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MANAGEMENT CHALLENGES OF COMMON DISASTERS: A CASE STUDY OF THE ROLE OF THE FACILITIES MANAGER IN LAGOS

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ABSTRACT

A disaster cause disruption to the normal patterns of life, as it is usually severe, sudden, unexpected, widespread, and has direct effects on the smooth running of an organization. This article has assessed the role of the facilities manager in disaster management in Lagos, with a particular interest in the pre-disaster measures provided. A quantitative research design using a well-structured questionnaire survey was adopted. Out of the 150 questionnaires distributed, a total of 134 questionnaires were returned duly completed, a response rate of 89.3 percent. The data were analyzed using the computer software

SPSS (7th ed.). The result of the analysis revealed that the most common and reoccurring disasters experienced by companies in the study area were, as listed in their order of predominance, as follows: flooding, power outage, civil unrest, fire, and pest disasters. The study found that most firms rarely use the disaster threat information as part of their preparedness plan, nor has developed any disaster response techniques or recovery measures. The study has identified the major roles of a facilities manager in disaster management. These roles ranged from disaster record-keeping for subsequent planning, routine survey of areas prone to disaster, disaster tracking and warning, and public enlightenment on disaster occurrence. The study has recommended that facilities managers ensure that there is good public awareness, functional facilities, good organization and planning, and excellent functional readiness facilities, such as having emergency operations centers.

Keywords: Disaster management, challenges, facilities managers.

INTRODUCTION

The concept of Facilities Management (FM) entails managing, guiding, and the maintenance of a building and its operations, the maintenance of precincts, and community infrastructure on behalf of the owner(s) (Nicholas, 2012). The facilities manager is charged with the responsibility of organizing, coordinating and controling the strategic and operational management of buildings and facilities so as to ensure the proper and efficient operation of all its physical aspects. In executing these tasks the FM creates and sustains a safe and productive environment for residents and the working environment, and the actualization of organizational objectives. The FM can be construed as a single individual or a team, providing services which will be delivered by dedicated 'in-house' professionals or outsourced in whole, or in part to external providers. An important role of the FM is to provide services, support and information, meet varying expectations, , be a good listener, and deal with conflicts to create a community and environment that residents are willing to call home (Carter, 2008).

It is a combined responsibility of the facilities managers, owners, and employees of any organization to provide and maintain a safe and

conducive physical environment for the residential and commercial purposes of its workers and visitors. This is a critical factor that will determine the long-term success of any organization. However, this collective aspect of the duty and care that must be demonstrated by the stakeholders rests on the expertise of the facilities manager involved. The facilities manager is not only charged with the duty of identifying and addressing safety issues, but also ensuring safety planning, ensuring the systems and processes are in place to identify and deal with safety issues as they arise throughout the life of the building and other infrastructure (Nkeleme et al., 2018).

One of the primary features of a building is to provide a safe and secured enclosed workspace that provides both physical security and a barrier to other elements, such as harsh weather. However, there are increasing occasions when these simple functions are disrupted or terminated by disasters (Douglas, 1996; Warren, 2010). This explains the reason why preparedness and response to disasters are critical for all institutions, organizations, businesses, and communities. However, many of entities are rarely ever prepared for the occurrence of any form of disaster. Disasters can be natural events or man-made disasters, which are influenced by humans and they are often the result of negligence and human error among other factors. The recent flooding in Nigeria (2012), the increase in the spate of terrorist attacks, and disease outbreaks (e.g., Ebola) are examples of natural and man-made disasters. These gave rise to the participation of facility managers in their preparedness and response roles in the event of disasters to avoid a prolonged disruption in facilities in such challenging times (IFMA, 2007).

Facility management is a multidisciplinary profession that is fast developing and gaining recognition all over the world. It comprises 11 core competencies, one of which is emergency preparedness and business continuity. Most facility managers concentrate on other competencies like operations and maintenance, real estate, and property management, while their attention to the competence that addresses emergencies and business continuity is often overlooked (Carter, 2008).

Patirage (2010) defined business continuity management as an ongoing process that includes: emergency response; disaster recovery and business resumption; crisis management and communication;

and maintenance, awareness, testing, and exercising. Patirage (2010) also explained that at the forefront of this planning process are maintenance, engineering, and facility managers.

