Introduction to a Research Agenda for Sustainable Cities and Communities

Mccormick, Kes; Evans, James; Voytenko Palgan, Yuliya; Frantzeskaki, Niki

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Kes McCormick, James Evans, Yuliya Voytenko Palgan and Niki Frantzeskaki

The elevation of sustainable cities and communities to an internationally agreed United Nations goal has generated huge interest and stimulated research across many disciplines.

1.1 Introduction and background

How can cities and communities around the world become more sustainable? What can we do as researchers to help them? As we move through the twenty-first century, these questions assume ever-greater importance. Many of the quickest wins for human and planetary health involve reimagining and reconfiguring cities. Activities that generate negative impacts like air pollution and poor health are concentrated in cities, as are the potential benefits of improving resource efficiency and liveability. It is cheaper, easier and more efficient to provide services to people who are concentrated in cities. This fact applies to green infrastructure, sustainable housing, high-speed broadband and low carbon transport alike. Because cities concentrate material and human resources as well as services and infrastructures they offer incredible opportunities to advance sustainability.

The United Nations Sustainable Development Goals (SDGs) set a range of global targets covering 17 areas of activity, which need to be achieved to deliver global sustainability by 2030 (see Figure 1.1). The goals range from education and work to water and clean air. SDG11 focuses on creating inclusive, safe, resilient and sustainable cities and human settlements, recognising the central role of cities as both the context and drivers for the solutions humanity needs. The elevation of sustainable cities and communities to an internationally agreed United Nations goal has generated huge interest and stimulated research across many disciplines. SDG17 focuses on partnerships for delivering the goals, and invites universities and research institutions to play a greater role in providing scientific evidence and approaches to drive more sustainable decisions and processes.
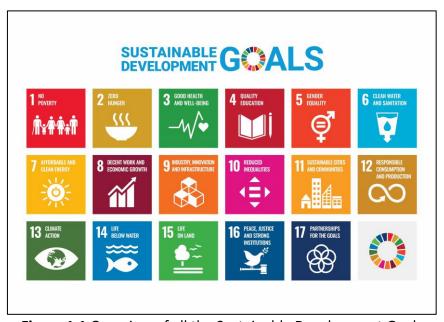

Figure 1.1 Overview of all the Sustainable Development Goals

As we stand part way through the period for achieving the SDGs, this book takes stock of how the global research community has contributed to the delivery of SDG11. It also looks forward, identifying the key agendas for research and practice that require attention from academic and societal actors to deliver sustainable cities and communities. While the scale and scope of research that relates to SDG11 make it difficult to draw clear boundaries in the literature, its objectives 'to make cities and human settlements safe, inclusive, sustainable and resilient' offer pointers. A key focus for this book involves understanding how urbanisation can be steered in more sustainable, inclusive and resilient directions. A recurring theme involves how better to bring communities into the process of urban development, empowering them in different ways to be able to shape the places in which they live and work.

The foregrounding of communities in SDG11 is not accidental and caps a longstanding critique that urban development often unfolds with little regard for the communities that live in cities. Neglect for people plagues post-war approaches to urban development, from the large-scale high-rise municipal planning of the 1950s and 1960s to the clearance of informal settlements in the 1990s and 2000s, through to the technology-led approaches of smart cities and net zero in more recent times. One of the greater challenges facing sustainable cities is how to integrate democracy, participation and collaboration into the design and implementation of urban areas and infrastructure. Community engagement creates buy-in, legitimacy and locally appropriate solutions. It is no accident that SDG11 includes cities *and* communities in its headline, or that the United Nations created SDG17 to promote the role of collaboration and partnerships (see Figure 1.2).

Figure 1.2 Cities, communities and collaboration in the Sustainable Development Goals

This book does not include every topic related to sustainable cities and communities. There are no chapters directly dealing with health or well-being, aging or childhood, migration or refugees. We do not aim to provide an overview of all the challenges facing cities. This task is performed admirably by the United Nations Habitat World Cities Report (UN Habitat, 2022). Rather this collection critically evaluates the existing research that addresses SDG11. Our focus is on how sustainable and resilient cities and communities are framed and researched, by whom and with what results. SDG11 and the topic of sustainable cities more broadly did not emerge from academic inquiry or research per se, but as a real world challenge. Therefore, it has neither disciplinary nor conceptual coherence, attracting work from fields as diverse as computer science and anthropology.

