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Fall 12-3-2021

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Aboyade, Modupe; Kolajo, Funmilola Susan; Popoola, Sunday O. Prof; Agbetuyi, Priscilla Abike; and Adetunji, Michael Adekola, "AN ASSESSMENT OF DISASTER PREPAREDNESS IN THE LIBRARIES OF SOUTH-WESTERN, NIGERIAN UNIVERSITIES" (2021). *Library Philosophy and Practice (e-journal)*. 6698. <https://digitalcommons.unl.edu/libphilprac/6698>

# AN ASSESSMENT OF DISASTER PREPAREDNESS IN THE LIBRARIES OF SOUTH-WESTERN, NIGERIAN UNIVERSITIES

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## Abstract

The paper examines the extent of disaster preparedness in libraries of three South-western Nigerian universities. The survey research method was adopted, randomly administering on a ratio of 1:1:2:3, eighty (80) copies of the questionnaire to staff members of four university libraries. A 73% response rate was recorded and simple frequency tables, Likert Scale aided with summative indexing and Chi square test were used for analyzing the collated data. Four research questions were answered with three universities selected for the population study. There were fifty-eight respondents, made up of 30 males (51.7%) and 28 (48.3%) females. Disaster Likelihood Index (DLI) was used to measure propensity to disaster and of the seven indicators, water leakages (3.89) and faulty power supply (3.15) having the highest index scores, are the most probable sources of disaster. In addition, results reveal that the most available disaster management utilities are fire extinguishers, emergency exits and smoke detectors in the libraries with 90%, 75.9% and 72.4% respectively. The availability of smoke detectors however varies significantly across the libraries and is most available in the Kenneth Dike Library. The level of preparedness was also measured with three main indices, namely: maintenance (MI), adequacy (AdI) and awareness (AwI) of disaster management measures, each with its checklist of indicators. With the mean MI, AdW and AwI being 3.17, 3.03 and 2.82 respectively, awareness on disaster management measures is the lowest scoring index of preparedness, and knowledge of emergency numbers has the least AwI (2.31) among its indicators. The study recommends among others, the installation of utilities like smoke detector, emergency exit doors conspicuously indicated, awareness campaign as well as regular staff training on disaster management, to increase the level of preparedness in all the university libraries.

**Keywords:** Disaster Preparedness; Safety Measures; Academic Libraries; South-western, Nigerian.

## **1.1 Introduction**

Safety as a matter of life and death should be the concern of all in many organizations and establishments. Most often, many organizations have safety measures and regulations put in place to forestall disasters. In educational institutions considered as epitome of serenity and urbaneness, it is supposed to be an issue of worry that deserves attention. Institutions of learning are known to experience serious cases of disasters causing closure of universities, damage to university assets, death, injuries and trauma. These are very common depending on the magnitude and severity of the disaster itself. Besides, it affects active participation of students in universities (Blackaby, 2007 & Onyango, 2008). The magnitude and severity of a disaster often depend on the level of its anticipation by those concerned, with campus safety.

An important component of the university system is its library. It is the area or place where collections of books or other research materials are kept. The library sorts, collects, organizes, preserves, and provides access to knowledge and information and this makes it an indispensable unit in an institution. It is an information gold mine, warehouse and the powerhouse of an institution which should be shielded from disasters. Library disaster refers to any incidence that threatens human safety on its space; and damages or threats to damage a library's buildings collection (or items therein), equipment and system (Issa, Aliyu, Adedeji, & Akangbe, 2012). Unfortunately, history shows that many libraries have been affected by disasters; either they were destroyed or seriously damaged by acts of disaster, or of war, bombardment and fire, deliberately or accidentally (Khalid & Dol, 2015).

For instance, the Imperial University Library in Tokyo was destroyed and most of its contents, amounting to about 700,000 volumes were lost due to earthquake. In 1994, a fire destroyed over 350,000 books and historical documents in Norwich Central Library in Great Britain. Such occurrences have also been recorded in Nigeria. The Nigerian Institute of Policy and Strategic Studies Library, Jos, experienced electrical failure resulting in a fire incidence which destroyed many books, artifacts, and other monuments in 1987 (Alegbeleye, 1993).

With the nature of the library resources, making it highly susceptible to fire and flood disasters, it appears that library disaster hardly ranks high on the priorities of many policy makers, both at the political and educational levels. The big question is, how many universities management recognizes the vulnerability of their invaluable collections to loss? There are numerous events or situations that can culminate in library disasters ranging from vandalism, careless handling of equipment, to poor environmental conditions and the likes. Nonetheless, the two commonly recurring causes of library disasters in Nigeria are floods and fire (Alegbeleye, 1993).

Thus, raising pertinent questions: what measures actually were put in place to forestall such devastating events? Were staff members and students equipped to deal with them? The danger, loss and even trauma associated with disasters require that university libraries are prepared to forestall, control, curtail and contain them. This is a crucial for no other reason than the cost of such disaster. The disasters in universities of developing countries have severe impacts due to the poor level of preparedness. Materials and documents that are sometimes irreplaceable are lost and properties are destroyed. Consequently, proactive disaster management becomes an imperative endeavour for universities, especially in libraries. It is in view of this that this study seeks to assess the extent of disaster preparedness in three purposively selected South-western Nigerian universities.

## **1.2 Objectives of the Study**

The following specific objectives guided the study;

1. To identify the possible disasters facing university libraries in South-western, Nigeria
2. To appraise the disaster management measures existing in the selected university libraries in South-western, Nigeria
3. To examine the level of disaster preparedness in the selected university libraries in South-western, Nigeria
4. To identify the problems of disaster management in university libraries in South-western, Nigeria and suggest feasible ameliorative measures

## **1.3 Research Questions**

1. What are the possible disasters facing university libraries in South-western, Nigeria?
2. What are the disaster management measures existing in university libraries in South-western, Nigeria?
3. What are the levels of disaster preparedness in the selected university libraries in South-western, Nigeria?
4. What are the levels of disaster awareness in the selected university libraries in South-western, Nigeria?