Disasters come in many forms, from floods and hurricanes to power outages, equipment breakdowns, workplace violence, terrorism, labor strikes, fire, disease outbreaks, etc. The type, size, and severity of the event will dictate the probability that a facility will be out of operation, as well as the duration of the situation and the speed with which services are restored.
Some events are more severe than others, but all of them have the potential to disrupt, cripple or shut down a facility. Most institutional and commercial facilities will face an emergency sooner or later (Henderson, 2012).

This brings us to the need to assess or evaluate the role of facility managers in a disaster, so as to ensure the continuity of the business of their organization and those that they manage.

LITERATURE REVIEW

Facilities Management

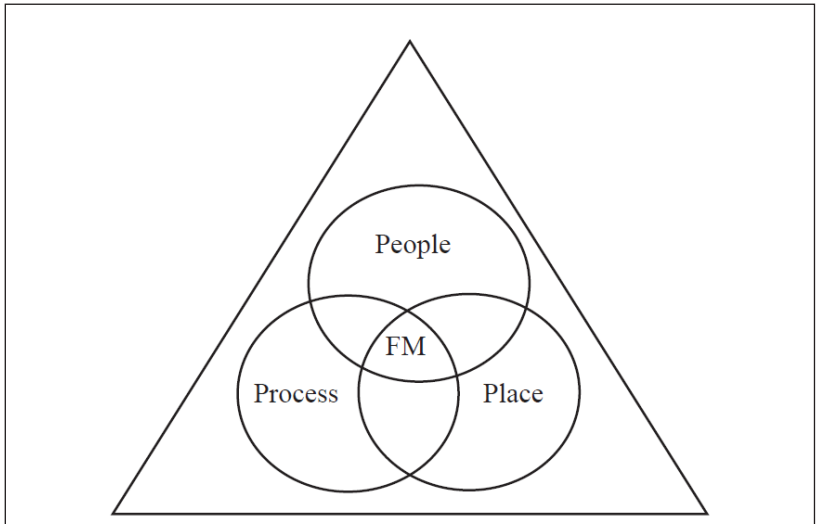
Every organization prvides its support for core business operations by depending on a mixture of fucntions and services. Therefore, it is importsnt to ensure that the required support are made available in the right form, quantity, and at the right cost, and this is the core duty of a facilities manager (Landholm, 2005).
Recently, it has been pointed out that FM entails the combination of expertise from the different disciplies of management. According to Levaine (2001), 'FM is one sector f real estate management among asset management and property management referred to as the management of all non-core activities of the organization' this is consistent with the affirmation made by Alexander (1996) and Atkins and Brooks (2002).

The IFMA model of a *triangle of 'Ps'* sums up facility management concerns in today's workplace, and the triangle of Ps are: people, process, and place. These three factors are interdependent and have direct reciprocal relationships. As Nutt (2002) has pointed out, "we know there is a need to manage the physical environment in concert

with people and job processes." FM finds management solutions by positioning itself at the intersection of these three factors (see Figure 1). The strategy is said to be valid as the three factors; people, process, and place are identified as the three main factors of an organization. However, FM entails the management of the whole organization. Therefore, FM takes the central role in enhancing the co-operation among the key factors in any organization. More specifically, FM is most active with factors relating to place.

Figure 1

Triangle of 'Ps' and FM



Note: Source from IFMA

Overview of Disaster Risks

Every organization is exposed to a certain level of risk and uncertainity, as it is a component part of every operation in businesss and life at large. Though the level of exposure may vary, it is in some instances when the level of risk may be sufficient to translate into crisis which if not attended to will beome a disaster (Davies & Walters, 1998).

According to Kulathunga (2012), these hazards have a high tendency of birthing a disaster when is coincides with a vulnerable population and/or built structure. But the worse disaster for any organization

is when the main income generating activities of the organization is badly affected. To be sure, even a brief business interruption can mean reduction in income/revenue, lost of potential and existing customers, reduction in market shares and an overall threat to the organization's survival (Davies & Walters, 1998).

