an individual and/or their household to cope with the aftermath of a given hazard impact, and to reinstate their earning or livelihood pattern. This might include their likely continued employment, level of savings, loss of welfare benefits, loss or injury of supportive family members, hazard damage to their normal livelihood activity (for example in floods this might include damage to agricultural land by sediment deposits, sea water incursion, toxic or sewage contamination, loss of dwelling place etc.).

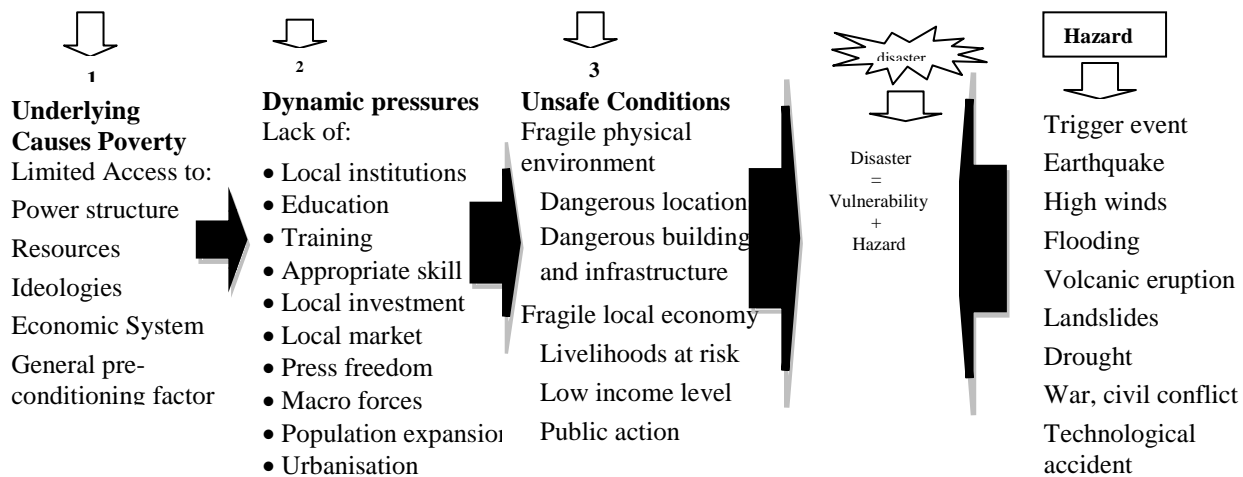
c. Self-Protection: This is concerned with the ability or willingness (readiness) of an individual and/or household (with a given level of knowledge of apparent risks) to provide themselves with adequate protection, or to be able to avoid living or working in hazardous places. It will be influenced by the level of knowledge of physical

measures, and the capacity of people to implement them.

d. Societal Protection: This refers to the ability or willingness of social and political structures at political or social levels above the individual or household, to provide protection (especially structural and technical preparations) from particular hazards. This include local, state, federal government, relevant organizations (e.g. fire department, civil defense, NEMA, NGOs), or community-based initiatives.

e. Social Capital: This involves the 'soft' security provided by group or community capacities to enhance (or reduce) a person's resilience. This may include the degree of cohesion or rivalry that might affect rescue and recovery. There are various forms of social capital that may enhance or hinder recovery such as support networks (belonging to a church or other group), some of which may provide mutual aid in times of hardship.

Figure 1: Process of Vulnerability



Source: Wisner, B., Blaikie, P.M., Cannon, T. B. and Davis, J. (eds.). 2004. *At Risk-Natural Hazards, People's Vulnerability and Disasters*. London, Routledge.

The striking feature of the above illustration in relation to contingency planning is the importance of identifying early warning signals.

- Underlying causes which can be socio-economic or political.
- The dynamic pressures which are a result of lack of something, or manifesting as result of macro-forces like population expansion, or urbanization or environmental degradation factors, coupled with trigger events that present themselves in the form of hazards that justify the need for contingency planning.
- Unsafe condition causes by fragile environment.

