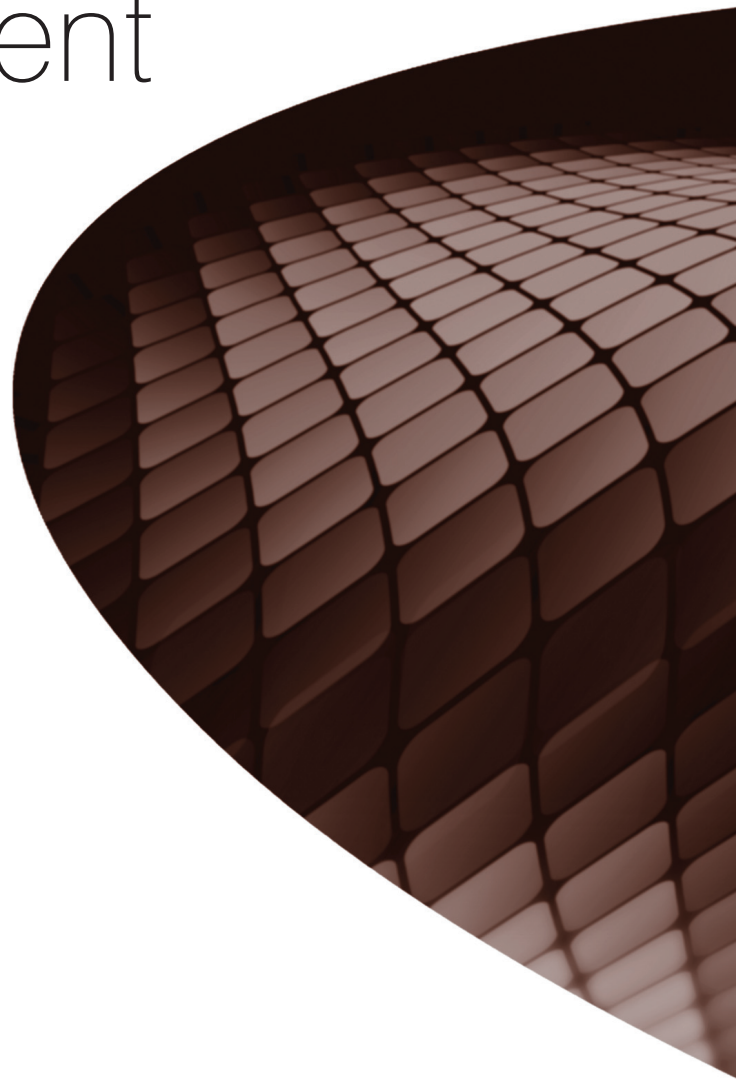


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Disasters and the Built Environment: Towards a Mature Discipline



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Theoretical maturity of disaster management

'There is nothing more practical than a good theory', wrote Lewin (1952). Lewin's message was twofold: theorists should try to provide new ideas for understanding or conceptualising a (problematic) situation, ideas which may suggest potentially fruitful new avenues of dealing with that situation. Conversely, researchers need to provide key information and facts relevant to solving a practical problem, facts that need to be conceptualised in a detailed and coherent manner. More generally according to Vansteenkiste and Sheldon (2006), theorists should strive to create theories that can be used to solve social or practical problems.

Disaster management is no different and throughout the world it has become a discipline unto itself as people worldwide attempt to gain greater control over their environment and circumstances. Disasters are exceptional events with overwhelming loss of lives and property. Even if predicted, disasters may not be completely averted due to reasons beyond human control. There is always likely to be a degree of loss, human as well as material. Disasters end up with internal displacement, multiple physical as well as psychological traumas, deprivation of safety and basic needs, loss of family, possessions and identity. Often disasters such as famine or drought have interacting human and natural causes (Donohue et al, 2001). In recent years, a number of disasters (natural, technological or ecological) have made the global community aware of the immense losses of human lives and productive resources that are caused regularly by such calamities. Developing countries are worst-affected due to rapid population growth, poverty, ill-planned developmental activities and their inability to cope with them. In addition, armed conflict continued to cause disruption, displacement and death. For example, the dramatic rise in violence has triggered massive displacement. There are approximately 600,000 internally displaced persons live in Myanmar; several thousands in Indonesia and the Philippines and as many refugees from Myanmar live along the Thai-Myanmar border.