## **2.1 Review of Related Literature**

Disaster management is a topical issue that covers various spheres of the built environment. A disaster refers to a serious disruption of the functioning of a community, or of a society, causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope with using its own resources. Libraries and information centres are vulnerable to a whole range of disasters. Indeed, no library is entirely free from risks and hazards. And this perhaps explains why there appears to be an increase in library disaster literature, some of which are succinctly synthesized in this work. Disasters are exceptional events, which suddenly kill or injure large number of people and damage properties. In modern academia, disasters are seen as the consequence of inappropriately managed risk which escalates to cause undesirable effects. According to Corrigan (2008), these effects are as a result of unmanaged hazards and vulnerability. Disasters are, thus, not random and do not occur by accident. They are the result of convergence of hazards and vulnerable conditions.

Alegbeleye (1993) defined library disaster as an event which results in the sudden removal of records and documents from accessibility and use. It can be viewed as an overwhelming ecological disruption of space occurring on scale sufficient to require outside assistance. Eden and Matthews (1996) define disaster within the library milieu as, “any incident which threatens human safety and/or damages, or threatens to damage, a library’s buildings, collections (or item(s) therein), equipment and systems”. Looking at disaster in a generic information management context, it can be viewed as any incident which threatens human safety; and/or damages or threatens to damage a library's buildings collection (or items therein), equipment and system. Eden and Matthews (1996) identified the natural and man-made drivers of library disasters, which encompasses water (e.g. burst pipes or heavy rains leading to flooding); poor storage and environmental conditions (e.g. dampness leading to mold growth); inadequate security leading to break-in or theft and building deficiencies (poorly maintained buildings).

It is a fact that, libraries have stack of books, journals, reports, conference-proceedings, rare materials and antiquities, equipment (computers, photocopiers), furniture which form an integral part of a library’s material, all of which, as well as the building, are very susceptible to loss. Where the library is well recognized and placed, they are the heart of academic institutions and have the sources of information collection in a variety of formats which are required to be protected from disaster, through disaster planning. In this new technological era, libraries have modernized and automated their operations and services. They have adopted new technology, formats and contents to better meet their service delivery mandates. These changes are accompanied by new risks to library operations, and an additional challenge to recover essential services after a major interruption.

Apart from these inevitable causes of loss, natural hazards such as earthquakes, landslides, floods, storms, volcanoes, accidental fires and man-made disasters like theft, vandalism, mutilation, war, terrorism, neglect etc. put libraries at high risk. These disasters pose a grave threat to the gains already made towards development. Natural disasters like the enormous loss of libraries' facilities and collections at Banda Aceh from Indian Ocean Tsunami (Sakamoto, 2005), and man-made disasters like the destruction of library resources, from US embassies bombings in Kenya and Tanzania (McMichael, 2007), have decimated very richly equipped libraries resulting in the disfiguring and destruction of rare collections. The destruction merely reinforced the need for libraries to be prepared to cope with disasters adequately in a bid to minimize the loss which occurs in the wake of such disasters.

Since Kaur (2009) affirms that any organization is prone to disasters, it becomes important for organization to be prepared for any eventuality. The purpose of being prepared, according to Corral and Brewerton (1999), is to enable an effective response when a disaster occurs. This, typically, is often achieved through a combination of documented plans, emergency supplies and staff training supported by internal and external contact arrangements. Corrigan (2008) posits that preventive measures should include having a written plan of action outlining salvage procedures to minimize damage to a collection in the event of a disaster. Warnasuriya (2005) noted that such disaster, as the fire which raged through the City Hall of the Nairobi City Council in 2004 points to the need for organizations to recognize the possibility of been vulnerable to disaster. Regrettably and unfortunately institutional staff often learns about the advantages of emergency preparedness through hard experience, even if an emergency does not have to become a full-fledged disaster before solution are considered.

In fact, hazards can be mitigated or avoided altogether by a comprehensive, systematic, emergency-preparedness program. Such programs provide a means for recognizing and preventing risks, and for responding effectively to emergencies. Warnasuriya (2005) holds that, a written plan developed by the disaster management team is key to prepare for disasters and emergencies. Though, Kaur (2009) notes that, disaster planning is complex, as the written plan is the result of a wide range of preliminary activities. The entire process is most efficient if it is formally assigned to one person who acts as the disaster planner for the institution and is perhaps assisted by a planning team or committee. The planner should establish a timetable for the project and should define the scope and goals of the plan, which has to depend largely on the risks faced by the institution.

According to Lyall (1995), a Disaster Plan is a document which describes the procedures devised to prevent and prepare for disasters; and those proposed are to respond to, and recover materials from disasters when

they occur. The responsibility for performing these tasks is allocated to various staff members who comprise the disaster team. Good disaster plan aims to prevent potential disasters, to minimize the impact, to enhance its capability in preventing, preparing and responding to disasters effectively and efficiently and to generate confidence among stakeholders.

In each of the preventive, preparedness, response and recovery plans, priority attention should be given to possible areas to be affected by the disaster. These areas are:

- i. Personnel including staff, users and visitors
- ii. Collections and records including all categories of archival records, serials, monographs, manuscripts, maps, sound recordings, computer discs, optical and video discs, pictorial materials, and their related catalogues
- iii. It is also important to consider the protection of the institution's vital records. These are usually considered to be those records without which the institution could not operate. All legal documents, essential files and financial records are included in this category
- iv. Building and equipment including equipment, vehicles, air conditioning plant, plumbing, electrical services and computers (Lyall, 1993).