Mapping and imposing order on such a large and diverse field is neither straightforward nor necessarily sensible. As a result, this book is unashamedly selective and forward-looking. We want to shape an agenda for ongoing and future research and practice in this field that is of use to policymakers, funders, communities and, of course, researchers and educators. Leading scholars are given space to explore different facets of their topic in provocative ways and map out potential directions of travel. Elgar Research Agendas are an essential resource for doctoral students, scholars and others at the forefront of research and teaching. We would like this book to be relevant but also visionary. Forward-looking and innovative, we challenged the authors to develop chapters that look to 2030 and focus on key approaches, innovations, actors or domains that can trigger transformative change in our cities and societies.

The resulting chapters address key empirical areas of research on sustainable urban transformation, including sharing and circular cities, nature-based solutions, mission-oriented innovation, urban living labs and smart cities. Like all SDGs, the focus on sustainable cities and communities in SDG11 is global in outlook, and we have selected contributions that speak to different geographical settings around the world. There is no Global South or North when it comes to planetary health and societal development for all. We are living in an interconnected world, and the book aspires to this perspective. We asked contributors to identify key challenges for researchers and practitioners and the ways through which we might come together as a global community to address them. Bullet-point sections are included to highlight key insights for science and research as well as policy and practice recommendations. The resulting set of chapters draws on examples and cases from cities and countries around the world, as befits the global challenge laid down by SDG11. We hope you enjoy exploring the chapters and discover value, ideas and inspiration.

1.2 Overview and structure
The book comprises five parts, starting with the evaluation of current research before moving on to identify key themes for the field. Part I takes stock of the research on SDG11, assessing its characteristics, successes and failures. The chapters provide complementary assessments, based on a systematic review of existing research literature, a critique of sustainable urbanism as a failed Modernist project and a commentary on the failings of sustainable urbanism in India respectively.

Part II investigates emerging dynamics in the field that are driving the research and policy agenda on sustainable cities and communities. The three chapters here focus on energy transitions and communities, sharing cities and slum upgrading as key dynamics and processes that are shaping sustainable cities and communities across the planet.

Contributors in part III build on these insights, asking how, by whom and for whom cities are governed. The chapters draw on examples from around the world, including circular cities, urban experimentation and climate city contracts, to argue for the importance of shaping governance. They call for a focus on the ways to enable bottom-up engagement and collaboration in urban governance.

Part IV of the book extends this theme by embracing justice, focusing on how to incorporate questions of social and environmental inequality in urban governance. The three chapters

show how the notions of justice, pluralism and accessibility can drive more sustainable outcomes, whether in mitigating green gentrification in the USA or protecting playgrounds in Dhaka.

The final part of the book builds upon these arguments to question the normative assumptions and logics that underpin current thinking about sustainable cities and communities. Altruism, multi-species capabilities and self-awareness offer ways to reframe our perspectives to be better aligned with the core tenets of sustainability.

Part I – Taking Stock
Part I of the book presents chapters that offer different takes on research to date on cities, communities and sustainable development, including its successes and failures and the complex challenges confronting urban development.

Chapter 2 presents the results of a systematic literature review explicitly addressing SDG11. It identifies the key characteristics of authorship, disciplinary approach and thematic focus. The findings show that the top three most prevalent disciplines of first-listed authors were computer sciences, engineering and architecture/design, with 48 per cent of first-listed authors based at European institutions. While scientific evidence is required to address SDG11 and steer policy, existing research tends to focus on technical issues and adopt Global North perspectives. Thematic analysis of the literature on SDG11 reveals a predominance of research on infrastructure, data, policy and health, with very little work using local or indigenous worldviews. Evans and Elder argue that incorporating worldviews from the Global South is vital to engage with the diverse reality of cities across the planet while this remains challenging in practice.

