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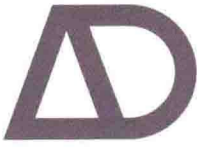
# Urban Design Ecologies

Edited by **Brian McGrath**



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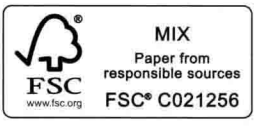
ISBN 978-0-470-97405-6 (paperback)
ISBN 978-0-470-97406-3 (hardback)
ISBN 978-1-118-48741-9 (ebk)
ISBN 978-1-118-48742-6 (ebk)
ISBN 978-1-118-48743-3 (ebk)

Executive Commissioning Editor: Helen Castle
Project Editor: Miriam Swift
Assistant Editor: Calver Lezama

Design by Artmedia, London
Printed in Spain by Grafos

Front cover images: Photographs Brian McGrath © Brian McGrath



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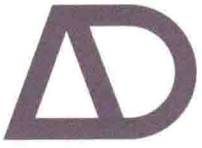

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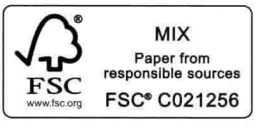

**To Mary R McGrath**

**Acknowledgements**

The term urban design ecologies emerged during a multiyear discussion with my colleagues at Parsons The New School for Design: Lisa DeBenedittis, Miodrag Mitrasinovic and Joel Towers, with the leadership of Tim Marshall. Together we created one new undergraduate and two new graduate degree programmes in Urban Design that bridge the gap between urban design, urban studies and urban ecology. The small group followed the work of a broad committee chaired by Mitrasinovic and Towers that brought together faculty from across The New School around a new curriculum in Environmental and Urban Studies. This joining together of environmental and urban thinking within Parsons, a design school located within a university dedicated to social research, was a unique and important undertaking. This anthology is structured by writings embedded in different urban ecologies: the city, the metropolis, the megalopolis, the megacity and the metacity. The idea that the contemporary city is an assemblage of various urban morphologies came from a collaboration with David Grahame Shane as section co-editors and co-authors of an essay for the *Handbook of Architectural Theory* edited by C Greig Crysler, Stephen Cairns and Hilde Heynen.

**Editorial Note on Presentation and Editing of Texts**

This anthology aims to be inclusive, therefore some texts must appear in abbreviated form in the course of presenting others in their entirety. Some texts have been edited to shorten them, to exclude references that require more space for a full explanation and to preserve the flow of argument. Information for the sources of the edited and complete texts is given in the copyright line after each text. The term 'From' preceding a copyright line signifies that a specific extract or extracts has been taken from a longer text. Otherwise texts are given in their entirety or edited to indicate the argument of the whole. Texts have been clearly marked to show where they have been edited. The following conventions have been used throughout. Suspended points '...' are used to denote omissions of words or phrases within a sentence. Suspended points within a square bracket [...] are used to denote omissions extending from a complete sentence to a paragraph. Three asterisks '***' mark omissions of more than one paragraph, and may denote exclusion of a complete subdivision of the original text. A paragraph may end [...] if the last sentences of that paragraph are omitted or if the following paragraph is omitted. A paragraph may also start with [...] if one or more sentences at the beginning of the paragraph have been omitted or if a previous paragraph has been omitted. Typographical errors and errors of transcription have been corrected when discovered in the anthologised texts but otherwise idiosyncrasies of spelling or punctuation remain unchanged. Notes and references have been included only where judged to be necessary to the text as printed.

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# Introduction

Brian McGrath

The title of this reader puts together three key words: *urban*, *design* and *ecology*. Standing alone, each word marks a specific territory within the broad debate around the challenges of globalisation, urbanisation, sustainability and climate change. However, when lined in succession, the title *Urban Design Ecologies* evokes a more complex way of thinking and new forms of practice beyond the limits of the autonomous fields of 'urban design' or 'ecology'. *Urban Design Ecologies* collects 23 chapters that together point the way for reconciling the often conflicting concerns of urbanism and environmentalism.