HISTORY OF DISASTER MANAGEMENT IN NIGERIA

Organized Disaster Management in Nigeria can be dated back to 1906 when the Fire Brigade was established with functions that went beyond fire-fighting to the saving of lives and property and provision of humanitarian services during emergencies. In the 1960s and 70s, this noble and systematic approach was replaced with ad-hoc arrangements domiciled in the offices of the Head of State and the State Governors.

During this period disaster response was considered as mere security issues. In 1972/1973, Nigeria experienced a devastating drought which had negative socioeconomic consequences and cost the nation the loss of many lives and property. This event amongst others led to the establishment of the National Emergency Relief Agency (NERA) in 1976 with the mandate of collecting and distributing relief materials to disaster victims.

An Inter-Ministerial body was set up by the Federal Government of Nigeria (FGN) in 1990 to address natural disaster reduction strategies in line with the UN International Decade for Natural Disaster Reduction (IDNDR) and to address the limited scope of NERA. In 1993, the FGN decided to expand the scope of managing disasters to include all areas of disasters. This bold approach was backed up by decree 119 of 1993 which raised the status of the Agency to an Independent body under the Presidency. In 1997, the management of NERA organized a National Workshop involving major stakeholders in disaster

management in Nigeria to deliberate on critical factors for an effective disaster management system in Nigeria, and noted the need to:

- i) Expand the functions of NERA, amend the decree setting up NERA and change its name to National Emergency Management Agency (NEMA).
- ii) Structure the new Agency by putting into consideration appropriate Policies and Strategies; Search and Rescue resource mobilization capabilities; Information, Education and Prevention strategies; Administration, Finance and Logistics systems; Relief and Rehabilitation capabilities; Research and Planning.

iii) Provide appropriate budgetary allocation for the operations of the Agency. The acceptance of these recommendations by the FGN led to the establishment of the National Emergency Management Agency (NEMA) in March 1999 by Act 12 of 1999 as amended by Act 50 of 1999 to manage disasters in all its ramifications.

In fulfilling its mandate, NEMA developed several plans and guidelines, some of these are National Disaster Response Plan, the Search and Rescue/Epidemic Evacuation Plan, the National Nuclear and Radiological Plan, the Early Warning System on Epidemic, etc. Over the years NEMA has encountered some challenges and learnt lessons in the implementation of the plans. This necessitated the development of the NDMF to correct implementation gaps and increase efficiency and effectiveness of disaster management in Nigeria.

ROLE OF NEMA IN DISASTER MANAGEMENT IN NIGERIA

NEMA is saddled with the responsibility to monitor the state of preparedness of all organizations or agencies that may contribute to disaster management in Nigeria. Thus, the agency collects data from all stakeholders so as to enhance planning, forecasting and field operations and coordinate the activities of voluntary organizations engaged in emergency relief operations in any part of the federation. The stakeholders in disaster management in Nigeria include amongst others the Federal Road Safety Corps (FRSC), Nigerian Army, Federal Fire Service, Nigerian Red Cross Society, Nigerian

Navy, Nigerian Air force, Federal Ministry of Health, etc.

THEORIES ON EMERGENCY MANAGEMENT

Normative Theories: There are numerous *normative theories* that are very useful to emergency managers. These frameworks have been designed to specify actions that emergency managers *ought* to take. It is assumed that their effectiveness will be enhanced if they abide by these *prescriptive* lessons. Most important among these is the collection of ideas commonly referred to as “comprehensive emergency management” (National Governor’s Association (1978). Through a series of common managerial functions (i.e., mitigation, preparedness, response, and recovery), emergency managers can organize their programs for an all-hazard approach through implementing a series of broad strategies and specific tactics (for elaboration see Lindell and Prater(2003) and Drabek (2004). Multiyear planning can be guided by the “integrated emergency management” framework proposed by McLaughlin (1985). The numerous other guidance documents prepared by FEMA staff over the years, e.g., FEMA 1987, 1996, 2002. Specific steps in building a community risk reduction program have been formulated (e.g., American Red Cross 1992) as have tactical management models such as the incident command system (ICS) (National Interagency Fire Center 1994) and the National Incident Management System (NIMS). Components of and exercising strategies have been developed for key community structures like emergency operations centers (EOC’s). All of these “normative” theories are relevant to emergency management and provide emergency managers with important theoretical foundations.