Studies that have examined disaster management in academic libraries and institutional attitude towards preparedness noted that it appears that preparedness is generally low. Khalid and Dol (2015) report that less than half (47.1%) of the academic libraries in the State of Selangor and the Federal Territory of Kuala Lumpur, Malaysia, do not have library disaster plan. The same study found that more than half of the academic libraries (55.9%) do not have Disaster Response Team. Nonetheless, disaster preparedness measures were observed and the prominent ones available in the Malaysian libraries were fire extinguishers (94.1%), smoke detectors (70.6%), audible alarm (91.2%), pull style or break glass-style alarms (82.4%), automatic fire sprinklers (73.5%). In Ghana, 51.1% of the sampled population in Kwame Nkrumah University Library could not ascertain that the library is prepared to avert disasters (Ahenkorah-Marfo & Borteye, 2010). Moreover, 55.32% of the sampled population indicated that there has not been any emergency simulation exercise in the library and less than half (44.7%) could operate a fire extinguisher.

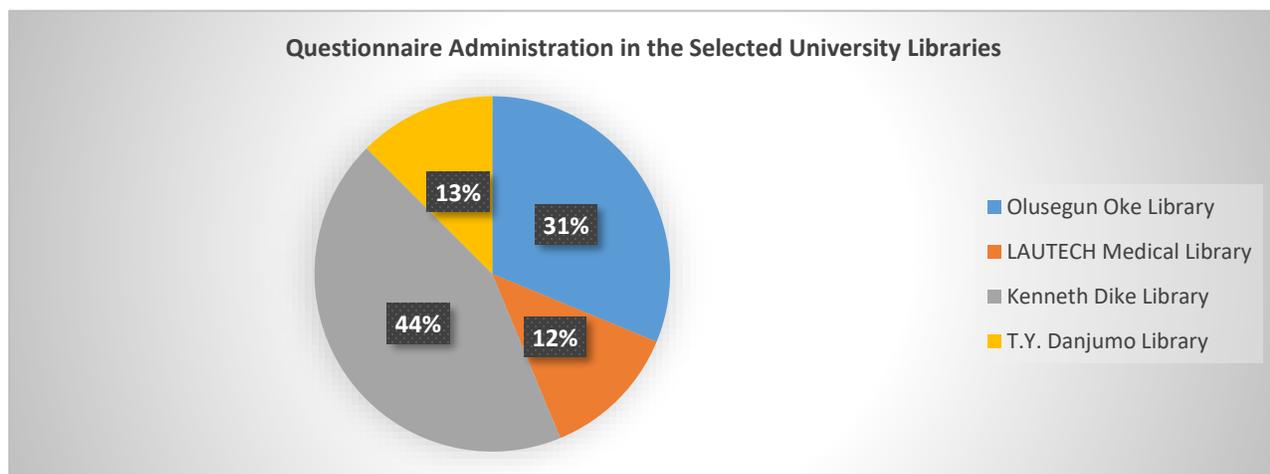
Furthermore, Nwokedi and Panle (2017) in a study assessing preparedness towards fire disaster report the existence of a Disaster Management Plan developed in the University of Jos Library. The study reveals that majority of the respondents were very aware of the fire-safety rules and safety measures in the library with a weighted average of 3.80 (82%) although a considerable proportion was however not prepared towards using

the fire-fighting equipment with a weighted average of 1.39 (34.83%). Given this situation in Northern Nigeria reported in extant literature, the present study seeks to augment existing knowledge by appraising the disaster management measures and the level of disaster preparedness in academic libraries in Southwestern Nigeria.

### 3.1 Study Setting and Methodology

The research adopted the survey method and utilized the most popular data collection instrument, the questionnaire for generating primary data. The survey covered two public universities and one private university across two South-western states namely Oyo and Osun. The selected universities are Ladoke Akintola University of Technology (the Ogbomosho and Oshogbo campuses), the University of Ibadan, Ibadan and Samuel Ajayi Crowther University, Oyo. Four University Libraries were respectively sampled on the whole namely the Olusegun Oke Library, LAUTECH Medical Library, Kenneth Dike Library and T.Y. Danjuma Library.

Library personnel were sampled randomly in the selected libraries for questionnaire administration and eighty (80) copies of questionnaire were administered in the ratio 1:1:2:3 (which comprises of Lautech Medical Library 10; T.Y. Danjumo Library 10; Olusegun Oke Library 25 and Kenneth Dike Library 35) within the selected Libraries. The structured questionnaire was designed to accommodate necessary variables that constitute such indicators like Maintenance Index (MI), Adequacy Index (AdI), Awareness Index (AwI) among others, needed to effectively evaluate the extent of disaster preparedness in the selected libraries.



**Figure 1: Questionnaire Administration in the Selected University Libraries**

Fifty-eight (58) of the administered copies of the questionnaire were properly completed and returned, implying a recovery rate of 73% (see Figure 1). The collected information on disaster management practices,

available utilities and staff attitudes among others were analyzed using simple descriptive statistics. Overall level of preparedness was further appraised by using Likert scales with a five-point response format to evaluate library facilities and ascertain their maintenance and adequacy. The Likert scale was further used to ascertain the propensity of library components to disaster and staff awareness on control measures. The Total Weighted Value (TWV) was derived from the summation of the product of the number of responses for each variable and its respective weight. The TWV was divided by the number of respondents to compute the Index Scores for each variable after which relevant deduction were made.