FM as an Integral Part of an Organization

The relevance of the activites of FM in any organization cannot be over emphasized. Therefore, every level of management, or the manager ought to have an intimate understanding of FM and how the organization functions (Kincaid, 1994). The knowledge with enable the management create and implement a FM strategy that aligns with the plan and objectives of the organization. Nutt (2002), itemized the four basic dimensions of integrating FM in an organization and they are as follows : the processes of work, operations, and projects; the purpose of the organization, its vision, mission, objectives, core competency, and goals; the environmental context, organizational behavior, culture, and market; and the product(s), infrastructure, property, and facilities.

A clear understanding helps shape the appropriate FM strategy and plans, and supports the use of the processes and operations most suited to each organization in the context of its existing property and facilities.

Scope of Facilities Management as it Applies to Disaster Management

The vaious definition of facilities management is a key pointer to the scope of facilities management, particularly as it relates to disaster management. According to Atkin and Brooks (2002), FM covers 'a wide range of services in addition to building management, domestic services such as cleaning and security, and utility supplies'.

In addition, Akin (2008) pointed out that some of the functions and the strategic role of the organization is ensrhrined in the key function of the FM, as the FM is responsible for managing customers, managing service, and managing assets. He further defined the scope of the FM which included thirteen activities, such as 'business management', 'real estate management', 'security', 'support services management', 'project management', 'financial work', 'health and safety aspects of the

organization', 'procurement activities', 'operations', 'understanding business organization', 'managing services', 'managing people and work-related activities'.

It is a requirement of FM to develop a comprehensive plan, from preparedness to recovery, and to provide an effective response to emergencies when disaster strikes. This will require the FM in many organizations to be in the right position to repond to any disaster. It is part of the scope of its responsibility by being able to meet the essential accommodation requirements within the shortest possible response time (Vazquez, 2005).

In sum, it can be said that the continuous operation of an organization largely depends on management awareness of potential disasters, its ability to develop a plan to minimize disruptions of critical functions, and the capability to recover operations expediently and successfully.

Disater Preparedness and the Role of the Facilities Manager

IFMA (2007), in their publication identified emergency preparedness as one of the core roles of the FM, which encompasses aspects like: 'basic safety and security', 'act of terrorism', 'natural dsaster', 'workplace violence'. chemical/biological incidents', 'pandemic crises' and 'data protection'.

In agreement, (Davies & Walter, 199 ; Vazquez, 2005), stated that setting up a formal safety organization is an important part of the preparedness plan. Therefore, it is also vital to be sure that the building structure and equipment are code compliant. This is a key role of the Facilities Manager under the health and safety function. It is important that the Facilities Manager evaluates the facilities for disaster assessment by touring the facility, reviewing and re-evaluating, and looking at any architectural or infrastructure impairments and limitations (Vazquez, 2005).

As further explained by Vazquez (2005), this helps the facilities managers in outlining an evacuation plan. During the evacuation period, building occupants who have a disability may require additional assistance. Another occupant may volunteer to offer assistance in this situation. However, knowing who will need additional assistance helps the facility manager to keep an up-to-date emergency plan.

METHODOLOGY

This research was carried out through fieldwork. The fieldwork entailed the use of a well-structured questionnaire, which sought to obtain data to establish the roles of the facilities manager as perceived by the respondents. The focus wason disaster management with a particular interest in the prevention (mitigation/ prevention) phase.

The Study Area

The research was conducted in Lagos State, Nigeria. This was selected as the research site because the requirement for facilities management is highly noticeable here, due to the presence of several organizations, high-rise facilities or buildings, manufacturing companies, and various service providing companies. Lagos State is arguably the most economically important state of the country, with Lagos city as the nation's largest urban area. Thus, most organizations have their headquarters and regional head offices in Lagos. The study was conducted among facilities managers who are still in the active practice.

Research Design

This study was conducted through a field survey. The fieldwork of this research was conducted using various research instruments, each adapted to meet a particular research need. The various instruments and their application areas are as explained in the following sections.

The Field Work of the Research

Data Collection Tools

Data was sourced from primary and secondary sources. The primary sources were the relevant journals, text books and publications, while the secondary source was the use of a structured questionnaire. The details of the sample size and the sampling method are given.

Questionnaire

The questionnaires were administered to the management and members of staff of registered facility management firms. The questionnaire sought information about facilities management practices in Lagos, and covered the following aspects; The common disaster that Nigerian

companies are vulnerable to and the frequency of occurrence of such disasters, disaster-related actions readily available in the company and challenges encountered by facility managers in tackling or in handling disaster management issues.

