



**AN EVALUATION OF DISASTER INFORMATION DISSEMINATING SYSTEM'S
CONTRIBUTION TO EDUCATION IN SOUTH EAST, NIGERIA**

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Abstract

The study is on the “evaluation of disaster information disseminating system’s contribution to education in south east, Nigeria. The purpose of the study is to evaluate the extent to which disaster information disseminating system has contributed to the education of the people in south east, Nigeria. The study adopted survey research design. The research instrument was questionnaire. A sample size of 572 was determined from the population using Chukwu (2007) formula while simple random sampling technique was used in selection of the agencies. Cronbach alpha was used in testing reliability of the research instrument. The result was 0.87 indicating a high degree of item consistency. The hypothesis was tested using non-parametric statistical technique “Pearson Product Moment Correlation”. Findings revealed that disaster information disseminating system significantly contributed to a large extent on the education of the people ($p=0.001 < 0.05$, $r = 0.951$), and that disaster forecasting had significant positive effect on good governance in the South-East, Nigeria ($p=0.001 < 0.05$, $r = 0.973$). The researcher among other things recommended that; Disaster management agencies should regularly embark on disaster information dissemination for educating the people about disaster and how to manage them when they occur, and that regular disaster forecasting by disaster management agencies should be encouraged in the South-East, Nigeria, for good governance of the people.

Keywords: Disaster, Information Disseminating System, Education, South East, Nigeria

Introduction

Within the first decade of the 21st century alone, incidents of chemical spillages, explosions, earthquakes, landslides, thunderstorms, hurricanes, infernos, tornadoes, floods, wild fires, tsunamis, volcanic eruptions, dam collapses, violent uprisings and massacres have been reported with various degrees of destruction around the world. Institutional and individual observers of these incidents agree that there has been an increase in these occurrences over the past decade. While the experiences of disasters vary from country to country, there are grim indicators that no state on the earth is insulated from disasters (Drabek, and McEntire, 2003).

For developing countries, the weakness of state infrastructures, absence of appropriate legal and policy frameworks and sometimes inadequate resources particularly render them more vulnerable to the gory consequences of large-scale disasters. The prevention, management and reduction of disasters are therefore a huge challenge for the majority of countries. It is remarkable to note that countries throughout the world have recognized the need to formulate a clear regulatory agenda aimed at the prevention, management and reduction of disasters. A manifestation of this was the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disaster (HFA), a global strategy to reduce disaster risk. Disasters in Africa pose a major obstacle to the African continent's efforts to achieve sustainable economic development, especially in view of the region's insufficient capacities to predict, monitor, deal with and mitigate disasters. Reducing the vulnerability of the African people to hazards is a necessary element of poverty reduction strategies, including efforts to protect past development gains. Financial and technical assistance is needed to strengthen the capacities of African countries, including observation and early warning systems, assessments, prevention, preparedness, response and recovery.

Using Nigeria as my nucleus of study, this research exposes some of the underpinning dynamics which make an integration of the Hyogo Framework for Action a *sine qua non* for effective disaster management and reduction in Africa. Over the past decade, Nigeria has experienced a combination of several human-induced and natural disasters which far outweighed the frequency and magnitude of similar occurrences elsewhere in Africa. Nigeria's disaster profile is formidable. The broad assortment of disaster in Nigeria currently includes frequent oil spills and pipeline explosions; a rise in the number and severity of floods, especially in Jigawa, Kano, Gombe, Kogi and southern states like Lagos, Bayelsa, Delta, Anambra due to climatic change and urbanization.

