

Full Length Research

Modern technologies used in managing disaster that emanate from terrorism and biological agents related disasters in Federal University Libraries in North-East, Nigeria

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This study surveyed the modern technologies use managing disaster that emanate from terrorism and biological agents related disaster in federal university libraries in North East, Nigeria. The study was guided by two objectives. The population for the study comprised of 240 academic librarians. The study used survey research design, the whole population was used for the study, and questionnaire was used as instrument for data collection. Inferential statistics was used to analyses data. The findings of this study revealed among others that majority of the librarians strongly agree to GIS ICTs for safeguarding library resources from terrorism the types of modern technologies adopted. Also, Majority of the librarians strongly agree to Termite proofing to control termite (sulphur dioxide)in the library is the types of modern technologies adopted for managing disaster that emanate from biological agents. The study drew conclusion that majority of the librarians used of modern technologies such as RFID in managing disaster from terrorism. It is also concluded that termite proofing to control termite (sulphur dioxide) in the library is the types of modern technologies adopted for managing disaster that emanate from biological agents. Finally, the study also recommended that the library management should make appropriate allocation of fund for purchase and installation of modern technological equipment to detect act of terrorism such equipment such as GIS, RFID and Drones technologies should be acquired. It was recommended that management should provide insecticides chemical agents, and surveillance to the federal and state university in north east Nigeria.

Key Words: Modern Technologies, Disaster Management, Terrorism and Biological -related Disasters

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INTRODUCTION

Disasters have affected human and natural resources for ages. These are events that disrupt the normal activities of an organization, institutions, and countries. Ottong (2013) defined a disaster as any incident which threatens human safety and damages or threatens to damage, a library's buildings, collections and equipment. Man-made disasters are those caused or influenced by man, causing financial losses, risks, hazards and suffering such as war, explosives, liquid chemical spills and terrorism. (Ottong, 2013). Disasters both natural and man-made are leading to escalating disruption in human activities; loss of human lives, destruction of assets and businesses. Disasters challenge institutions and governments causing chaos and disruptions due to limited institutional capacity. Terrorism, as unleashed by Boko Haram, has primarily targeted government security agencies most especially the police, public buildings, churches markets as well as properties in institutions of learning. According to Frykberg and Tepas, in McEntire (2015) defined terrorism as an act of unlawful exercise of random and ruthless violence against property or individuals, usually innocent civilians, to intimidate governments or societies for political or ideological purposes. Similarly, Panzer, Butler, and Goldfrank (2003) defined terrorism as the illegal use or threatened use of force or violence to instill fear in populations, and an intent to coerce societies or governments by inducing fear in their populations.

However, Man has also been known to destroy resources by setting them on fire deliberately. These acts of deliberate removal of resources from the institution can be done for personal gratification or reward. Theft and sabotage are not natural disasters as fire and floods but they are disastrous acts to the organization. They can be controlled with a global positioning system (GPS) and satellite technology. Gauch (2013) stated that RFID technology has been adopted in managing disaster from terrorism, radio frequency identification, RFID is another type of tracking device that is used in manage disaster arising from vandals and terrorism. In a related study by Ripley (2015), lamented that about 50,000 lives have been lost properties worth 17 billion naira of Nigeria currency has been lost as a result of the attacked. With over five decades of nationhood. Nigeria has never witnessed the kind of insurgency that has engulfed the country in the past five years. The post-presidential election of 2011 and the concomitant uproar it generated most especially in the northern part of the country fuelled the upsurge of insurgency.

A report over the years has shown an alarming increase in levels of crime by Boko Haram terrorist attack, especially in North-Eastern Nigeria. Unfortunately, this situation is spreading across the other Africa countries, with countries such as Cameroun, Chad and

Niger has now recording disquieting increases in crime levels and attack of Boko-Haram, as Boko Haram Attacks Killed over 1,000 Civilians in February 2015 (The Sun News 2015). Recently, this national insecurity has led to the kidnapping of secondary school students which lead to the closure of boarding schools in part of northern region of the country. Also, the persistence of insecurity has been claiming precious lives of citizenry and properties, including library building, government efforts to tackle the problem through various menial methods and approaches such as the use of police, military, vigilante and local hunters seem not to be yielding a positive result. But deploying technology, through the use of ICT devices such as a computer, internet, mobile phone, close circuit television (CCTV), surveillance cameras, social network analysis, biometry surveillance, data mining, and satellite imagery devices, the modern technology would produce the desired results. Therefore, there is also a need for government to put to an end to this insurgencies by taking a drastic measures by putting technological appliances such camera surveillances and drones to curtail Boko Haram attack.