Sample Size and Sampling Techniques

The sampling size was determined based on the formula because the targeted population is unknown.

$$n= (z^2pq)/d^2 \quad (1)$$

Where;

n = the desired sample size

z = the ordinate on the Normal curve corresponding to α or the standard normal deviate, usually any of the following determined based on the 'margin error formula'

i. A 95 percent level of confidence has α = 0.05 and critical value of $z_{\alpha/2} = 1.96$.

P = the proportion in the target population estimated to have a particular characteristic (normal between the range of 0.1 - 0.5)

q = 1.0-p

d = degree of accuracy corresponding to the confidence level and Z selected.

For this study, a confidence level of 95 percent was adopted because the questionnaire was geared towards evaluating the perception of the respondents vis-à-vis their roles in disaster management. Consequently, the sample size is determined as:

z = 1.96, d = 0.05 where p = 0.9, q = 0.1

$N = (1.96^2 \text{ X } 0.9\text{X}0.1) / (0.05)^2 = 138$

Therefore, a total of 150 professionals were used as the sample for the study. The sampling technique used in the present study was purposive sampling, a non-probability sampling technique. Purposive sampling, which is also known as judgmental sampling, was adopted because the research needed to gather knowledge from individuals who have a particular expertise in facilities management.

Data Analysis

The data collected for this study were analyzed using the computer-based software "Statistical Package of Social Sciences" (SPSS version (7th ed.). The results of the analysis are presented in the form of tables for easy comparison and clear expression of the findings. The Relative Importance Index (RII) was calculated for each document according

to their frequency of use, as suggested by Memon (2006) and Othman (2005).

The RII range is between zeros to one. The weighted average for each item was determined and ranks were assigned to each item, representing the perception of the respondents. This is expressed as Equation (2).

Relative Importance Index (RII) =

$$\frac{\sum fx}{\sum f} \text{ x } \frac{1}{\text{k}}$$

$$\frac{\sum fx}{\sum x} \text{ x } \frac{1}{k}$$

Relative Importance Index (RII) (2)
Where,

∑fx = is the total weight given to each attribute by the respondents

∑f = is the total number of respondents in the sample

K = is the highest weight on the Likert scale

Following Othman et al. (2005), the results were classified into three categories as follows:
RII < 0.60 -it indicates low frequency in use
0.60 ≤ RII< 0.80 -it indicates high frequency in use.
RII ≥ 0.80 –it indicates a very high frequency in use.

RESULTS

This section encompasses the presentation of the data, analysis of the data, and the discussion of the data obtained from the questionnaire survey.

Questionnaire Response Rate and Respondent Profile

Questionnaires Survey Result and Analysis

A total of a 150 questionnaires were administered to respondents selected as the sample for study. The percentage of responses is as presented in Table 1. From Table 1, it can be seen that a total of 134

questionnaires were received duly completed, giving a percentage response of 89.3 percent.

Table 1

Questionnaire Administered

Questionnaires	Frequency	Percentage of (%)
Number returned	134	89.3
Numbers not returned	16	10.7
Total	150	100

Respondent Profiles

From the results of the analysis of the opinions of the respondents, the profiles of the respondents is as presented in Table 2. From Table 2, it can be deduced that a greater percentage of the respondents was male (64.2%), while only 35.8 percent were females. The result also revealed the professions of the various respondents. From the results of the analysis, it can be deduced that 14.2 percent of the respondents were architects; 28.4 percent were builders; 19.4 were quantity surveyors; 12.7 percent were engineers, while 15.7 percent of the respondents were project managers and only 9.6 percent were estate managers.

In terms of the working experience of the respondents in a facilities management firm, it can be seen that a large percentage had experience within the range of 11-15 years (33.6%). This was followed closely by those within the range of 6-10 years (26.1%); 0-5 years (16.4%); 16-20 years (14.2%) and 20 years and above (9.7%); showing that a larger percentage of the respondents have worked for a reasonable number of years in a facilities management firm.

