Joyeeta Gupta · Karin Pfeffer
Hebe Verrest · Mirjam Ros-Tonen *Editors*

Geographies of Urban Governance

Advanced Theories, Methods and Practices

Springer

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ISBN 978-3-319-21271-5 ISBN 978-3-319-21272-2 (eBook)
DOI 10.1007/978-3-319-21272-2

Library of Congress Control Number: 2015947142

Springer Cham Heidelberg New York Dordrecht London

Printed on acid-free paper

Springer International Publishing AG Switzerland is part of Springer Science+Business Media (www.springer.com)

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Foreword by the Editors

This book is dedicated to our dear colleague Professor Isa Baud. It is a gift on the occasion of her retirement as Programme Leader of the Governance and Inclusive Development group at the Amsterdam Institute for Social Science Research (AISSR) of the University of Amsterdam. Inspired by her work, the book intends to be (part of) her legacy. That legacy is characterized by her drive to understand life in fast-changing cities in the global South and her focus on interactions between various contexts and the lives of urban residents. She is particularly committed to poor and marginal groups in the city and to questions of inequality, exclusion, poverty and wellbeing and how urban governance can deal with them. Trained as a sociologist, she considers herself more as a human geographer, which we see reflected in her passion for spatiality. This book aims to do justice to the multi-dimensionality of her work.

Isa Baud, born in 1950, studied non-western sociology at Leiden University in the Netherlands. Throughout her career she has worked for different universities and organizations, including the Eindhoven University of Technology where she obtained her PhD, Tilburg University, the Institute for Housing and Urban Development Studies (IHS) of the Erasmus University Rotterdam, VU University Amsterdam and the University of Amsterdam. Working together with scholars from a wide range of backgrounds has made Isa both an expert and advocate of multi- and interdisciplinary approaches. Her ability and ambition to include perspectives from academics, policymakers, business people, technicians and 'ordinary citizens' make her work, which is embedded in different forms and types of knowledge, reach out to various communities.

Over the course of time, Isa has worked on a wide range of themes, reflecting her broad interest in issues of urban development and governance. She initiated research on many topics long before they became broadly accepted as relevant issues. Her front-runner status is particularly reflected in her work on urban environmental and solid waste management, urban resilience, gender and development, and recently, on spatial knowledge construction, management and configurations, and a new

framework for analysing transitions towards urban sustainability. In regional terms, her experience lies in Latin America, several African countries, but most extensively in urban India.

Much of her work holds important policy relevance and in the course of time, Isa has completed many research missions for international organizations such as the United Nations Industrial Development Organization (UNIDO). More generally, Isa attaches much value to knowledge exchange as revealed in her participation in the National Advisory Council on Development Cooperation (NAR), the Research Council on Scientific Research in Developing Countries (RAWOO), the recently created platform for knowledge exchange of the Netherlands' Ministry of Foreign Affairs, her former presidency of the Board of the National Research School for Resource Studies for Development (CERES) in the Netherlands and the current one of the European Association of Development and Training Institutes (EADI). From these positions, she advocates North-South partnerships and South-South learning as means to learn from the South.

Isa's affinity with inclusive development stretches beyond the global South to the people she has worked with: she has always made sure that research collaborations were inclusive both internally (engaging her staff) and externally (involving partners from all continents). Those who worked with her benefitted from her strategic insights – hardly any research proposal in which she took the lead was rejected when submitted for funding.

In this volume, we have brought together the work of her graduate students, friends and colleagues, who have contributed as chapter authors, reviewers and writers of box items. Most of these authors have themselves become scholars of some academic repute. We have worked together for more than a year to put together a volume that demonstrates the state of the art of knowledge on the geographies of urban governance. We would like to thank all contributors for their efforts in making this volume possible and, last but not least, Isa for passing on the knowledge and inspiration that enabled us to write this book as her legacy on urban governance.

The Editors
July 2015

Foreword by Susan Parnell

The late twentieth and early twenty-first century, the decades when Professor Isa Baud made her name researching and writing about urban poverty, were critical decades. The massive transformation of the world in that period was associated not only with a second wave of urbanization in the global South, but also with the overall urbanization of poverty and the rise of urban inequality. In the same period, there was not the commensurate rise in academic inquiry into these issues that one would have expected, and the task of producing the conceptual tools and empirical evidence needed to expose and formulate responses to the critical social and spatial issues, especially those in Asia, Africa and Latin America, have been unevenly borne. This is not surprising as for European and North American scholars to work in the global South is really hard work – and entails not only the struggle to secure funding, managing large research teams, keeping abreast of developments in far-flung places and working for extended periods in distant, often difficult and dangerous locations. But without the extended transdisciplinary reading and the foot-work needed to build knowledge and research capacity, the intellectual and political projects of a more global urbanism and a more just and sustainable city cannot be realized. This volume is thus a tribute to Isa in two respects. First, it draws on the primary work of the generation of scholars who have been inspired by her teaching and writing and who have become colleagues or collaborators: these authors are an intellectual legacy that extends beyond her own influential primary research and thoughtful reflections. Second, in the chapters that follow there are a series of significant contributions to the flourishing literature on the nature and dynamics of poverty, inequality and sustainability in the cities of the global South.

There are a number of core features that draw the chapters of this volume together. First, although the chapters take divergent disciplinary and methodological approaches to excavate the processes through which the places that urban dwellers inhabit are governed, the authors are, like Isa Baud, all ultimately concerned with the way in which power is exercised in the allocation of urban resources and the way in which the urban landscape, built and natural, is managed and mismanaged.