#### 4.1 Data Analysis and Discussion

As seen in Figure 1 below, the male-female proportion of the participants appears to be nearly the same although, the male library workers appear to be more than the female by a slight margin. This considerably eradicates any gender bias in the supplied information. One-third of the respondents (29.3%) have a university degree followed by those with Diploma (25.9%) while those with a Master Degree take 17.2%. this indicates a high level of literacy among Library staff. Moreover, a higher proportion of the respondents are Non-academic staff members. Only 12.1% of the respondents have worked for less than 5 years while a high proportion (31.0%) have worked for 6-10 years.

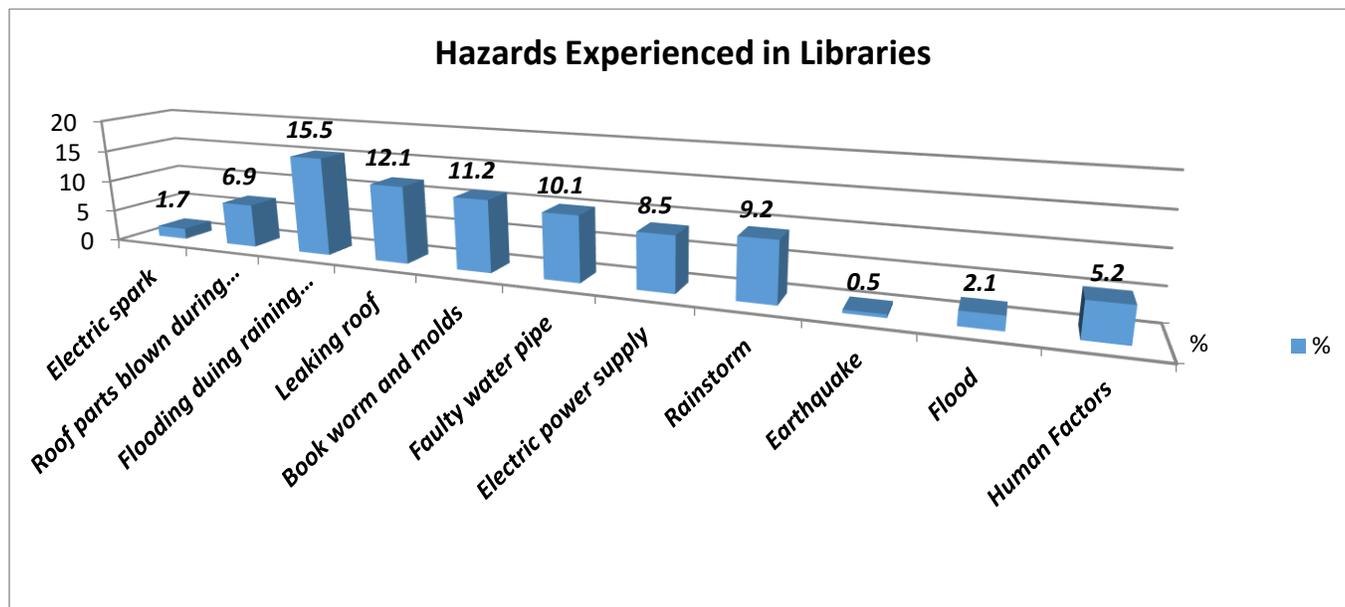
**Table 2: Distribution of Respondents**

Variable	Frequency	Percentage
<b>Gender</b>		
Male	30	51.7
Female	28	48.3
<b>Total</b>	<b>58</b>	<b>100.0</b>
<b>Educational background</b>		
SSGE/GCE	4	6.9
NCE	3	5.2
Higher National Diploma (HND)	5	8.6
Diploma	15	25.9
B.Sc./B.Tech.	17	29.3
Post Graduate Diploma (PGG)	1	1.7
Master Degree	10	17.2
Ph.D.	3	5.2
<b>Total</b>	<b>58</b>	<b>100.0</b>
<b>Staff Designation</b>		
Academic	15	25.9
Non-Academic	43	74.9
	<b>58</b>	<b>100.0</b>
<b>Years of Service in the Library</b>		

1-5 years	7	12.1
6-10 years	18	31.0
11-15 years	16	27.6
15-20 years	11	19.0
Above 20 years	6	10.3
<b>Total</b>	<b>58</b>	<b>100.0</b>

## Research Questions

What are the possible disasters facing university libraries in South-western, Nigeria?



**Figure 2: Possible Disasters that could be Experienced in Nigerian University Libraries**

**Figure 1** above elucidates the propensity of libraries to experience disasters. As indicated the most common hazards experienced in the localities are flooding during raining seasons and leaking roofs with 15.5% and 12.1% respectively. It should be noted here that a hazard is a potentially damaging event whether natural or human induced. It is any phenomenon with the potential to cause destruction to life and property but may not necessarily cause any destruction. Others hazards experienced in the libraries are part of the roof exposed during rainstorms (9.2%) and the least occurring is earthquake (0.5%). The frequency of the noted ones points to the tendency of the libraries to experience such disasters.