About the highest academic qualification of the respondents, it can be deduced that a larger percentage of the respondents were degree holders (46.3%) with very few masters holders corresponding to just 3.0 percent of the respondents. Finally with regards to the area of specialization of the firms where the respondents were drawn, it was discovered that most of the facilities management firms specialized in operations and maintenance (36.6%), this was closely followed by those specialized in communications (17.9%), emergency preparedness and business continuity (15.7%) and environmental steward and sustainability (12.7%).

Table 2

Profiles of Respondents

S/N	Variable	Option	Frequency (No)	Percentage (%)
1	Gender :	a) Male	86	64.2
		b) Female	48	35.8
		Total	134	100
2	Respondents' Profession:	a) Architecture	19	14.2
		b) Building	38	28.4
		c) Quantity Surveying	26	19.4
		d) Engineering	17	12.7
		e) Project Management	21	15.7
		f) Estate Management	13	9.6
		Total	134	100
3	Duration of Work in a Facility Management firm	a) 0-5years	22	16.4
		b) 6-10years	35	26.1
		c) 11-15years	45	33.6
		d) 16-20years	19	14.2
		e) 20years and above	13	9.7
		Total	134	100
4	Highest Qualification	a) Ordinary National Diploma (OND)	09	6.6
		b) Higher National Diploma (HND)	11	8.2
		c) Bachelor's Degree	62	46.3
		d) Post-Graduate Diploma	36	26.9
		e) Masters	12	9.0
		f) Doctoral Degree	4	3.0
		Total	134	100
5	Area of specialization in facilities management	a) Communication	24	17.9
		b) Emergency Preparedness and business continuity	21	15.7
		c) Environmental Steward and sustainability	17	12.7
		d) Project Quality/ Management	11	8.2
		e) Operations and Maintenance	49	36.6
		f) Technical Services	12	8.9
		Total	134	100

Common Disaster Experience of Companies in Nigeria

The common disasters often experienced by various companies/firms in the country identified are as presented in Table 3. From the ranking of the common disasters based on their frequency of occurrence, it

can be seen that the most common disaster was flooding (RII= 0.83). This was followed closely by power outage (RII=0.81); civil unrest (RII=0.80); fire (RII=0.77) and pest disaster (RII=0.76). Concerning the mean value of all the disasters identified, it can be deduced that the majority of the values was close to 4.0, an indication that irrespective of the ranking, all the identified disasters were usually experienced within the study area, except disasters like 'earthquake' whose mean value is closer to 1.0, an indication that it is never experienced. Details of the disaster ranking are as presented in Table 3.

Table 3

Ranking of the Disasters Experienced by Companies

S/N	Type of Disaster	Weighting/Response Frequency									
		1	2	3	4	5	(∑f)	∑fx	Mean	RII	Rank
1	Earthquake	123	11	-	-	-	134	145	1.08	0.22	11th
2	Flood	-	4	19	62	49	134	558	4.16	0.83	1s
3	Landslide	-	23	34	41	36	134	492	3.67	0.73	7th
4	Bushfire/ wildfire	-	06	54	47	27	134	497	3.71	0.74	6th
5	Drought	13	17	41	51	12	134	434	3.24	0.65	9th
6	Epidemic	-	22	39	42	31	134	484	3.61	0.72	8th
7	Civil Unrest	-	32	07	38	57	134	536	4.00	0.80	3rd
8	Fire	-	12	19	80	23	134	516	3.85	0.77	4th
9	Desertification	10	35	37	38	14	134	413	3.08	0.62	10th
10	Pest Disaster	-	15	32	48	39	134	513	3.83	0.76	5th
11	Power outage	-	-	07	113	14	134	543	4.05	0.81	2nd

Note: 1 –never experienced, 2 – rarely experienced, 3 – undecided, 4- usually experienced, 5- always experienced

Effects of Disaster on Firms

Table 4 presents the respondents' ranking of the effect of the disaster on the firm and consequently the workers at large. From Table 4, it can be seen that 'Disruption of Essential Services' (RII=0.80) was identified as the most predominant effect of the disaster on the firm. This was closely followed by 'injury of staff' (RII= 0.76); Loss of life (RII= 0.75) and Disruption of Production (RII=0.74). Also from the results in Table 4, it can be established that each effect identified is a potential effect on the firm in the event of a disaster occurring.