Second, while there is an unashamed political concern to put justice at the forefront of the issues that the scholars investigate, there is simultaneously a meticulous attention to the generation of robust and critical knowledge – where theory, method and evidence are weighted in each chapter and not just in an overarching framework or cover piece. The third attribute of the collection of chapters in this volume is the attention to the issue of scale. The debates about scale as presented here, especially when taken together, do more than make the case for a multi-scalar treatment of cities and places that moves from local household and neighbourhood dynamics to the more meso-city and regional to the national and global scale. Rather what the collection as a whole is able to do is to raise the issue of the overall role of cities in a process of global environmental change – where the urban is both generative and the recipient of other transformations such as technology, migration, climate change and economic restructuring. The fourth noteworthy feature of the book is its theoretical location at the intersection of both the writing on the city and the thinking about development – with the collective reference lists of chapters and the volume as a whole providing a treasure trove for those readers unfamiliar with either aspect of the material. Finally, and refreshingly, this is not a book that deals with theory and then moves on to case studies – rather the chapters present divergent conceptualizations of issues that are present in the governance of cities, especially those in the global South; networks in sub-national governance, governing the urban-rural interface, scenario or strategic planning, land and big data are among the pertinent issues interrogated while the volume is enriched by wide-ranging city illustrations that help ground discussion.

As debates on southern urbanism gradually move to the intellectual centre stage, the ideas set out in *Geographies of Urban Governance: Advanced Theories, Methods and Practices* will not only reflect back on the influence of Isa Baud, but forward to a world in which what makes for a more equitable governance of cities will be better understood.

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Foreword by Jan Nijman

As the former Director of the Centre for Urban Studies in Amsterdam and as a scholar in comparative urbanism, it is with pleasure that I write a preface for this book: *Geographies of Urban Governance*. The book provides a state-of-the-art review of the theories, methods, instruments and practices of contemporary urban governance. Drawing from experiences in cities in different parts of the world, it focuses on place (context), space (absolute, relative, relational), scales (spatial, temporal, institutional) and human-environment interactions.

The book argues that themes in urban studies have co-evolved with the way globalization has progressed. It makes the case that cities, as centres of power and finance, have influenced globalization; and simultaneously globalization itself has reshaped how urban centres evolve and how they are governed. It scrutinizes the concept of governance and posits that the shift from government to governance is both an empirical fact (happening in urban contexts all over the world) and a normative construct in that governance is seen as embodying certain values that are expected to shape modern societies.

The book takes a critical, yet constructive, stance in its examination of the issues facing urban societies today. On the one hand, it closely examines evolving theories of governance, including network governance, and how these are sometimes used to further the neoliberal paradigm at the cost of the bulk of city residents especially in poorer countries. It shows how spatial information systems and big data can be used to enhance city governance, but all too often may become instruments that stand in the way of inclusive development. This is because data and information systems, like all other policy instruments, are not inherently neutral; the way they are used, by whom and for what purpose provides them with an implicit or explicit goal which may often benefit some at the cost of others.

At the same time, the book takes a constructive approach and shows how knowledge has expanded in various fields and how this knowledge can be used in different ways. For example, the discussion on urban-rural landscapes explores the interface and multiple relationships and flows between cities and their rural hinterlands in an effort to understand how urban governance can become more sustainable. It also

argues that the driving forces of problems faced in cities often emerge at multiple other levels of governance and that urban behaviour has impacts that ripple across the globe. Although urban governance only has a limited palate of policy options at its disposal, governance in the city is nested in complex polycentric governance systems. The discussion on policy instruments, stakeholder participation, spatial instruments and big data shows how these instruments are increasingly being used in diverse ways in urban contexts and how these can also shape urban contexts for better or worse. The elaboration on usage of scenario analyses in different cities also indicates how tools for urban governance take on their own contextual flavour depending on the past history of engagement of social actors and the politics of short-term elections. Such contextual factors can influence the scenario-building process. Where the scenario building is owned by local actors, it can become a long and inclusive process aiming to modernize societies. In other words, the use of these instruments in different contexts may lead to a diversity of outcomes as these instruments are shaped by the actors and agents that use them and they are in turn shaped by these instruments.

This book is dedicated to Isa Baud, a long-standing colleague and friend, in regard of her admirable life-long contribution to the study of urban development and governance.

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Jan Nijman

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Editors

Joyeeta Gupta is a professor of environment and development in the global South at the Governance and Inclusive Development programme group of the Amsterdam Institute for Social Science Research of the University of Amsterdam and UNESCO-IHE Institute for Water Education in Delft. She has initiated the Centre for Sustainable Development Studies at the University of Amsterdam. She is the editor-in-chief of International Environmental Agreements: Politics, Law and Economics and is on the editorial board of six other journals. She was the lead author in the Intergovernmental Panel on Climate Change, which recently shared the 2007 Nobel Peace Prize with Al Gore and of the Millennium Ecosystem Assessment which won the Zaved Second Prize. She has published extensively. She is on the scientific steering committees of many different international programmes including the Global Water System Project and Earth System Governance. She is also on the Board of Oxfam Novib, is Vice-President of the National Commission on Development Cooperation and member of the Advisory Council on International Affairs, a statutory body that advises the Dutch Government. She has published several books including *The History of Global Climate Governance*, which was published by Cambridge University Press in 2014.

