Guest Editorial

MULTI-FACETED NATURE OF MANAGING DISASTERS

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The number of reported disasters in the world has risen sharply during the last decade creating substantial losses and damages to human lives, economy and society. Effective and proactive disaster management to reduce impact and vulnerability of disasters whilst increasing the resilience towards disasters is therefore a key priority. Disaster management efforts encompass reducing or avoiding potential losses from hazards, assure prompt and appropriate assistance to victims of disaster, and achieve rapid and effective recovery. Disaster management need to be taken place well before disasters strike by considering the aspects that can be carried out to limit the adverse impacts from disasters (mitigation) and taking measures in advance to ensure effective response to the impact of disasters (preparedness). Also, disaster management needs to be continued after disasters strike by providing emergency services and assistance immediately after a disaster (response), and reinstatement and improvement of livelihood and facilities (recovery) of the affected community to create resilience for future hazards.

Considering natural disasters as "Acts of God" has long being challenged. Often it is argued that natural hazard itself cannot lead to a disaster creating extensive losses and damages, but poorly managed interactions between society and environment coupled with lack of capacity of the communities convert natural hazards into disasters. After the devastating disaster in Haiti (2010) one of the common phrases that echoed in the world was "earthquake did not kill people, but bad buildings did". It was revealed that the earthquake that struck Haiti had the same severity as the 1989 San Francisco earthquake. However, when only 63 lives were lost due to the San Francisco earthquake, approximately 200,000 were reported to be dead from the Haiti earthquake. Crucial differences in these two situations were identified as lack of building codes that led to construction of unsafe buildings, and lack of access to emergency services. This example indicates that factors like poor planning and regulations influence disasters. Lack of awareness and knowledge about natural hazards, lack of capacity of the affected community, poor governance systems that do not support pre and post disaster management activities are also some other factors that increase impact and vulnerability towards disasters. In addition to the aforementioned factors, dynamic environmental conditions such as climate change also influence disasters. There are growing concerns on the human contribution to climate change as it could increase intensity, frequency and change the distribution patterns of disasters.

This themed issue of the *International Journal of Strategic Property Management* on Disaster Management, take forward the view that nature itself cannot be blamed for triggering disasters rather, a multitude of factors that contribute towards them. Interestingly, most of the factors that increase the impact and vulnerability towards disaster are directly or indirectly within the control of humans. The special issue is therefore, draws the attention of the readers on how we can effectively manage the factors that influence disasters and transfer lessons learnt from previous disasters and good practices for the future. Nine papers presented within the special issue are based on studies carried out in countries affected by natural disasters in the recent past. Some of these are extended versions of papers presented and highly commended at the 2010 CIB World Congress under the disaster management theme.

Ginige and co-authors introduce a framework for capacity development for disaster risk reduction in the built environment. The framework consists of four stages of capacity development (Analysis, Creation, Utilisation and Retention) against six groups of stakeholders in the built environment. The framework has been developed as a part of an ongoing research carried out in Sri Lanka which aims to strengthen the capacities of individuals and institutions in the built environment to ensure that disaster risk reduction meets its mission and goals in a sustainable way. The authors have captured the capacity gaps within the built environment in order to identify required capacity development. The results show that problems in the regulatory structure, deficiencies in necessary laws and regulations including problems in their implementation, and lack of required resources and skills as the major capacity gaps in Sri Lanka.

The influence of culture towards disaster risk reduction is presented by the author Kulatunga. Kulatunga's paper examines why some

individuals and communities do not attach much significance to natural disasters despite the losses and damages created by them. She argues that the risk perception towards a disaster not only depends on the danger it could create but also the behaviour of the communities and individuals that is governed by their culture. The findings of the study indicate that in some situations, culture has become a factor for the survival of the communities from disasters where as in some situations culture has acted as a barrier for effective disaster risk reduction activities. The study suggests community based DRR activities as a mechanism to integrate with culture to effectively manage disaster risk.