Chapter 3 develops insights through a critical commentary on the failures of sustainable urbanism to date and prescription for how we can develop new models of sustainability as a global community of scholars. Krueger provides a sobering assessment of research so far, arguing that it has largely failed to move the dial towards sustainable cities or communities. Sustainable urbanism, as currently understood, is founded on Western notions of capitalist growth and cultural binaries between nature and culture. Judged on results, this approach has largely failed, simply outsourcing unsustainability to the Global South. Urban sustainability is also failing when viewed globally as it remains a Modernist project. Krueger argues that going beyond Modernity and its blinkered approach to what counts as knowledge requires recovering non-Western cosmologies and developing new concepts of sustainability that work for other geopolitical contexts. The chapter focuses on design thinking as a way to engage with practical daily activities as an alternative basis for constituting sustainability.

Chapter 4 provides a geographically situated stock-take on progress towards SDG11 from the perspective of India. Here, Chatterji focuses on India's distinctive urbanisation process and its economic underpinnings, before reviewing urban programmes and policy initiatives at the national level that are positioned as contributing to SDGs. India is a relatively late urbaniser. Only 34 per cent of its population live in towns and cities, but it is in the process of adding 170 million urban dwellers between 2015 and 2030. Municipal governance makes it hard to address the challenges of meeting the SDGs as cities have relatively little autonomy or

power. There have been a series of top-down national initiatives, and progress on the use of digital tools to monitor cities, but the capacity of municipalities falls short. The chapter identifies a series of local implementation challenges the municipalities are facing and translates them into a set of research challenges.

Part II – Navigating Dynamics

Part II turns to specific forces and phenomena that are currently reshaping cities and communities. This covers energy communities, the emergence of sharing and repairing organisations, and the realities of informal settlements in many cities around the world.

Chapter 5 identifies energy communities as accelerators of urban transitions while Palm outlines the implications of the energy transition for cities and communities. The European Green Deal states that greenhouse gas (GHG) emissions should be reduced by at least 50 per cent by 2030 and that there should be no net GHG emissions by 2050. The energy sector is key in this transformation, which will include increased electricity generation from renewables, improved energy efficiency and a replacement of combustion technology. Future scenarios outline a decentralised energy system in which smaller generation units have become more economically viable and turned economies 'upside down'. This will be an energy system with increased penetration of information technologies, allowing for more flexible and less hierarchical management of infrastructure. This future system will also entail, for example, the increased electrification of transportation infrastructure and the increased use of heat pumps in energy-efficient buildings.

Chapter 6 by Voytenko Palgan and Mont outlines the emergence of sharing cities as a major dynamic shaping future cities and urban communities. Share and repair organisations (SROs) have important implications for resource efficiency and socio-economic sustainability in cities, but their potential to contribute to long-term urban resilience has not been systematically investigated. Knowledge is scarce about how these nascent circular initiatives can provide building blocks for socio-economic recovery in the wake of recent crises such as the COVID-19 pandemic and humanitarian crisis induced by the war in Ukraine as well as what opportunities they may offer for delivering long-term resilience in cities. The chapter highlights the importance of developing knowledge and theory on circular urban resilience, which would advance the understanding and explore relationships between the circular and sharing economy and urban resilience, thereby helping transform our cities towards resilience. Voytenko Palgan and Mont argue that the pursuit of the proposed agenda for research and practice on circular urban resilience can not only trigger a fundamental shift in the conceptualisation of share and repair strategies in the light of urban resilience but also provide new avenues for building resilient, just and sustainable cities.

In Chapter 7, Colamarco identifies settlement upgrading as a key dynamic shaping the delivery of SDG11 across informal urban contexts. The chapter reflects on the relevance and limitations of informal settlements upgrading efforts to the SDGs in Quito, Ecuador. Informal settlement upgrading is more than improving infrastructure and basic services, and participatory approaches provide many improvements, but replicability and scalability need great attention. The number of people living in informal settlements continues to escalate. Current estimates suggest that one billion people live in informal settlements today, and this

number is likely to double by 2030. Securing access to infrastructure and basic services in informal settlements is essential within the SDGs framework.