Karin Pfeffer, a geographer, is assistant professor in geographical information systems (GIS) and coordinator of the GIS lab of the Amsterdam Institute for Social Science Research of the University of Amsterdam. She participates in the Governance and Inclusive Development programme group. Her fields of interest are the generation of information from different spatial data sources in urban areas using GIS and how information is used in urban governance. She has been involved in setting up a regional monitoring system for the metropolitan region of Amsterdam and has participated in a project on the role of spatial information infrastructures for tackling urban poverty in Indian cities as well as in the EU-financed project Chance2Sustain, which analysed how governments and citizens in cities with

differing urban economic growth patterns make use of participatory (or interactive) spatial knowledge management to direct urban governance towards more sustainable development.

Hebe Verrest is a human geographer specializing in the human geography of developing countries. She became an assistant professor at the Department of Human Geography, Planning and International Development Studies (GPIO) of the University of Amsterdam in 2010. Her research focuses on small and medium-sized cities, particularly in the Caribbean. Leading in her work is a focus on exclusion and inequality in urban governance and spatial planning, climate change, livelihoods and entrepreneurship. She is involved in several collaborative research programmes with the University of the West Indies, University of Guyana and the Anton de Kom University of Suriname and holds a guest research position at the UNESCO-IHE Institute for Water Education in Delft. She teaches in the master's programmes International Development Studies and Human Geography and in the research master programmes International Development Studies and Urban Studies. She holds the directorship of the research master's Urban Studies at the University of Amsterdam.

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Rivke Jaffe is an associate professor at the Centre for Urban Studies and the Department of Human Geography, Planning and International Development Studies at the University of Amsterdam. Prior to joining the University of Amsterdam, she held teaching and research positions at Leiden University, the University of the West Indies and the Royal Netherlands Institute of Southeast Asian and Caribbean Studies (KITLV). Her research focuses primarily on intersections of the urban and the political, and specifically on the spatialization of power, difference and inequality within cities. She is currently leading a major ERC- and NWO-funded research programme on public-private security assemblages in Kingston, Jerusalem, Miami, Nairobi and Recife, studying how urban governance changes through hybrid forms of security provision.

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David O'Sullivan is an associate professor of Geography at the University of California, Berkeley. He obtained his PhD at University College London (2000), his MSc at Glasgow (1997) and his BA at Cambridge (1988). His research explores the relationships between spatial structures and processes using simulation models of complexity science. At heart, this is the central idea of his book *Spatial Simulation: Exploring Pattern and Process* (Wiley-Blackwell). He has worked on measuring and modelling neighbourhood characteristics in urban settings, particularly patterns of ethnic settlements, which highlight the importance of scale to understanding segregation.

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Tara van Dijk was born and raised in the Pacific Northwest of the United States. After graduating from university with a degree in sociology with minors in women's studies and literature studies, she worked abroad in Seoul, South Korea, Shanghai, China, and the Palestinian Territories before settling in the Netherlands in 2004. She resumed her studies with the MSc Programme in Human Geography at the University of Amsterdam, following the International Development track. During her graduate and doctoral studies, her focus turned to the links between the geographies of urbanization, scalar politics and local political institutions in Asia, Indian cities in particular. She is now working on developing a comparative political society research programme.

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Editorial Assistants

The editorial team wishes to thank Leslie Stahl, Afra Foli and Reza Shaker Ardekani for their help and patience with the editorial work.

Contents

Abbreviations

BIDs	Business improvement districts
C2C	City-2-City
C40	Global network of large cities taking action to address climate change (originally 40 cities)
CA	Cellular automata
CDR	Call detail records
CEBRAP	Brazilian Centre for Analysis and Planning
CERES	Research School for Resource Studies for Development
CPRs	Common Pool Resources
CSO	Civil society organization
DDA	Delhi Development Authority
D4D	Data for development
DVC	Deputy Vice-Chancellor
EADI	European Association of Development and Training Institutes
EC	European Commission
EMR	Extended metropolitan region
EU	European Union
EWS	eThekwini Water and Sanitation Unit
FAO	United Nations Food and Agriculture Organization
FBW	Free Basic Water
GDP	Gross Domestic Product
GIS	Geographical information system
GN	Governance network
GPS	Global positioning systems
IBGE	Instituto Brasileiro de Geografia e Estatística
ICLEI	Local Governments for Sustainability (formerly International Council for Local Environmental Initiatives)
ICT	Information and communications technology
IGU	International Geographical Union

IHDP	International Human Dimension Programme on Global Environmental Change
IHS	Institute for Housing and Urban Development Studies of the Erasmus University Rotterdam
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
LMIC	Low Middle Income Country
MEA	Millennium Ecosystem Assessment
MIS	Management information systems
MODA	Mayor's Office of Data Analytics (New York City)
MPCs	Municipal policy councils
MWR	(Ministry of) Minister of Mineral and Water Resources (Uganda)
NGOs	Nongovernmental organizations
NSA	United States National Security Agency
NWSC	National Water and Sewage Corporation (Uganda)
NYC	New York City
OECD	Organization for Economic Cooperation and Development
OSM	Open street map
PB	Participatory budgeting
PGIS	Participatory geographical information systems
PSUM	Participatory Slum Upgrading Programme
QoL	Quality of life
RAWOO	Research Council on Scientific Research in Developing Countries
RS	Remote sensing technology
RUAF	Resource Centres on Urban Agriculture and Food Security
RURs	Rural Urban Regions
SDGs	Sustainable Development Goals
SDI	Spatial data infrastructure
SDI	Slum Dwellers International
SOTRA	Société des Transports Abidjanais
TINA	There Is No Alternative
UAMPA	Union of Dweller Associations of Porto Alegre (Brazil)
UDL	Urban development line
UN	United Nations
UNEP	United Nations Environment Programme
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
VGI	Volunteer Geographic Information
WTO	World Trade Organization
WUF	World Urban Forum
WW2	Second World War