In the other hand, biological agents such as cockroach's and rodents cause a great damage to Library holdings, the common rodent in libraries is the house mouse. Mice cause damage by destroying materials for nesting purposes and also urinating and defecating on library materials. These droppings are corrosive and can leave permanent stains. Rodents can chew the insulation off electrical wires, causing them to short-circuit, and could start a fire in tropical countries. Therefore, chemical substance should be used to manage these rodent, as suggested by Alegbeleye in Akussah (2017) that nitroglycerin is a chemical substance that is adopted into managing disaster from a biological agent, the use of nitroglycerine will reduce the activities of the insects such cockroaches in the library. In addition to that, Alegbeleye, in Ikegune (2016) stated that, adoption of bio-deterioration to Manage disaster from biological agent bio-deterioration. With regards to insects, the most appropriate method of dealing with them is through integrated bio-deterioration pest management measures.

STATEMENT OF THE PROBLEM

Libraries are referred to as the heart or nerve centers of the institutions. Materials in the libraries are vulnerable to a disaster of various kinds, such as fire, flood, human and biological agents. They usually leave in their trail very unpleasant experiences. Effective disaster preparedness in these libraries is necessary. The disaster management preparedness would safeguard the institutions from losing their library materials, as the effect of not having disaster management measures in libraries would cause

them to lose their materials when disaster strikes. However, the particular circumstance of disasters in libraries is that they may bring about extensive damage or loss of information resources which is valuable in daily lives. Preliminary investigation by the researchers uncovered that biological agents and human terrorism in recent years are quite common problems in the libraries in north east, Nigeria. This could be as a result of frequent attacks by Boko Haram and wide spread of rodents in the libraries. However, enhancements in technology and sophistication of electronics such as collection security, and video surveillance systems have positively affected security equipment. There are also many chemical agents, available that can be utilized to secure libraries and their resources from rodents. It is against this background the researchers strive to investigate the Modern Technologies used in Managing Disaster that Emanate from Terrorism and Biological agents related Disasters in Federal University Libraries in North-East, Nigeria

Objective of the Study

The general objective of this study is to investigate the modern technologies use managing disaster that emanate from terrorism and biological agents related disaster in federal university libraries in North East, Nigeria. The specific objectives are to determine:

1. the modern technologies used in managing disaster that emanate from terrorism in North East, Nigeria
2. the modern technologies used in managing disaster that emanate from biological agent in North East, Nigeria

Research Question

1. What are the modern technologies used in managing disaster that emanate from terrorism in North East, Nigeria?
2. What are the modern technologies used in managing disaster that emanate from biological agent in North East, Nigeria?

METHODOLOGY

The descriptive survey research design was adopted for the study. According to Nworgu (2015) descriptive survey research is one in which a group of people or items is studied by collecting and analyzing data from only a few people or items considered to be representative of the entire group. Questionnaire was the instrument used for data collection. The population of the study comprise of 240 staff working under study. Two hundred Forty (240) copies of the questionnaire were administered to the respondents by the researchers out of which 227 was

retrieved and found usable for analysis. In analyzing the data inferential statistical method of data analysis was employed

LITERATURE REVIEW

Terrorism is defined in many ways by many scholars and institutions. According to Frykberg and Tepas, in McEntire (2015) defined terrorism as an act of unlawful exercise of random and ruthless violence against property or individuals, usually innocent civilians, to intimidate governments or societies for political or ideological purposes. Similarly, Panzer, Butler, and Goldfrank (2003) defined terrorism as the illegal use or threatened use of force or violence to instill fear in populations, and an intent to coerce societies or governments by inducing fear in their populations. Sawada and Zen (2014) stated that satellite technology is used in managing disaster that emanates from terrorism, nations in Africa are still at war and involved in conflicts, and terrorist attacks are having serious impacts even on advanced nations. The prevailing terror threats in Africa include groups such as Al-Quaeda, Al-Shabaab and Boko Haram