Part III – Shaping Governance
Part III addresses trends that are shaping how, by whom and for who cities are governed. This cuts across grassroots activities, urban experimentation and multi-level governance on climate action.

Chapter 8 explores grassroots mobilisation in sustainability governance towards circular cities drawing on lessons from Lagos and Melbourne. Shittu suggests that advancing circular transitions involves galvanising and synergising sustainability initiatives across all social domains, including households and communities. Given the extensive and perhaps radical changes that implementing circular policies will bring to household and community socio-material practices, it is imperative that cities enable the emergence of circular practices and actively promote people's involvement in environmental governance. The chapter outlines that communities of practice can enable circular transitions in cities by scaling up, sustaining and guiding the transformation of circular practices through household recruitment, shared learning and innovation trials. In addition, resolving environmental constraints to perform sustainability practices, promoting sustainability values and integrating upstream and downstream circular solutions are strategies that could accelerate circular transitions in cities.

In Chapter 9, Karvonen and Bylund argue that the last two decades have introduced promising new modes of change that are local, rapid and action-oriented. Various forms of urbanism labelled experimental, tactical, acupuncture, temporary and informal provide an antidote to the twentieth-century modern project and instead suggest the emergence of a new non-modern approach to urban development. While these activities are often interpreted as feeding into and supporting existing modes of governance, their disruptive potential lies in the opportunity to inspire new modes of governance that serve as a break from the past. Here, long-term perspectives and careful planning give way to short-term actions and recursive learning. It is important to think about cities as organisms (not machines) thereby allowing for diversity and multiplicity of perspectives to co-exist. Foregrounding micro-actions can activate different modes of governance that are less reliant on top-down modes of control and are more about curating, facilitating and intermediating change processes.

In Chapter 10, Shabb, McCormick, Mujkic and Anderberg investigate how Climate City Contracts (CCCs) are being developed in Europe and what it means for other parts of the world. CCCs differ from current strategies to tackle climate change because they are designed as part of a larger mission with many stakeholders, funding and growing momentum. CCCs are a mechanism to ensure that city-level work is not occurring in a vacuum but rather facilitates multi-level integration between cities, national agencies and the European Union, as well as collaboration across all stakeholders. The current focus of CCCs is mostly on the process rather than outcomes. Ambitious Climate Investment Plans, which encompass private sector efforts, are necessary to underpin the goals and activities outlined in CCCs.

Part IV – Embracing Justice

Part IV explores questions of social and environmental justice with a focus on how urban green space is being designed and envisioned as well as how cultural diversity is considered in urban planning processes.

Chapter 11 explores the topic of Urban Green Space (UGS), which provides habitats for plants and nature in cities and spaces for human recreation and leisure. UGS also provides linkages to the natural environment upon which our cities depend and can provide additional recognition of Indigenous culture and ownership. However, the interaction between existing UGS and the provision of new UGS is complex and takes place within a series of institutional processes that substantially shape the well-being and social justice outcomes of UGS, but tend to focus on physical provision and accessibility. Sharifi and Nygaard discuss four aspects of UGS provision that need management to move beyond a focus on 'just green cities' to 'just and green cities'. This chapter draws lessons for urban transitions, governance and urban research with respect to (1) just cities and heterogeneous perceptions of UGS; and (2) the interaction between UGS and socio-spatial processes such as household relocation and gentrification. A key message is that just and green cities are not easily operationalised through conventional approaches to UGS planning. Urban planning practitioners also need to include more nuanced understandings of UGS well-being outcomes and position UGS provision within broader social and economic determinants of urban inequalities when providing UGS as a solution to urban inequalities.

In Chapter 12, Shahani discusses cultural diversity in urban spaces and its representation in planning regulations for sustainable cities. The starting point for the chapter is that the concept of sustainability no longer focuses solely on environmental viewpoints, but increasingly on the embedded social dimensions in sustainable development programmes. Social sustainability entails several key elements, including human physical, emotional and social well-being. Planners and policy-makers need to bridge the gap between cultural diversity and urban sustainability by recognising cultural differences in planning to shape a better society for all and create an equitable representation of diverse groups. Applying cultural pluralism instead of cultural diversity when planning the regulation systems is important as a new transition approach to policy-making that celebrates cultural diversity and blurs boundaries in everyday interactions. Creating transitions through temporary changes to urban spaces can demonstrate the level of acceptance of new approaches and create welcoming transitions for sustainable cities.

