

ROLE OF FACILITIES MANAGER IN PRE-DISASTER RISK REDUCTION PHASE: A LITERATURE SYNTHESIS

D.M.P.P. Dissanayake,

Department of Building Economics, University of Moratuwa, Sri Lanka
(email: piumi2d@gmail.com)

N.G. Fernando,

Department of Building Economics, University of Moratuwa, Sri Lanka
(email: nirodhafernando@uom.lk)

Abstract

The built environment in general plays a key role in supporting business activities and delivering economic prosperity for the corporation and society. The continued operations of an organisation depend on management awareness and preparation of potential disasters, their ability to develop a plan to minimise disruptions of critical functions and the capability to recover operations expediently and successfully. However, disaster recovery has often been overlooked and sometimes even ignored. Building owners could have been excused for thinking 'it won't happen here'. However, the series of recent tragic events such as terrorists' attacks, tsunami, floods, earthquakes etc have placed a greater emphasis on long-term disaster recovery planning, focusing on creating more resilient communities and structures through capacity building, better disaster preparedness and improvements in coordination to protect their staff, customers and properties, and business. As a key person in an organisation and in-charge of all property management functions, Facilities Managers are often charged with the responsibility of recovering the supporting services that will enable the business to start functioning again.

This paper therefore aims to investigate the role of Facilities Manager in disaster recovery planning – pre disaster risk reduction phase. This paper presents literature synthesis on what role Facilities Manager can play in the mitigation/prevention and preparedness stages of pre-disaster risk reduction phase. The research findings highlighted that Facilities Managers can play a vital role in providing the overall coordination of facility issues for stages including mitigation and preparedness in pre-disaster risk reduction phase to prepare for the adverse effects of disasters on their buildings and end product should be that those unpredictable disasters do not escalate to become the worst disasters.

Keywords: *Disaster, Disaster Recovery Planning, Pre-disaster risk reduction phase, Facilities Manager*

1. Introduction

Recent catastrophic disasters such as Indian Ocean Tsunami of December 2004 and Terrorists' attack on World Trade Centre (WTC) Twin Towers of September 2001 reminded the world that the disasters can occur at any time any place and there are no "safe heavens" in the world. Also, adverse impact of these disasters reminded the strength of the link between the built environment and disasters. The buildings are designed to provide the essential elements of an enclosed workspace, which affords physical security and a barrier to the elements. There are increasing occasions when these simple functions are rattled or distorted by disasters (Douglas, 1996; Warren, 2010).

There are evidences that the frequency and extent of disasters are increasing on a global scale, where all organisations need to focus on this as one of the major risks that are negatively affect on business continuity. Therefore, Disaster Recovery Planning (DRP) is now recognised as an essential policy for any organisation to adopt (Darling, 1994). DRP is the process that takes place during and after an organisational disaster to minimise business interruption and return the organisation as quickly as possible to a pre-disaster state. As stated by Davies and Walters (1998), Facilities Manager as the in charge of all property management functions has the responsibility of recovering the supporting services that will enable the business to start functioning again. However, the role of Facilities Manager in DRP is not clearly discovered yet. Hence, this paper presents preliminary literature findings on how Facilities Manager can contribute to minimise the damage from a disaster in DRP.

The whole DRP process is intended to enable business recovery to proceed quickly and effectively and attempt to minimise the damage that may be caused by an unforeseen event (Davies and Walters, 1998). According to the Eden and Matthews (1997), there are four stages in the DRP, namely prevention, preparedness, reaction and recovery. This study was focus on first two stages that is prevention and preparedness.

2. Research Method

A comprehensive literature review was used as the research method for this paper. A key word search for disasters, DRP, phases of DRP and Facilities Management (FM) were used to search literature from various sources such as electronic library data base, journal articles, online journals, e-books, web sites and other publications. Literature review was structured and presented under the stages of prevention and preparedness.

3. Defining Disasters

3.1. General overview of disaster risks

Risk and uncertainty are part of the everyday operating environment for all organisations. Occasionally the risks may be sufficient to generate a crisis, which if left unattended can become a disaster (Davies and Walters, 1998). In other words, the hazards give rise to disasters

when they coincide with vulnerable populations and/or built environment structures (Kulathunga, 2012). However, the worst disaster for any organisation would be where the main income generating activities of the business are seriously affected. Even brief business interruptions can mean reduced revenues, lost customers or reduced market share where major business interruptions may threaten a company's survival (Davies and Walters, 1998).