Micro Theories: Past research studies in selected areas have provided useful micro theories. In these we have numerous specific concepts that have been organized into multivariate theoretical models that appear to have relatively good predictive power for very narrow ranges of behavior. Although several examples might be cited, two of the best developed pertain to risk communication and disaster warning responses. Thus, we have a pretty good handle on the range of social factors that guide sectors of the public in differential, but predictable, ways when they encounter information about risks as numerous researchers

have reported (Lindell and Perry, 2004; Rottman, 2000; Lindell and Prater, 2000). Similarly, when disaster warnings are issued, the social factors that constrain some people to respond in one way, while others behave differently, have been documented carefully during hurricanes and a variety of other types of disasters. These micro theories can be useful to emergency managers. Eventually they may be blended together with others to provide a comprehensive view of human response to disaster within its full life cycle.

Embryonic Theories: Early comparative analyses of disaster case studies underscored the central role of emergent systems in disaster responses. Sharma (2001), summarized additional studies completed during the past decade and highlighted the relevance of key findings to emergency managers. We also noted that one set of investigations had resulted in a preliminary model of disaster response by focusing on elaborations of the DRC typology of groups responding to disasters reanalyzed extensive interview data collected after numerous disasters by DRC staff. They conceptualized disaster response systems by identifying four elements of social structure. Thus, domains and tasks are the structural ends of the organizations while resources and activities are the structural means of the organization.

Their data analysis indicated that combinations of these four elements (D.R.A.T) could be used successfully to identify different types of emergent systems. They concluded their work with the specification of “an expanded theory, of disaster, organization, and role in their framework, pre and post disaster processes are interrelated so that individual and structural outcomes can be explained and predicted. They included such exogenous factors as: event and community characteristics and attributes of both the enacting unit (i.e., the emergent system) and the individual participants. While very sketchy at present, the basic thrust of this approach and the type of goal envisioned clearly points toward a significant research agenda.

These events occurred during the latter part of 1999 (e.g., Tornado in Moore, Oklahoma), the year 2000 (e.g., Hurricane Floyd) or the first two months of 2001 (e.g. Nisqually earthquake in the Seattle, Washington area). After documenting 26 coordination strategies many of these emergency managers described, I created a series of

multivariate models that documented the social factors that most constrained response effectiveness. These analyses influenced my eventual conceptualization of a theoretical model of disaster response effectiveness. The elements of the model are specified in Figure 1.

While the study focused only on natural disasters, terrorist attacks like other conflict based events, could be added easily as the agencies that comprise the emergent networks change, just as they do during the various phases of the disaster life cycle (i.e., from warning to recovery). While this “big picture” look at the changing patterns of constraint within which emergency managers operate may appear to be complex at first glance, I am convinced that it can provide a useful starting point although additional concepts will be required. Most important among these would be the injection of the concept of *community vulnerability* which is a reflection of prior events and community social trends such as population changes including both size and physical location.

EMPIRICAL REVIEW

Kreps et al. (1994), reanalyzed extensive interview data collected after numerous disasters by DRC staff. They conceptualized disaster response systems by identifying four elements of social structure. Thus, domains and tasks are the structural ends of the organizations while resources and activities are the structural means of the organization. Their data analysis indicated that combinations of these four elements (D.R.A.T) could be used successfully to identify different types of emergent systems.

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METHODOLOGY

The methodology adopted in this study is survey method. Primary data was used to carry out this research. The population of the study includes staff of National Emergency Management Agency (NEMA) of the North Central Zone in Jos Plateau State. A total of one hundred and twenty (120) staff was sample from all departments within the agency. Regression analysis was used for the analysis.

DATA PRESENTATION AND ANALYSIS

Table 1: Type of Organization Structure for NEMA Operations.

Distribution		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Centralized	21	21.0	21.0	21.0
	Decentralized	41	41.0	41.0	62.0
	Geographical	2	2.0	2.0	64.0
	Departmental	36	36.0	36.0	100.0
	Total	100	100.0	100.0	

Source: Author’s Fieldwork, 2014

The table above indication the type of organization structure that is being operate by NEMA, and it shows that majority of the respondent says it is decentralized structure, with 41%(41) agree on decentralized, 36%(36) agree on departmental, 21%(21) agree on centralized while on 2%(2) says geographical structure.

