

Understanding the Urban Context and Its Challenges

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Abstract This chapter introduces a particular understanding of the urban context against the background of on-going societal change and persistent problems that threaten to induce disastrous change. The urban context is presented in relation to urban challenges, scopes of urban sustainability and the governance of the urban. Understanding urban context and its dynamics is important for finding the right approaches to tap into the potentials of cities and reroute their development pathways towards sustainability and resilience. The governance of urban sustainability transitions requires new forms of strategic environmental planning processes that integrate diverse sources of knowledge and diverse perspectives. The new planning processes need also to set connections between urban challenges and global, national and regional developments. The challenge remains for urban practitioners and scientists alike to take up a process-content thinking and to reflect on how to navigate societal complexity while mobilizing transformative societal potential towards action for sustainability.

Introduction

Today's urban areas face a host of complex problems, from the larger issue of climate change, to the more localized challenges of urban regeneration and the management of critical infrastructures. With the size and importance of cities set to increase over the next century, getting to grips with these issues acquires a more urgent meaning. However, addressing them is by no means an easy process.

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Complex problems commonly resist policy interventions, ignore optimization efforts, and frustrate even the most well-intentioned policies.

Lets turn our attention to Rotterdam, a mid-sized city in the Netherlands famous for its enormous port. It has been facing just these problems. On the one hand, its harbor activities have been relocated to the periphery of the city, leaving vast empty and, often, neglected spaces at the heart of the urban area. Deciding how to make use of this space will durably alter the character of the city. On the other hand, spurred by the threat of rising sea levels from climate change, the city has embraced sustainability as a guiding principle for its development.

Yet simply redesigning areas and committing to targets falls short of what is needed. At issue are not only the nature of the problems, but also how we respond to them. As in many other local governments, rigid hierarchies and the compartmentalization of crosscutting topics has led to a degree of institutional sclerosis. This has prevented the envisioning of a desired future for and by the city dwellers, and has generally led to symptoms being taken for causes and causes going untreated. Multi-dimensional topics such as climate change and urban renewal have been chopped up and distributed throughout the administration, which itself is frequently isolated from other urban actors. It is often the case that for sustainability solutions to be discovered and/or even legitimized, several local government departments have to collaborate and to be in agreement. This has made it all but impossible to put forward effective strategies and inspiring visions capable of addressing the underlying problems.

To address these combined challenges, the city has therefore had to consider its desired future and ways to get there. In doing so, local governments have found that it is not only a matter of changing approaches of planning and city making, but also how city making is practiced – it has had to reinvent its role without overlooking its institutional constraints, and open-up to experimenting. For example, the local government of Rotterdam has entered into new partnerships based on collaborative governance approaches. These involve devolving authority to actors not traditionally in charge of urban developments, while at the same time remaining ultimately accountable to citizens.

As such, an integral part of complex change processes in urban areas is learning about one's role, new pathways for action, and the interrelated challenges of the city. Traditional governance paradigms are rather ill-suited to the task: *persistent problems need to be tackled at their roots by deeper, transformative change*. Doing so then requires new approaches that will bring about new means of intervention, new meanings and discourses. As we will see in the following chapters, transition management, an offshoot of the transitions approach, seeks to provide just this: a new approach to co-create transformative action to deal with and/or steer clear from persistent problems of unsustainability (Tidball et al. 2016).

By way of this short example, we hope to provide a taste of the complex and complicated nature of the problems facing urban areas, and the need for radical societal change. In this chapter, we will further outline our understanding of the urban context in relation to on-going societal change and persistent problems. This kind of understanding is crucial for tapping into the potentials of cities and

rerouting their development pathways towards sustainability and resilience. We also discuss scopes of urban sustainability and ways forward for urban governance for sustainability. This chapter provides a conceptual basis before turning to urban applications of transition management through a series of global case studies. The case study chapters will both enliven and make more concrete what we mean by transition management in and for cities and how the methodology relates to urban challenges.

Change and Its Challenges

Heraklitos noted that there is nothing more permanent than change. Crises, as a particular form of change, have commonly been seen as profoundly altering societies; they are perceived as critical events, upending routines and perceptions. Recent years have seen their fair share, whether economic (e.g., the 2008 financial crisis) or environmental (e.g., climate change). Apart from prompting national governments and international organizations to take decisive action, crises may also alter people's perceptions and opinions about the way they live and act, and the choices they make (Jhagroe and Frantzeskaki 2015).

Change, however, is not limited to cataclysmic events: it is a continuous process in both social and environmental systems. Its causes and conditions, however, cannot be reduced to a handful of factors. The ways in which change is analyzed are equally numerous. According to historical analyses, the prevailing conditions for social change include war, the adoption of a new government or institutional system (e.g. feudalism, democracy) and, more recently, the introduction of technologies (Parsons 1977). In political analyses, the focus is on the role of ideology: ideas, paradigms, and leaders provoke change. Economists write of market forces and the supply-demand nexus as the drivers of growth and progress. In all, change is seen as an on-going and unavoidable phenomenon that occurs due to changing conditions.

However, perceiving social change as an emergent phenomenon overlooks the impact that targets or visions can have in driving it. Societies typically seek to improve their circumstances, and different visions lead this process – the democratic society, the welfare society, the knowledge society, the innovation society, and the sustainable society. Since 1987 with the publication of the Brundtland report (WCED 1987), sustainable development has been introduced as a pathway for our societies to achieve a twofold balance: between environment, economy, and society, and between the rights of current and future generations (see Box 1).

Sustainable development has been cast as an antidote to environmental degradation and climate change, and politicians have readily embraced it as a new approach to the current string of crises. By highlighting the need to balance between 'people' (society), 'planet' (environment), and 'profit' (economy), sustainable development has been seen as a way of rebalancing our disproportional focus on

economic growth, while mitigating some of the negative externalities it has generated in the other two areas. However, being aware of a desirable direction may not be sufficient to bring about desired changes.