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Part I
Theories of Urban Governance

Chapter 1
Setting the Scene: The Geographies of Urban Governance

Joyeeta Gupta, Karin Pfeffer, Mirjam Ros-Tonen, and Hebe Verrest

Abstract This chapter sets the context for the discussions on the geographies of urban governance in this book. It highlights the current themes of urban governance and how the recent wave of globalization has changed the geographies of urban governance in nine ways – by shaping dominant discourses about societal organization; through changing the goals, opportunities and arenas of urban development; by making cities prominent actors in transformation processes through decentralization and economic and capitalistic production; through the shift towards fragmented cityscapes; by enhancing a network society stimulated by increased digitalization, informatization, spatialization and ubiquitous computing; through the great acceleration in resource use, ecospace pollution and causing global climate change; through rescaling, but also re-territorialization; by changing the power of cities; and by transforming the drivers of change at various spatial levels. The geographical approach unpacks *place* as context; *space* as being absolute, relative and/or relational; *scale* as spatial, temporal, jurisdictional and institutional; and human-environment interactions. The governance approach examines the opportunities and limits of governance beyond government within the context of changing geographies. Together they help understand the variety of socio-spatial configurations and patterns in cities. The book examines current governance patterns from the perspective of inclusive development, which is seen as including human wellbeing and protecting ecosystems. In doing so, it tries to understand how governance can contribute to the development of just and resilient cities.

Keywords Globalization • Geographies of governance • Urban governance • Sustainable development • Inclusive development

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J. Gupta et al. (eds.), *Geographies of Urban Governance*,
DOI 10.1007/978-3-319-21272-2_1

1.1 Introduction

Cities have always been important nodes in processes of globalization. They are central as the loci of empires, at least going back to the period when the Romans declared *urbis et orbis*: Rome and the world as being one. Cities were central to the first and second expansion of Europe across the globe from the sixteenth to the late nineteenth centuries (Rich and Wilson 1967). While some writers (e.g. Sassen 1991) suggest that 'global cities' are a twentieth-century phenomenon whose global status is predominantly defined by the movement of capital, the globalization of cities has been intensifying across a long history (Bordo et al. 2007) – the *longue durée* in the language of the Annales School. Despite this long-term process, there are a number of changes that suggest a qualitative shift in the globalization process in the last four or five decades (Harvey 1995). First, the global pattern of the concentration of people in cities (urbanization) has increased dramatically in the last and present century. Second, this has coincided with the consolidation of nation states as the pre-eminent political polity across the globe (Swyngedouw 2000). Third, major cities have become nodes in urban, national and global economies, with all the tensions across scales that such multi-level regionalism entails. They are engaged in actual and virtual relations of production, consumption, exchange and communication, supported and promoted by a revolution in electronic mediation and codification (Castells 2010).

In the current era of rapid urbanization, neoliberal capitalism and digital technologies cities are, more than ever, becoming the locus of wealth and power as well as of poverty and marginalization (Rakodi 2008; Baud et al. 2008). Specific impacts of current globalization patterns reshape cities and their interactions and relations with other cities worldwide, through space and across scale (see Sect. 1.2). This requires a new understanding of urban governance, which merges the major themes in the urban governance debate with a geographical perspective. We thereby understand urban governance as the multiple ways through which city governments, businesses and residents interact in managing their urban space and life, nested within the context of other government levels and actors who are managing their space, resulting in a variety of urban governance configurations (Peyroux et al. 2014). Such configurations are evolving fast in cities across the globe and increasingly stretching beyond city boundaries (see Chaps. 3, 4 and 5). These patterns are simultaneously shaped by differences in place, space, scale and human-environment interactions, as well as shaping these. The constructive and critical spatial approach taken in this book is what we refer to as 'the geographies of urban governance'.

Until recently, studies on urban governance focused on specific regions in the global North or South, but increasingly more global approaches are being taken on common urban challenges. This book follows that trend, while being unique in (a) merging most of the aforementioned urban governance themes with a geographical perspective, (b) covering the state-of-the-art of urban governance literature, (c) covering theories, instruments, methods and practices which very few other books presently do, and (d) taking a strong cosmopolitan meta perspective – meaning that it

does not focus on any specific country or region, but hopes to have relevance in various contexts. While filling a gap in urban governance literature and covering a broad set of themes, we do not, however, claim to cover the entire field of urban geography. Major themes in urban studies, such as gentrification (see Box 1.2), housing, segregation, gender, demographic issues or spatial planning, fall beyond the scope of this book.

This book specifically seeks to address the question: what is the state of contemporary knowledge regarding the geographies of urban governance? In addressing this question, we provide an analysis of theories, instruments, methods and practices of urban governance, adopting four cross-cutting themes that run through the book. This chapter first looks at how present day globalization is transforming the geographies of urban governance and we argue that it does so through nine mutually reinforcing ways (see Sect. 1.2). We then elaborate on the geographical perspective – arguing that it implies an analysis of the geographical dimensions of place, space, scale, and human-environment interactions (see Sect. 1.3). This is followed by the discussion of the concept of (urban) governance and how it relates to the geographical perspective (see Sect. 1.4), with a more in-depth discussion following in Chapter 2. Then we turn to the concepts of sustainable and inclusive development and how these relate to the geographies of urban governance (see Sect. 1.5). Finally, we conclude with a brief elaboration of existing visions of the future city (see Sect. 1.6).