Table 4

Ranking of the Effect of a Disaster on the Firm

S/N	Disaster Threats Effects	Weighting/Response Frequency									
		1	2	3	4	5	(∑f)	∑fx	Mean	RII	Rank
1	Injury	-	26	22	41	45	134	507	3.78	0.76	2nd
2	Loss of life	6	19	22	41	46	134	504	3.76	0.75	3rd
3	Damage to and destruction of property	31	11	27	40	25	134	419	3.13	0.63	8th
4	Damage to and destruction of subsistence and cash crops	24	30	14	28	38	134	428	3.19	0.64	7th
5	Disruption of production,	6	26	20	28	54	134	500	3..73	0.74	4th
6	Disruption of lifestyle	-	43	14	32	45	134	481	3.60	0.72	5th
7	Loss of livelihood,	22	21	13	44	34	134	449	3.35	0.67	6th
8	Disruption to essential services,	-	24	17	29	64	134	535	3.99	0.80	1st
9	Damage to national infrastructure and disruption to governmental systems,	22	43	11	31	27	134	400	2.99	0.60	9th

Note: 1 –never happens, 2 – rarely happens, 3 – undecided, 4- usually happens, 5- always happens

Role of the Facility Manager in Disaster Management

The respondent's opinion and ranking of the role of a facilities manager in disaster management was also assessed and the result of the analysis is as presented in Table 5. From Table 5, it can be seen that the respondents identified 'Disaster Record-Keeping for Subsequent planning' (RII=0.79) as the first role of a facility manager in disaster management. Other roles as identified by the respondents and arranged in their order of importance in disaster management were as follows: 'Routine survey of areas with high vulnerability to disaster' (RII=0.78); 'Disaster Tracking and Warning' (RII=0.77) and 'Public Enlightenment on Disaster occurrence' (RII=0.76). The details of the ranking of the other roles of a facilities manager in disaster management are as shown in the Table 5.

Table 5

Roles of the Facilities Manager in Disaster Management

S/N	Facilities Manager Roles	Weighting/Response Frequency									
		1	2	3	4	5	(∑f)	∑fx	Mean	RII	Rank
1	Vulnerability assessment	12	17	28	32	45	134	483	3.60	0.72	7th
2	Planning and development of measures to tackle disaster	10	19	11	48	46	134	503	3.75	0.75	5th
3	Public enlightenment on disaster occurrence	10	10	24	41	49	134	511	3.81	0.76	4th
4	Disaster tracking and warning	7	13	21	42	51	134	519	3.87	0.77	3rd
5	Disaster record keeping for subsequent planning	9	15	20	21	69	134	528	3.94	0.79	1st
6	Routine survey of areas with high vulnerability to disaster	11	9	23	32	59	134	521	3.89	0.78	2nd
7	Provision and planning of disaster recovery measures where its unavoidable	6	21	25	43	39	134	490	3.66	0.73	6th

Note: 1 –Strongly Disagree, 2 – Disagree, 3 – undecided, 4- Agree, 5- Strongly Agree

Use of Disaster Threat Information

Table 6 presents the ranking of respondents on the common use of disaster threat information by a facility manager in various companies. From Table 6, it can be seen that the item Formulation of a disaster preparedness plan (RII= 0.54) was identified as the most common use of disaster threat information in the companies. However, the significant thing about the result presented is that the mean value of all the possible uses of disaster threat information in the companies is closer to the value 2.0, an indication that most companies rarely use the disaster threat information for any of the purposes identified, irrespective of the ranking on how often they are used.

Disaster-Related Actions Readily Available in the Company

An assessment of the disaster-related actions readily available in most companies was also done and the results of the respondents' opinion are as presented in Table 7. 'Development search and rescue

measures and route within the company' (RII= 0.69) was identified as the most commonly readily available disaster-related action in most companies. This was followed closely by 'Planned surveying, assessing and reporting disaster effect measures' (RII= 0.60) and 'Provision of functional health and sanitary measures' (RII= 0.59). However, it is also observed that the value of the RII of other actions being less than 0.6, as such actions rarely exist in most companies.