The threat of desertification due to uncontrolled use of wood for fuel, pest infestations and locusts in the Yobe-Borno axis; an outbreak of the dreaded avian influenza (bird flu) in some parts of the country; droughts and land use degradation; gully erosion in the South-East states of the country; wind storms in northern parts of the country; horrific plane crashes and vehicular accidents; fire disasters across the country especially market infernos in many parts of the country; marine and coastal erosion in the coastal areas (Okeke; ammunition dump explosions; collapsed buildings; communal clashes; and violent religious uprisings . Boko Haram activities especially in the Northern part of Nigeria are another man-induced disaster in Nigeria. Recognizing that resource constraint has always been the mantra of Nigeria towards welfare-oriented policies and programmes, an attempt is made at identifying other factors impeding the emergence of effective disaster management and reduction in Nigeria beyond the issue of resources. The growing trend of disasters in Nigeria has implications for sustainable economic development. This is because, disasters, irrespective of causal factors are associated with diverse externalities such as mortalities, loss of income, home, farmlands, social networks, livelihoods and infrastructures. The accelerating pace of urbanization and the growing scale of urban-industrial activity is exacerbating environmental stresses in developing-country cities and increasing the vulnerability of urban dwellers to both natural, technological and other human induced disasters. The demand for more urban space has pushed the poor onto marginal, environmentally vulnerable terrain. In many developing countries, overcrowding, congestion, poverty, unemployment, and inadequate infrastructure and services further weaken urban resistance to natural hazards (Ratzan, 2004).

Nigeria, like other countries in Africa, has had its own share of disaster, both from natural hazards and man-induced incidences, and all with their debilitating consequences. Indeed, the concurrences of disaster and emergencies in Nigeria have increased in frequency and intensity in the last decade and especially in recent times where Boko Haram activities and flooding have become the order of the day. The major devastating hazards experienced in Nigeria include the frequency of oil spills in the Niger Delta, increase in industrial pollution in the major industrial corridors in the country, rise in ocean and gully erosions in the South East and coastal areas; threat of drought and desertification in the Sahel region; pest infestation and locusts in Yobe-Bornu axis; avian influenza (bird flu) in some parts of the country, flood devastations and general land degradation across the country may have negative impact on sustainable economic development of the region. Both developed and developing countries agree that disaster is one of the greatest threats facing the planet. Those disasters include flooding, oil spill, bomb blast, communal/religious clashes, collapsed

building, plane crash, fire disaster, vehicle accidents among others. The effect of these disasters people and the general economic growth and development can be reduced if proper and timely dissemination of information is carried out.

Objectives of the Study

The objective of this study is therefore; to evaluate the extent to which disaster information disseminating system has contributed to the education of the people in south east, Nigeria.

Research Questions

To what extent has disaster information disseminating system contributed to the education of the people in south east, Nigeria?

Research Hypotheses

Disaster information disseminating system has to a very high extent contributed to the education of the people in south east, Nigeria.

Review of Related Literature

Disaster defined

The United Nations defines disaster as “the occurrence of sudden or major misfortune which disrupts the basic fabric and normal functioning of the society or community (Ministry of Home Affairs, Govt. of India, and Disaster Management in India). A disaster is an event of nature or man-made that leads to sudden disruption of normal life of a society, causing damage to life and property to such an extent that normal social and economic values available are inadequate to restore normalcy after a disaster. Disaster may be defined as a “catastrophic situation in which the normal patterns of life have been disrupted and extraordinary emergency interventions are required to save and preserve human lives and the environment”. A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community’s or society’s ability to cope using its own resources. Though often caused by nature, disasters can have human origins (UNISDR). As per the Disaster Management Act 2005, a disaster is defined as “a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made cause, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area (Ministry of Home Affairs, Govt. of India, Disaster Management in India). Disasters produce a range of impacts; these include direct, secondary and indirect effects. Direct effects include

deaths, injuries and physical damage. However, secondary disaster impacts such as releasing fire or hazardous material that is triggered by disasters. Finally, impacts include the ripple effect resulting from the flow of goods, services, unemployment etc (O'Connor, Copeland, and Kearns, 2003).

