

Building resilience in urban settlements

The 2018 global population of 7.65bn is predicted to reach 9.7bn in 2050. Urban growth is accelerated as more people survive to reproductive age, fertility rates change and migration rates intensify. Climate change is varying existing weather patterns, some of which are life threatening and socially, environmentally and economically devastating. These trends have far-reaching implications for future generations.

We need effective planning and governance to deliver transition across all levels, scales and types of development from building to city scale, ensuring infrastructure can support growing populations, changing land uses and new technologies. With adaptation of existing areas to accommodate more people, and as land uses undergo change, we need to consider optimum levels of sustainable development that includes, at the building level, different types and degrees of new development, adaptation and adaptive reuse. Taking action now is embodied in the concept of building resilience to future events. Resilience implies capacity to respond to both chronic stresses or acute shocks, which can be social, economic and environmental, or combinations thereof.

Our cities will grow, faster than ever, yet typically only 1–2 per cent is added annually to the total stock of buildings; hence resilient retrofit, resilient adaptation and resilient adaptive reuse are terms we must define, develop and embrace. Resilience, and how it is manifested, varies from location to location, and we need to share our ideas, approaches and practices to inform others.

This special edition of the *IJBPA* examines resilience and adaptation in respect of four aspects; pathways to resilience, risks in decision making and managing risk through building rating tools, adapting existing buildings and housing quality.

Pathways to resilience

The dynamic relationship between the built environment and biosphere can be conceptualised from a social-ecological systems approach (Folke *et al.*, 2016); in that context, resilience may be defined in terms of the capacity of such systems to absorb, adapt and transform in the face of external disturbance while maintaining core system structure and function. But are the pathways to achieving urban resilience universal? In their study of the Perceptions and pathways of resilience in Addis Ababa – acknowledging both the importance of the rapidly urbanising African continent to our perception of resilience and adaptation and the frequent overlooking of this part of the world in built environment research – Baron and Cherenet offer clear evidence for the existence of locally distinctive perceptions of and pathways to urban resilience. They point out that only through adjusting our understanding of resilience to the local context can the design and implementation of urban resilience strategies be successful.

Risks management: rating tools and decision making

Building rating tools were developed to increase sustainability and resilience and to reduce and manage risk; however, the results are at best patchy in terms of uptake and acceptance. In their paper titled “Sustainability ratings in residential development: a worthwhile endeavour?” Warren-Myers *et al.* examine new housing markets in Australia. The study investigates consumer motivation and experience post-purchase of sustainable housing in a certified development. The findings show the rating systems do not have the anticipated influence.



With consumers having low awareness of sustainability and lack of trust in the ratings, stakeholders need to revisit the assumptions on which current rating tool models are based.

In “Advancing real estate decision making: understanding known, unknown and unknowable risks”, Higgins and Perera take a broader view on risk in real estate risk management. They claim existing literature is focussed on holistic risk management techniques and the unforeseen, rare and extreme events associated with resilience issues and acute shock can challenge existing decision-making strategies. They posit that by taking a downside risk approach examining known, unknown and unknowable risks; a new blueprint for effective real estate risk management can be adopted, which is far more suited to a changing global environment.

Adapting existing buildings

Drilling down to the building scale, three papers in this issue examine adaptability and adaptation from quite different but complementary perspectives. Aigwi *et al.* consider the efficacy of adaptive reuse for the redevelopment of historical buildings in New Zealand, not simply as a money saving scheme to repurpose underutilised buildings as an alternative to knock down and rebuild, but as a strategy for regenerating a major provincial town centre facing problems of inner-city shrinkage. The authors found that a majority of stakeholders involved with town centre regeneration in the historic city of Whanganui supported this approach. Huuhka and Saarimaa take a cross-disciplinary approach at the crossroads of human geography, building stock research and adaptability research to understand how the lack of variation in dwelling size affects residential segregation. Their premise is that “when dwellings fail to respond to residents’ needs, housing will suffer from segregation and buildings will possibly be demolished ahead of their time”. Drawing on an analysis of Finnish mass housing built in the 1960s and 1970s, the authors discuss how mass housing layouts can be adapted to meet changing occupant needs.

Housing quality

In the paper, “The importance of user memory in understanding housing quality” by Sadikoglu Asan and Özsoy, housing quality is examined in a novel way. Spatial quality is a multi-dimensional concept that encompasses objective and subjective features and reflects individual needs, values and satisfaction in relation to the conditions of a building and its surroundings. The authors assert much existing housing no longer meets spatial needs; although rather than demolition, improvement strategies and programmes to improve spatial quality are needed. However, a house is also a space containing compressed time and memories. Memory relates to personal experience and the events and objects that surround humans throughout their lives. Therefore, user memory is a tool that can provide valuable information to understand problems of housing quality and facilitate the development of a quality improvement strategy. Their research examines Turkish housing stock to test this hypothesis; finding a strong relationship between perceived housing quality and memories.

Conclusion

The online introduction to this journal points to “rapid technological developments, a changing climate and more extreme weather, coupled with developing societal demands” as among the key trends underpinning the dynamic challenges of maintaining, conserving, refurbishing, adapting and ultimately sustaining our buildings. The selection of articles published in this special issue reflects the journal’s interdisciplinary, practical and problem-solving focus to that end. From global programmes such as 100 Resilient Cities to local debates among the built environment professions and research community, the notion of urban resilience has become a structuring framework for a plethora of initiatives around

built environment sustainability. As the guest editors for this issue we hope the papers published herein will contribute to this process.

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Reference

Folke, C., Biggs, R., Norström, A.V., Reyers, B. and Rockström, J. (2016), "Social-ecological resilience and biosphere-based sustainability science", *Ecology and Society*, Vol. 21 No. 3, p. 41.