Table 6

Use of Disaster Threat Information

S/N	Use of Disaster threat information	Weighting/Response Frequency									
		1	2	3	4	5	(∑f)	∑fx	Mean	RII	Rank
1	Formulation of disaster preparedness plan	21	56	12	30	15	134	364	2.72	0.54	1st
2	Development of Disaster Response technique	45	49	11	22	07	134	299	2.23	0.45	3rd
3	Development of Disaster recovery measures	62	34	20	11	07	134	269	2.00	0.40	6th
4	Formulation of Relevant Programs for Disaster-related training and public awareness	47	43	24	12	08	134	280	2.09	0.42	4th
5	Definition and application of measures to reduce vulnerability in specific cases/ areas	48	43	32	11	-	134	274	2.04	0.41	5th
6	Generation of long-term programs to mitigate and prevent disaster occurrence.	23	61	22	16	12	134	335	2.50	0.50	2nd

Note: 1 –never used, 2 – rarely used, 3 – undecided, 4- often used, 5- always use

Challenges of the Facilities Manager in Effective Disaster Management in the Company

The study also assessed the challenges faced by facilities managers in carrying out effective disaster management. The opinions of the respondents on the challenges, as well as their ranking of the various

challenges identified, are as presented in Table 8. From Table 8, it can be seen that the most predominant challenge the facilities manager faced in disaster management was 'Poor organization, and inadequate planning' (RII= 0.83), as it was ranked first. Other challenges arranged in their order of severity were as follows: 'Poor public awareness and disaster of unexpected magnitude' (RII= 0.82); 'Lack of functional readiness Facilities (e.g., in emergency operations centers)' (RII=0.81) and 'Low standard of readiness on the part of resource organization' (RII=0.80). Details of the ranking of other challenges are as shown in Table 8.

Table 7

Disaster-Related Actions Readily Available in the Company

S/N	Disaster-Related actions readily available in the company	Weighting/Response Frequency									
		1	2	3	4	5	(∑f)	∑fx	Mean	RII	Rank
1	Providing and maintenance of disaster sensing and warning system in the building	32	17	45	28	12	134	373	2.78	0.56	5th
2	Development search and rescue measures and route within the company	10	29	21	38	36	134	463	3.46	0.69	1st
3	Planned surveying, assessing and reporting disaster effect measures	20	49	10	24	31	134	399	2.98	0.60	2nd
4	Provision of evacuation measures	23	48	32	21	10	134	349	2.60	0.52	6th
5	Provision of functional health and sanitary measures	32	34	12	21	35	134	395	2.95	0.59	3rd
6	Developed control and distribution plan for emergency supplies.	23	49	11	32	19	134	377	2.81	0.57	4th

Note: 1 –never been available, 2 – rarely available, 3 – no idea, 4- usually available, 5- always available

Summary of Findings

The most common and recurring disaster as opined by the respondents was flooding (RII= 0.83). This was followed closely by power outage (RII=0.81); civil unrest (RII=0.80); fire (RII=0.77) and pest disaster (RII=0.76). See Table 3 for the details.

‘‘Disruption of Essential Services’ (RII=0.80) was identified as the most predominant effect of the disaster on the firm. Other common effects of disaster on the firm included: ‘injury of staff’ (RII= 0.76); Loss of life (RII= 0.75) and Disruption of production (RII=0.74). See Table 4 for details.

Table 8

Challenges of Facilities Management

S/N	Facilities Management Challenges	Weighting/Response Frequency									
		1	2	3	4	5	(∑f)	∑fx	Mean	RII	Rank
1	Lack of adequate policy direction	14	7	19	44	50	134	511	3.81	0.76	7th
2	Poor organization, and inadequate planning	3	10	13	46	62	134	556	4.15	0.83	1st
3	Outdated disaster plans	17	9	10	53	45	134	502	3.75	0.75	8th
4	Low standard of readiness on the part of resource organization	7	13	13	44	57	134	533	3.98	0.80	4th
5	Poor public awareness, and disaster of unexpected magnitude	5	11	9	49	60	134	550	4.10	0.82	2nd
6	Inadequate warning Lead time	13	11	12	45	53	134	516	3.85	0.77	6th
7	Error in warning systems due to effect of disaster	7	12	23	35	57	134	525	3.92	0.78	5th
8	Failure of people to respond to the warning	10	19	22	37	46	134	492	3.67	0.73	10th
9	Lack of functional readiness (e.g., in emergency operations centers)	7	14	14	31	68	134	541	4.04	0.81	3rd
10	lack of testing and exercising the response system	20	18	14	49	33	134	459	3.43	0.69	13th
11	Functionality of Computer Aided	14	15	11	49	45	134	498	3.72	0.74	9th
12	Poor Coordination of Response Operations	14	11	20	53	36	134	488	3.64	0.72	11th
13	Inadequate Public Awareness	13	18	21	46	36	134	476	3.55	0.71	12th