Box 1: Brundtland Definition of Sustainable Development

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs. (WCED 1987: 41)

At the same time, as globalized societies become increasingly networked and interlinked, they also become more complex. This leads to a new set of problems and limitations for governance and planning, which requires new ways of thinking and governing, as well as an understanding of their urgency and complexity. Understanding societal change therefore becomes of high interest for understanding how our societies are going to learn from past experiences and to which extent they can shape their future.

Sustainable Development

As noted above, the concept of sustainable development underpins much current thinking on the problems facing cities and urban areas. Since the late 1980s, many countries have committed to it, but are struggling with how to achieve it. Following the Brundtland report *Our Common Future* (WCED 1987), sustainable development came to be defined as redirection of social development in ways which combine prosperity, environmental protection, and social cohesion. At the same time, it puts forward the notion that today's development cannot come at the expense of future generations. In this way, sustainable development introduces a subjective element, as assessing future needs is inevitably speculative and the very concept of needs is born of cultural, ecological and economic factors that can be weighted in more than one way (Martens and Rotmans 2005; UN 1997).

At the international level, there is a consensus on the need for sustainable development, as well as on key areas requiring progress over the next decade: poverty, hunger, health, education, etc. (UN 2005). Yet, there is little agreement on strategies and solutions, which vary from country to country. Many, for example, have formed sustainability councils and developed sustainability indicators (Mulder 2006: 148–165). In this context, sustainable development has been represented as the rebalancing of economic, social and environmental agendas, primarily through the mainstreaming of environmental concerns into policy.

The recently agreed upon New Urban Agenda (UN-Habitat 2016) also takes an agreement on sustainable development as given and promotes an urban future that centers on just and inclusive urban development. As such, it explicates desirable directions to take but does not indicate the pathways of action to achieve and pursue them.

Conceptually, there are several core characteristics of sustainable development that can be isolated. First, it is intergenerational, implying the need to take a longer-term view (e.g., one to two generations or 25–50 years). Second, scale is central – sustainability occurs at different levels (local to global) and acquires contextualized meanings, which interact. Third, sustainability is at the intersection of multiple domains, due to its concern with aligning social, economic, and environmental values (Kates and Parris 2003). Sustainability is a guiding value proposition: posits values on social, ecological and economic aspirations together in an integrative manner, making their achievement inseparable. Sustainable development therefore provides a general frame of reference for conceptualizing our common desired future.

Persistent Problems and System Failures

Understanding change and thinking in terms of sustainable development, however helpful, cannot succeed without a deeper understanding of the problems at hand. Societies have evolved into complex structures with interrelated and interdependent subsystems (e.g., energy) and functions (e.g., heating). Trends at the macro level such as demographic growth, globalization, and the spread of information and communication technologies (e.g., mobile phones, the internet), have all had a hand in this avalanche of complexity. It can, moreover, be seen as unfolding on three levels: on that of society itself, on that of the problems it faces, and on that of how we deal with these problems (Loorbach 2010: 163–164) (Fig. 1).

Simply being able to conceptualize such systems is a challenge. Approaches such as complex adaptive systems theory have attempted to do just this (Holland 1995). Deriving insights from the study of ecosystems, these approaches have sought to capture the characteristics of complex systems. Studies of complex adaptive systems have found that they involve multiple levels and scales, non-linear processes, and a diversity of responses to any one intervention (Holland 1995). The application of these approaches to societal systems has primarily operated through two system configurations: socio-technical and socio-ecological systems. In this volume, we will focus on the former (see Box 2), as the latter is more focused the interplay between social and environmental elements.

The study of societies from a systems perspective reveals that these cannot be governed through conventional top-down methods, which we refer to here as rationalist problem solving (Voß and Kemp 2006). This type of problem solving relies on precise goals and the use of predictions to choose between alternative options, which are then carried out through hierarchical institutions. For example, a

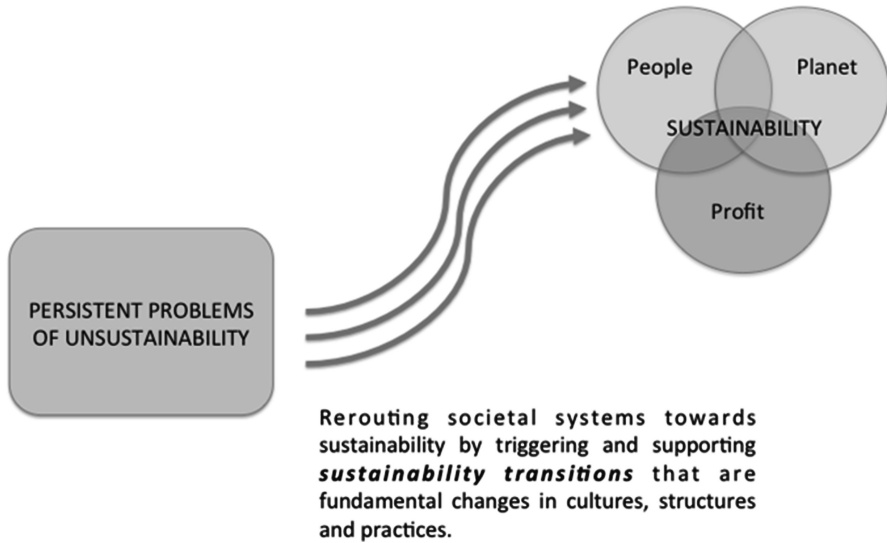


Fig. 1 A schematic of the basic concepts of sustainability transitions thinking

government facing high unemployment will seek to anticipate the outcomes of different measures (e.g., training programs, subsidies, etc.), and choose the one with the highest predicted effect. The new job creation program will then be implemented through different agencies, following a top-down pattern. In such an approach, the underlying principle is to isolate the problem, create a linear path to its solution, and devolve responsibilities for its resolution.

Box 2: Definition of Socio-technical Systems

Socio-technical: What we generally see as sectors can also be defined as socio-technical systems (e.g., energy). They contain actors (e.g., firms, individuals), institutions (e.g., behavioral norms, standards of practice), material artifacts (e.g., infrastructure), and knowledge (Markard et al. 2012). Viewing a sector as a socio-technical system helps to make the diversity and interdependency of its elements explicit.