**Table 2.1: Disaster Likelihood Index**

What is the possibility of the following causing a disaster?	<i>VH</i>	<i>H</i>	<i>M</i>	<i>L</i>	<i>VL</i>	TWV	N	DLI ( <i>x</i> )	<i>x</i> - $\bar{x}$	$(x - \bar{x})^2$
	5	4	3	2	1					

Faulty power supply	14	11	8	20	5	183	58	3.15	0.33	0.109
Building cracks	6	9	9	26	8	153	58	2.64	-0.18	0.032
Bookworms/molds/dampness	5	8	15	17	13	149	58	2.57	-0.25	0.063
Rainstorm	8	6	8	24	12	154	58	2.66	-0.16	0.026
Water leakages	18	9	14	9	8	226	58	3.89	1.07	1.145
Lack of disaster plan	4	10	6	23	15	139	58	2.39	-0.43	0.185
Human/error/Vandalism	5	8	5	28	12	140	58	2.41	-0.41	0.168
Total								19.71		1.728
Mean DLI								2.82		
Coefficient of Variation								17.6%		

\*VH=Very High, H=High, M=Moderate, L=Low, Very Low      Source: Field survey (2020)

Where:

DLI (x) = Disaster Likelihood Index

TWV = Total Weighted Value

n = Total number of respondents

$DLI = \sum(TWV/n)$

Mean DLI =  $DLI/7 = 2.82$

Variance =  $\sum(x - \bar{x})^2/7; = 1.728/7 = 0.2468$

Standard Deviation =  $\sqrt{\text{Variance}} = \sqrt{0.2468} = 0.4968$

Co-efficient of Variation (CV) =  $S.D \times 100 / \text{Mean DLI} = 0.4968 \times 100 / 2.82 = 17.61\%$

As seen in Table 2.1, various library utilities and practices can provide insight into the extent of disaster awareness and preparedness of selected libraries and indices were developed to this end. The potential of disaster causing occurrences was evaluated with the index termed Disaster Likelihood Index (DLI) based on respondents' perceptions as shown in Table 4. Of the seven variables identified, water leakage (3.89) has the highest index score followed by faulty power supply (3.15). Both are the only variables with index scores above the mean DLI (2.82). Other factors like rainstorm (2.66) and building cracks (2.64) have fairly high index scores while the factors with the least likelihood of causing disaster is lack of disaster closely followed by human error. On the whole, considering the mean DLI (2.82), the likelihood of disaster in the libraries is relatively low. It is noteworthy that unlike fire outbreaks which can be dramatic, water leakages and building cracks which have high index scores are rather subtle but nonetheless pernicious. When undetected and left unchecked can prove disastrous.

Despite the proclivity of the libraries to disaster, the general involvement of library staff in disaster management seminars is low with 29.3% (Table 3). Disasters can be well managed if members of staff are trained adequately with the rudiments of what and what not to do in the event of one, and the small proportion of staff members that have disaster management training, suggests the low level of preparedness for disasters.

## Research Question 2

What are the disaster management measures existing in university libraries in South-western, Nigeria?

**Table 3: Disaster Management Measures in the Selected Libraries in South-western, Nigeria**

Measures		Library				Total (%)	Chi-Square Analysis		
		Olusegun Oke	T.Y. Danjuma	Kenneth Dike	LAUTECH Medical Library		X <sup>2</sup> Value	Asp. Sig.	Remarks
Disaster Management Plan	Yes	4 (13.3%)	2 (6.7%)	19 (63.3%)	5 (16.7%)	51.7	21.416	0.002	Significant
	No	8 (32.0%)	1 (4.0%)	6 (24.6%)	10 (40.0%)	6.9			
	Not Sure	4 (36.4%)	1 (9.1%)	6 (54.5%)	0 (0.0%)	20.7			
Disaster Management Seminars and Workshops	Yes	0 (0.0%)	3 (17.6%)	13 (76.5%)	1 (5.9%)	29.3	17.853	0.0005	Significant
	No	16 (39.0%)	7 (17.1%)	9 (22.0%)	9 (22.0%)	70.7			
Provision and Use of Fire Extinguishers	Yes	9 (21.4%)	9 (21.4%)	15 (35.7%)	9 (21.4%)	90.0	7.329	0.291	Not Significant
	No	1 (25.0%)	1 (25.0%)	2 (50.0%)	0 (0.0%)	0.0			
	Not Sure	6 (50.0%)	0 (0.0%)	5 (41.7%)	1 (8.3%)	10.0			
Installation and use of Smoke Detectors	Yes	4 (18.2%)	34 (36.4%)	10 (45.5%)	0 (0.0%)	72.4	24.429	0.0005	Significant
	No	8 (32.0%)	1 (4.0%)	6 (24.6%)	10 (40.0%)	6.9			
	Not Sure	4 (36.4%)	1 (9.1%)	6 (54.5%)	0 (0.0%)	20.7			
Emergency Exit	Yes	12 (27.3%)	6 (13.6%)	21 (47.7%)	5 (11.4%)	75.9	9.645	0.022	Not Significant
	No	4 (28.6%)	4 (28.6%)	1 (7.1%)	5 (35.7%)	24.1			

Source: Field survey (2020)

From **Table 3** above, it is evident that, respondents' consciousness of an existing disaster management plan is only fairly higher (51.7%) while one-third of the sampled population (34.5%) is not sure whether or not a disaster management plan exists. In both instances, Chi square test shows that the difference across the libraries is statistically significant and Kenneth Dike Library has the highest proportion of organized disaster management seminars and awareness of a disaster management plan with 76.5% and 63.3% respectively. A

disaster management plan is however an important tool for dealing with disasters and even if it does exist in the libraries, staff members' limited knowledge on it could hinder proper disaster management.

Moreover, the most available disaster management utilities are fire extinguishers, smoke detectors and emergency exit in the libraries with 90%, 72.4% and 75.9% of the respondents respectively affirming their existence. For smoke detectors however, the difference in its availability across the four libraries is significant, with Kenneth Dike Library having the highest proportion. This implies that, while the availability of fire extinguishers and emergency exits are relatively the same for the four libraries, the same cannot be said for smoke detectors and Kenneth Dike Library takes the highest proportion (45.5%) and LAUTECH Medical Library (0.0%) has the least (**Table 3**).

