Editorial

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It is increasingly being recognised that cities need to be developed (and redeveloped) with effective measures of ‘resilience’ so that they can prepare for, withstand and adapt to the possible impacts of different types of disasters. Recent high-profile disasters, such as the Haitian earthquake, the Japanese tsunami and hurricane Sandy have demonstrated the extent to which cities can be severely affected by extreme natural hazards (such as earthquakes, floods and storms) and manmade threats (such as terrorist attacks and industrial/nuclear ‘accidents’). Smaller-scale disasters, such as localised flooding, lack of water availability or shack fires, may not make the international news, but are equally damaging to urban dwellers’ lives and livelihoods and make up a greater share of economic losses (UNISDR, 2011).

The past century has witnessed an expansion of urban populations across the world. Increased urbanisation has occurred in the context of neo-liberal policies in which the role of the state as an urban custodian has become gradually diluted (Johnson *et al.*, 2013). For urban design, planning and construction, this has resulted in a reduction in regulatory control and a perspective that the obligation of the state is primarily to enable ‘free’ markets to work. The implication for the construction sector is to enable investments in construction through the provision of infrastructure, financial mechanisms and by making land available for development. On the other hand, reduced (or ineffectively applied) regulatory controls have meant that disaster risks, and other environmental concerns, are often poorly considered in urban development decisions (UNISDR, 2011). This is a central feature in all of the papers in this issue.

Over the last 20 years there has been a relative increase in the number of disasters, the amount of people being affected and the extent of resulting economic losses (UNISDR, 2013). Consequently, it has been argued that the many disciplines involved in the delivery and operation of our cities need to become part of the proactive strategies associated with disaster risk reduction (DRR) where structural and non-structural approaches to improve ‘resilience’ could be achieved (Benson and Twigg, 2007). However, it is also acknowledged that ‘resilience’ is a nebulous concept that has been adopted and adapted by numerous disciplines (Reghezza-Zitt *et al.*, 2012), and as a consequence it is not always clear what ‘resilience’ actually means or the extent to which the term is scientifically founded or can accurately be applied or measured (Alexander, 2013). Bosher (2014) and Johnson and Blackburn (2014)

propose that ‘making cities more resilient’ is not merely about the creation of physical assets in an appropriate way and in suitable locations. It is equally important to support the ‘accumulated resilience’ of social, environmental, institutional and economic systems as part of normal development, and thereby help to keep cities operational and adaptable in the face of existing and emergent hazards and threats. By drawing upon insights from across the world, this themed issue examines many of these multidisciplinary perspectives of how cities can be made more resilient.

As a starting point, the briefing by Yanez and Kernaghan (2014) reports the outputs from a student competition that was established by Arup and Engineers Without Borders to uncover perspectives from the next generation of urban professionals on what resilient cities might look like. The briefing draws key messages from ten shortlisted projects that were focused upon different cities (the winning entry provided a vision for Oaxaca City, Mexico). The key messages were: (a) building urban resilience requires action and systemic change across four key components of an urban system – infrastructure, institutions, knowledge and ecosystems; (b) resilient cities are the result of multiple interventions including transport and energy, food security, urban planning and waste management; (c) resilience is not location specific and is distinct from DRR; and (d) building resilience is a progressive and evolving process of urban development.

Wholey and Whyte (2014) draw upon their practical experiences of dealing with security related issues in the UK. They find that the greater number of consultants involved in large projects has exacerbated the inherent challenges in the iterative design process, and reduced the motivation for engineers to address broader, nebulous issues such as resilience. They conclude that consultancies need to take a whole risk-based, iterative approach that addresses all of the issues facing a client’s development; by doing this they believe that consultancies can enhance their competitive advantage.

Mowll and Brunsdon (2014) report on a multi-stakeholder project (consisting of 20 utility operators and civil defence agencies) in Wellington, New Zealand that has set out to better understand the hazards and potential impacts of those hazards on the nation’s capital city. As a result of this work, the authors state that the region is in a better position to plan hazard mitigation work and produce emergency response

plans. The role of urban planning and land use zoning is a central part of the process, particularly in ensuring that critical lifeline services are not located in areas that may be susceptible to hazards such as liquefaction, landslips or flooding.

Grinberger and Felsenstein (2014) investigate the effectiveness of policy choices aimed at restoring the urban equilibrium in the event of a catastrophic event. They present the findings of dynamic agent-based simulations that tested the long-run effects of a hypothetical earthquake in Jerusalem, Israel. Interestingly the simulations suggest that cities harbour an inherent self-organising mechanism that presupposes abilities for 'self-recovery' and the promotion of resilience.

Chmutina *et al.* (2014) present the findings of research conducted in Nottingham (UK) and Jerusalem (Israel) that identifies the commonalities and differences between the key stakeholders responsible for integrating DRR activities into urban design and planning. The paper emphasises gaps in stakeholders' involvement – gaps that exist in spite of useful information and guidance being available and in some cases regardless of applicable legislation. Fundamentally it is clear that the pre-construction phase is the critical phase when DRR measures should be integrated into the planning and design of developments, but the messages from practice suggest that this rather obvious requirement is rarely fulfilled.

Strickland (2014) offers a defining final paper for this issue by illustrating the results of an urban design studio conducted at the University of Michigan that set out to 'redesign the borough of Manhattan in New York City in the face of climate change'. Not only does Strickland provide an excellent example of 'urban design pedagogy' that is enabling young built-environment professionals to engage in climate change-related projects for urban areas, he also illustrates some thought-provoking insights into the range of innovative approaches (such as tidal berms, green pathways, marshes and floating neighbourhoods along the river-fronts) that many of our coastal cities may need to start adopting.

A key message from this themed issue is that there are many stakeholders required to generate the ideas and actions necessary to make cities more resilient but, fundamentally, urban planners, designers and building and construction professionals are not yet sufficiently recognised as being part of the problem, or indeed part of the solution. While some of the ideas/concepts presented in this issue may appear to be rather futuristic, the recent experiences of cities being affected by disasters suggest that these types of ideas and innovations ideally need to be incorporated into standard practice sooner rather than later.

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