Disaster Profile in Nigeria

Disaster Profile in Nigeria Include;

- Frequent oil spills within the Niger Delta leading to irreparable damage to coastal biosphere and resulting to poverty and conflict.
- Increasing levels of industrial pollution and waste due to expansion in the manufacturing sector.
- Rise in the number and severity of flood, especially in Jigawa, Anambra, Kogi, Niger Delta states, Gombe and some of the southern states like Ogun and Lagos as a result of climate change and in some cases urbanization and its consequences.
- Increasing threat of desertification due to uncontrolled use of wood for fuel, pest infestation as in quella birds and locusts in the Yobe-Borno axis. For instance, the reported outbreak of the dreaded avian influenza (bird flu) in the Northern states of Kaduna, Kano and Plateau, resulting in loss of national income and revenue by the country farmers.
- Droughts and general land use degradation.
- Gully erosion in the south east and wind storm in the northern parts of the country.
- The 1992 C-130 plane crash, the EAS crash of 2002, the Bellview and Sosoliso air crashes of 2005 and the two embarrassing air crashes in the last quarter of 2006 and most recently the Dana plane crash of June 3rd 2012 and Naval Helicopter that killed Governor of Kaduna state Patrick Yakowa, former Chief Security Adviser, Andrew Aziza and four others in November 2012.
- Cases of vandalized pipelines in diverse communities with attendant losses.
- Increased trend of urban risks such as incidence of floods and collapsed buildings in major cities of the country such as Lagos and Port-Harcourt.
- Ethnic-religious conflict especially in Kaduna, Kano and Plateau states.
- Frequent Boko-Haram Bomb blast in many parts of the northern states like Plateau, Kaduna, Kano, Niger, Boronu including the Federal capital territory (Abuja).

- The high forest cover in the country decreased from 20 million hectare at the beginning of 20th century to only 2 million hectare in the 1990s representing about 10% of its original size, mostly in high forest zone.

Disaster Management

As per Disaster Management Act, 2005, “disaster management” means a continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary or expedient for:

- (i) Prevention of danger or threat of any disaster.
- (ii) Mitigation or reduction of risk of any disaster or its severity or consequences.
- (iii) Capacity-building.
- (iv) Preparedness to deal with any disaster.
- (v) Prompt response to any threatening disaster situation or disaster.
- (vi) Assessing the severity or magnitude of effects of any disaster; evacuation, rescue and relief.
- (vii) Rehabilitation and reconstruction.

Disaster Management can be defined as the organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular preparedness, response and recovery in order to lessen the impact of disasters (<https://www.ifrc.org/en/what-we-do/disaster-management/about-disaster-management/>).

What is information

Information theorists Shannon and Weaver (1948) believed that “information is the reduction of uncertainty,” and yet, ironically, finding a clear definition of information still seems to stump both researchers and readers of IS. Information has been defined within many disciplines by those who sometimes over-simplify or over-complicate its meaning nevertheless, IS researchers agree that information is fundamental to all disciplines for communication, and it must therefore be preserved, organized, and easily retrieved (Buckland, 1991; Ratzan, 2004). Information may be described as a representation of a message that is processed into something valuable so that it may be applied in a practical context. This description, however, suggests that the *value* of information has somehow been previously established. So, how, then, is the value of information determined?

Information Dissemination

Unprocessed information is intangible and non-consumable, yet a plentiful resource that can be refined and used as a public or private good. Information is inherently more abundant than

most resources because it is found in every person, place, and thing it is the entirety of known data, facts and ideas. Information, in my opinion, is any meme, message, or meaning that influences, directly or indirectly, how persons understand their situations. It is the principle element of omniscience, and therefore the resource from which all knowledge is extracted. Knowledge includes units of systematic subjects, noted for their oneness, objectivity, respected social implications, usefulness, and resistance to obsolescence. Knowledge is mined and refined into the integrated disciplines the world calls wisdom valued public goods like anthropology, information technology (IT), medical research, and universal religion (Cleveland, 1982).

As unprocessed public goods, information flows between and among people and groups in the form of verbal, non-verbal, or written interactions whether memes, messages, or meanings that serves as precursors to problem solving and decision-making. Interactions instigated directly or indirectly by a disaster could be deemed disaster information. As processed public goods, information whether a meme, message, or meaning influences the lives of those who experience it. When life-sustaining or life-fulfilling information is absent, inaccessible, or useless because it is inaccurate or interrupted as the result of a hazard natural, civil, or technological, the persons affected may be said to be experiencing an information disaster. An information disaster hinders the access to or effective use of disaster information.