Ochieng, Maichuhie and Esekun (2016) postulated that CCTV, technology is used in managing disaster that emanates from terrorism. These emerging trends urgently call for a new approach to disaster management and general reinforcement of security measures in vulnerable areas. They suggest that emergency drills at present must be handled with caution since the team may fall short of the intended outcomes. Kawatsuma, (2013), stated that Global positioning system (GPS) has been adopted in manage disaster that emanates from terrorism, this technology, is used in locating area were terrorist activity take place, GPS technology help in locating disaster areas. GPS works by measuring the time it takes a signal to travel the distance between a satellite and the device itself. GPS is commonly used in vehicles and handheld objects such as mobile phones and personal digital assistants. The nature of the technology means the device itself can be adopted to manage disaster arising from terrorism

Microbiological element fungi, bacteria, insects, rodents and man himself are a key instrument in the deterioration of library collections either print or electronic. This is affirmed by Plumbe, in Waweru, (2014) mentions serious termite damage to books in Africa. Termites feed on grass, hummus, timbers, and wood work of buildings, library books, files, photographs, valuable pictures and catalogue cards. Solinet, in Ikegune (2016) stated that adoption of carbon-nitrogen sulphur technology to manage disaster from the biological agent. Biological agents thrive on the organic matter they find in library materials. Popoola, in Ikegune (2016) stated that adoption of nitroglycerine to manage disaster from a biological agent,

the management of libraries and archives in Nigeria have poor maintenance culture of infrastructure facilities such as laboratory equipment, buildings, and disaster control devices meant for preservation operation. Alegbeleye, in Ikegune (2016) further stated that, with regards to insects, the most appropriate method of dealing with them is through integrated bio-deterioration pest management measures in related scenario.

Data analysis and Results

Research Question 1: What are the types of modern technology adopted to manage disaster that emanate from terrorism in Federal University Libraries in North- East Nigeria?

Table 1. Mean and standard deviation of librarians on the types of modern technology adopted for managing disaster that emanate from terrorism in libraries in North-east Nigeria ($N=227$)

S/N	Modern technology adopted to manage disaster that emanate from terrorism	Mean	SD	Remark
1	GPS to locate disaster incidents in the libraries	4.00	.86	Strongly agree
2	Geographic information systems to enable efficient organization of disaster dataset	3.67	.65	Strongly agree
3	GIS to tackles a disaster in a much better way	3.42	1.01	Agree
4	ICT security systems to checkmate any criminal activities in the libraries	3.51	.74	Strongly agree
5	ICTs for safeguarding library resources from terrorism	2.11	.94	Disagree
6	Geographic Information Systems and Web Technologies for disaster management	2.37	.62	Disagree
7	Satellite-based communication to help plan and improve DRR	2.67	.82	Agree
8	Remote Sensing for sensing incidence of disaster in the libraries	2.87	.73	Agree

Results presented in table 1 shows the mean and standard deviation of librarians on the types of modern technology adopted for managing disaster that emanate from terrorism in libraries in North- east Nigeria. The analysis reported that librarians strongly agree to items 61, 62, 64 with mean scores of 4.00, 3.67 and 3.51, agree to items 63, 67, 68 with mean scores of 3.42, 2.67 and 2.87 and disagree to items 65, 66 with mean scores of 2.11 and 2.37. On the whole, the respondents agree to the types of modern technologies adopted to manage disaster that emanate from terrorism in libraries in North- East Nigeria. More so, the standard deviation reported shows that librarians were homogeneous in their responses on the types of modern technology adopted to manage disaster that emanate from terrorism in libraries in North-East Nigeria.

Research Question 2: What are the types of modern technology adopted to manage disaster that emanate from biological agents in Federal University Libraries in North- East Nigeria?