Third paper presented by Chang and co-authors examine the impact of resources shortage and supply disruptions during post-disaster reconstruction. Based on field surveys, the study evaluates the Wenchuan earthquake reconstruction practice in China and identifies the most vulnerable resources along with their resourcing impediments inherent in the reconstruction process. The research findings reveal that at the early stage of reconstruction, labour and materials such as brick, cement, steel and aggregate were the most needed yet vulnerable resources. Reconstruction schedule and speed, the impacts of the 2008 global financial crisis, inadequate local transportation capacity, dysfunction of the construction market, and insufficient engagement of local construction industry were identified as the factors that affect procurement of these resources. Authors conclude that measures need to be taken to reduce the impacts of these five areas to improve longer-term disaster recovery and reconstruction activities.

Building collapses in Lagos metropolis have become worrisome to residents, developers, and Government. Oni's paper examines the incidences of collapsed buildings in Lagos metropolis over a thirty-year period. Time series analysis is carried out to determine the

past and predict direction of the future occurrences. In addition, a process of inference from reports on investigations of past occurrences was adopted to establish causes of building collapses in the study area. According to the finding of the study, causes of building collapses in Lagos metropolis were identified as improper or bad design, construction defects, foundation failure, extraordinary loads, structural defects, dilapidation due to lack of maintenance, use of weak and substandard building materials, and storage of explosive devices.

Thurairajah and co-authors investigate women's empowerment in post-disaster reconstruction with particular reference to policies and frameworks in Sri Lanka. Existing policies and frameworks is one of the important factors that can play a major role within post disaster reconstruction. Although there are legislation and policies to provide assistance to women, the lack of implementation of these remains a problem. In order to gain an understanding of the existing framework of women's empowerment, authors examine the way the concept of empowerment has been viewed within development studies and analyse the national and international policies and frameworks that exist within the post disaster context in Sri Lanka. The results show that even though polices is gender neutral, they are not gender sensitive in Sri Lanka. Authors conclude that having a single policy or framework for the whole country is unlikely to be a success, therefore, the study recommend that any frameworks should have room to be adapted to the local situation.

Wedawatta and co-author's paper is based on building up resilience of construction sector small and medium scale enterprises (SMEs) and their supply chains to extreme weather events. Construction industry; which consists of supply chains running across various other industries, economies and regions, is being affected by the extreme weather events. Thus, it is important that the construction organisa-

tions are well prepared to withstand the effects of extreme weather events not only directly affecting their organisations but also affecting their supply chains which in turn might affect the organisation concerned. Given the fact that more than 99% of construction sector businesses are SMEs, the area can benefit significantly from policy making to improve SME resilience and coping capacity. The authors present a model that conceptualises the factors that enhances resilience of SMEs and their supply chains against extreme weather events. This synthesis model forms the basis of a decision making framework that will enable SMEs to both reduce their vulnerability and enhance their coping capacity against extreme weather.

In their paper Seneviratne and co-authors identify and map key knowledge success factors for managing disasters successfully through capturing good practices and lessons learned. While knowledge management can enhance the process of disaster management, there is a perceived gap in information coordination and sharing within the context of disaster management. Accordingly, authors argue that identifying key success factors will be an enabler to manage the disasters successfully. The study identifies a number of key knowledge success factors that are categorised into eight main groups as technological, social, legal, environmental, economical, functional, institutional and political.

Vaidogas and co-author focus on protecting built property against fire disaster. The protection of buildings against fire disasters may require a comparison of alternative fire safety designs. The fire safety solutions can be compared by means of a general methodology known as multi-attribute selection or multi-criteria decision making. Fire risk expressed in the general form used for the quantitative risk assessment is applied to compose the set of attributes of a multi-attribute selection problem. The study shows how to accomplish

the multi-attribute selection in the presence of epistemic uncertainties in the elements of fire risk estimate. Epistemic probability distributions assigned to elements of fire risk are specified and propagated though models of the multi-attribute selection by means of Monte Carlo simulation.

Finally, Zare and co-authors examine the vulnerability of wastewater treatment plants and wastewater pumping stations to earthquakes. Earthquakes are considered as the most common natural hazard in New Zealand. This research takes into account earthquake effects on treatment plants and pumping stations in wastewater systems as a lifeline. Wastewater treatment plants in four earthquake prone areas in New Zealand were selected for the purpose of assessing their vulnerabilities to earthquakes. Findings of the study reveal that simple upgraded wastewater treatment plants are the most vulnerable type of wastewater treatment plants in New Zealand. The authors conclude that non-structural components are among the most vulnerable parts in wastewater pumping stations.