Information is a vital public good whether processed or unprocessed. How people encounter information, a phenomenon called information-seeking behavior or information behavior by information scientists, is the subject of extensive research (Case, 2002). The study of disaster information behavior the actions or attitudes that affect encountering, needing, finding, choosing, or using disaster information appears to be scant or absent in the literature.

This deficiency in the study of disaster information behavior may exist because studying information behavior involves field study an option not always available to researchers in times of disaster. In addition, many researchers cannot afford the time and expense demanded by qualitative research, the preferred approach to effective information behavior studies. A further challenge for researchers is the inherent elusiveness of information itself. The form it assumes or the direction it will flow is not always apparent (Burlando, 1994). What is apparent, however, is that information, as the essence of all knowledge, and subsequently the essence all wisdom is the basis for all disciplines of study, including information science and emergency management. Its pervasiveness alone demands interdisciplinary observation.

Theoretical Framework

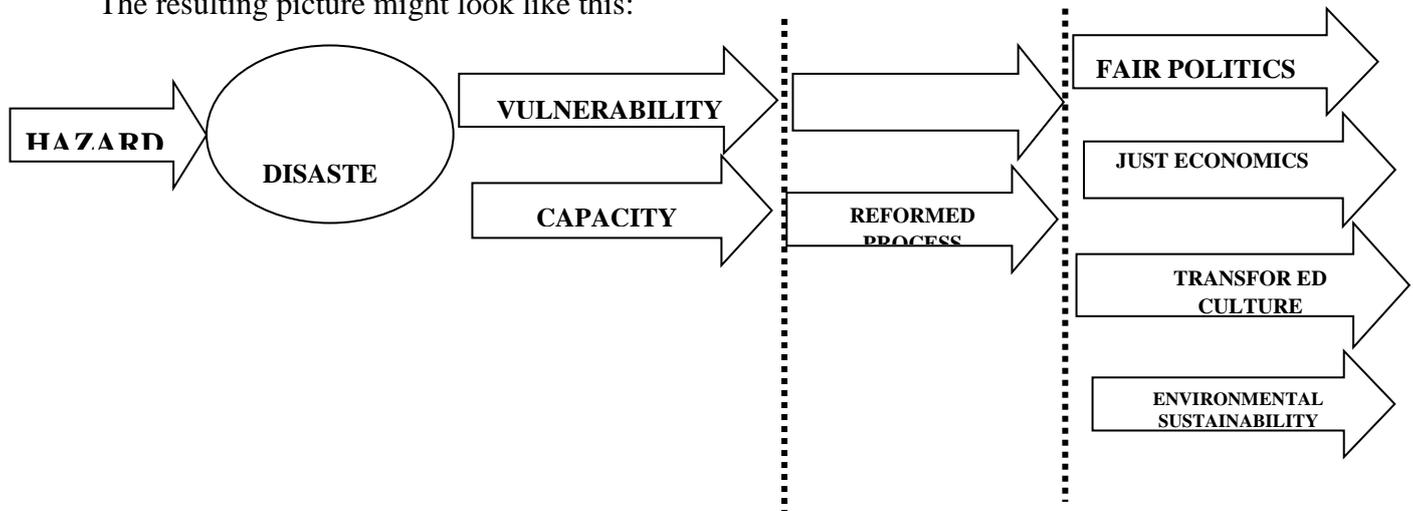
This work is guided by the Release Model and Information Science Theory

Disaster Release Model

The Release Model

In order to reduce disaster risk, the directions of the arrows in the Disaster Crunch Model need to be reversed, signifying the release of the pressure that previously caused a disaster.

The resulting picture might look like this:



Disaster Release Model

Source: Tearfund. A. (2011), Understanding Risk Reduction Theory, titz.tearfund.org-site.info

Changing the direction of the arrows is not always easy and requires activities at local, national and international levels. Some examples are given below.

Hazard Reduction: There are ways of reducing the occurrence, frequency or strength of some hazards. For example, construction of embankments or channel dredging can reduce flooding. Trees can be planted to offset drought, or to stabilize soils which are liable to being eroded. Advocacy can be used to influence politicians to do more to counter climate change and its effect on weather-related hazards.