Table 2. Mean and standard deviation of librarians on the types of modern technology adopted for managing disaster that emanate from biological agents in libraries in North-east Nigeria ($N=227$)

S/N	Modern technology adopted to manage disaster that emanate from biological agents	Mean	SD	Remark
9	Fumigation of the library to reduce insects in the library	3.89	1.01	Strongly agree
10	Biological agents like insects, fungi and rodents can cause damages to books and other library materials	4.00	.87	Strongly agree
11	Termite proofing to control termite in the library(sulphur oxide)	3.78	.99	Strongly agree
12	Air-condition to deal with pest through freezing at extremely cold temperatures.	4.00	.74	Strongly agree
13	Frequent application of chemical, to help in protection agents pest	2.89	.63	Agree
14	Well-ventilated and climate-controlled environment to prevent infestation by rodent / pests.	2.97	.81	Agree

Results presented in table 2 shows the mean and standard deviation of librarians on the types of modern technology adopted for managing disaster that emanate from biological agents in libraries in North- east Nigeria. The analysis reported that librarians strongly agree to items 69, 70, 71 and 72 with mean scores of 3.89, 4.00, 3.78 and 4.00, agree to items 73, 74 with mean scores of 2.89 and 2.97. On the whole, the respondents agree to the types of modern technologies adopted for managing disaster that emanate from biological agents in libraries in North- east Nigeria. More so, the standard deviation reported shows that librarians where heterogeneous in their responses on the types of modern technology adopted to manage disaster that emanate from biological agents in libraries in North-east Nigeria.

SUMMARY OF FINDINGS

1. Majority of librarians strongly agree to GIS ICTs for safeguarding library resources from terrorism the types of modern technologies adopted to manage disaster that emanate from terrorism in libraries in North- East Nigeria.
2. Majority of the librarians strongly agree to Termite proofing to control termite (sulphur dioxide) in the library is the types of modern technologies adopted for managing disaster that emanate from biological agents in libraries in North- east Nigeria

DISCUSSION OF FINDINGS

Majority of librarians strongly agree to ICTs for safeguarding library resources from terrorism the types of modern technologies adopted to manage disaster that emanate from terrorism in libraries in North- East Nigeria. The study above agrees with that of Kawatsuma (2013) in his study which revealed that Global positioning system (GPS) has been use in managing disaster. However, this technology is used in locating area were terrorist activity take place, GPS technology help in locating disaster areas. GPS works by measuring the time it takes a signal to travel the distance between a satellite and the device itself. The study is in line with the study conducted by of Gauch (2013) which revealed that RFID, CCTV and Global positioning system (GPS) has been adopted in manage disaster that emanates from terrorism. RFID is another type of tracking device that is used in manage disaster arising from terrorism

Majority of the librarians strongly agree to Termite proofing to control termite (sulphur dioxide) in the library is the types of modern technologies adopted for managing disaster that emanate from biological agents in libraries in North- east Nigeria. The above study is in line with of Alagbeleye, in Waweru, (2014) stated that sulphur

dioxide is used in managing disaster from a biological agent, biological agents like insects, fungi and rodents cause damage to books and library materials, particularly in tropical countries. The use of sulphur dioxide will reduce the activities of the insects in the library. He further believes that insects are identified as enemies of library materials. The most common of these pests are cockroaches, silverfish, termites and moths.

CONCLUSION

It has been concluded that majority of the librarians concluded that majority of academic librarians rated that they used of modern technologies such as RFID technology has been adopted in managing disaster from terrorism, radio frequency identification. The study also concluded that majority librarians strongly agree to termite proofing to control termite (sulphur dioxide) in the library is the types of modern technologies adopted for managing disaster that emanate from biological agents in libraries in North- east Nigeria.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made:

1. The library management should make appropriate allocation of fund for purchase and installation of modern disaster technological equipment to detect act of terrorism such equipment such as GIS, RFID and Drones technologies should be acquired and installed in the library.
2. The university management should provide more relevant insecticides and chemical agents, surveillance facilities should be made available to the federal and state university libraries at all times to enable them to control pests and other biological agents. There should be a regular building inspection so as to remedy the factors which constitute potential hazards.

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