Given that societal systems and their problems are complex, applying linear solutions yields unintended consequences, commonly understood as externalities. Indeed, by ignoring the messy nature of reality, rationalistic policies become blind to the interdependencies between the different societal subsystems, and to the potential consequences of actions targeting one subsystem on another one. These unintended consequences, however, often lead to more severe problems. For example, in response to demographic growth, governments sought to modernize agricultural systems (e.g. India's Green Revolution) by increasing the use of chemical fertilizers and pesticides. While these efforts initially led to a manifold

Table 1 Properties of persistent problems (Rotmans 2005)

Complex	Multiple causes and consequences
	Multi-sector, multi-scale
	Embedded in societal structures and institutions
Uncertain	No “ready-made” solutions
	Uncertainty cannot be reduced through knowledge acquisition
	Interventions primarily alter the problem perception, not the problem itself
Difficult to manage	Involvement of numerous autonomous actors with diverse interests at multiple scale levels
Hard to grasp	Resist interpretation
	Ill-structured
	Susceptible to power dynamics

increase in annual yields, they also polluted aquifers, destroyed soil fertility, and gave rise to a host of human health problems (e.g., birth defects, respiratory diseases).

These second-order problems are not only more numerous, but also more complex, interconnected and thus difficult to address, and are to a large degree the result of societal complexity. They can best be understood as **persistent problems**, which are rooted in the very structure of societal systems, making them difficult to manage. Persistent problems are all thorny, as they involve a wide range of actors from different sectors operating on multiple governance levels (local, national, supranational, global) and with divergent interests. Their name derives from their tendency to resist interventions that only address their symptoms – their impacts.

Persistent problems are as a matter of fact, the superlative form of what Rittel and Webber (Rittel and Webber 1973) refer to as ‘wicked problems’; their interrelationship to other societal problems and their entrenchment in our societal structures and institutions makes it impossible to analyze and solve them in isolation. Persistent problems could generally be considered to be symptoms of an unsustainable society. (Rotmans 2005: 8)

The core characteristics of persistent problems (Table 1) include the interdependence between actors, the need for action at multiple levels, the presence of feedback loops with negative impacts on the system, and the ill-structured nature of the problems themselves. This complexity requires new modes of governance, which is problematic: governance relies on institutions that themselves must be changed if a new mode of governance is to be enabled (Mayntz 2006).

Both persistent problems and the unintended consequences of rationalist problem solving be the result of system failures (Rotmans 2005). These are failures that have crept into our societal systems which, contrary to market failures, cannot be corrected by the market or current policies. Existing policies are necessary but not sufficient; much more is needed. It is this “much more” that we will explore throughout this volume.

The Urban Context

Understanding the nature of societal change and of the problems facing our societies is vital, though of little use without being placed into a specific context. As we will see, urban areas, and the cities within them, offer one of most fruitful grounds for both understanding persistent problems and experimenting with approaches to address them. We will therefore seek to gain insights into the urban context and its specific challenges.

Defining the Urban

There are probably as many different ways of conceiving what a city is as there are cities. A simple definition therefore has its attractions. The simplest is that a city is a human settlement where strangers are likely to meet. Richard Sennett, *The Fall of Public Man*, 1977, p. 39

The first striking fact about this context is its sheer size – more than half of the world's population lives in urban areas and this number is set to continue increasing. There is no one definition of these concepts, though cities could broadly be seen as one of the main building blocks of urban areas. Khare et al. (2011) consider the city as “a conglomerate of people, dwellings and businesses with a politically defined boundary” (2011: 227). They also emphasize that a city is not just its administration, even if its governance is largely undertaken by local governments. Ernstson et al. (2010) go further in defining the city as “an agglomeration of contested spaces that generate a range of urban services, from transport, housing, and medical aid, to jobs and financial markets” (Ernstson et al. 2010: 531).

At the same time, there has been a shift towards separating cities from territory, and giving them a more relational reading as spatially connected and incredibly complex (Eames et al. 2013). Amin (2004) argues that cities are increasingly embedded in global networks and transnational flows of commodities, people, knowledge, and culture, making it particularly difficult to isolate one or the other: “in this emerging new order, spatial configurations and spatial boundaries are no longer necessarily or purposively territorial or scalar, since the social, economic, political and cultural inside and outside are constituted through the topologies of actor networks which are becoming increasingly dynamic and varied in spatial constitution” (Amin 2004: 33). Cities therefore become sites of imagination, constructed through interactions, and evading the prescription of immobile boundaries.

In more concrete terms, urban areas can be viewed through their endless appetite for (natural) resources and their ability to produce vast quantities of waste, which together can cause serious (environmental) impacts. These impacts have little regard for administrative boundaries, and often extend into neighbouring areas (e.g., rural areas supplying them with food), potentially threatening their

functioning. Furthermore, due to globalization, the impacts from urban areas can spread globally, making it all the more difficult to erect conceptual or physical boundaries between them. Cities and the urban areas that emerge around them therefore become one of the key battlegrounds for a sustainable future, though due to the size and complexity of the problems, finding a starting point all too often remains elusive.

Viewing cities purely through their negative manifestations may, however, be counter-productive. Doing so occults their role and potential in resolving many of the larger and persistent problems that we face – e.g., climate change, energy security. It is all too easy to fall into either extreme: a blind faith in the “silver bullet” potential of cities to cure humanity of all its ills, or a Malthusian gloom that decries urban areas as the root of all evil. Needless to say, the reality lies somewhere in the middle, and the reason for this is that we – as researchers, civil society activists, business persons, local government officers, etc. – are all capable of playing a role in the direction taken. As Collier et al. (2013, p. 524) argue, “urban communities must be seen as the central stakeholders in transitioning objectives”. Cities and their enclosing urban areas are neither inherently sustainable nor unsustainable; rather, specific policies, institutions or behaviours can be.