1.2 Themes of Urban Governance and Globalization: Globalization Transforms the Geographies of Urban Governance

Themes of urban governance scholarship have co-evolved over time with globalization trends. Globalization, in the sense of increasing transboundary interactions, can be traced back to even before the colonization efforts of the sixteenth century and occurred in several waves (Robertson 2003). Current globalization, characterized by hyper capitalism and technological revolutions, is understood as the growing intensity of economic, demographic, social, political, cultural and environmental interactions worldwide, leading to increasing interdependence and homogenization of ideologies, production and consumption patterns and lifestyles (Pieterse 1994; Sassen 1998).

Globalization is shaping and being shaped by the geographies of urban governance in nine different but self-reinforcing ways. First, it is shaping the dominant discourses that underlie the way societies, cities and the global community are organized. On the one hand, there is a shift in focus from government to governance, which has implied growing involvement of the private sector, citizen and grassroots involvement in steering urban affairs, requiring more participatory approaches (see Chaps. 2 and 7) and new institutional arrangements like public-private partnerships (e.g. Baud and de Wit 2008; Koppenjan and Enserink 2009;

Marin 2009; Read and Pekkanen 2009). This shift is itself rooted in the swarm of discourses such as neoliberal capitalism, neo-institutionalism and neo-realism on the one hand, to sustainable development, the green economy and inclusive development, on the other hand, which all provide the background within which conceptions of cities are being developed – the global city (Sassen 1991), the ordinary city (Robinson 2006), the just city (Koonings and Kruijt 2007; Fainstein 2010; Uitermark 2011), the sustainable city (Satterthwaite 1999), the smart city (Hollands 2008; Kitchin 2014), the inclusive city (Young 1990), the ludic city (Stevens 2007) and so on (see Box 1.1).

Second, globalization is implicitly and explicitly transforming the goals, opportunities, limits and arenas of urban development and cooperation. This happens, on the one hand, through trends in global economics (e.g. trade, labour migration), finance (e.g. banking), social and cultural issues (e.g. growing inequality, demographic shifts, protest and resistance, communication, arts and media) and environmental challenges (climate change, loss of biodiversity and integrity of the global water system due to urbanization). On the other hand, goals and arenas change

Box 1.1: Cities in the Twenty-First Century: Three Key Framings
Scholars and policymakers have different visions of a city's future. The three key visions are the just city, the smart city and the sustainable city.

The just city: focused on norms, values and rights

The just city concept has its roots in a normative storyline about the city and its residents; it focuses on promoting the values of democracy, diversity and inclusiveness. It promotes the rights to the city and human flourishing and welfare (Fainstein 2010; Uitermark 2011).

The smart city: focused on data and efficiency

The smart city (cyberville, digital city) concept is used to refer to cities whose governance increasingly depends on data from digital technologies on travel, communication, energy uses, water uses, waste flows, health care, suggestions and complaints from online data collection systems in order to both engage with residents and to provide the services needed by residents in a more effective, efficient, inclusive and sustainable manner (Hollands 2008; Kitchin 2014).

The sustainable city: focused on social, economic and ecological issues

The sustainable city (Satterthwaite 1999) integrates social, economic and ecological perspectives based on five key principles: intergenerational and intragenerational equity, the no-harm principle (transfrontier responsibility) and procedural and interspecies equity (Haughton 1999). Sustainable cities ensure livelihood opportunities for all; a safe, secure environment for people with minimal resource use and pollution of ecosystems; and the freedom to participate in politics.

through global governance efforts (e.g. UN Habitat, the Millennium and Sustainable Development Goals, see Sect. 1.4), rescaling and re-territorialization and advances in digital technologies and big data. These trends and changes create new pressures on the city and their hinterlands and result in changing priorities (Douglass 1998; Allen 2003; Kitchin 2013; Hajer and Dassen 2014, see Chaps. 5, 8 and 9). This has implied that growing *connectivity* between cities has created a network of global cities which have a strategic role in global affairs (Acuto 2013) and whose governance requires balancing place-based responses to local needs and global-relational responses to pressures of economic globalization (McCann and Ward 2011, see Chap. 4).

Third, clearly then cities are key actors in this transformation process. There is no consensus on definitions of cities or urban areas; they generally refer to a "large, dense and permanent human settlement" (Wirth 1938, cited in Beall and Fox 2009: 3) with high infrastructural density that brings strangers together (Archer 2013), thus making cities centres of multi-ethnic communities. In 1950, only 30 % of the population lived in cities; today, cities are home to 54 % of the world population and this may rise to 66 % by 2050 (UN-ESA 2014). By then, 84 % of the global urban population is expected to live in the global South (UN-ESA 2014). The number and size of cities is growing (see Fig. 1.1). Most of the city growth will take place in the global South; 90 % in Asia and Africa alone. In absolute terms, Asia will absorb most new urban dwellers, but in relative terms cities in Africa will grow most. While some cities may shrink and decay, most cities will grow. Mega cities (>10 million inhabitants) and especially large cities (5–10 million inhabitants) will grow faster in the global South, in particular in fast-growing economies like China, Brazil, India and South Africa (Baud et al. 2014). The fastest growing urban agglomerations are medium-sized cities (1–5 million) and small cities (<1 million inhabitants) located in Asia and Africa (UN-ESA 2014). The latter take up the brunt of urban growth and account for 94 % of all urban dwellers, even probably in 2025 (Birch and Wachter 2011). Cities are, on average, responsible for about 70 % of global GDP, but in some countries their contribution may be significantly higher (Birch and Wachter 2011); and often cities are engines of growth (Mitra and Mehta 2011; Jacobs 2012). With growing population concentrations, the challenge of tackling poverty and marginalization is a major theme that runs through this book (Devas 2004; Baud et al. 2008; Pouw and Baud 2011).