In Chapter 13, Hyder, Papadopoulos and Steele argue that green space is a sustainability priority and that more attuned and responsive urban green space governance within Global South contexts is vital. The emphasis on sustainable cities and communities in the SDGs highlights the need for 'universal access to safe, inclusive, and accessible, green and public spaces, for women and children, older persons and persons with disabilities'. Achieving this target will not only ensure safe and accessible green space for all but also work as a catalyst for achieving other SDGs. Urban green spaces such as parks or playgrounds offer not only socio-economic but also environmental benefits, like reducing the impact of air and water pollution and climate change. Despite the important benefits of urban green spaces, they are in decline in many cities globally due to urban (over)-development. This situation is even

more critical in mega-cities in developing countries, exemplified through the case of Dhaka City in Bangladesh.

Part V – Reframing Perspectives
Part V follows the arguments of previous sections to their logical conclusion, arguing that we need to reframe our perspectives on sustainable cities and communities in order to address current failings.

In Chapter 14, Pincetl looks at the tendency of sustainability solutions to focus on market incentives to change the behaviour of people. Such approaches are widely criticised, as they reward affluent consumers. This group already use more resources and so can more easily reduce their consumption of services like heating. The chapter examines the ethical basis for this approach, arguing that it privileges a view of humans as being largely selfish and money motivated. Pincetl asks: what would happen if we based energy interventions on a more altruistic ethic, for example, by enabling richer consumers to pass their savings to those who are poorer. Given the patchy record of market-led approaches to behaviour change, a more altruistic ethic is both a moral and practical imperative if we are to create the scale and pace of change required to achieve the SDGs.

In Chapter 15, Pineda-Pinto and Frantzeskaki argue that navigating through the Anthropocene and the rapid urbanisation of our biosphere requires new and radical ways of living, doing, thinking and operating. The chapter delves into the concept of nature-based urbanism, asking how we can design for and with nature to create sustainable cities and communities. Ecological justice can be integrated in social-ecological-technical systems (SETS) thinking to advance city planning and design. Multi-species capabilities provide an evidence-based baseline for collecting data and designing urban habitats that enable new spaces for all lives to flourish. This governance approach for people and nature requires co-design and co-participatory mechanisms that support interspecies inclusivity. The chapter outlines a pathway for cities to transition from an anthropocentric to a justice-based, inclusive model for planning multi-species urban habitats.

In Chapter 16 on regenerative cultures for sustainable cities and communities, Foo argues that most research focuses on the material landscapes of sustainable cities and communities, spanning multi-modal transport systems, green infrastructure and other domains. A point of commonality across bodies of work on sustainable cities and communities is that they possess a blind spot concerning the inner place – the source – from which we operate when we act, communicate, perceive or think. We can see *what* we do (results). We can see *how* we do it (process). But we usually are not aware of the *who*: the inner place or *source* from which we operate. The chapter suggests we must discern the foundational principles, values and methods of sustainable cities. Sustainable cities and communities need to centre around people. Urban development must begin with human development. Inner work concentrates on identifying one's own wholeness, potential and essence, while it reveals the interdependent nature of ecosystems, including human beings.

1.3 Conclusions and directions
The research field addressing SDG11 is large and diverse, but it displays clear patterns. The dominance of scholars and viewpoints from the Global North is problematic because, unlike

many fields, the challenge of delivering sustainable cities and communities is located overwhelmingly in the Global South. The United Nations estimate that by 2050, over 5.5 billion people will live in cities in the Global South, versus 1.1 billion in the Global North (UNCTAD, 2021). Cities in the Global South that are already struggling to deliver sustainable living conditions for inhabitants will receive some two billion additional people between now and 2050. Although liveability is not an explicit measure of sustainability, it includes metrics on safety, freedom and services that clearly relate to SDG11. On this basis, it is notable that the least liveable cities in the world cluster in Asia and Africa (Economist Intelligence Unit, 2022), which are exactly those places expected to grow the fastest. Refocusing research on the Global South and better connecting researchers in the Global North and South is vital.