Urban Challenges

As noted above, cities, and more generally urban areas, hold a unique role in the nexus of sustainability and societal change. They are at once a source of problems – pollution, unsustainable patterns of resource consumption, poverty and inequality – and a setting for enacting new and high-impact solutions as they are the location of critical infrastructure networks and populations. They are increasingly complex entities, posing a challenge for governance – in general and for sustainability – and sites of experimentation for new forms of decision-making.

Those studying cities are often split between the apocalyptic – the ‘doom and gloom’ approach – and the evangelic – the ‘silver bullet’ mindset. Considering that the reality lies somewhere between these two poles, it is important to outline some of the challenges faced by urban areas, before we can turn our attention to their potential for radical change, for transitions.

In 2007, the United Nations Population Fund – a UN agency that promotes the right of all humans to enjoy a life of health and equal opportunity – released a landmark report on the potentials and pitfalls of urban growth (UNFPA State of the World Population 2007 – Unleashing the Potential of Urban Growth). Its publication came shortly before the world passed an invisible but momentous milestone: in 2008, for the first time in human history, over half of the world’s population (ca. 3.3 billion people) inhabited urban areas. This number is only expected to increase, reaching the five billion mark by the year 2030.

With this large and ever-increasing concentration of populations in urban centers, the challenges faced by these also increase, not least since many of the

new urban dwellers are and will continue to be poor. While this growth is not evenly spread – Africa and Asia account for the lion's share of it – the task of managing it is a truly global one. This may at first blush appear impossible, and urban areas can easily be cast in a negative light: they are, for instance, drivers of environmental degradation. At the same time, the overwhelming urbanization of the human population could very well be positive: “cities concentrate poverty, but they also represent the best hope of escaping it” (UNFPA 2007: 1).

This sense of the potential of urban areas to go from causing social, economic, and environmental problems, to being at the forefront of their mitigation is also highlighted in the IPCC's 5th report (IPCC 2013). On the one hand, urban areas concentrate many of the key global climate change-related risks (e.g. rising sea levels, increased extreme weather events), which are rapidly increasing. This is not limited to any one region: “risks, vulnerabilities, and impacts are increasing across the world in urban centres of all sizes, economic conditions and site characteristics” (IPCC 2013: II-5). On the other hand, urban areas are at the heart of successful adaptation to global climate change, which does not need to be limited to incremental development. In fact, the IPCC goes so far as to recommend “transformative development” to lead our societies towards resilience and sustainable development (Ibid.).

While we note above that urban centres in all regions of the world are facing climate risks, it is also important to understand that the sustainability, and indeed transition challenges, facing cities differ from region to region. For cities in so called developed countries, the challenge is essentially about decoupling from current resource-intensive urban forms and lifestyles towards more sustainable configurations of the city (Swilling and Annecke 2012). For cities in the global South on the other hand, the current challenge is to address existing underdevelopment i.e. rapid urbanisation, poverty and deficits in infrastructure and governance, in ways that avoid the resource-intensive paths taken by developed cities. As such, urban adaptation and sustainability trajectories will differ from region to region.

Nonetheless, the picture that emerges is one of cautious optimism as to the role that urban areas can play in resolving the persistent issues faced by today's and tomorrow's world – not least of which climate change and human poverty. For example, due to their high contribution to GHG emissions and their particular vulnerability to the localized effects of climate change, cities are ideally placed to be at the source of significant mitigation and adaptation activities. Moreover, local governments have a large degree of authority over many of the policy domains influencing these factors – e.g., transportation, waste management, land use (Kamal-Chaoui and Robert 2009; Bulkeley 2010; Dimitrov 2010; Bai 2007). Urban policies (e.g., London's congestion charge) can also be effective in providing local co-benefits such as public health improvements or energy security (Kamal-Chanoui and Robert 2009).

Additionally, cities offer the opportunity to directly engage a large variety of actors involved at multiple scales (local, regional, national, international), to mobilise their support and influence their behaviour (Loorbach 2009; Bai 2007; Roorda et al. 2011). Alternatives can emerge and be nurtured – they can be inspiring to others, or be translated for implementation at higher levels of governance. Actions at the urban level can thus have a global impact and cities are seen as critical arenas for addressing sustainability issues (Wittmayer et al. 2015; Wolfram and Frantzeskaki 2016).

Scopes of Urban Sustainability

There is an additional challenge in approaching cities in relation to sustainability and transitions towards it: what is the scope of a city? How do cities relate to other levels of governance? Indeed, many (or most) analyses of urban areas in relation to sustainability limit themselves to understanding the ways in which cities are (un-) sustainable. This has the unfortunate tendency of placing them in a bubble, divorcing them from other scale levels (e.g., national, international).

Bulkeley and Betsill (2005) emphasize that viewing urban areas as largely independent from other levels and therefore abstracting them from their links to them seriously limits our ability to understand urban sustainability and its challenges: “multilevel governance perspectives can start to open up these divisions, and provide insight into the opportunities and contradictions which emerge in the interpretation and implementation of urban sustainability across a range of scales and spheres of governance” (Burkeley and Betsill 2005: 43).

As Cash et al. (2006) also points “[...] in a world increasingly recognized as being multilevel, solutions must be as well. The opposite poles of top-down approaches, which are too blunt and insensitive to local constraints and opportunities, and bottom-up approaches, which are too insensitive to the contribution of local actions to larger problems and the resulting potential for tragedies of the commons, are clearly inadequate in providing both socially robust information and viable management solutions.”

A further issue related to questions of scope is the fact that many of the persistent problems affecting urban areas are not specifically linked to any one scale. Climate change, for instance, is a global issue, albeit with local manifestations. This implies that there is an ever-present tension between scale levels in addressing it. Solutions targeting one level can never be fully independent of actions undertaken at others, nor can interventions targeting only one level be capable of comprehensively addressing a persistent problem.