**Table 4: Disaster Management Measure Adequacy Index in the Selected University Libraries in South Western, Nigeria.**

Adequacy	VA	A	FD	I	VI	TWV	N	AI (x)	x- $\bar{x}$	(x- $\bar{x}$ ) <sup>2</sup>
	5	4	3	2	1					
Scheduled electrical Inspection	9	24	10	12	3	198	58	3.41	0.38	0.144
Security checks	10	20	18	7	3	201	58	3.47	0.44	0.194
Disaster drills	8	14	9	16	11	158	58	2.72	-0.31	0.961
Fumigation	17	16	12	5	8	203	58	3.50	0.47	0.221
P.A. System	9	10	14	12	13	164	58	2.83	-0.32	0.102
You-are-here-maps	6	11	10	19	12	154	58	2.66	-0.37	0.137
Smoke detectors	7	10	12	13	16	153	58	2.64	-0.39	0.152
Total								21.23		1.911
Mean AdI								3.03		
Coefficient of Variation								17.24%		

\*VA=Very Adequate, A=Adequate, FD=Fairly Adequate, I=Inadequate, VI=Very Inadequate

Source: Field survey (2020)

AdI (x) = Management Measures Adequacy Index

$$AdI = \sum(TWV/n)$$

Mean AdI = AdI/7 = 3.03

$$Variance = \sum(x- \bar{x})^2/7; = 1.911/8 = 0.273$$

Standard Deviation =  $\sqrt{Variance} = \sqrt{0.273} = 0.5225$

CV = S.D x 100/ Mean AdI =  $0.5225 \times 100/ 3.03 = 17.24\%$

Table 4 above discusses how; Management Measures Adequacy Index (AdI) was used to measure the adequacy of disaster management utilities in the libraries. Seven items were used to compute this index with the first four proactive and the last three are reactive. As seen in Table 4, of the proactive measures, only

disaster drill has a low index score (2.72) with a negative deviation from the mean. This implies that it is the least adequate, yet disaster drills are crucial in providing the experience and the sense of competence needed by staffers if a real disaster situation. According to the WHO (2017), a drill is a facilitated and supervised activity, in which single specific operations, functions or systems are tested in a repeated fashion. Its goal is to review and improve a part of the overall emergency plan and should be as realistic as possible, employing any equipment or apparatus for the specific function. When adequately practiced, this exercise provides an avenue to see the subtle faults in the system, management plan or equipment which can then be corrected. In other words, it ensures that the available emergency items of equipment are in pristine conditions works and can be depended upon. Besides, the periodic repetition of these drills fosters speed which is needed to curtail any impending disaster. Consequently, the low AdI score for disaster drills is a dent in the level of preparedness in the libraries.

Other proactive measures, namely, fumigation, security checks and scheduled electrical wiring inspections respectively have the highest scores with 3.50, 3.47 and 3.41 which indicate that these measures are generally adequate. Scheduled electrical inspection when adequately done reduces the chance of fire hazards or conflagration, security checks can prevent vandalism and fumigation will reduce any hazard posed to books by bookworms and other destructive organisms. However, the other three reactive measures; public address systems, you-are-here-maps and smoke alarms all have index scores lower than the mean AdI which implies that these are generally inadequate. Yet these utilities apart from the proactive ones are needed to augment the level of preparedness against disasters.

### Research Question 3

**What are the levels of disaster preparedness in the selected university libraries in South-western, Nigeria?**

**Table 5: Disaster Management Preparedness Index**

Maintenance	<i>A</i>	<i>O</i>	<i>S</i>	<i>R</i>	<i>VR</i>	TWV	N	MI ( <i>x</i> )	<i>x</i> - $\bar{x}$	( <i>x</i> - $\bar{x}$ ) <sup>2</sup>
	5	4	3	2	1					
Campaign against Naked wire	10	9	12	11	16	160	58	2.75	-0.42	0.176
Removal of Faulty sockets and extension	5	10	16	24	3	164	58	2.83	-0.34	0.116

Turning off of electric appliances after work	21	21	12	3	1	231	58	3.98	0.81	0.656	
Functionality of fire Extinguishers	19	15	11	9	4	210	58	3.62	0.45	0.203	
Functionality of emergency Exits	19	13	11	9	6	204	58	3.52	0.35	0.123	
Safe keeping of emergency Exit keys	9	11	12	12	4	153	58	2.64	-0.53	0.281	
Availability of First aid kit	9	9	15	16	9	167	58	2.88	-0.29	0.084	
Total								22.22		1.639	
Mean MI								3.17			
Coefficient of Variation								15.26%			

\*A=Always, O=Often, S=Sometimes, R=Rarely, VR=Very Rarely Source: Field survey (2020)

MI (x) = Management Measures Maintenance Index  $MI = \sum(TWV/n)$

Mean MI =  $MI/7 = 3.17$  Variance =  $\sum(x - \bar{x})^2/7; = 1.639/7 = 0.2341$

Standard Deviation =  $\sqrt{\text{Variance}} = \sqrt{0.2341} = 0.4838$

CV =  $S.D \times 100 / \text{Mean MI} = 0.4838 \times 100 / 3.17 = 15.26\%$

A veritable measure of the level of preparedness for disaster is the frequency of daily preemptive activities undertaken by the library staff. Proper maintenance of library utilities especially electrical appliances can to a large extent curtail fire hazards. The frequency of checking on selected items was assessed on a five-point response format and computed into Management Measures Maintenance Index (MI) as seen in Table 5. Of the seven items on the checklist, the frequency of checking and turning off electric appliances after work, functionality of fire extinguishers and the functionality of exit doors have the highest index scores of 3.98, 3.62 and 3.52. In other words, these aspects of maintenance are generally well addressed.