Note: 1= No influence; 2= slight influence; 3= undecided; 4= major influence 5= extreme influence

‘Disaster Record-Keeping for Subsequent planning’ (RII= 0.79) was considered a major role for the facility manager in disaster management. Similarly, other vital roles of a facilities manager in disaster management expressed in their order of importance included: Routine survey of areas with high vulnerability to disaster (RII=

0.78); 'Disaster Tracking and Warning' (RII= 0.77) and 'Public Enlightenment on Disaster occurrence' (RII= 0.76). See Table 5 for details.

Formulation of a disaster preparedness plan (RII= 0.54) was identified as the most common use of disaster threat information. However, the significant thing about the result presented is that the mean value of all the possible uses of disaster threat information in the companies is closer to the value 2.0, an indication that most companies rarely use the disaster threat information for any purpose at all. See Table 6 for details. 'Development search and rescue measures and route within the company' (RII= 0.69) was identified as the most common and readily available disaster-related action in most companies. This was followed closely by 'Planned surveying, assessing and reporting disaster effect measures' (RII= 0.60) and 'Provision of functional health and sanitary measures' (RII= 0.59). Refer to Table 7 for details.

The most predominant challenge the facilities manager faced in disaster management was 'Poor organization, and inadequate planning' (RII= 0.83). Other challenges arranged in their order of severity were as follows: 'Poor public awareness and disaster of unexpected magnitude' (RII= 0.82); 'Lack of functional readiness Facilities (e.g., in emergency operations centers)' (RII=0.81) and 'Low standard of readiness on the part of resource organization' (RII=0. 80). Table 8 for details.

CONCLUSION

In light of the results and the findings of the present study, the following conclusions can be drawn. The most common and reoccurring disasters experienced by companies in the present study are as follows, and they are listed in their order of predominance: flooding, power outage, civil unrest, fire, and pest disasters. Similarly, ''Disruption of Essential Services' was identified as the most predominant effect of a disaster on the firm. Other common effects of disaster on the firm include; injury suffered by staff; loss of life and disruption of production.

Regarding the major roles of a facilities manager in disaster management, the following have been identified as the vital roles that a facility manager can and should play and they are listed in their order of importance: disaster record-keeping for subsequent planning;

routine survey of areas with high vulnerability to disaster; disaster tracking and warning and public enlightenment on disaster occurrence. Concerning the use of disaster threat information, it was found that most firms rarely use such information for any particular purpose, such as formulation of disaster preparedness plan, development of disaster response techniques, and development of disaster recovery measures.

The development of search and rescue measures and route within the company was identified as the most readily available disaster-related action in most companies. Other readily available disaster-related actions included: planned surveying, assessing and reporting disaster effect measures and provision of functional health and sanitary measures.

The study has also fund that the most pressing challenges faced by the facilities manager in disaster management are as follows: poor organization and inadequate planning; poor public awareness and disaster of unexpected magnitude; lack of functional readiness facilities (e.g., in emergency operations centers) and low standard of readiness on the part of resource organization. These challenges are expressed in their order of severity.

RECOMMENDATION

Following from the findings of the present study, it is recommended that the adoption of the attitude of effective use of disaster threat information by the facility manager will certainly help in ensuring that there is adequate disaster management by facility managers in firms. Similarly, proper planned surveying, assessing, and disaster record keeping will facilitate subsequent planning to prepare and possibly avert the occurrence of subsequent disasters. Therefore, such appropriate attitudes should be adopted by facilities managers in firms.

Facilities managers should also devise measures to promote public awareness and enlighten the general public on disaster management as this will help to them and members of the public to tackle disasters that are almost unavoidable in vulnerable areas. Finally, the installation and proper maintenance of functional disaster detecting and readiness facilities will help the facilities manager predict and prepare for an impending disaster.

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