Defining the city and its scope is, however, not just an administrative or academic exercise: where and how we draw the limits of a city or urban area can also have significant impacts on how we understand current persistent problems,

forge solutions, and put them into practice (Box 3). For instance, cities are frequently held to produce 75–80% of global greenhouse gas emissions (Satterthwaite 2008). While this may be correct if we attribute to cities all emissions linked to their consumption (e.g., from agricultural or industrial production occurring elsewhere), this also blurs their limits and exaggerates the part they play in global unsustainability. Indeed, Satterthwaite (2008) finds that globally less than half of greenhouse gas (GHG) emissions come from within the boundaries of cities.

Similarly, the GHG Protocol – an international accounting tool and standard – provides three scopes for measuring the emissions of cities: (1) includes direct emissions originating from sources owned or controlled by the reporting entity; (2) includes indirect emissions from the activities of the reporting entity, but occur at sources owned or controlled by another entity; and (3) includes indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities, and electricity-related activities not covered in (2) (GHG Protocol 2012). Thus, underlying any effort to understand urban sustainability and its governance, is the equally important task of defining or at least delimiting the scopes of what is being considered.

Box 3: Cities as Sites of Sustainability (Adapted from Khare et al. 2011)

Cities can be seen as sites for sustainability and the addressing of persistent problems for many reasons, including:

- The majority of the world’s population lives in them;
- They consume large volumes of resources and produce equally large amounts of waste – they are therefore susceptible to efficiency policies;
- They play a key role in making sustainable development relevant on a local scale;
- They can be powerful actors in promoting sustainable development towards other scale levels – e.g. national governments – and frequently have the resources necessary to pilot small-scale initiatives.

They tend to have considerable experience managing the complex systems that drive unsustainability (e.g. energy, transport), and are therefore ideally placed to enact strategies to improve them.

With the planet becoming more and more urbanized, the ecological footprint of cities reaches far outside their geographic boundaries. Resources from other continents are sourced for large cities to operate. This makes even greater the challenge to create sustainable cities, since it will have a great impact on the way environmental resources are utilized and impacts are lessened or not.

urban sustainability and land change studies cannot focus solely on a place of fixed geographical locations, but should examine the complex set of dynamic processes that link distant and sometimes multiple locations—longstanding themes in the urban literature. (...) Through the lens of urban land teleconnections, new and surprising diverse urban

forms and processes, such as periurbanization, can be better understood and foreseen. The urban land teleconnections concept could also be useful to the wider research community to anticipate implications for global land resource use. (Seto et al. 2012)

Governing the Urban

Having established that there is something distinctly urban and that it is a key issue to explore, we can turn our attention to governance. How can such complexity be governed and how has it been governed? How can governance for urban areas effectively address persistent problems?

The traditional view is that urban governance refers to “the broad constellation of social, political and economic forces that mold the process of urban development within modern capitalism”. Lefebvre, the famous French philosopher and sociologist, argued that urban governance unfolds across geographical scales, as urbanization processes include cities, regions, cross-border agglomerations, as well as supranational hierarchies (Lefebvre 2003 [1970]).

For most of the past century, the key task of urban governance was to find ways of effectively managing these complex and multi-level spaces. In the US, there was a particularly virulent debate regarding the appropriate size and division of urban functions at the urban or metropolitan level (Dowding et al. 1994). In this regard, two main schools of thought have emerged (Ostrom 1972). On the one hand, those advocating polycentric governance (Ostrom et al. 1988) claim that competition among multiple local jurisdictions can make local public services more efficient. On the other hand, ‘consolidationists’ argue that limiting the number of local governments is beneficial (Frug 1999). Regardless of such debates, the recognition that urban governance is of a fundamentally multi-level nature is well established.

Urban Governance for Sustainability

While municipalities were once viewed simply as providers of services such as waste collection and utility provision, a shift has occurred in which the municipalities act as leaders on sustainability issues. (Nevens and Roorda 2013: 112)

Early attention to the links between the urban areas and sustainability can be traced back to the 1970s, when it was considered that urban quality of life had to be improved if societies were to flourish (Bulkeley and Betsill 2005). These early reflections tended to focus on the poverty–environmental quality–urbanization nexus, and more often than not ignored the wider impacts of urban areas.

The first explicit linking of urban areas and sustainability came with the Brundtland report (WCED 1987), which devoted an entire chapter to “The Urban Challenge”. The report highlighted the central role of urban areas in the roll out of sustainable development. Subsequent initiatives such as the Local Agenda

21 (LA21) sought to cement the connection between urban areas and sustainable development, by encouraging local authorities to enter into partnerships with local stakeholders, and engage in localized implementations of sustainable development.

Spurred by such initiatives, cities, primarily in the Western world, have become increasingly engaged with sustainable development since the early 1990s (Bulkeley 2010; Pattberg and Strippel 2008; Kern and Alber 2008). Cities like Portland in the USA, Toronto in Canada, and Freiburg in Germany are frequently cited as frontrunners in the area of urban sustainability. These cities have developed ambitious plans, committed to stringent targets, and have generally institutionalized sustainability as a guiding principle for their governance (Aylett 2011; Roorda et al. 2011).

In 2014, for instance, Freiburg announced that it would aim to become climate neutral by 2030. Urban sustainability governance, however, goes beyond the boundaries of individual cities. Transnational city networks such as the International Council for Local Environmental Initiatives (ICLEI), the European Covenant of Mayors, and the Climate Alliance have been established to foster cooperation and knowledge sharing across local and national boundaries. City networks play an important role in mediating and diffusing knowledge across cities and are ever growing (Bulkeley et al. 2003; Bulkeley 2010). Moreover, at the international level, cities' attempts to tackle climate change are given ever-increasing attention, for instance during the recent UN World Summit in Johannesburg in 2012 or in the IPCC's Fifth Assessment Report (Bulkeley and Broto 2012; IPCC 2013).

