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Building Urban Resilience through Change of Use

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Innovation in the Built Environment

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Building Urban Resilience through Change of Use

Edited by

Sara J. Wilkinson
University of Technology, Sydney, Australia

Hilde Remøy
Delft University of Technology, Netherlands

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About the Editors

Sara J. Wilkinson
Sara J. Wilkinson is an Associate Professor and at the University of Technology Sydney. She works at the intersections of sustainability, resilience, building adaptation and transformation. Her research aims to improve local, national and international outcomes of urban development in built environments in respect of the most pressing challenges of our time: climate change, energy and water use, and a growing, increasingly urbanised global population. Sara engages in trans-disciplinary research with colleagues from science, health, business and technology as well as built environment disciplines. She is well published, with over 290 outputs. including books, research reports, and journal and conference papers. She contributes to the surveying profession through various national and international committees, accreditation and APC assessment.

Hilde Remøy
Hilde Remøy is Associate Professor in Real Estate Management at the Faculty of Architecture and the Built Environment in the Department of Management in the Built Environment of Delft University of Technology. She followed an international educational and professional path in Norway, Italy, and the Netherlands, and obtained her PhD in Real Estate Management at Delft University of Technology. After her PhD on the theme of office vacancy and residential conversion as a means of coping, she is now teaching, researching and publishing on office market developments, and obsolescence, adaptation and conversion of offices and historic buildings in the Dutch and international contexts. Hilde is involved in research ranging from large-scale European-funded projects to contract research for Dutch practice, working with researchers and professionals of various disciplines and backgrounds.

Contributor Biographies

Hannah Baker
Hannah Baker is a PhD student at the University of Cambridge, UK, and part of the Future Infrastructure and Built Environment Centre for Doctoral Training, which is based in the Engineering department. Previously, she obtained degrees in architecture at the University of Cambridge and in Town Planning at the University of the West of England. She then worked for a research consultancy in Cambridge exploring risks associated with the built environment. Hannah's PhD is funded by the Engineering and Physical Sciences Research Council (EPSRC) and she is using her multi-disciplinary background to investigate the decision to demolish or adapt existing buildings on masterplan regeneration sites.

Rob Geraedts
Rob Geraedts is Associate Professor in Design and Construction Management in the Faculty of Architecture and the Built Environment, Department of Management in the Built Environment, at Delft University of Technology. His present research focuses on the flexibility and adaptability of buildings, the flexibility of the design and construction process, the reuse and adaptation of vacant buildings into new functions, and 'open building' to meet the continuously and rapidly changing market and individual user demands. Since 1996 he has been an active member and scientific reviewer of CIB W104, Open Building Implementation.

Fred Hobma
Fred Hobma is associate professor of planning and development law at Delft University of Technology, the Netherlands. He studied law (private and public) at Groningen State University and obtained his PhD from Delft University of Technology. Currently he is a staff member of the Department of Management in the Built Environment in the Faculty of Architecture and the Built Environment. Dr Hobma teaches planning law and real estate law in undergraduate, graduate and postgraduate programs. He has written extensively on these topics. He has performed research for governments, advisory bodies, businesses and parliament.

Erwin Heurkens
Erwin Heurkens is Assistant Professor in Urban Development Management in the Faculty of Architecture and the Built Environment, Department of Management in the Built Environment, Delft University of Technology. His

focus is on the management of public–private partnerships, state–market relations, and sustainability in urban (re)development projects. Since his PhD on 'Private sector-led urban development projects' (2012) a comparative international perspective has been key in his research. Erwin has co-edited the books *International Approaches to Real Estate Development* (2015) and *Routledge Companion to Real Estate Development* (2018). He has published numerous scientific and professional journal articles focused on conceptualising and drawing lessons from urban development practices.

Gordon Holden
Gordon Holden is an architectural and urban design education leader, having initiated, structured and directed several programs across four universities in three countries. He is the initiator of Australia's first Master's program in urban design. He is the foundation head of architecture at Griffith University, Queensland and he is the 2010 recipient of the Australian Institute of Architects Award the 'Neville Quarry Architectural Education Prize' for outstanding leadership in architectural education. He researches, publishes and teaches in architectural and urban design history, theory and practice and he has a long-standing interest in urban resilience.

Craig Langston
Craig Langston is rofessor of Construction and Facilities Management at Bond University. He has a combination of industry and academic experience spanning over 40 years. His research interests include measurement of sustainable development, adaptive reuse, life-cycle costing and productivity. Professor Langston has held four Australian Research Council Linkage Project grants, amounting to nearly AUD$1 million in external competitive funding. He was also the recipient of the Vice Chancellor's Quality Award (Research Excellence) at Bond University in 2010. He is an international author and has won a number of awards for his research including from Queensland, Australia and Asia-Pacific Research Award in the project management discipline in 2016.