More recently, hazards and disasters have been increasingly recognised as not just external events interfering with humanity but as outcomes emerging from interactions between people and their environment (Cutter, 1993; Varley, 1994). The constructivist world view inherent in this statement acknowledges that both people and environments are almost infinitely variable and both are open to a range of interpretations of their actions and interactions (Nielsen and Lidstone, 1998). Hence, designing and constructing a resilient built environment demands an in-depth understanding of expertise, and knowledge of avoiding and mitigating the effects and threats posed by hazards (Bosher et al, 2007). Haigh et al (2006) emphasised the need for a more expansive view of the life cycle of infrastructure projects: one that extends beyond the traditional cycle of feasibility analysis, planning, design, construction, operation, maintenance and divestiture.

"Disaster management has become a discipline unto itself as people worldwide attempt to gain greater control over their environment and circumstances."

This revised life cycle considers the construction professional's ability to anticipate and respond to events which damage or destroy an infrastructure project and reflects the construction industry's ongoing responsibility toward an infrastructure's users.

Lettieri et al's (2009) systematic review of the literature has revealed the peculiarities and gaps in the knowledge on disaster management and a number of subject areas that could be researched and reported further. In particular the combination of a descriptive and thematic analysis informed the 'state of the art'. While currently at least there is a view of disaster as a socially interactive phenomenon, linked with a view that social change can interact with and shape disaster, the world is faced with dissensus between studies of hazardous phenomena and theories underlying our understanding of disasters (Nielsen and Lidstone, 1998).

Though at one level, disaster management is a well documented field, there is a need for an integrated theory of disaster management in a built environment context. There has been a lack of research investigating interpretations of the links between disasters and the built environment as a management strategy and a lack of sound underlying theory.

Perhaps the most significant insight afforded is that any theory must account for a diversity of interpretations of the role of the built environment within the context of disasters. While disaster management has been identified as a discrete area of research, its meaning in the context of the built environment is fraught with uncertainty. Interpretations of the role of the built environment are likely to influence decision-making during preparation and response stages of disaster management.

The changing nature of disaster management theory and scholarship

Disaster management is about mobilisation of resources, rapid responses, and having a long-term strategy to prevent disasters and reduce the risks of vulnerable groups. The construction industry's role in recovery activities following disruptive challenges, both natural and human-caused, is well documented. During the last few decades, the growth in disasters has stimulated a growth in theoretical developments in relation to the way in which disasters are avoided and managed (Dainty & Boshier, 2008). A paradigmatic shift has led to a focus on disaster preparedness, mitigation and vulnerability reduction rather than disaster management and relief. There is a strong case for embracing new theory developments in disaster management that provide contributions to the resilience debate. As such, this journal portrays new theory development towards a resilient built environment in technical, organisational, economical and social terms, which is necessary for growth of the discipline.

Construction is typically engaged in a range of critical activities: temporary shelter before and after the disaster; restoration of public services such as hospitals, schools, water supply, power, communications, environmental infrastructure and state administration; and securing income earning opportunities for vulnerable people in the affected areas (Haigh et al, 2006). Similarly, there is an increasing level of attention towards the link between disasters and development. Although more robust construction in and of itself will not eliminate the consequences of disruptive events, there is widespread recognition that the engineering community has a valuable role to play in finding and promoting rational, balanced solutions to what remains an unbounded threat (Sevin and Little, 1998). The humanitarian relief community generally acts efficiently in the immediate aftermath response to major natural disasters. What that community does not possess is a broad understanding of the technical aspects of the built environment, particularly where this relates to long-term reconstruction and risk reduction planning issues.

A great deal of work is being done worldwide to advance the agenda to mainstream disaster risk reduction into sustainable development planning. Advancements include the development and implementation of hazard-resistant building codes and standards, training programs on risk reduction and mitigation for communities and civil servants, and operational guidelines and policies for international finance institutions. Analytical research



on hazard mapping and analysis has been developed and is being introduced into the development planning processes of vulnerable countries. While these studies offer insight, what is lacking is a specific disaster management theory in the maturity process of the discipline. Most of the current theories remain overlapping with, consumed by, or peripheral to, other theories, borrowed from other disciplines. The role of the built environment within the disaster management context, as a concept, is evolving but remains under-researched.