UN-Habitat's fourth session of the World Urban Forum during November 2008, in Nanjing, China, marked the 21st century as the urban age when it identified a fundamental demographic tipping point in 2008: humans are no longer a rural dwelling species, but predominantly inhabit cities.[1,2] The trend in global urbanisation will only escalate in the coming years, as we increasingly inhabit urban ecosystems that vary greatly in size, density and composition across the world. On an urbanised planet is the conceptual distinction between the rural and the urban or nature and culture still productive? The first misconception that must be addressed in this introduction is the value of the term urban as a space set apart from nature, and **urban design** as an autonomous discipline patrolling that obsolete divide.

The ecological impact from the historical shift towards carbon fuel-based industrial urbanisation is undeniable, but human-impacted urban systems rather than a lost 'natural wilderness' is the most important site for ecology, not as metaphor but as science. Jennifer Light has carefully critiqued the misuse of the term 'ecology' as a metaphor by social scientists from the University of Chicago in the 1920s.[3] Light demonstrates how the pioneers of the new discipline of urban studies used ecological concepts such as natural communities, succession and blight in analysing American cities, yet never pursued collaborations with ecologists to achieve a deeper understanding of complex biophysical processes in cities. The second important misconception to be overcome is that there exists an insurmountable divide between the scientific discipline and quantitative demands of **urban ecology** as science rather than metaphoric qualitative, experiential and socio-aesthetic pursuits of design iteration as **urban ecologies**.

Solutions to the complex set of 'wicked problems' surrounding rapid urbanisation and climate change have vexed normative modes of rational thinking and problem solving. Traditional modes of top-down governance, policy and planning, as well as growth-only oriented financial and business models have both proven inadequate. Today's unprecedented problems have generated new arenas for politics, art, media and design practices, adding new actors and scales of engagement within urban design. Examples in New York include the various artists who occupied the SoHo district in the 1970s, the establishment of community gardens in the Lower East Side in the 1980s, advocates for bicycle mobility such as Transportation Alternatives in the 1990s and the Friends of the High

Line in this decade. This legacy can be seen in cities such as Phnom Penh today, where art festivals such as 'Our City' place art in the context of urban displacement and eviction.

Established design disciplines based on the fashioning of industrially-designed objects have refocused on relationships between people's fundamental desires and needs, concentrating on by-products rather than products of consumer society. An example is the work of Ezio Manzini in Milan, and the international network he established called the DESIS network (Design for Social Innovation and Sustainability). In the words of sociologist Ulrich Beck, focusing on the 'bads' rather than the 'goods' of industrial society.[4] The discipline of urban design is in urgent need of engagement with these broader modes of design thinking beyond architecture and physical planning. The third misconception addressed in this volume is that urban design can maintain autonomy outside the new and expanding fields of **design ecologies**.

The use of the plural 'ecologies' frustrates scientists who see the field as in pursuit of singularly-defined quantifiable truths rather than qualitative and contingent human constructs (see Pickett, pages 162–71). As a critique of technocratic and scientific environmentalism, psychoanalyst Félix Guattari, in *The Three Ecologies*, identifies three ecological *registers*. First, there is the ecological register of the environment itself; second, is the ecological register of social relations; and finally there is the ecological register of human subjectivity. Borrowing from Gregory Bateson's concept of the ecology of the mind, Guattari argues that human society cannot respond to the environmental degradation of the planet without first acknowledging the loss of social relations in the breakdown of family, tribe, community, kinship, etc as well as the 'poison' of advertising, media and mass consumption at a global scale which has led to the deterioration of the human psyche.[5]

It is within the wide bandwidth of these three ecological registers that increasingly urban, design and ecological thinking emerge as important disciplinary threads that need to be intertwined. ***Urban Design Ecologies*** refers to both a radical revision of the theories and practices of the discipline of urban design, but also an expansion of the field through a range of sites and conditions that constitute the urban to include environmentally-impacted hinterlands, social relations and the urban subjectivity itself. The introduction to this anthology will first frame the range of issues which surround these three key words before proceeding to unpack the possibilities in their realignment, triggering creative engagement with new ways of living together within the limited resources of an urbanised planet.