Alice Moncaster
Alice Moncaster is a senior lecturer at the Open University, UK, where she focuses on reducing the environmental impact of construction, working closely with industry to create real change. A first degree in engineering from the University of Cambridge and three years of earthquake engineering research at the University of Bristol were followed by ten years in industry as a civil and building structures engineer. She returned to academia in 2008 for an interdisciplinary PhD at the University of East Anglia, then built up a research group at the University of Cambridge where she became a lecturer in 2014.

Chris Riedy
Chris Riedy is Professor of Sustainability Governance at the Institute for Sustainable Futures, University of Technology, Sydney. He is a transdisciplinary academic with a career focus on governance for sustainable futures. Chris draws on sociological and political theory, futures thinking and trans-

formative science to design, facilitate and evaluate practical experiments in transformative change towards sustainable futures. Chris is a Senior Research Fellow of the Earth System Governance project, and on the editorial boards of *Futures* and the *Journal of Futures Studies*. He has published two books, 38 peer-reviewed articles or chapters, 56 research reports and hundreds of web articles.

Theo J.M. van der Voordt
Theo J.M. van der Voordt is Emeritus Associate Professor in Corporate and Public Real Estate Management at the Department of Management in the Built Environment, Faculty of Architecture and the Built Environment, Delft University of Technology. His research includes new ways of working, performance measurement, transformation and adaptive reuse as a means to cope with structurally vacant office buildings, and adding value by corporate real estate, facilities and services. His research aims to develop and test theories on successful real estate strategies and tools to support decision-making processes in practice.

Laura Wynne
Laura Wynne is a Senior Research Consultant with the Institute for Sustainable Futures at the University of Technology, Sydney. She conducts research projects in housing, urban sustainability, resilience and social change. Laura is an urban planner, and is interested in research that contributes to improving the health, resilience and sustainability of urban environments. She has conducted research modelling peri-urban food futures, understanding the impacts of urban renewal on low-income communities, sustainable and regenerative models for development and on community engagement around sustainability.

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Foreword: Resilience as a 'Lens' for Driving the Adaptive Capacity of Cities

Even though we are familiar with these mega trends, many of the chapters in this book startle with the magnitude and pace of urbanisation at the global scale. Progressing to the examination of the particular opportunities and pressures experienced by individual cities; some in decline, some subject to restructuring in a static or slow economy, some with rapid population and economic growth, it is made clear that there cannot be a simplistic template to address these challenges. How frustrating for universalists!

Perhaps more that anything, this variation reveals yet again how flawed the very notion of a singular 'world's best practice' is, once the inherent contradiction of best practice being dependent on particular and unique responses to local conditions is recognised. How then are we to share experience and develop knowledge globally in the face of this paradox?

In contrast to the normalising pressures of globalisation, the emerging framework of 'resilience' provides a way of approaching the challenges faced by cities in a way that places human values front and centre, while still allowing commonalities and differences to be perceived and mapped. In this way it can be seen at least as an alternative, if not a counter and resistance to globalising forces that work to deny and erase these differences.

Despite the disparate origins of the idea of resilience – in engineering, material science, infrastructure, psychology and ecology – there is an emerging coherent conception that draws on all of these to identify a number of common characteristics of resilient systems. Rather than attempting to create a single definition, the formulation, definition and application of ideas of resilience can itself be seen as a complex emergent system: open ended, resulting from discussions with multifarious starting points, but grounded in disaster and emergency.

Haven't we been here before? Critics of sustainability often dismissed it on the basis of being a 'contested' notion where there was not a universally agreed definition or a simple 'sustainability for dummies' manual to implement it, in every place, in every situation. The absence of a single definition, let alone a universal methodology, provided a basis for 'sustainability' to be dismissed by those in whose interest it has been to continue (unsustainable) business as usual.

As the effects of the continuation of unsustainable practice become more apparent and less contested, so the idea of 'resilience' has found a firm footing in the shared and acute appreciation the public has of both natural and human disasters. The clear and present danger of the effects of climate change are not as easily dismissed as the unfair characterisation of 'sustainability' being a nebulous, and therefore dispensable concept. The 'inconvenient truths' of

climate change – extreme weather, increasing inequality, the spectre of health and infrastructure collapse – serve as sturdier fulcrums for leveraging broader discussions about 'resilience' than was available to 'sustainability'. These are unavoidable discussions that people want to have.

However, the conception of resilience by a wide range of theorists and organisations goes well beyond instrumental disaster preparedness and emergency management. In many of the chapters, there is also a hint that resilience cannot be easily or satisfactorily reduced to a 'risk' that actuaries can monetize and financialise. It delves deeper into social relations and authenticity, memories and collaboration; values that are not easily tractable to monetisation. In other words, the city seen through the lens of resilience sees a degree of loose-fit, redundancy, indeterminacy as a virtue, not a vice or weakness. This is entirely consistent with our understanding of the necessary characteristics of adaptive systems, and quite different the brittleness of a city that is 'fined-tuned' to eke out the vestigial capacity in every urban system – land, transport, utilities – in the name of 'efficiency'. The point is that in many developed cities, we can afford to have a degree of looseness, not every space has to be filled, not every system has to be operating at 99%.