HYPOTHESES TESTING

In other to test the efficiency of National Emergency Management Agency on disaster management, the response from the questionnaire relating to effect of NEMA on disaster management was tested on reliability test using Cronbach alpha reliability test.

$$\text{Cronbach alpha } (\alpha) = \frac{n}{n-1} \left[1 - \frac{\sum V(y_i)}{\sum V(y_i) + 2 \sum_{ij} \text{Cov}(y_i y_j)} \right]$$

$$= \frac{n}{n-1} \left[1 - \frac{\sum V(y_i)}{\sigma_x^2} \right]$$

Where n= number of items
 y= individual items
 $x = \sum_{i=1}^n y_i$
 i, j= index of the items
 $V(y_i)$ = variance of y_i
 $Cov(y_i, y_j)$ is the covariance of item y_i with item y_j

The conclusions of Cronbach are:
 If $\alpha = 0-0.299$ is conclude poor
 = 0.3-0.499 slightly agree
 = 0.5-0.7 agree
 = 0.71-1 strongly agree

Table 2: Inter-Item Covariance Matrix.

	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Q3	.117	-.007	-.004	-.002	.001	-.015	-.003	.109
Q4	-.007	.049	-.002	.018	-.012	.025	-.001	-.014
Q5	-.004	-.002	.030	.024	-.007	.028	.000	.042
Q6	-.002	.018	.024	.188	.089	.086	-.005	.054
Q7	.001	-.012	-.007	.089	.240	.026	-.005	.109
Q8	-.015	.025	.028	.086	.026	.102	-.002	.008
Q9	-.003	-.001	.000	-.005	-.005	-.002	.020	-.014
Q10	.109	-.014	.042	.054	.109	.008	-.014	.706

Table 3: Reliability Statistics.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.528	.496	8

Decision

Since Cronbach's alpha (α) = 0.528, the researcher decide and concluded that NEMA is effective in disaster Management in Nigeria.

Hypothesis 1

H_{01} : Promoting effective organization structure will not enhance disaster Management in Nigeria

Table 4: Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.568 ^a	.323	.253	.19212

Source: spss print-out 2014

The correlation value of the model is 0.568, that is there is strong relationship between the effectiveness of NEMA and the Variables, and R-squared 0.323 indicate that the independent variable account for 32.3% of the dependent variable.

Table 5: ANOVA.

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1.531	9	.170	4.609	.000 ^a
Residual	3.211	87	.037		
Total	4.742	96			

Source: spss print out 2014

Analysis of variance is used to test for significant of promoting effective organization structure in enhancing disaster management. From the analysis carried out the p-value = 0.000 < 0.05 we reject H_0 and concluded that role of organization structure is significant in Disaster management in Nigeria.

Hypothesis 2

H_{02} : National Emergency Management Agency has no significant effect on disaster factors (risk management, reduction, search and rescue, etc.).

Table 6: Coefficient.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.395	.696		4.876	.000
Disaster	.081	.081	.124	.999	.321
Organization structure	.141	.064	.209	2.208	.030
Information	-.144	.083	-.222	-1.737	.086
Risk assessment	-.056	.062	-.087	-.899	.371
Mitigation	-.081	.048	-.179	-1.683	.096
Risk reduction	-.043	.138	-.028	-.311	.756
Search and rescue	.381	.101	.546	3.770	.000
Preparedness	-.427	.139	-.334	-3.070	.003
Prevention	.003	.068	.006	.047	.963

Source: spss print out 2014

The table above shows the coefficient of the disaster factors, with their significant test, and the result indicate that NEMA helped in promoting and improving disaster management, NEMA role is significant searching and rescue, preparedness for operation, structure of the organization, while their role is not significant in risk assessment and reduction, mitigation, prevention from attack, disaster reduction and Information dissemination.