The challenge to the academic community is clear – find the ways to welcome and engage non-Western viewpoints, approaches and scholars. This is a task many existing journals in the sustainability domain have been focusing on for a number of years now, seeking to become more geographically representative in terms of who sits on their editorial boards and who submits papers. These efforts have borne some success, with many more submissions from East Asia, for example, but even as they broaden the pool of authors, they struggle to attract work deploying non-Western approaches and viewpoints. This of course reflects the structural challenge embedded in a global higher education system that is largely a product and export of Western culture.

Many of the more ambitious attempts to develop new modes of research lie within the sustainability sciences. Applied placement PhDs, conducting research while working in non-academic organisations, produce researchers and knowledge that addresses the needs and constraints of different places and contexts. Research programmes that fund community researchers and local universities to work on local urban challenges with groups they already know are more likely to produce geographically embedded approaches and forms of knowledge that are more appropriate and actionable in those contexts (Simon and Palmer, 2020).

While many of the challenges relate to how we conduct research, this book identifies a number of substantive topics that should form part of the research agenda for sustainable cities and communities. Robust comparative work to understand the strengths and weaknesses of different urban governance approaches to delivering SDG11 in diverse contexts is largely missing. This makes it hard for cities to learn from one another. The dominance of Western approaches to urban development and innovation has largely failed to deliver sustainability, and we need alternatives. The cities facing the greatest challenges are good places to look for new approaches to innovation that work in practice, such as experimental informal urbanism whereby residents in informal settlements develop solutions *in situ* (Quaye et al., 2022).

Conversely, the emergence and stabilisation of policy terms like net zero and green infrastructure risk reducing societal challenges to rather specific 'things' like carbon and nature-based solutions (Swyngedouw, 2022). In reifying material over social relations, these policy objects produce a rather static and atomistic view of cities, slotting into rather than challenging the underlying logics of urban design and development. The direction of travel for sustainable cities and communities remains towards fragmented urban interventions

that fail to either join or scale up. Making cities sustainable one project at a time leads to what has memorably been dubbed 'Frankenstein' urbanism – a monstrous patchwork of largely unconnected sustainability solutions (Cugurullo, 2018). As this book shows, researchers need to continue developing and promoting approaches that show how policy goals like urban greening and decarbonisation sit within a wider web of power relations and social relationships if they are to be transformative.

In the applied domain of sustainable cities and communities, this means ensuring grass-roots engagement and collaboration in the process of remaking cities. Practically, this means doubling down on efforts to develop new ways of doing research with stakeholders rather than to them, and embedding new ways of working into mainstream urban governance (Polk and Kain, 2015). The underpinning of sustainability itself is collective, based upon the fundamental insight that we are all dependent on a single planet for our survival and thus should endeavour to protect it. Just environmental and social outcomes should be both a driver and outcome of sustainable cities.

This book ends with a set of chapters that unpack what the word community could mean in more detail, focusing first on human altruism that makes people want to help each other and in no small part motivates people to act more sustainably in the first place. Basing sustainability initiatives on the kinds of ethics that motivate people to engage in the first place would promote more rapid and far-reaching shifts in environmental and social sustainability. A reconstituted research agenda on sustainable cities and communities should include a fundamental rethink of its epistemological and ethical underpinnings. New perspectives open the field up to new voices and ideas.

Our research agenda for sustainable cities and communities can be summarised in four points. First, engage non-Western approaches and research that reflect the global urban challenge. Second, develop approaches that embed grassroots engagement and deeper collaboration in urban governance. Third, place justice front and centre when advancing urban transformations. Fourth, adopt perspectives that are better suited to the tenets of sustainability than anthropocentrism or market approaches. Responding to these points within current academic settings is not easy. Working with different disciplines and groups outside universities takes time, but it is fundamental to deliver sustainable cities and communities, and by extension a healthy planet. We hope that this agenda provides inspiration and motivation to encourage more researchers to join this journey and sustenance and guidance for those of us already on it.

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