From this perspective also, the idea of 'long life, loose fit low energy' can be extended from the individual building to the entire city. The whole city, as well as individual precincts and buildings, can be seen as an artifact that has the potential to be re-inhabited, re-used, re-purposed in different ways. From this perspective the entire material form of the city, both the public and private domain, can be seen as legacy 'infrastructure' that questions ownership and control (by who, for whom) and the need for reform or alternative approaches to regulatory, institutional and financial arrangements, as is identified in a number of the chapters.

Stepping aside from the purely 'functionalist' view of the city that such reform would involve, means that the city can be seen not simply in a material sense but also as the concretisation of innumerable collaborative and entrepreneurial efforts. The revealing of these values, obscured and ignored by functionalism, invites new modes of sharing and the development of new systems and arrangement enabled by information technology. In other words, considering the adaptation of the existing through the lens of resilience, is in essence writing an alternative 'functional brief' for information technology.

Perhaps most tellingly, and dauntingly for design and planning, seeing the city as an adaptive system, investigated and understood through the process of examining its resilience, is the question of whether we can consciously design and plan for increased adaptive capacity as the primary objective in city making.

We have moved from the 'desirability' of sustainability to the 'necessity' of resilience.

Roderick Simpson
Registered Architect 5868
AIA MPIA AILA
Environment Commissioner
Greater Sydney Commission

1

The Context for Building Resilience through Sustainable Change of Use Adaptation

Sara Wilkinson
University of Technology Sydney

1.1 Introduction

As the 21st century progresses, we are evolving our collective thinking and responses to the challenges of living with a changing climate, increasing global population and changing demographics, mass urbanisation, issues of inequality and instability, issues of food security and increasing scarcity of resources, as well as an increased need for sustainability in the built environment to name but a few (UN 2015; RICS, 2015). Climate change is held to be one of the greatest challenges of our time. The World Bank Group Report (2015) 'Building Regulation for Resilience: Managing Risks for Safer Cities' noted that in the last two decades natural disasters have claimed 1,300,000 lives, have affected 4.4 billion people – that is over half the global population, and have resulted in US$2 trillion of economic losses. They noted that high-income countries with advanced building-code systems experienced 47% of disasters but only 7% of the fatalities and therefore a *prima facie* case exists for rigorous regulation (The World Bank Group, 2015). Significantly, it also called for a shift from managing disasters to reducing the underlying risks. Increases in global temperature, sea level rise, ocean acidification and other climate change impacts are seriously affecting coastal areas and low-lying coastal countries. These are examples of chronic stresses and are defined in this chapter. In summary, the survival of many societies, and of the planet's biological support systems, are at risk. As a response, in December 2015, the UN published the report, 'Transforming Our World: The 2030 Agenda for Sustainable Development' stating that:

> The 17 Sustainable Development Goals and 169 targets demonstrate the scale and ambition of this new universal Agenda. They seek to

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> build on the Millennium Development Goals and complete what they did not achieve. The Sustainable Development Goals are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental. The Goals and targets will stimulate action over the next 15 years in areas of critical importance for humanity and the planet (UN, 2015: 1).

The 17 UN Sustainable Development Goals are shown in Box 1.1. Examining the goals, those that relate most directly to the built environment are;

- Goal 6. 'Ensure availability and sustainable management of water and sanitation for all',
- Goal 7. 'Ensure access to affordable, reliable, sustainable and modern energy for all'
- Goal 11. 'Make cities and human settlements inclusive, safe, resilient and sustainable' (UN, 2015).

However, it is also clear that 'inclusive, safe, resilient and sustainable,' urban settlements and cities provide the setting for the delivery of many of the other sustainable development goals too. For example, Goal 3 'Ensure healthy lives and promote wellbeing for all at all ages' is clearly related in part to the quality of the buildings in which people live and work. Our role as built environment stakeholders is therefore pivotal and cannot be underestimated.

Set against this background, the principal focus for this book is the role of sustainable change of use projects in buildings – or 'conversion' or 'adaptive reuse', as the approach is known in some countries – to assist in meeting these sustainable development goals. The concept of resilience is defined and explained and then related to change of use adaptation. The chapter also explains what is meant by 'sustainable change of use adaptation' and sets this in the context of related terminology such as adaptive reuse, conversion, refurbishment and renovation. Key terms are defined, such as decision-making for sustainable change of use adaptation: 'how we identify, model, evaluate and prioritise potential retrofit/reuse, including risk assessment, sustainability and latent conditions'. The costs and benefits of sustainable change of use adaptation are examined alongside a discussion of the property valuation impacts. Social issues covered include housing affordability and quality, changing cities and adaptation. This book covers all commercial land uses (including office, retail, industrial) and includes exemplars from three continents and several global regions.

Within this chapter, a model is presented to show the multiple benefits that can be derived from sustainable change of use adaptation. These accrue to multiple stakeholders on multiple levels (from city scale to building scale). In this book, sustainable change of use adaptation is focused on environmental, social and economic factors. Within these areas, the chapters are presented so that city-scale solutions and research are covered first, followed by building-scale solutions.