The other four however have index scores lower than the mean MI. Lower index scores in descending order, for maintenance of first aid kits electrical sockets/extensions, building wiring and emergency exit keys signifies a deficiency in these aspects with respect to disaster preparedness. These aspects are however also imperative for improving the level of preparedness for disasters in the library. Taking cognizance of the first two can forestall fire hazards while the last two can reduce causality in the instance of an actual disaster. Summarily, given the mean MI (3.17), the maintenance level in the libraries is fairly high.

#### Research Question 4

**What are the Levels of Disaster Awareness in the Selected University Libraries in South-western, Nigeria?**

**Table 6: Disaster Management Measures Awareness Index.**

Awareness	NA	BA	SM	A	VA	TWV	N	AI (x)	x- $\bar{x}$	(x- $\bar{x}$ ) <sup>2</sup>
	5	4	3	2	1					
Disaster plan and Control	8	12	16	12	10	170	58	2.93	0.11	0.012
Location of Emergency Exits	12	11	13	16	6	181	58	3.12	0.3	0.09
Provision of First aid kits	2	8	14	28	6	146	58	2.52	-0.3	0.09
Training on dangers of Human errors	8	16	9	15	10	171	58	2.95	0.13	0.017
Awareness of Emergency number	4	9	8	19	18	134	58	2.31	-0.51	0.260
Pails for Fetching Water	7	13	11	15	12	162	58	2.79	-0.03	0.0009
Location of Fire Extinguisher	11	18	17	8	4	198	58	3.41	0.59	0.348
Buckets filled with Sand and Chemical	10	9	10	12	7	147	58	2.53	-0.29	0.084
Total								22.56		0.9019
Mean AwI								2.82		
CV								13.03%		

\*NA=Not Aware, BA=Barely Aware, SA=Somewhat Aware, A=Aware, V=Very Aware

Source: Field survey (2020)

AwI (x) = Management Measures Awareness Index

$$AwI = \sum(TWV/n)$$

Mean AwI = AwI/8 = 2.82

$$Variance = \sum(x - \bar{x})^2/7; = 1.277/8 = 0.1127$$

Standard Deviation =  $\sqrt{Variance} = \sqrt{0.1127} = 0.3358$

Co-efficient of Variation (CV) = S.D x 100/ Mean AwI = 0.3767 x 100/ 2.82 = 11.90%

As revealed in Table 6, Management Measures Awareness Index (AwI) was used to assess the library staffers' level of awareness on existing disaster management measures. The result shows that there is a relatively high level of awareness on the location of fire extinguishers (3.41), location of emergency exits (3.12) as the index scores are higher than the mean AwI. Training on dangers of human errors and awareness of emergency number have index scores of 2.95 and 2.93 which are only slightly higher than the mean AwI. However, staff members' proper knowledge on both increases the level of disaster preparedness in libraries. Other utilities have very low index scores signifying low level of awareness. Emergency number to use has the lowest AwI (2.31) which implies that generally among staff members, the knowledge is low on emergency numbers to dial in the case of an emerging disaster.

On the whole the level of preparedness has been measured with three indices: maintenance, adequacy and awareness of disaster management measures denoted respectively, with MI, AdI and AwI. Given the five-

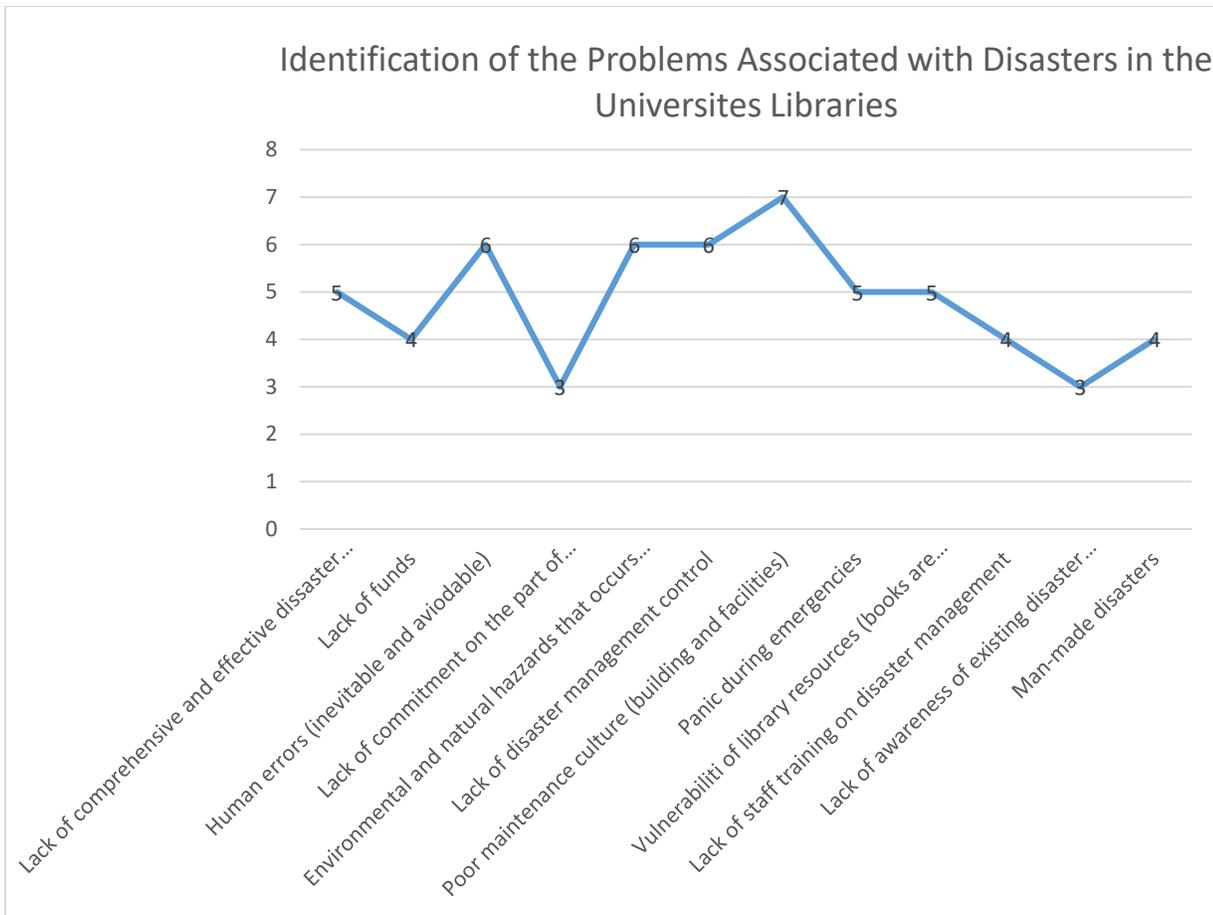
point response format and the forgoing computations, the resultant index values for each measure of preparedness MI=3.17; AdW= 3.03; AwI = 2.82 indicate only a moderate level of preparedness in the libraries towards disaster. Moreover, the low coefficient of variation for each index 15.26%, 17.24% and 13.03% also shows that the responses to the ratings were not polarized. In other words, there is no variation in perceived level of preparedness as measured by each index across the sampled university libraries. Of the three computed indexes, Management Measures Awareness Index (AwI) has the least score, hence, it can be concluded that, the general level of awareness of staff members over disaster management measures is low in the libraries.