At the same time, urban governance for sustainability is frequently limited to climate mitigation and adaptation activities (Bulkeley 2010; Anguelovski and Carmin 2011). Whereas mitigation aims to limit the risk of climate change, adaptation strives to reduce the vulnerability of human and natural systems (Corfee-Morlot et al. 2009). In spite of the pervasive policy rhetoric, which would suggest high political commitment to urban sustainability governance, empirical research reveals that local governments frequently only target 'low hanging fruits' and fail to reach their goals, especially when it comes to reducing GHG emissions (Bulkeley and Broto 2012). The reasons for this are not necessarily a lack of will to enact changes: sustainability problems are (for the most part) persistent problems, as noted above, which makes them particularly challenging to tackle.

Local governments' focus on short-term goals, the fragmentation of policy initiatives across departments, the discontinuous nature of commitments due to political cycles (e.g. elections), and more contribute to sap even the best-laid plans (Maas et al. 2012). There is frequently a fundamental contradiction in the temporal, spatial and institutional scales between urban decision-making and the global environmental problems affecting cities (Eames et al. 2013). There is thus a discrepancy between persistent problems and the governance approaches used to solve them.

This situation is nonetheless not without hope. Cities at the forefront of urban sustainability governance have been tackling these problems through participatory

governance (Aylett 2011). This approach recognizes that public policy “is formulated and implemented in dynamic contexts where multiple actors interact at multiple levels” (Driessen et al. 2012, p.143). Thus, the traditional hierarchical model of urban policymaking is expanded to include a horizontal dimension. In doing so, distinctions between formal and informal, public and private become blurred, and it becomes possible to recognize and involve the myriad actors who together shape the city’s ever-changing context.

Participatory governance is particularly relevant to urban sustainability governance (Bakker et al. 2012; Aylett 2011), as the underlying persistent problems cannot be addressed without the inclusion of those affecting and affected by them. Moreover, taking such a holistic approach can help to create consensus between (or at least a mutual recognition of) opposing views and interests, and through increased participation, generate a higher degree of legitimacy and ownership, thus improving compliance (Mees et al. 2012; Huxham et al. 2009).

This [participation] goes beyond conventional discussions of behaviour change. Key interventions like the densification of existing neighbourhoods, radical increases in the energy efficiency of private buildings, the implementation of local renewable energy systems, or fundamental shifts in patterns of urban mobility are not under top-down municipal control. The design and implementation of these policies requires communities to be actively involved. Aylett (2011: 7)

In Dar es Salaam as in many African cities, there are well-established bottom-up efforts as households, communities, the market and NGO’s make up for the governance and infrastructure deficits on a daily basis (Mguni et al. 2015). Dar es Salaam is predicted to be at risk of increased occurrence of flooding and droughts due to projected climate change impacts (START 2011). Any consideration of resilience to these impacts and overall sustainable development in Dar es Salaam has to consider this departure point: of the 3.3 million residents (with a projected annual population increase of 4.3%), 70–80% of the population live in unplanned settlements thus implying a growing infrastructure and adaptation deficit (Dodman et al. 2009). Such cities present a unique challenge for governing sustainability; as post-colonial top-down governance approaches based on the rationalist approach have failed to create liveable and equitable urban environments. Performative participatory approaches such as transition management may be key to moving beyond top-down decision-making that frequently disqualifies existing informal urbanism by providing platforms for linking bottom-up efforts with local government management policies to ensure urban development that is context-specific and that avoids the resource-intensive urban form found in many cities in the Western world (Fig. 2).

However, the most feasible and effective configuration for such participation remains unclear – How much time is needed? Who should participate? In which capacity? Reconfiguring the roles of different actors therefore also requires new skills and the willingness of those involved to learn and experiment (Roorda et al. 2011). As such, the underlying problem is how to devise participatory arrangements

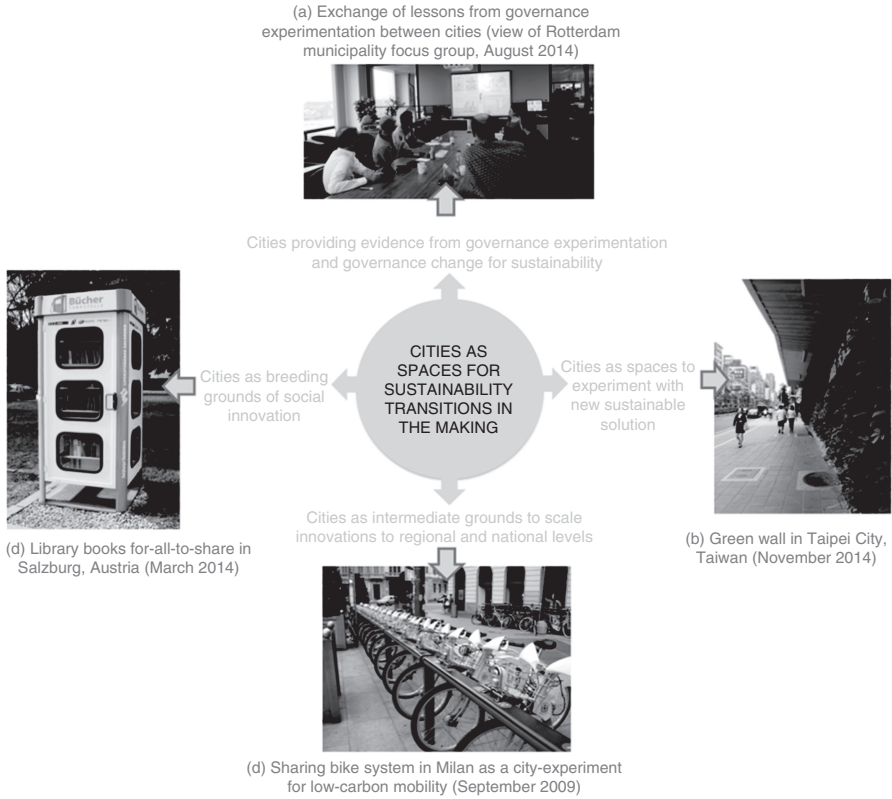


Fig. 2 A schematic of the basic reasons for exploring sustainability transitions in cities (Photo credits: Niki Frantzeskaki)

for specific purposes. However, before even determining the various parameters for participation in urban governance for sustainability, it becomes necessary to determine who the different actors are or could be. Khare et al. (2011) distinguish between three main groups.