The vagueness of disaster management definitions is a reflection on what has been a general failure to establish a sound theoretical base for disaster management in emphasising its position as a serious academic discipline. While it is tempting to construct the last decade or two as a period when understanding about disaster management in a built environment context has advanced, a thorough literature search has failed to support such a claim. An operational definition and theory has remained elusive despite a commonsense understanding of the phenomenon being readily found.

Back in 1954, Hyman and Sheatsley studied why information campaigns fail and concluded that increasing the amount of available information did not lead to an increase in knowledge. Since this time, evidence has not been produced to counter this conclusion. While Sims and Baumann (1983), summarising a number of relevant disaster studies, identified several studies finding a relationship between amount of information and level of knowledge, they also found many studies that did not (cited in Nielsen and Lidstone, 1998). Hence, there is a need to appraise the concepts, beliefs, assumptions and values in prevailing disaster management theories. Such an appraisal of disaster management will reveal it has not been accommodated as a true academic discipline with its own intentions and delimitations. The longevity of the term may also suggest that disaster management within a built environment context will warrant recognition as an academic discipline in its own right. There is a need for a more comprehensive approach that is intended to address the complex issues of risk, vulnerability and prevention in addition to ensuring capacity to respond to a given disaster.

Despite such limitations, in recent years there has been a renewal of focus, at both a national and international level, upon the role of the built environment as a means to disaster mitigation. The Royal Institution of Chartered Surveyors' (RICS) Mind the Gap Report (2006), emphasised that despite huge improvements in the emergency response to natural disasters, permanent reconstruction is often inefficiently managed, uncoordinated and slow to get off the ground. Likewise, it is widely assumed that built environment professionals with appropriate training, have key roles to play during all disaster phases, from preparedness to immediate relief, transitional recovery and long-term reconstruction is more able to prepare for, and adapt and respond to, hazards, and that research and associated theory building for disaster mitigation and reduction is complex yet essential to any centrally managed hazard strategy.

In the context of global interdependence and in the spirit of international cooperation, all activities to reduce disasters, including a strong theoretical base needs to be encouraged and supported. Cooperation in the area of research and science and technology development related to disaster reduction needs to be ensured in order to enhance the capacities to reduce their vulnerability in this respect.

The world is increasingly interdependent. All countries need to act in a new spirit of partnership to build a safer world based on common interests and shared responsibility to save human lives. Regional and international research will significantly enhance countries' ability to achieve real progress in mitigating disasters through the transfer of technology and the sharing of information in disaster prevention and mitigation activities.

“The vagueness of disaster management definitions is a reflection on what has been a general failure to establish a sound theoretical base for disaster management...”

The research community has an obligation to intervene not only with relief assistance but by sharing of knowledge, experience and technical expertise with such countries.

Editorial policy of the journal

Disaster management and the built environment is a very wide and complex field, and a useful step towards establishing an integrated theory of potential value in a disaster management context is to bring together fragments of research findings that exist.

There are also many views on the best solutions and actions in the same circumstances. There is a need for an integrated, inter-disciplinary approach to research and for researchers in this area to research on finding out the most appropriate actions in particular situations, in order to improve the effectiveness of the measures that are taken on the ground. Researchers should find ways to integrate the many instruments for collecting information on disasters. Moreover, as there is a long time gap between the consecutive occurrence of the same disaster event in the same location, it is necessary not only to find sustainable solutions and build awareness through research and education today, but ways should also be found to build up useful data and information bases for use in the future, in the form of new theory.



In research on disasters, and in the actions taken when they occur, there is a tendency to focus on the safety of the people who might be, or are, affected. It is necessary to extend attention to ways and means of securing livelihoods and production. Moreover, it is important to remember that the post-disaster recovery programmes and actions are aimed at building communities, not just building the constructed items better. Thus, they need to be complete, and involve the preservation of the society and the culture. Accordingly, efforts should be made to document, validate, disseminate and promote best practices in disaster management and the built environment.

There is a need for an integrated theory of built environment that is of practical value in a disaster management context. The journal will try and integrate several major issues that a theory of disasters and built environment will need to accommodate. This may mean that a successful theory will need to address subjective interpretations of the role of the built environment within the disaster management context as they will ultimately determine the nature of implemented practice. There has been a lack of research investigating this integrated link and its interpretations on the role of the built environment as a management strategy, and a lack of sound underlying theory.