## Urban

While only occupying 3 per cent of the Earth's surface, urban areas consume most of the world's resources and release the most waste to our air, water and soils.[6] Urban life increasingly requires a global logistical network of people, information, money, matter and fuel. Additionally, information and knowledge generated from the materially-concentrated urban metabolism is dispersed and interconnected through a web of complex communication and transport technologies. We crowd in dense cities or drive across dispersed ones, but all urban areas are increasingly connected through transport systems and communication devices. A vast and increasingly depopulated and depleted countryside supplies cities with

cheap food, water and labour, but also provides the spaces of retreat from the city in dormitory suburbs or weekend resorts. Disconnection from urban society through these escapes has become an expensive luxury rather than privation.

The demographic definition of urban varies greatly across multiple political jurisdictions and there is no precise count of urban dwellers nor is there a uniform line that can be drawn between the urban and the rural. The UN's *Demographic Yearbook* outlines the legal definition of 'urban' for all the nation states of the world. Definitions vary from 'Agglomeration of 5000 or more inhabitants where 75 per cent of the economic activity is non-agricultural', in Botswana, to '2500 or more inhabitants, generally having population densities of 1000 persons per square mile [2.59 square kilometres] or more' in the United States. In Peru, urban areas are defined as 'populated centres with 100 or more dwellings', while in hyper-urban Japan the city (*shi*) is defined as 'having 50,000 or more inhabitants with 60 per cent or more of the houses located in the main built-up areas and 60 per cent or more of the population engaged in manufacturing, trade or other urban type of business'. National urban populations range from Singapore with an urban population of 100 per cent to Bhutan with 9 per cent.[7]

Counting people in cities is also unreliable. Every 10 years municipal officials in New York City contest the national census figures. The 2010 census has again been challenged as population figures amount to 8,175,133 people living in the city, while new home construction and other records lead city officials to believe there are at least 8,400,000 residents.[8] While it is extremely difficult to account for all the residents of a city like New York with its large immigrant and transient young adult population, many national censuses count people according to their household residence rather than their actual dwelling place. Rural migrants living in Shenzhen, Lagos and Bangkok are statistically living in the villages of their birth rather than the cities in which they currently live. The urban remains an elusive moving target for quantitative tabulation.

The structural legibility of a historic city as a complete and holistic work of art draws hordes of tourists, but contemporary megacities defy logics of cognition or knowing. The expansion of the reach, dependencies and interconnectivities of contemporary cities has also been accompanied by a rise in the diversity of urban dwellers now living cheek by jowl, passing in close proximity if not socially interacting. If the compact city with its agricultural hinterland charms us with its walkability, convivial microclimates, self sufficiency and ease in navigation, the contemporary city awes with its spatial intricacy, social pulse and endless material and sensorial offerings. The question of the urban today must cover this vast range of interest and issues from its architecture and image to its ecologies of social and natural metabolic flows and pulses as well as the unpredictability of human desire.

The distinction between urban and rural, while more and more difficult to disentangle today, has been historically useful for an urban elite to exert political power. The urban as a discursive space encompasses urbanism, urban studies, urban theory, urban planning, as well as urban design. While in Europe urbanism is understood as the design of cities through architecture and planning, in American social science it has been defined as the social life of urban inhabitants. Today we must expand these definitions to include the metabolic

consequences of those design decisions and social habits when much practical environmental knowledge is possessed by former rural dwellers living in cities. In urban studies, the city has served as a laboratory for the study of social habits, mobility, crime, health, gender, race, sexuality and power relations, and now often includes art, design, media, visual and spatial studies in addition to architecture, planning and ecology. Urban theory is a field for both classical and modern social theories as well as architectural scholarship.

The professional field of urban design and its first academic programmes were opportunistically born in the United States to take advantage of the enormous resources of a post-Second World War industrial economy redirected towards redeveloping an urban frontier neglected since the Great Depression. Whole areas of cities were appropriated for urban renewal, and the American Interstate Highway system was under construction, not just loops and networks connecting cities, but arteries crossing through the hearts of previously dense urban centres. The scale of urban renewal in the US was slowed by activism and protest from the 1960s. District-scale urban design took the place of large-scale urban renewal until a new phase of urban redevelopment was created by the neo-liberal deregulations of the market economy beginning in the 1980s, and a global boom of urbanisation. Yet this was the period of the rise of the US as a 'suburban nation' and a subsequent lack of any urban policy at the turn of the 21st century, other than the removal of public housing, on a national level.