In attempting to define what does disaster stands for is the subject of much debate with a wide range of definitions proffered. The International Federation of Red Cross (IFRC) adopts the definitions developed by Centre for Research on the Epidemiology Disasters (CRED) which defines as “ a situation or event, which overwhelms local capacity, necessitating a request to national or international level for external assistance an unforeseen and often sudden event that causes great damage destructions and human suffering” (IFRC, 2009.p.159). According to IFRC (2009, p.156) for disaster to be recorded in the CRED database one of the following criteria must apply:

- ten or more people reported killed
- about 100 people or more reported affected
- declaration of a state of emergency; and
- call for international assistance

According to the Warren (2010), the definition of disasters is further broken down by type, ranging from biological to geographical and climatologically. Also, it includes technological disasters, which include industrial and transport-related accidents. As per Davies and Walters (1998), disasters can be classified in two broad categories as natural disasters and man-made disasters.

3.2. Natural disasters and Man-made disasters

Natural disasters, including tsunamis, hurricanes, floods, mudslides and earthquakes are collectively increasing in frequency and effect in recent decades in many countries around the world (Asian Disaster Reduction Centre, 2004; Pathirage, 2010). According to the IFRC and Red Crescent Societies (2004), in the past ten years almost two billion people have been affected by disasters. While preventing a natural disaster is very difficult, measures such as good planning, which includes mitigation measures can help reduce or avoid losses.

The second category is manmade disasters. These include hazardous material spills, infrastructure failure, or bio-terrorism. According to the Disaster Management Centre of Sri Lanka (2011), man-made disasters have claimed more than 64,000 lives and it affected to the economy, society and environment. Also, during last 10 year period, it was reported, 35 major disaster events where total economic loss was US\$ 6.16 Billion (Disaster Management Centre of Sri Lanka, 2011). Further, the 11th September tragedy in the USA was another worst man-made disaster that will forever be etched on the minds of all those who experienced, saw and heard about the tragic events (Savage, 2002). Thus, in these instances, surveillance and mitigation planning are invaluable towards avoiding or lessening losses from these events. However, these worst disasters have provided a 'wake-up call'; there are many more

organisations that have moved DRP from ‘nice to have’ to ‘should have’; some have even moved to ‘must have’ (Savage, 2002). Hence, this highlights the importance of DRP for every category of organisations. Accordingly, next section discusses how disaster recovery planning happening during and after disasters.

2. Disaster Recovery Planning (DRP)

The series of recent tragic events since 2001 have made businesses to be vigilant and consider how and what they could do in the event of a disaster to protect their staff, customers and properties, and business. Therefore, DRP is now recognised as an essential part of business planning (Fink, 1986; Darling, 1994). DRP is the process that takes place during and after an organisational disaster to minimise business interruption and return the organisation as quickly as possible to a pre-disaster state, where purpose is to minimise the consequences resulting from a crisis and to ensure there is no operational failure of the business (Roberts and Libuser, 1993). However, DRP can be a managerial activity that is easily postponed, often because the likelihood of experiencing an event is seen as remote (Varcoe, 1998). Real life experience of disaster is significant factor in an organisation’s willingness to prepare a DRP (Banerjee and Gillespie, 1994). The worst disaster for any organisation would be where the main income generating activities of the business are seriously affected. Hence, the whole DRP process should enable business recovery to proceed speedily and effectively and attempt to limit the damage that may be caused by an unforeseen event (Davies and Walters, 1998). Eden and Matthews (1997) identify four stages in the DRP as shown in Figure 1.

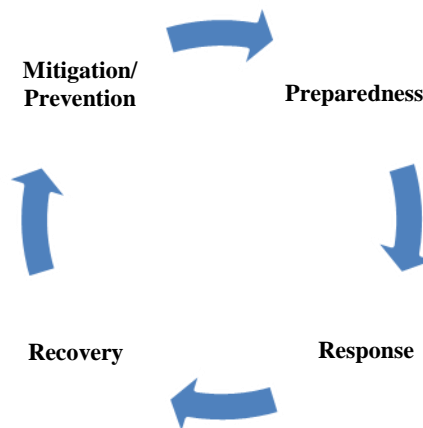


Figure 1: Stages of DRP (Eden and Matthews, 1997)

DRP cannot be seen in isolation but a collection of various phases of management in itself. As shown in Figure 1, the process of DRP is commonly visualized as a two-phase cycle, with a post-disaster recovery (response and recovery) informing pre-disaster risk reduction (mitigation/prevention and preparedness) and vice versa (Patirage, 2010). Since this study was only limited to the studying of first two stages (prevention/mitigation and preparedness) in pre-disaster risk reduction phase, next section discusses about these stages in detail.