In this context, the *International Journal of Disaster Resilience in the Built Environment* aims to be the leading journal that contributes to the body of knowledge on developing society's disaster resilience through the built environment. It is the only journal to promote research and scholarly activity that examines the role of building and construction to anticipate and respond to unexpected events that damage or destroy the built environment. It aims to develop the skills and knowledge of the built environment professions and other professions working in disaster mitigation and reconstruction, so that they may strengthen their capacity in strategic and practical aspects of disaster preparedness, rehabilitation and reconstruction to mitigate the effects of disasters nationally and internationally. The journal will contain a mix of academic papers, book reviews, case studies and field studies. It will promote the exchange of ideas between practitioners, policy-makers and academics, and provide a unique forum for novel enquiries into the development and application of new and emerging practices as a source of innovation to challenge current practices. Existing publications in the field do not address the whole spectrum of requirements for the built environment community.

The journal provides an opportunity for scholars, policy makers and other interested parties to publish, read and debate on contemporary issues surrounding disaster management theory and practice, combined with the wider study of built environment applications across the disaster management lifecycle, thus providing a unique and

intellectually challenging journal. The journal will be an important resource for a range of backgrounds and professional disciplines, and is designed for those built environment professionals with, or who anticipate having, disaster preparedness and reconstruction responsibilities, and who wish to improve their working knowledge of both theory and practice. Thus, its editorial objectives are not confined to one or more areas of disaster management, but are defined in terms of the interaction between disaster management and the built environment. The journal is multi-disciplinary in nature, within which theories of disaster management are applied in various sub-disciplines of built environment – ranging from building technology to human interactions.

As this editorial demonstrates, the journal will take a theory development and reflection approach to its scholarship. It is hoped that the journal will, in the longer term, provide a basis for inter-disciplinary collaboration. It encourages a level of interaction within the field that has previously been nonexistent. As Chynoweth (2008) points out, to communicate effectively with those from other disciplines (and even with others from the different traditions), there is a need to first develop awareness of the epistemological, methodological and cultural assumptions that underpin our own scholarship, and of how these differ from those of others.

The title of the journal emphasises its international nature. Its internationalism relates to the natural and inevitable result of its stated editorial objectives and the international nature of the academic community which it serves. In seeking to develop theory and knowledge of disaster mitigation and reconstruction within the global built environment, the journal will be building upon theories and knowledge from throughout the world.

The inaugural issue

Theory development is at the heart of the study of disaster management, with different theories providing the foundation for different approaches to empirical studies and inference helping a discipline to move from being an immature to a mature discipline. This editorial has highlighted that a number of recent changes in understanding of research and disasters are very significant for any future developments in disaster management theory. This issue provides structured opportunities to think about disaster management theories in the process of learning about the discipline and specific theories highlight some useful components of disaster management.

This first issue of the journal includes 9 contributions in the form of traditional papers, news articles and a book review. Traditional papers contribute to the much needed theory development and increase the status quo of the discipline. Revisiting Lewin's message, it is hoped that the journal will continue to contribute towards new disaster management theories, emphasising the position of the discipline.

Science is not just about discovering facts; it's about explaining what the facts mean. Explanations for, and interpretations of, empirical phenomena are theories, and constructing and modifying theories are core scientific activities. Good theory is essential to the many new fields for several reasons. First, good theory provides guidance for practical action and therefore should be at the foundation of curricula. Second, without good theory in any particular field, researchers must borrow theories from other academic disciplines (Christiaanse, 2006). James (1907) concluded: *'Theory thus becomes instruments, not answers to enigmas, in which we can rest. We don't lie back upon them, we move forward, and, on occasion, make nature over again by their aid'*. □



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- An integrative review of the built environment discipline's role in the development of society's resilience to disasters - *Richard Haigh, Dilanthi Amaratunga*
- Disaster impact analysis based on interrelationship of critical infrastructure and associated industries: A winter flood disaster event - *Eun Ho Oh, Abhijeet Deshmukh, Makarand Hastak*
- Addressing vulnerability through an integrated approach - *David McEntire, Colleen Gilmore Crocker MPH, Ekong Peters*
- Resourcing for a resilient post-disaster reconstruction environment - *Yan Chang, Suzanne Wilkinson, Erica Seville, Regan Potangaroa*
- Dataflow model for managing urban disasters: the experience of Bam earthquake - *Ali Asghar Pourezzat, Mostafa Nejati, Abdolazim Mollaei*
- An examination of decision making in post disaster housing reconstruction - *Carolyn S Hayles*

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