Across the world, urban design is even less uniformly codified and understood as a discipline, and often has negative connotations given the reactionary neo-conservative practices of so-called New Urbanism. As David Grahame Shane has shown in his *Urban Design Since 1945 – a Global Perspective*, the Cold War split into Soviet and US blocs resulted in two opposing urban design models for the developing world – one which involved heavy state planning and design controls, and another that promoted deregulation and private market development. Urban design has consequently struggled to keep pace with the changing definition of what constitutes and structures the urban, its various disciplinary branches and its various forms of governance and policy.[9]

## Ecology

The Cary Institute of Ecosystem Studies' definition of ecology integrates several successive advances in ecological thinking since the term was originally defined in the mid-19th century. Ecology is 'the scientific study of the processes influencing the distribution and abundance of organisms, the interactions among organisms, and the interactions between organisms and the transformation and flux of energy and matter'.[10] German biologist Ernst Haeckel (1834–1919) coined the term 'ecology' in his book titled *Natürliche Schöpfungsgeschichte*, published in 1868, and translated into English as *The History of Creation* in 1876. Following the work of Darwin, he described ecology as the study of the relationship between organisms and their environment. Haeckel was an artist as well as a biologist, and his drawings of the genealogical tree of life (1866) offer lush illustrations of the multiple life forms that constituted various branches. His illustrated books popularised Darwin's concept of evolution and natural selection, and influenced

thinking more broadly as evident in Friedrich Nietzsche's philosophical tract *On the Genealogy of Morals* of 1887. Haeckel's influence in urban design can be seen in German architect OM Ungers' exhibition and book *Morphologie: City Metaphors*, a classification of various city forms as biological species (see Ungers, pages 36–47).

According to the Cary Institute website, 'the mid-19th century, with its largely macroscopic view of the world, neglected inconspicuous organisms, such as microbes, the chemical products of organisms in the environment, and ecological systems at larger scales or higher hierarchical levels than organisms'. This blind spot may be the result of the abundance of life studied by European biologists. In the more biologically sparse and isolated Australia, ecologists Herbert Andrewartha and Louis Birch formulated the science of population ecology in 1954. Instead of seeing a populated environment as an arena for competition and the 'survival of the fittest', their theory of metapopulation dynamics explained the overall persistence of species, survival within the harsh and fragmented habitats of Australia.[11] The two Australians provided a model to explain the distribution and abundance of organisms in all environments: 'A natural population occupying any considerable area will be made up of a number of ... local populations or colonies. In different localities the [demographic] trends may be going in different directions at the same time.' Modern ecological concepts such as patch dynamics and metacommunity derive from this thinking of survival through distribution and diffusion.

A second refinement that added another dimension to the definition of ecology is based on the integrative experimental ecosystem model designed by Howard T Odum in Silver Springs, Florida. Between the years 1951 and 1956, Odum conducted the first complete analysis of a natural ecosystem by measuring all the flows coming in and out of this spring-fed stream. His experiment helped our understanding of the productivity of an ecosystem in maintaining a constant temperature and chemical composition. Odum 'mapped in detail all the flow routes to and from the stream. He measured the energy input of sun and rain, and of all organic matter – even those of the bread the tourists threw to the ducks and fish – and then measured the energy that gradually left the spring. In this way he was able to establish the stream's energy budget'.[12] Odum established a new area of ecosystem ecology that added functional analysis of budgets and flows, inputs and outputs, to the structural analysis of the distribution and abundance of metapopulation dynamics. Odum is also important in having created a diagrammatic model of feedback loops and homeostasis, a discovery that influenced early concepts of urban design emerging in the same period.

Urban ecology endeavours to translate all these dimensions of ecology into the human-dominated realm of cities of all shapes and forms. Cutting-edge urban ecology uses an ecosystem approach that adds humans as a major actor in the functioning, dynamics and feedbacks in the system. Urban ecosystems are studied structurally as dynamic and heterogeneous land-cover patches (see Cadenasso, pages 272–81) and functionally as basins or sub-catchments of watersheds – where like, in Silver Springs, inputs and outputs can be measured. A recent definition of urban ecology by Steward Pickett is 'the distribution and abundance of organisms in and around cities and the

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