Information Science Theory; Information and Disasters

The flow of information within the management of disasters can be investigated using several methods found in the interdisciplinary domains of IS. Many theories have evolved including theories of individual and collective information behavior (information seeking and processing). Collective information behavior has been studied in the context of group research (information flow in both task and emergent groups). Task groups' individuals who accept a collective charge to form decisions and/or solve problems dominate research of information flow in groups. Emergent groups individuals that meet incidentally and

collaborate have appeared in recent IS research with an emphasis on conversational problem-solving (O'Connor, Copeland and Kearns, 2003). Emergent behavior a more intense form of problem-solving has been the subject of some EM studies within the context of disaster scenes (Drabek and McEntire, 2003).

Methodology

The survey method was adopted in this study. This method was adopted because of the large number of subject under investigation

Population of the Study

The population of the study is drawn from various agencies responsible for disaster management in Nigeria available in the South-East, Nigeria. The agencies include National Emergency Management Agency 410, The Nigerian Fire Service 340, Federal Road Safety Commission 850, Senior Police Officers 903, The Red Cross Society of Nigeria (NGO) 321 and Nigerian Security and Civil Defense Corps 880. Total population for the study is 3704 (NPC, 2013).

Sample Size Determination

The researcher suspects that there may be several and irregular transfers of staff within and outside the surveyed states and regions and this invariably will make the population size unstable. As a result, in order to select suitable sample size, the researcher assumed that the population is infinite. And hence, the study adopted a sample size determination formula for infinite population as posits by Chukwu (2007)

Techniques of Data Analysis

Basically, in statistics, the type of data collected determines the statistical tool to be used in the presentation and subsequent analysis. For this study, the data collected are presented in frequency tables. The responses from the respondents are expressed in percentages in relation to the number of respondents. Specifically, all the questionnaire items that were designed with a view to pursuing the achievement of the research objectives (that were stated in chapter one) were analyzed in this way. The hypothesis was tested using Pearson Product Moment Correlation Coefficient at 1 % error specified degree of freedom; the test was conducted using SPSS version 17.

Data Analysis and Result Presentation

The extent of disaster information disseminating system on the education of the people

The third objective of this study is to evaluate the extent of disaster information system on the education of the people.

Table 4.1: The analysis of the responses related to the third objective

S/N	ITEMS		SA	A	U	D	SD
1	Disaster information disseminating system to a very large extent creates awareness about disaster.	Freq	233	257	27	20	13
		%	42.4	46.7	4.9	3.6	2.4
2	Disaster information disseminating system educate people on the effect of disaster on their lives and property	Freq	263	250	17	12	8
		%	47.8	45.5	3.1	2.1	1.5
3	Disaster information disseminating system makes people living on the disaster prone areas to be aware of the oncoming disaster and plan for relocation to safer areas before it occurs	Freq	257	233	20	27	13
		%	46.7	42.4	3.6	4.9	2.4
4	Disaster information disseminating system makes people living on the disaster prone areas to fortify their environment against the oncoming disaster.	Freq	235	245	30	20	20
		%	42.7	44.5	5.6	3.6	3.6

Source: Field Survey, 2015

For the statement that disaster information disseminating system to a very large extent creates awareness about disaster, the responses are Strongly Agree (SA), Agree (A), Undecided (U), Disagree (A), and Strongly Disagree (SA). They have frequencies of 233, 257, 27, 20 and 13 respectively out of 550. These give percentages of 42.4, 46.7, 4.9, 3.6 and 2.4 respectively totaling 100. For the statement that disaster information disseminating system educate people on the effect of disaster on their lives and property, the responses are Strongly Agree (SA), Agree (A), Undecided (U), Disagree (A), and Strongly Disagree (SA). They have frequencies of 263, 250, 17, 12 and 8 respectively out of 550. These give percentages of 47.8, 45.5, 3.1, 2.1 and 1.5, respectively totaling 100. For the statement that disaster information disseminating system makes people living on the disaster prone areas to be aware of the oncoming disaster and plan for relocation to safer areas before it occurs, the responses are Strongly Agree (SA), Agree (A), Undecided (U), Disagree (A), and Strongly Disagree (SA). They have frequencies of 257, 233, 20, 27, and 13 respectively out of 550. These give percentages of 46.7, 42.4, 3.6, 4.9 and 2.4 respectively totaling 100. For the statement that disaster information disseminating system makes people living on the disaster prone areas to fortify their environment against the oncoming disaster, the responses are