First, local governments; they inevitably take decisions concerning economic efficiency, environmental quality, and social cohesion (Box 4). Second, business – companies and industries; they play a strong role through their high levels of resource consumption and waste production, as well as through their economic power. Third, citizens – “citizens desire environmentally healthy surroundings in which to live, work, play and bring up their families” (Khare et al. 2011: 229). Nevens and Roorda (2013) in their application of transition management at the urban level further disaggregate urban stakeholders. These include frontrunners (i.e., local leaders already involved in sustainability initiatives – see Wittmayer et al. (chapter “Transition Management: Guiding Principles and Applications”, this volume) for more information), city administrators, researchers, businesses, civil society organizations, and citizens.

Box 4: Cities as Sites of Innovation and Experimentation

Rotmans et al. (2000) elaborate an integrated city planning tool for sustainability, and argue that cities are motors for sustainable development.

For Ernstson et al. (2010), innovation is a key driver behind urban growth, and can be seen as a double-edged sword: innovation can both spur environmental degradation and offer solutions to improving the socio-ecological systems of a city.

Bulkeley et al. (2011) see cities as arenas for addressing sustainability issues.

Bulkeley and Broto (2012) argue that urban sustainability governance takes place through experimentation. They see this as giving rise to new forms of political space that blur the public-private divide.

Nevens and Roorda (2013) apply the transition management framework to the urban context through what they call “Urban Transition Labs” – “a hybrid, flexible and transdisciplinary platform that provides space and time for learning, reflection and development of alternative solutions” (115).

References

- Amin A (2004) Regions unbound: towards a new politics of place. *Geogr Ann: Ser B Hum Geogr* 86(1):33–44
- Anguelovski I, Carmin J (2011) Something borrowed, everything new: innovation and institutionalization in urban climate governance. *Curr Opin Environ Sustain* 3(3):169–175
- Aylett ACE (2011) The urban governance of climate change: a comparative socio-institutional analysis of transformative urban responses to climate change in Durban (South Africa) and Portland (OR, USA), Ph.D. thesis, University of British Columbia
- Bai X (2007) Integrating environmental concerns into urban management. The scale and readiness argument. *J Ind Ecol* 11:15–29
- Bakker J, Denters B, Oude Vrielink M, Klok P-J (2012) Citizens’ initiatives: how local governments fill their facilitative role. *Local Gov Stud* 38(4):395–414
- Bulkeley H (2010) Cities and the governing of climate change. *Ann Rev Environ Res* 12:141–159
- Bulkeley H, Betsill M (2005) Rethinking sustainable cities: multilevel governance and the ‘urban’ politics of climate change. *Environ Polit* 14(1):42–63
- Bulkeley H, Broto VC (2012) Government by experiment? Global cities and the governing of climate change. *Trans Inst Br Geogr* 1–15
- Bulkeley H, Davies A, Evans B, Gibbs D, Kern K, Theobald K (2003) Environmental governance and transnational municipal networks in Europe. *J Environ Policy Plan* 5(3):235–254
- Bulkeley H, Castán Broto V, Maassen A (2011) Governing low carbon transitions. In: Bulkeley et al (eds) *Cities and low carbon transitions*. Routledge Taylor and Francis Group, London/New York, pp 29–41
- Cash D, Adger W, Berkes F, Garden P, Lebel L, Olsson P, Pritchard L, Young O (2006) Scale and cross-scale dynamics: governance and information in a multilevel world. *Ecol Soc* 11(2):8–19
- Collier MJ, Nedovic-Budic Z, Aerts J, Connop S, Foley F, Foley K, Newport D, McQuaid S, Slaev A, Verburg P (2013) Transitioning to resilience and sustainability in urban communities. *Cities* 32:521–528

- Corfee-Morlot J, Kamal-Chaoui L, Donovan MG, Cochran I, Robert A, Teasdale P-J (2009) Cities, climate change and multilevel governance, OECD Environmental Working Papers No 14. OECD publishing, Paris
- Dimitrov RS (2010) Inside Copenhagen: the state of climate governance. *Glob Environ Polit* 10 (2):18–24
- Dodman D, Kibona E, Kiluma L (2009) Tomorrow is too late: responding to social and climate vulnerability in Dar es Salaam, Tanzania. Case study prepared for the Global Report on Human Settlements 2011 (UN Habitat, 2011)
- Dowding K, John P, Biggs S (1994) Tiebout: a survey of the empirical literature. *Urban Stud* 31:767–797
- Driessen PPI, Dieperink C, van Laerhoven F, Runhaar HAC, Vermeulen WJV (2012) Towards a conceptual framework for the study of shifts in modes of environmental governance. Experiences from the Netherlands. *Environ Policy Gov* 22(3):143–160
- Eames M, Dixon T, May T, Hunt M (2013) City futures: exploring urban retrofit and sustainable transitions. *Build Res Inf* 41(5):504–516
- Ernstson H, van der Leeuw S, Redman C, Meffert D, Davis G, Alfsen C, Elmqvist T (2010) Urban transitions: on urban resilience and human-dominated ecosystems. *Ambio* 39:531–545
- Frug G (1999) City making: building communities without building walls. Princeton University Press, Princeton
- GHG Protocol (2012) Greenhouse gas protocol. <http://www.ghgprotocol.org/>. Used: March 13th 2013
- Holland J (1995) Hidden order: how adaptation builds complexity. Addison-Wesley, Reading
- Huxham C, Vangen S, Huxham C, Eden C (2009) The challenge of collaborative governance. *Public Manag: Int J Res Theory* 2(3):337–358
- IPCC (2013) Climate change 2013: the physical science basis. Intergovernmental panel on climate change
- Jhagroe S, Frantzeskaki N (2015) Politics of crisis: exceptional democracy in Dutch infrastructure governance, *Critical Policy Studies*, (<https://doi.org/10.1080/19460171.2015.1066690>)
- Kamal-Chaoui L, Robert A (2009) Competitive cities and climate change, OECD Regional Development Working Papers No 2. OECD publishing, Paris
- Kates RW, Parris TM (2003) Long-term trends and a sustainability transition. *PNAS* 100 (14):8026–8067
- Kern K, Alber G (2008) Governing climate change in cities: modes of urban climate governance in multi-level systems. Prepared for OECD competitive cities and climate change, Milan, October 9th–10th, 2008
- Khare A, Beckman T, Crouse N (2011) Cities addressing climate change: introducing a tripartite model for sustainable partnership. *Sustain Cities Soc* 1(4):227–235
- Lefebvre H (2003) [1970] The urban revolution. U of Minnesota Press, USA
- Loorbach D (2009) Urban transitions and urban transition management. The case of Rotterdam, Workshop on Urban Transitions, May 7–8, 2009, Manchester
- Loorbach D (2010) Transition management for sustainable development: a prescriptive, complexity-based governance framework. *Gov: Int J Policy Adm Inst* 23(1):161–183
- Maas S, Fortuin K, Frantzeskaki N, Roorda C (2012) A systems analysis methodology for exploring urban sustainability transitions. Exploring challenges and opportunities for urban sustainability transitions in Ghent and Aberdeen, conference paper presented at 3rd International Conference of Sustainability Transitions, Copenhagen, 26–28 August 2012
- Markard J, Raven R, Truffer B (2012) Sustainability transitions: an emerging field of research and its prospects. *Res Policy* 41(6):955–967
- Martens P, Rotmans J (2005) Transitions in a globalizing world. *Futures* 37:1133–1144
- Mayntz R (2006) Governance Theory als fortentwickelte Steuerungstheorie? In: Schuppert GF (ed) *Governance-Forschung: Vergewisserung u`ber Stand und Entwicklungslinien*. Nomos Verlag, Baden-Baden, pp 11–20
- Mees HLP, Driessen PPI, Runhaar HAC, Stamatelos J (2012) Who governs climate change? Getting green roofs for stormwater retention off the ground. *J Environ Plan Manag* 1:1–24

