

Unravelling Sustainability and Resilience in the Built Environment: Book Review

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Unravelling Sustainability and Resilience in the Built Environment, Emilio Jose Garcia and Brenda Vale, New York, NY, USA: Routledge, 2017, ISBN: 978-1-138-64402-1 (hardcover); 978-1-138-64404-5 (paperback); 978-1-315-62908-7 (ebook)

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Sustainability and resilience are often used interchangeably in discourses about the built environment, but, in fact, they mean very different things. This is what Emilio Jose Garcia and Brenda Vale have endeavoured to clarify in their book *Unravelling Sustainability and Resilience in the Built Environment*. They set out to investigate if sustainability and resilience are compatible, and if theories of resilience – particularly ecological resilience – can be applied to the built environment. The authors note that urban designers and architects rarely participate in institutions concerned with resilience, and they question the reasons for this mismatch while aiming to be ‘the first architectural toe dipped into the cold water of resilience’ (p 12).

The book is divided into three parts: (1) definitions, (2) case studies and (3) ways of measuring sustainability and resilience. It has 11 chapters and the microscale of the case studies and real-life examples kept me captivated throughout the book; however, the examples described could at times have been substituted with or supported by the use of images. Part 1 aims to define, clarify and map sustainability and resilience. Sustainability is approached from the perspective of behaviour and technology, while resilience introduces the idea of Panarchy, which entails systems ‘organized through multiple scales, with key processes driving the rhythm and cycle of change at each scale ... [in which] changes happen in a cyclical manner’ (p 37). These cycles are called adaptive cycles and have different phases linked with processes of development and decay. Part 1 concludes with mapping sustainability and resilience based on similarities and differences between both concepts, and the idea of Panarchy permeates discussions throughout the text.

Part 2 uses case studies to investigate the topics of eco-cities, heritage and compact cities. The discussion around eco-cities focuses on two main case studies: Whitehill and Bordon (United Kingdom) and Tianjin (China). The former is a car-dominated city that demonstrates the problems of trying to insert new ideals into a well-established built environment. The latter is an Asian city with a strong western historical influence, where city planning has generated a lifeless and empty environment. Using these examples, Garcia and Vale conclude that urban renewal is more sustainable and resilient than building new towns and cities, and eco-cities seem to be just another way of ‘selling’ sustainability. The next topic,

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heritage, is approached as identity instead of monument and investigated in Tucumán (Argentina) and Hanoi (Vietnam), because both cities have changed over time but kept their uniqueness. The authors focus on the changes and adaptation of the Chorizo and the tube houses to demonstrate that a more adaptable urban form is a more resilient one. Compact cities are discussed from three different perspectives: density, intensity and compactness. The authors argue that density does not necessarily generate intensity and cite Le Corbusier's way of planning as a good example of an approach that generates density but not compaction or intensity. On the other hand, 'perhaps the concepts of being compact and being a liveable city are incompatible' (p 125), as the example of Melbourne shows, as a city that is sprawling but considered the most liveable in the world. Finally, place-based constraints become clear in the discussion of density and compaction, both regarding culture (they may vary between Asia and Europe, for example) and climate (compaction can prevent ventilation in hot climates and insolation in cold climates).

The case studies approach is important and engaging, but the reason for studying these specific cases, and particularly for varying them according to the subject of analysis, is unclear. Could the authors have used one case study and focused on the different aspects of that environment from eco-city, heritage and compaction perspectives? The variation of both criteria and case study makes it difficult to follow the role of each piece in the complex system that one single city represents.

Part 3 is an example of the application of the concepts discussed to measure sustainability and resilience. Regarding sustainability, while measurements are necessary, as designers our role is to provide the environment that will support people in making choices that have the least impact, but we cannot guarantee they will live like we propose. In measuring resilience, Garcia and Vale investigate ways of applying ecological resilience principles to the built environment. It then becomes clear that a gap exists between theory (in ecology) and practice (in design), and that the large number of indicators make the available frameworks unhelpful for designers. In this context, the concept of Panarchy proves its usefulness because it allows us to understand how the elements of a system (in this case, a city) change in time and space. In conclusion, the authors provide a demonstration of assessing sustainability and resilience using the Auckland central business district as a case study.

This book is an important step in clarifying the meaning of *sustainability* and understanding the meaning of *resilience*, especially when applying theories of ecological resilience to the built environment. Designers are the intended audience; however, to be more appealing to visual professions, such as architecture, landscape architecture and urban design, the book would benefit from making more extensive use of images. The Tucumán case study is the most interesting because it is well illustrated with sketches, although it lacks photographs. Regarding the other case studies, I still do not know, for instance, what some of the places mentioned look like. How do Tianjin or the tube houses of Hanoi appear?

Finally, the idea that 'to be a really resilient city, like Toronto, it seems that, like Toronto, you have to consume many more resources than your fair share of

what the planet can supply on a sustained basis' (p 3) appears distinct from the examples of Tucumán and Hanoi, which showed resilience in a different way. These cities showed resilience through change over time in response to economic pressures; this perhaps means they are, at the same time, more sustainable and resilient places.

The ideas discussed in this book are timely and important, and any professional concerned with the built environment should become familiar with this publication.