Fourth, transnational migration and globalization lead to fragmented cityscapes due to the interaction between urban residents, work hubs, recreation areas, land- and waterscapes. The process is characterized by uneven urbanization, urban sprawl, increasing inequality, informality and sometimes illegality institutionalized through the politics of place, space and infrastructure that affect all who live in the city and its surrounding regions (Shatkin 2007; Jenks et al. 2013). From the 1970s, it has been argued that cities impede development in rural areas (Lipton 1977; Bates 1988; Todaro 2000), and it is only recently that this belief is being countered (Corbridge and Jones 2006; Beall and Fox 2009). But what is key is understanding the relationship between the city, peri-urban growth and rural hinterlands and how these landscapes are linked (Archer 2013; see Chap. 5). This is related, inter alia, to the

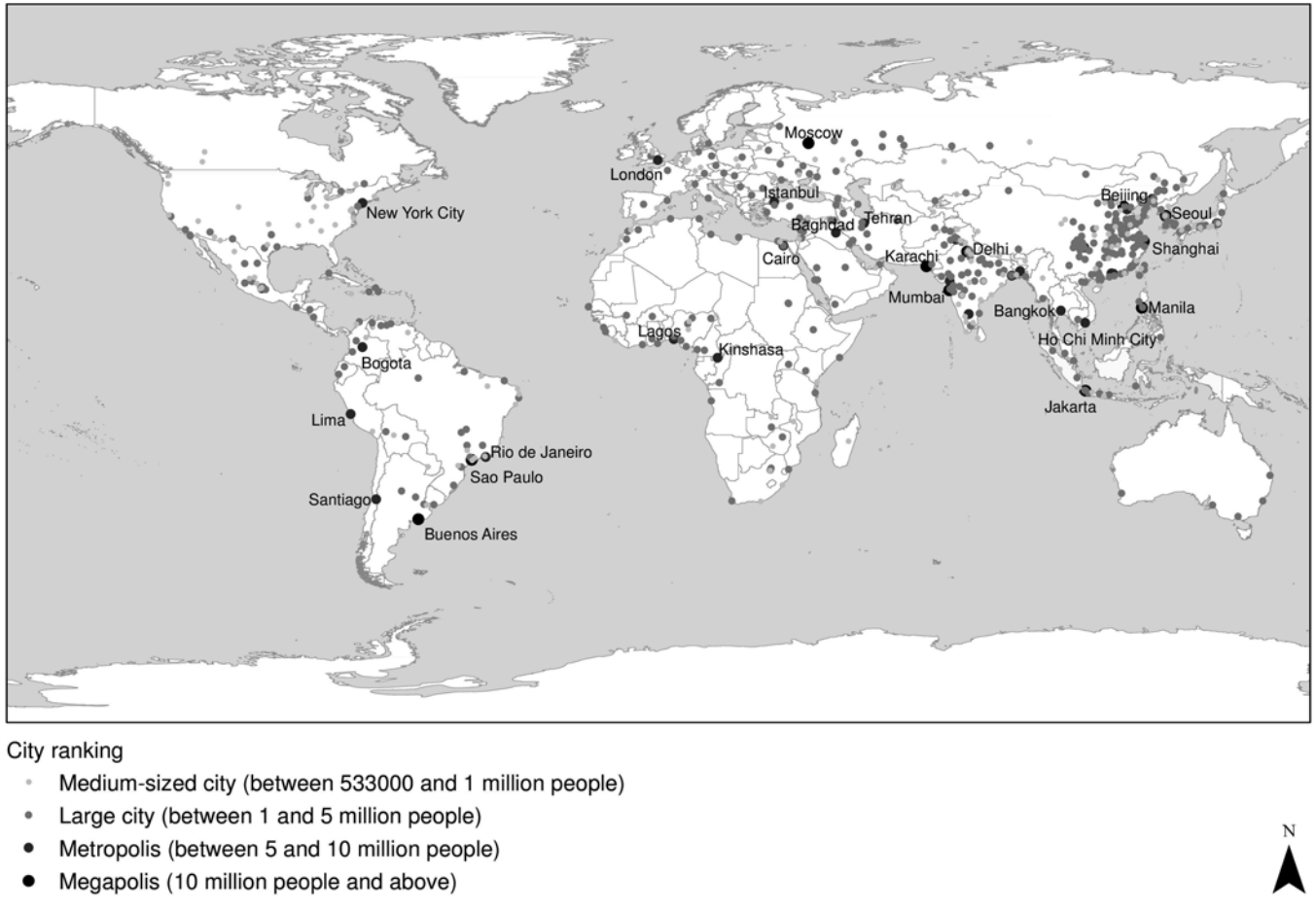

Fig. 1.1 The spatial distribution of city ranking worldwide (based on www.citymayors.com, largest cities, 2011)

literature on transnational urbanism which deals with everyday processes of place-making by (transnational) migrants and their role in transnational political processes and policy exchange (Smith 1998 and 2003; Conradson and Latham 2005; Healey and Upton 2010; Harris and Moore 2013).

Fifth, globalization together with technical innovations has enhanced the network society (Castells 2010, see Chaps. 3 and 4), and currently we see an increasing expansion of information and communication technologies, digital information and spatialization worldwide (see Chaps. 8 and 9). Local governments develop (spatial) ICT systems to increase their own efficiency or use it for strategic visioning, but also to fulfil the normative goals of transparency, accountability and citizen-orientation (Roche 2014). Thus, the increasing digitalization of society has changed the role of knowledge management and citizen involvement in urban governance (Pfeffer et al. 2013; Baud et al. 2014), while generating a discourse on smart cities that efficiently deal with problems of rapid urbanization through the use of digital technologies and their intelligent combination with physical and social infrastructure (Hollands 2008; Kitchin 2014). These offer technological solutions to pressing urban issues while adding pressure on cities, increasing the digital divide (Townsend 2013) or bringing about new divides (Batty et al. 2012; see Chaps. 8 and 9).