DISCUSSION OF RESEARCH FINDINGS

The survey carried out showed that majority of the respondents agreed that National Emergency Management Agency (NEMA) run an organization structure that is Decentralized, this is shown in Table 1, with 41% (41) agreeing on decentralized, 36% (36) agreed on departmental, 21% (21) agreed on centralized while 2% (2) accepted that there is geographical structure.

From Table 2, the results shown implies that no respondent agreed that is not effective, majority agree that is effective, with 52% (52) agreeing that is effective, 43(43%) agreed strongly that is effective and only 5% (5) is uncertain of the effectiveness of their structure.

Also the majority of the respondent agree that Disaster management has contributed towards sustainable development in Nigeria, with 61% (61) of the total respondent agree that it has contribute, 26% (26) says they strongly agree on that while 13% (13) are uncertain on the contribution of disaster management, NEMA has also help in improvement of disaster management in Nigeria, with 48% (48) of the respondent saying strongly agree, 47% (47) says they agree, 3% (3) are uncertain, while only 2% (2) says they disagree.

The study also indicate that the level of effectiveness and contributions of state and local Emergency Management Agencies to disaster management in Nigeria is not strong from the result indicating that 36% (36) agree there effectiveness and contribution are high, 26%(26) disagree, 20% (20) strongly agreed while 18% (18) are uncertain.

The findings of the study indicated that NEMA effort toward, preparedness, prevention, mitigation, search and rescue, likewise assessment to disaster management in NEMA is very relevant, it also indicate that level of

effectiveness and contribution of state and local Emergency Management Agencies to disaster management is very low, while information dissemination on disaster risk situation by NEMA is very effective.

The study's findings revealed that the coefficient of the disaster factors, with their significant test, and the result indicate that NEMA has been assisted in enhancing disaster management. It is cleared from the investigation that NEMA role is significant with regard to searching, rescue, preparedness for operation, structure of the organization, while their role is not significant in Risk assessment and reduction, mitigation, prevention from attack, disaster reduction and Information dissemination.

CONCLUSION AND RECOMMENDATIONS

The study concluded that organization structure of NEMA is decentralized and NEMA is effective in disaster management, because they have work fatigue in helping to improve and contribute towards sustainable development in disaster management in Nigeria. Though as disaster continue to rise in Nigeria, since disaster cannot be reduce to zero level, the only way to curb disaster is through Disaster risk reduction, and this study has shown that disaster risk reduction as serves as a developmental function in Nigeria and also risk assessment to disaster management of NEMA is very relevant.

NEMA claim that their information dissemination on risk situation and distribution of relief materials to the victims is very effective, but the study find out that information dissemination and distribution of relief materials is on moderate level.

The study therefore recommended that: There is need to promote education and training on disaster management by NEMA and create awareness on disaster management in their areas of jurisdiction. This can be achieved by incorporating disaster management into school curriculum at all levels of education.

Organization need to have effective structure in order to improve on their information dissemination and awareness, because information is power, when you are not inform you will be deform, public awareness need to be made over disaster management their role and

contribution, through different media and internet nationwide to enlighten people.

It has been observed that National Emergency Management Agency are not in cordial relationship with state and local emergency management agency, the study recommended that government policy should ensure that all the state has emergency management agency and should work together with the National emergency management agency. This will improve disaster management and make it strong and effective.

The study also recommended that federal government, state government, local government, religion organization, philanthropists, stakeholders and cheerful giver should work together with NEMA, to assist the victim because, it was observed that there is not resident for the victim and that they are camped in a school. State government should be able to build for the Victims in plateau.

Lastly it is observed that the factors that are significant to the effectiveness of the organization are: preparedness, organization structure, search and rescue, and information dissemination are significant different that is, they are factor that determine the effectiveness of the organization, the study recommended that the need to improve on the listed factors above.

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SUGGESTED CITATION

Aremu, M.A., M.A. Aremu, and H.B. Olodo. 2015. "Promoting Effective Organizational Structure as a Means of Enhancing Disaster Management in Nigeria". *Pacific Journal of Science and Technology*. 16(1):182-191.

 [Pacific Journal of Science and Technology](http://www.akamaiuniversity.us/PJST.htm)