- Mguni P, Herslund L, Jensen MB (2015) Green infrastructure for flood-risk management in Dar es Salaam and Copenhagen: exploring the potential for transitions towards sustainable urban water management. *Water Policy* 17(1):126–142
- Mulder K (ed) (2006) Sustainable development for engineers, A handbook and resource guide. Greenleaf Publishing, Sheffield
- Nevens F, Roorda C (2013) A climate of change a transition approach for carbon neutrality in the city of Ghent (Belgium), *Sustainable Cities and Society* (2013), <https://doi.org/10.1016/j.scs.2013.06.001>
- Ostrom E (1972) Metropolitan reform: propositions derived from two traditions. *Soc Sci Q* 53 (3):474–493
- Ostrom V, Bish RL, Ostrom E (1988) *Local government in the United States*. ICS Press, San Francisco
- Pan-African START Secretariat, International START Secretariat, Tanzania Meteorological Agency & Ardhi University (2011) *Urban poverty and climate change in Dar es Salaam, Tanzania: a case study. Final Report*
- Parsons T (1977) *Social systems and the evolution of action theory*, vol 62. Free Press, New York
- Pattberg P, Stripple J (2008) Beyond the public and private divide: remapping transnational climate governance in the 21st century. *Int Environ Agreements* 8:367–388
- Roorda C, Buiter M, Rotmans J, Bentvelzen M, Keeton R (2011) *Urban development: the state of the sustainable art. An international benchmark of sustainable urban development*. Dutch Research Institute for Transitions (DRIFT), Rotterdam
- Rotmans J (2005) Societal Innovation: between dream and reality lies complexity. Erasmus university of Rotterdam, inaugural address. Research in management series, 2005, reference number EIA-2005-026-ORG
- Rotmans J, van Asselt M, Vellinga P (2000) An integrated planning tool for sustainable cities. *Environ Impact Assess Rev* 20:265–276
- Rittel H, Webber M (1973) Dilemmas in a general theory of planning, *Policy Sciences*, vol 4. Elsevier Scientific Publishing Company, Inc., Amsterdam, pp 155–169
- Satterthwaite D (2008) Cities' contribution to global warming: notes on the allocation of greenhouse gas emissions. *Environ Urban* 20(2):539–549
- Seto KC, Reenberg A, Boone CG, Fragkias M, Haase D, Langanke T, Marcotullio P, Munroe D, Olah B, Simon D (2012) Urban land teleconnections and sustainability, *PNAS*, www.pnas.org/cgi/doi/10.1073/pnas.1117622109
- Swilling M, Anneck E (2012) *Just transitions: exploring sustainability in an unfair world*. UCT Press/United Nations University Press, Cape Town/Tokyo
- Tidball KG, Frantzeskaki N, Elmqvist T (2016) Traps! An introduction to expanding thinking on persistent maladaptive states in pursuit of resilience. *Sustain Sci* 11:861
- UN (1997) *Global change and sustainable development: critical trends*. United Nations, Department for Policy Coordination and Sustainable Development, New York
- UN (2005) *The millennium development goals report*. United Nations, New York
- UNFPA (2007) *State of world population 2007: unleashing the potential of urban growth*
- UN-Habitat (2016) *Urbanization and development. Emerging futures, World Cities Report 2016*. UN-Habitat, Nairobi
- Voß JP, Kemp R (2006) Sustainability and reflexive governance: introduction. *Reflexive Gov Sustain Dev*:3–28
- WCED, World Commission on Environment and Development (1987) *Our common future*. Oxford University Press, Oxford
- Wittmayer JM, van Steenberg F, Rok A, Roorda C (2015) Governing sustainability: a dialogue between Local Agenda 21 and transition management. *Int J Justice Sustain* 21(8):939–955
- Wolfram M, Frantzeskaki N (2016a) Cities and systemic change for sustainability: prevailing epistemologies and an emerging research agenda. *Sustainability* 8:144. <https://doi.org/10.3390/su8020144>

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