4.1. Mitigation/Prevention

‘Mitigation’ measures may eliminate or reduce the probability of disaster occurrence, or reduce the impact of unavoidable disasters. As such, these measures include building codes; vulnerability analyses updates; zoning and land use management; building use regulations and safety codes; preventive health care; and, public education (Warfield, 2004). The purpose of disaster mitigation strategies is to reduce losses in the event of a future occurrence of a hazard. As discussed by Coburn *et al.* (1994), aims of disaster mitigation strategies are classified in two categories as primary and secondary. The primary aim of mitigation strategies is to reduce the risk of death and injury to the population; whereas, secondary aims include reducing damage and economic losses inflicted on public sector infrastructure and reducing private sector losses in as far as they are likely to affect the community as a whole.

In a different perspective, Nateghi-A, (2000) provides a basic classification of disaster mitigation strategies, which are classified under two different categories:

- Preparedness measures - to provide warning, establish contingency plans, and develop capacity for emergency response.
- Prevention/mitigation measures - to reduce vulnerability and thereby risks on a long-term and permanent basis

Simply, mitigation activities eliminate or reduce probability of disaster occurrence or reduce the effects of unavoidable disasters by effective sharing of lessons learned through ‘preparedness’ planning. Thereby, knowledge, lessons and good practices learned during the post-disaster reconstruction phase should be shared and transferred to the pre-disaster risk reduction phase to reduce the risk associated with disasters (Warfield, 2004; Pathirage, 2010).

4.2. Preparedness

In the ideal case, preparedness is about the getting ready for adverse impacts of disasters. As argued by Warfield (2004), aim of this stage is to achieve a satisfactory level of readiness to respond to any emergency situation through various measures. These measures include developing of preparedness plans; emergency exercises/training; warning systems; emergency communication systems; evacuation plans and training; resource inventories; emergency personnel/contact lists; mutual aid agreement. Warfield (2004) further emphasised that as with mitigation efforts, preparedness actions depend on the incorporation of appropriate measures in national and regional developments plans. In addition, their effectiveness depends on the availability of information hazards, emergency risks and the countermeasures to be taken. Hence, comprehensive assessment of risks to the building needs to be undertaken at the mitigation measures (Varcoe, 1998).

DRP is not often one person’s job. It requires contribution of various personnel from key departments in the organisation. As an in charge of all property management functions,

Facilities Manager posses the responsibility of recovering the supporting services that will enable the business to start functioning again (Davies and Walters, 1998). Thereby, there is an enhanced need for Facilities Manager to be involved in DRP to prepare for adverse effects of disasters in built environment (Warren, 2010). With this context, following section elaborates the function of facilities management in general.

4. Facilities Management (FM)

Every organisation relies on a mix of functions and services to provide the support essential to its core business operations. Ensuring that this support is available in the right form, at the right quality and for the right cost is the task of FM (Helsinki University of Technology, 2005). It emerged over the past decade in response to turbulent change in the business environment. The modern form of FM can be seen as a combination of different disciplines of management. Earlier (Levainen 2001, cited in Landholm 2005) it has been identified as a one sector of real estate management among Asset Management and Property Management. Now it is referred to the management of all non core activities of the organization (Alexander, 1996; Atkin and Brooks, 2002).

Over the years, researchers and practitioners alike have provided many definitions that specify the objectives and scope of FM. However, the definitions have prevented a common platform that is so crucial for a cohesive theoretical development in FM. Therefore, those definitions for FM are far from facility in providing directions on the objectives and scope of FM. For example, early definition provided by Becker (1990) suggests that FM is only concerned with the hardware such as buildings, furniture and equipments. Later definitions, however, include software such as people, process, environment, health and safety in the responsibilities of FM (e.g. Alexander 1996; Then 1999). Further, researchers have taken the definition by expanding the scope of FM to cover the entire property life cycle of designing, building, financing and operating (Tay and Ooi, 2001).

FM is described by Barrett (1995) as an integrated approach to operating, maintaining, improving and adapting the buildings and infrastructure of an organisation in order to create an environment that strongly supports the primary objectives of that organisation. According to the International Facilities Management Association (IFMA, 2006), FM is a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology whereas similar definition given by British Institute of Facilities Management (BIFM, 2006), which specified FM as a integration of processes within an organisation to maintain and develop the agreed services which support and improve the effectiveness of its primary activities.