Sixth, globalization and capitalism have been accompanied by the great acceleration in the use of resources for production, distribution, consumption and waste disposal, in the pollution of our ecospace and in causing global change (Steffen et al. 2005). We may have entered a new geological epoch – the Anthropocene. This adds a new dimension to the idea of resource dependence of cities – i.e. the idea that through history cities have developed along river basins like the Nile, the Indus, Euphrates and Tigris (Archer 2013). Being in the Anthropocene implies that (a) some resources are limited (e.g. land); (b) some have declining economic and political viability (e.g. phosphorous needed for food production, and rare earth elements required for telephones); and (c) the carrying capacity of the Earth's ecosystem is declining. Such limited resources and ecospace can either be distributed through capitalist approaches (using pricing), hegemonic approaches (using state power), polycentric approaches (using organic governance approaches) or through sustainable and inclusive development approaches (sharing the ecospace) (Gupta 2014). Cities as concentrations of wealth, population, production and consumption have a massive environmental footprint and are inevitably a major cause of global change. Cumulative changes at the micro-level in cities may often lead to major changes at the global level. Ironically, however, their opportunities to address global climate change are limited; although the informal agency of city actors may appear to push for city level emission targets, this has not added up to significant results as of now. Furthermore, cities concentrate life in areas that are exposed to the impacts of globalization and global change through natural and/or anthropocentric floods, droughts and other extreme weather events. Whether as coastal hubs (e.g. Mumbai, Boston), delta cities (e.g. Dhaka), mountain cities (e.g. Sri Nagar), desert cities or simply cities in the pathways of typhoons or at geologically fragile sites, they face multiple risks and mainstreaming disaster prevention in an effort to create resilient cities will require adaptive interactive governance (see Chap. 5). This global environmental

change has prompted literature on governance for sustainable cities (Pugh 2000; Satterthwaite 1999; Haughton and Hunter 2004; Evans et al. 2005) and urban resilience (Tanner et al. 2009; Newman et al. 2009; Birkmann et al. 2010; Ernstson et al. 2010; Otto-Zimmermann 2011). Criticizing the a-historical and managerial nature of the smart cities discourse,'smart urbanism aims at liveable, sustainable, socially just and resilient cities', to be achieved through resource decoupling (UNEP 2013), responsible management of material flows of nutrients, water, energy and waste (Ravetz 2000; Villarroel Walker et al. 2014), open and collaborative governance with citizens and entrepreneurs, and global networking for continuous learning, reflection and adjustment (Hajer and Dassen 2014).

Seventh, globalization has led to processes of rescaling and reterritorialization – the spatial reconstruction and rescaling of social relations resulting from their increasing disconnection from places and territories due to globalization (Brenner 1999, 2004) – and underscores the role of place, space and scale in these new spatial configurations (Jonas and Ward 2007; Parés et al. 2014) (see Sects. 1.2 and 1.3). Using the concepts of glocal state (Swyngedouw 2004) and glocal fixes (Brenner 2004), it is argued that processes of globalization have led to a reterritorialization of state arrangements and state power. The rescaling is upwards to the supranational and global level as well as downwards to the sub-national, urban and even individual level. Swyngedouw argues that the globalization of capital has also reinforced the importance of location and the local. Because regions have become more important loci for the accumulation of capital, the territorial state has rescaled the organization of its power and strengthened the promising urban or industrial regions. Glocalization refers to the multiple intersections between local through to global scales, where the local is embedded in multiple and overlapping levels of governance, while the global influences every aspect of the local (de Haan 2000).

Eighth, the power of cities is changing in multiple and contradictory ways. Decentralization processes have increased city-level capacities of city authorities to develop and implement local social and developmental policies. Cities as homes of the rich, and of powerful businesses, banks, stock markets, UN agencies and NGOs, are the location from which global to local decision-making occurs (e.g. New York, London, Paris, Amsterdam, Hong Kong, Sao Paulo). As cities have become important global nodes and loci of large events, powerful assemblages of state and non-state actors at multiple levels have become important actors influencing the city, for example, in mega-projects. However, cities are also the location of conflicts between state and non-state actors, between non-state actors themselves and the locus of activities of growing gangs and gang-related violence (e.g. Nairobi, Johannesburg, Los Angeles). But although cities have considerable power, the scope of their control over global change is also limited (see point 5). There is debate about whether cities are overtaking the state in economic power or whether they are deluding themselves given their very limited steering power. Hence, also rooted in geographical literature, is the emergence of relational thinking in which cities are no longer conceived as territories, but as being embedded in global networks of connectivity

and spatial flows (Amin 2007; Jones 2009; Ward 2010, McKann and Ward 2010; Jacobs 2012; Söderström 2014).

Finally, globalization with its multiple local to global aspects is transforming drivers of change at various interfaces: the urban-national-global (see Chap. 2), the urban-urban (see Chaps. 3 and 4) and the urban-rural (see Chap. 5). Globalization is both shaped by, and is shaping, cities and their governance. This implies that urban regions have to face the new driving forces of change, which include:

- *local driving forces* such as local cultures and histories, production, consumption and lifestyle patterns, new and old security challenges and conflicts over resources, as well as mega (infrastructural) projects which accommodate and/or exacerbate social inequality and increase pressure on the ecosystem and its ability to provide services;
- *local-regional driving forces* such as changing demographics (increasing urban population; rural-urban migration and rising concentrations in peri-urban areas) and urban-to-urban infrastructures and related tensions; and
- *global driving forces* such as climate change, the financial crises, geo-political tensions and growing migration and refugees, all of which have non-linear, uncertain, teleological impacts on society.