Strongly Agree (SA), Agree (A), Undecided (U), Disagree (A), and Strongly Disagree (SA). They have frequencies of 235, 245, 30, 20 and 20 respectively out of 550. These give percentages of 42.7, 44.5, 5.6, 3.6 and 3.6 respectively totaling 100. **Restatement of Hypothesis**

H₀: Disaster information disseminating system did not to a very high degree contribute to the education of the people

H₁: Disaster information disseminating system to a very high degree contributed to the education of the people

Table 4.2 Descriptive Statistics

Adequate information disseminating system contributed to the education of the people	Mean	Std. Deviation	N
To a large extent, information disseminating system contributed to the education of the people	4.3727	.71491	550
	4.3055	.79695	550

Table 4.3 Correlations

		Adequate information disseminating system contribute to the education of the people t	To a large extent, information disseminating system contribute to the education of the people
Adequate information disseminating system contribute to the education of the people	Pearson Correlation	1	.951**
	Sig. (2-tailed)		.000
	N	550	550
To a large extent, information disseminating system contribute to the education of the people	Pearson Correlation	.951**	1
	Sig. (2-tailed)	.000	
	N	550	550

** . Correlation is significant at the 0.01 level (2-tailed).

Referring to foregoing result and also appendices A₅ and A₉ we have the following:

The sampled correlation coefficient	r	=	0.951
Coefficient of determination	r ²	=	0.904
Number of paired observations,	n	=	550
Calculated value of	t	=	94.50
Critical value of	t	=	2.58

Sources: Statistical analysis (Appendices A₅ and A₉).

The computation of r using the data in table 4.3 gave a value of 0.951 indicating the existence of strong positive relationship between disaster information disseminating system and education of the people. From the above, it becomes imperative to make inference about the population as to whether the correlation coefficient obtained is indicative of the actual relationship between disaster information disseminating system and education of the people or whether it could be attributed to chance. The test to achieve this purpose (as we stated earlier) is referred to as test of significance of correlation coefficient.

Still making reference to appendices A₅ and A₉, we proceed to conduct the test as shown:

Ho: $\rho = 0$, the correlation coefficient in the population is zero.

H_A: $\rho \neq 0$, the correlation coefficient in the population is different from zero.

Critical value of t = 2.58

Calculated value of t = 94.50

Based on the data collected, presented and analyzed, this study finding shows that disaster information disseminating system significantly contributed to a very large extent on the education of the people, it was also find that and that disaster forecasting had significant positive effect on good governance in the South-East, Nigeria.

Conclusion

Disasters are characterized by the scope of an emergency. An emergency becomes a disaster when it exceeds the capability of the local resources to manage it. Disasters often result in great damage, loss, or destruction. A disaster is a result from the combination of hazard, vulnerability and insufficient capacity or measures to reduce the potential chances of risk. A disaster happens when a hazard impacts on the vulnerable population and causes damage, casualties and disruption. Any hazard such as flood, earthquake or cyclone which is a triggering event along with greater vulnerability (inadequate access to resources, sick and old people, lack of awareness etc) would lead to disaster causing greater loss to life and property. In conclusion therefore, this study has been able establish that disaster information disseminating system significantly contributed to a very large extent on the education of the

people and that regular disaster forecasting by disaster management agencies is necessary for proper and timely information dissemination to the people.

Recommendations

The researcher recommends that;

1. Disaster management agencies should regularly embark on disaster information disseminating system for educating the people about disaster and how to manage them when they occur,
2. Regular disaster forecasting by disaster management agencies should be encouraged in the south east, Nigeria for good governance of the people.

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