However, regardless their contradictions and limitations, most definitions imply that FM is about managing non-core activities/supporting services of an organisation in order to create an environment that strongly supports the primary objectives or core business of the organisation. Thus, FM can be attributed as the management of all non core activities of an organisation. However, the scope of FM is still evolving throughout the time while concept develops.

5.1. Scope of Facilities Management

Scope of FM can be identified through the definitions specified by many authors (Atkin and Brooks, 2002; Alexander, 1994; Royal Institute Chartered Surveyors (RICS), 2005). Atkin and Brooks (2002) specify that FM can cover a wide range of services in addition to building management, domestic services such as cleaning and security and utilities supplies. Those services include real estate management, financial management, change management, human resources management, health and safety and contract management. Alexander (1996) has also denoted the functions and the strategic role of the organisation referred to within FM as managing customers, managing service and managing assets. According to the RICS definition for scope of FM includes thirteen activities such as business management, real estate management, security, support services management, project management, financial works, health and safety aspects of the organization, procurement activities, operations, understanding business organisation, managing services, managing people and workplace related activities.

Business Management functions referred to within FM includes business planning, strategic advice, business process reengineering and Disaster Recovery Planning (RICS, 2005). Business continuity planning and disaster recovery for FM is about operational disruption of the organisation. Regardless of whatever preventative control mechanisms are in place, a disaster may occur at any time. In such an event there should be a seamless process that immediately responds in a pre-determined way to protect the business, its people and minimise the impact. These measures need to be incorporated in a business continuity plan, drafted to combat the potential consequences of such an event. It is a responsibility of the Facilities Manager to protect the business, the processes and procedures and to lodge these processes within the wider culture of the business. Hence, it is vital to consider about DRP within business environment, which is as a discipline, forms a major part of the Facilities Manager's responsibilities (RICS, 2005; Warren, 2010).

6. Discussion

When disaster strikes, a comprehensive plan from preparedness to recovery makes for an effective response to emergencies. Thereby, Facilities Manager and organisation's FM department must always be in a position to respond any disaster by meeting all the essential accommodation requirements within the response time constrains (Varcoe, 1998). Role of a Facilities Manager in DPR involves in three phases; namely, Pre-disaster risk reduction phase (mitigation/prevention), During the disaster situation (response) and Post-disaster risk recovery phase (Recovery/Reconstruction) as shown in Figure 2.

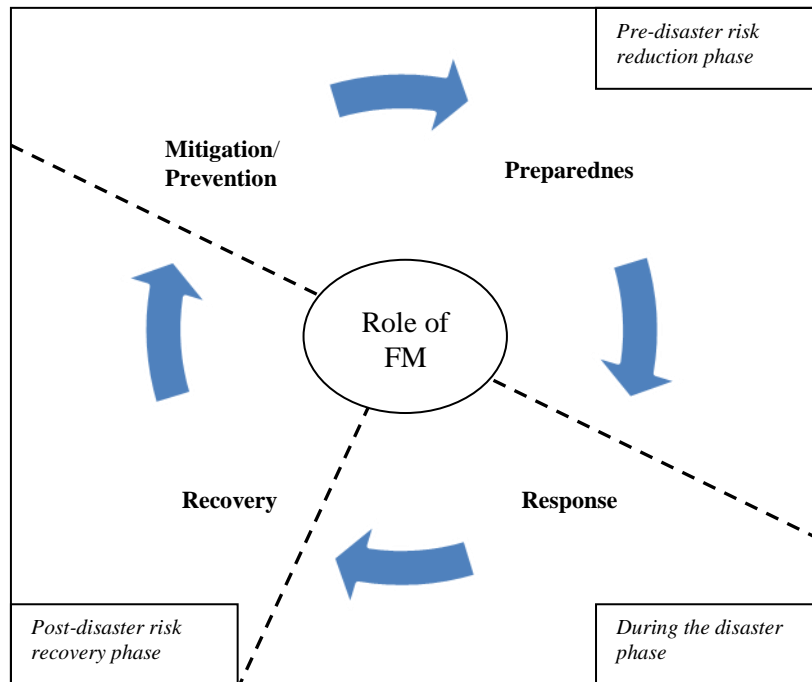


Figure 2: Role of Facilities Manager in DRP

This study is only limited to role of Facilities Manager in first two stages involved in pre-disaster risk reduction phase - prevention and preparedness. Most organisations depend heavily on technology and automated systems, which if disrupted, even for a few days, could cause severe financial losses and threaten survival. The continuous operation of an organisation depends on management awareness of potential disasters, their ability to develop a plan to minimise disruptions of critical functions and the capability to recover operations expediently and successfully. Hence, there is an enhanced and timely requirement for Facilities Managers to get ready for adverse impacts of potential disasters by taking necessary mitigation and preparedness measures at the pre-disaster risk reduction phase.