**Table 6.6: Distribution of Respondents Training Experience**

<b>Variable</b>	<b>Frequency</b>	<b>Percentage</b>
Training with Fire Extinguisher		
Yes	30	51.7
No	28	48.3
<b>Total</b>	<b>58</b>	<b>100.0</b>
Training with First Aid		
Yes	16	27.6
No	42	72.4
<b>Total</b>	<b>58</b>	<b>100.0</b>
Training with Conducting Evacuation		
Yes	6	10.3
No	52	89.7
<b>Total</b>	<b>58</b>	<b>100.0</b>

Table 6.6 revealed analysis on the ability of library staff members to mitigate an impending disaster. As clearly shown, only half (51.7%) of the staff are able to operate the fire extinguisher. Fire extinguishers are a required utility not just for libraries but in other organizational settings. Its availability in selected libraries and staff members' high level of awareness of their locations as shown in Table 6.6 (3.41) is an important indicator for preparedness. However, with half of members unable to operate fire extinguishers, the propensity to manage fire disaster becomes severely hindered. In addition, the first aid while not a direct means of dealing with disaster, like the fire extinguisher, helps indirectly, by limiting fatality a very small proportion of the residents (27.6%) know how to use a first aid box with over 70% having no knowledge of its content and proper usage. Building evacuation is another indirect means of managing disasters and only 10% of the sampled respondents have any knowledge of it and in the instance of an actual disaster can aggravate the situation.

**Problems of Disaster Management in the selected University Libraries in Selected South-western, Nigeria?**



**Figure 3: Problems Associated with Disasters in University Libraries.**

Figure 3 graphically illustrated and expressively enumerated the possible problems associated with disaster management in university libraries in South-western, Nigeria. From figure 3 above, 7(13%) of the respondents indicated poor maintenance culture as the bane the problem, while 6(10%) of the respondents identified human error, 6(10%) indicated lack of funds and 6(10%) pointed to environmental problems. The least indicated problems were lack of awareness and commitment on the part of the library staff.

## 5.1 Conclusion

The level of preparedness for disaster in university libraries has been examined and results have revealed a level of preparedness that borders on the average and thus need to be strengthened. The four libraries also exhibit a relatively similar level of preparedness except for such aspects as the disaster management plan, participation in disaster management seminars and availability of smoke detectors, with the Kenneth Dike Library relatively better in these aspects than the others. More importantly, given the low Management

Measures Awareness Index (AwI) value, there is a need to increase staff members' knowledge and awareness on disaster management measures through proper sensitization. On the whole, averting disasters would need to be constantly made a priority in academic library. While it is not plausible to expect disaster management plans or measures to provide every detailed instruction for dealing with the unpredictable dimension disasters could take, adequate provision of the necessary facilities, utilities and regular training of staff members are still imperative. All these, when put in place in university libraries, will in the event of a disaster, maximize the chances of mitigating and even preventing unnecessary destruction.

## **5.2 Recommendations**

Based on the findings of the study, the following few recommendations are provided as solutions.

It is imperative to augment disaster preparedness in the libraries with the installation of such utilities as smoke detectors, functioning Public Address Systems for announcements and you-are-here maps which are generally inadequate in all the libraries. Also, staff members should be trained and equipped with knowledge of how to use tools like the first-aid box, suggestion box, machines meant for digital archiving and fire extinguishers. Again, library staff and the university management should ensure that all library resources are properly guided and maintained. This can be achieved through effective and efficient disaster control plan. To permanently eliminate human error, all electrical appliances should be switched off before leaving the office. Even with the provision of hazard equipment like fire extinguishers, emergency exit doors, effective security system and mock drill occasionally, care must be taken at all times. To further forestall any danger, the library building must be built to be structurally safe with regular inspection of the library equipment in order to upgrade and change obsolete equipment to avert disasters in the library. Finally, the importance of periodic disaster drills cannot be overemphasized, as it is generally lacking given the low AdI score of 2.72 as generated from the research. The onus of fostering this in the academic libraries lies on *all* within the university community.

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