FORGING ADVANCES IN SUSTAINABLE ARCHITECTURE AND URBANISM.

Sustainability has been an important topic in many disciplines over two decades, and its urgency is rising. At the same time, a conceptual understanding of sustainability remains rather vague, posing a challenge for research in this area. Nevertheless, the term 'sustainability' is increasingly used in the context of ecological, economic, and social studies. In green economics it is often used interchangeably with the term 'sustainable development', defined by the World Commission on Environment and Development in 1987 as, "development which meets the needs of the present without compromising the ability of future generations to meet their own needs." This underlines sustainability’s ethical dimension where a normative view implies treating sustainability as a form of intergenerational equity and fairness. The question of intergenerational equity constitutes a growing concern, and our obligation to future generations requires us to look beyond short-term public policy preoccupations to anticipate building a better future for all.

Although the process of urbanisation has occurred at varying rates throughout human history, the speed and nature of growth in cities in recent years, and the scale of their environmental impact, means that today our own place in the history of the built environment is unique. Since the middle of the 20th century the population of the world’s cities has soared from 200 million to almost 3.5 billion. Although physically they occupy just 2% of the earth’s surface, cities consume most of the world’s natural resources, produce vast amounts of waste, and are the main source of pollution throughout the world. Environmentalists question whether the rapid growth of cities in recent years can be sustained. In the ‘developed’ world urban environments consume so many resources that they are dramatically reducing the natural capital that we depend upon. Cities in the Global South, particularly in Asia and Africa, are now growing five times faster than those in developed nations, with a staggering 1 billion people joining the world’s urban population by 2020, when 27 mega-cities (with populations exceeding 8 million) will have emerged within the ‘developing’ nations. While some are flourishing, many others contain large and concentrated poor urban populations living in life-threatening conditions caused by environmental pollution, political turmoil, social disorder, and economic upheaval. The aggregate impact of these cities on the environment—a product of the relationship between population, per capita consumption or economic activity, and energy/material flow per unit—must be radically reduced if quality of life is to be maintained.

Alternative approaches to rethinking and reforming the built environment in ways that imply a more frugal use of energy and natural resources, and a better quality of life, are being explored within academic and policy literature and research around the world. As part of the activities of the ‘Cluster for Research in Design and Sustainability (CRIDS) at the Department of Architecture at the University of Strathclyde, Glasgow, this issue of Open House International addresses various contexts in Scotland, Turkey, the Middle East, and the United States of America highlighting various theoretical and practical dimensions of sustainability. It includes research contributions on architecture and urbanism as they relate to historical and morphological studies of urban regeneration (in Glasgow, Scotland), housing typological transformations (in Konya in the Central Anatolia region of Turkey), issues of sustainability and national identity (at Masdar City in Abu Dhabi, UAE and the Meheireb in Doha, Qatar), the impact on sustainability of housing development patterns (in Doha, Qatar and Dubai, UAE), an exploration of resilience theory as it relates to urban morphology, research work (in Arizona, USA) exploring the boundary between the built and natural environments and the development of a Space/Nature syntax methodology, and two contributions that examine the theoretical concept of Arcology and the development of the urban laboratory at Arcosanti (in Arizona, USA) as both a model for Green urbanism, and a place to critically evaluate a radical redefinition of the relationship between society, technology, and Nature.

In a European context, Dicle Aydin examines social and architectural characteristics as dominant conjoined components of urban planning, through the introduction of new housing typologies that express changing lifestyles, socio-cultural structures, tastes and expectations in the Moram region of Konya in Turkey. Aydin’s morphological, sociological and ontological analysis supports his argument that new developer-led dwellings, constructed in the last 10–15 years, have caused a negative change in the identity and texture of neighbourhoods in Konya, and might signal permanent, and irreversible changes, in the urban fabric that endanger values of sustainability. Moving further to the West, the work of Barbour, Rome, and Porta laments the failure of post-war development in Glasgow to implement housing-led regeneration and argue that the public sector could take a lead by providing development opportunity to inner-city neighbourhoods, supporting methods derived from traditional master planning processes, and encouraging neighbourhood self-organisation and opportunities for small-scale house building, and ‘performative’ design guidance directed towards social and environmental sustainability. In another contribution, Feliciotti, Rome, and Porta combine established knowledge in urban morphology with...
resilience theory to define five proxies of resilience, discussing interdependencies between constituent elements of the physical city incorporating the element of change, and the dimension of time, that determine the form of cities.

The emerging importance of the context in the Middle East is examined in two papers selected to demonstrate different aspects of concern for sustainability in the region. Weidmann, Salama, and Ibrahim, in discussing some of the outcomes of an on-going collaborative research project of the Qatar National Research Fund (QNRF), present an overview of current development patterns, and offers a sustainability framework to enable a preliminary assessment of large-scale affordable housing projects in the Gulf cities of Doha and Dubai. The assessment reveals differences between two major projects and their impact on the environment, economy and society in the Middle East. In reframing the notion of sustainable urban development in the Middle East, Samer Bagaaen, reflects on some underpinning assumptions and inequalities, and invites us to consider the aggregate impact of individual master planned projects on the urban fabric of fast-growing cities and to think about how projects such as Masdar City in Abu Dhabi and the Msheireb downtown redevelopment in Doha demonstrate how sustainability and nationalist discourses are intertwined.

Munro and Grierson invite us to consider how we can maintain a human connection to Nature in an increasingly urbanising world. Based on their current research work on the development of a Space/Nature Syntax methodology, the paper supports the Biophilia Hypothesis in attempting to understand how designing to maintain our instinctive bond with Nature can promote social interaction and inform future design choices within built environments. The authors present initial findings, achieved through recent case study work at Arcosanti, in Arizona, USA, and outline future development of the methodology. The urban laboratory at Arcosanti, and Paolo Soleri’s Arcology theory that underpins it, provide the context for the remaining two contributions to this special issue. The work of Ruth Rae examines how the concept of Arcology and the development of the Arcosanti prototype encompass principles of Green Urbanism and sustainable development, and describes how it is that the laboratory, through a dual process of experimentation and construction has attracted over 7,000 participants since 1970, and continues to provide positive experiential learning opportunities within a relevant model of sustainable urban living. David Grierson, in his reflective piece, argues that the positive utopian tendencies in Paolo Soleri’s work should be reaffirmed and, at the same time, he underlines an urgent need for multi-aspect and multi-disciplinary research, and postgraduate education, to be undertaken at Arcosanti, to test the parameters of micro- and macro-structures within alternative models of ecological design as a major contribution to understanding the complexities of sustainability and the reformulation of the built environment. Both Grierson and Rae, in their contributions, give acknowledgement to the ongoing work of the Cosanti Foundation’s Board of Directors and its new Strategic Plan Steering Committee, and their commitment to attract renewed levels of financial and human resource in support of the urban laboratory’s unfinished business.

It is clear that the discourse and research findings on sustainable architecture and urbanism that are discussed in this issue of Open House International, represent serious attempts on the part of academics and practitioners from across the world to shift our thinking and practice in the built environment away from a current condition of unsustainable activity towards a process of improvement and increased quality. The task of building a better world for all, as demonstrated by the 8 contributions by 12 scholars, remains hugely challenging and complex.

ACKNOWLEDGEMENT

As guest editors of this special issue, we would like to acknowledge the resources and support offered by the Department of Architecture at the University of Strathclyde toward developing this volume. Thanks are due to the reviewers and contributors for their valuable work throughout the peer review process.

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