6.1. The role of Facilities Manager in mitigation/prevention stage

As other human beings, Facility Managers cannot predict an emergency situation. However, they can get ready for one. There are many forms of disaster events that can affect a facility, including building system failures, natural disasters, and manmade disasters. In a perfect world, a Facility Manager would have a detailed, step-by-step plan in place for each and every possibility. However, in reality, it is virtually impossible to create a plan for every type of emergency. Therefore, Facilities Managers are encouraged to start DRP with hazard analysis (Varcoe, 1998; Davies and Walters, 1998). FM related security activities include management of security systems and risk management functions of the organisation (RICS, 2005). Thus, a detailed assessment of the disaster risks to the integrity of the organisation and its property needs to be undertaken and regularly reviewed as part of the provision of normal security function (Varcoe, 1998). As argued by Vazquez (2005), in assessing the possibility of disaster risks to the building, contribution of personnel from key departments of the organisation is

essential. The reason being by assembling a group of people from key departments for discussion, a broad picture of the facility and its vulnerabilities will come to light. Hence, Facilities Manager has a duty to coordinate all these discussions and processes. Vazquez (2005) further emphasised that Facility Managers can also involve upper level management in the planning process.

Business impact analysis needs to be undertaken after risk assessment has been carried out (Varcoe, 1998: Savage, 2002). According to the Savage (2002, p.256), “business impact analysis is a means of systematically assessing the potential impacts resulting from various events or incidents that might cause existing facilities or systems to be unavailable”. This helps organisation to understand potential loss (Savage, 2002). The Business Support Services Managers and Facilities Managers will be central to this. The role of the FM in preparing the business impact analysis is critical and should be alert to the key issues required to evaluate and implement plans that meet the numerous demands and objectives of their core business.

Planning for what will happen after an emergency improves the organisation's chances for quick and efficient business continuity. Thereby, during the planning process, Facilities Managers together with other key personnel should consider what will be needed in both the immediate and the short term (Vazquez, 2005).

6.1. The role of Facilities Manager in preparedness stage

According to the ‘Current Trends and Future Outlook for Facility Management Professionals’ published by IFMA (2007), emergency preparedness is a part of Facilities Manager’s role and this includes basic safety and security, acts of terrorism, natural disasters, workplace violence, chemical/biological incidents, pandemic crises, data protection. Hence, setting up a formal safety organisation is the part of preparedness plan (Davies and Walters, 1998: Vazque, 2005). As per the RICS definition for scope of FM, this becomes a key role of Facilities Manager under the health and safety function. At this stage, it is also vital to be sure that building structure and equipment is code compliant. Facilities Managers should evaluate 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 stated by Vazquez (2005), this helps 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 Facility Managers to keep an up-to-date emergency plan.

In the event of disaster, communication is a key activity. Since this is an unexpected and stressful event, all members of the organisation are accounted for and informed (Vazquez, 2005). Thereby, in order to communicate with people critical to the organisation, contact information should be stored and concern parties should be informed and trained on this. Crucial contacts may include key personnel, customers, suppliers, and insurance agents. According to the Davies and Walters (1998) an organisation can become disaster-prepared, if they adopt a range of strategies, such as providing good feedback on previous incidents,

ensuring that life safety and security equipment are in proper working order, inculcating safety culture norms and beliefs about the importance of safety, devolving decision making but retaining monitoring by experienced staff, training and educating to create an environment of constant awareness and hence reliability. Hence, establishing, posting, communicating, training maintaining and coordinating all emergency procedures become a duty of Facilities Manager. The end product should be that those unpredictable disasters do not escalate to become worst disasters.

7. Conclusion

The frequency and extent of disasters are increasing on a global scale, where all organisations need to focus on this as one of the major risks that negatively affects business continuity. As a key person in an organisation and in-charge of all property management functions, Facilities Managers are often charged with the responsibility of recovering the supporting services that will enable the business to start functioning again within a short time span. Thus, there is a timely and enhance need for Facilities Managers to be prepared for the adverse effects of disasters on their facility. However, at the present situation, the involvement of facilities managers in DRP is minimal. Therefore, it is highly important and need to introduce role of Facilities Manager in the built environment in the event of disasters. Further, the Facilities' Manager can play the vital role in providing the overall coordination of facility issues for all stages including mitigation and preparedness in pre-disaster risk reduction phase.

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