Understanding how this plays out in different cities worldwide is the subject of comparative urbanism (Robinson 2004 and 2006; Nijman 2007; McFarlane 2010; Ward 2010; McFarlane and Robinson 2012) that seeks to build a cosmopolitan urban theory that cuts across the traditional divide between Northern and Southern cities through comparative research of diverse yet globally connected cities.

1.3 The Geographical Perspective

The previous section combined the nine themes that are dominant in urban governance with the perspective of how globalization affects cities and their governance. Together, they emphasize the changing and competing goals, visions and discourses that shape urban spaces and city life; the economic and political dynamics; the changing characteristics of being part of a network society and having fragmented cityscapes; the rising and yet limited power of cities; and the rising ecological footprint of the city; as well as its growing vulnerability to local through to global conflict and crises. These are the critical trends within which *The Geographies of Urban Governance* is set.

Urban governance includes the role of city governments and non-state actors in managing life in the city within the context of glocal governance. While urban governance is not a new subject and there are many scholarly efforts to elaborate on this theme, we advance by also including the geographical perspective. This has four key features: a focus on place, space, scale and human-environment interactions.

1.3.1 Place

Place is a "meaningful site that combines location, locale, and sense of place" (Cresswell 2009: 169). Location is the exact point in space or the 'where' of place. Place is also characterized by material characteristics and the meaning attached to it. Urbanization and urban governance is by no means a 'Northern' or 'Southern' issue. Yet over the past decades, the field of urban studies and urban governance has developed along these lines. Understandings of global or world cities hierarchically order cities into centre versus periphery, modern versus primitive and global versus non-global dichotomies (Sassen 1991). With a strong focus on economic significance and modernity/development/wealth, this ordering ranks cities in the global North higher than cities in the global South (Robinson 2006). Moreover, where urban theory on modernity focused on cities in the global North, studies on cities in the South were framed mainly in concepts of poverty and development (Robinson 2006). However, a global comparative perspective is emerging starting from a point that urban issues have a more global nature and that all cities are sites of transformation. Cities take their shape through local social, cultural, political and economic conditions and their interactions with those at other levels. This builds on 'ordinary cities', a postcolonial framework to urban studies, emphasising complexity and the diversity of city life without attaching a ranking to it and drawing on examples from around the world (Robinson 2006). It is this approach to diversity that we take here and as such it is acknowledged that some urban issues and governance issues will be more prominent in some places than in others. We analyse cities according to their socio-economic context (e.g. in low-income, medium-income or high-income countries), their cultural-political character and historical context (e.g. (post)colonial background, dictatorial, democratic or failed state context). Within this context, the notion of the right to the city (Harvey 2003) becomes increasingly important – including for women (see Box 1.2). This is articulated in the literature as the right of residents to collectively create and shape the city; not just accessing the amenities provided by the city, but shaping how these amenities are provided and thereby shaping communities within the city.

Box 1.2: A Woman's Place is in the City!
"A woman's place is in the city" is the title of a seminal article by the feminist geographer Gerda Wekerle, published in Antipode in 1984. "Questions of urban policy, land use, housing and transportation are being newly defined as women's issues and the legitimate focus of the women's movement" (Wekerle 1984: 11). The title is a descriptive as well as a normative statement: women belong to the city and the city belongs to women. In a detached analysis Wekerle demonstrated that women played an important role in the gentrification process in the United States – the process through which particular neighbourhoods near the city centre are upgraded in terms of household income, improved housing stock, and new consumption spaces, usually by yuppies

(continued)

Box 1.2: (continued)
(young urban professionals) and yupps (young urban professional parents) (Boterman 2012; Karsten 2014). Wekerle demonstrated that female-headed and dual-earner households were over-represented in redeveloped inner city neighbourhoods: women who combined paid work with care work preferred to live in these neighbourhoods because of short home-work distances, the availability of public transport and other services, and local support networks of likeminded households. At the same time, Wekerle's article was a passionate plea to change cities and city planning practices in a female-friendly manner: "Cities are still planned by men for men. While the lives of women have changed radically, the urban environment in which they live has not" (Wekerle 1984: 11).

Thirty years later in another continent, Wekerle's analysis and ideals still appear to be relevant. Female-headed households and symmetrical families that more or less equally share the division of paid and unpaid work between the partners are over-represented in the big cities of the Netherlands (de Meester 2010; Boterman and Bridge 2014; Karsten 2014). They challenge urban planners to create cities that support symmetrical families with work and services nearby, attractive and safe public spaces, playgrounds for children and a transport system that prioritizes public transport and cycling. There is one difference that Gerda Wekerle could not foresee: fathers and mothers moving their two or three children around in a cargo bike (Fig. 1.2).

Joos Droogleever Fortuijn

Fig. 1.2 A mother transporting her children in a cargo bike (FaceMePLS Wikimedia Commons n.d.)

1.3.2 Space

Space is a more abstract term referring to an absolute or Euclidean space that can be measured by its coordinates; a relative space that is defined by the objects and relations that are situated in the space; and/or a relational space as the product of interrelations between objects (Elden 2009). Here we take a more Lefebvrean approach to space supporting that space is produced and not existing 'out there' (Lefebvre 1991; Soja 1996 and 2010; Massey 2005). It can only be understood in the context of a specific society or several societies. A distinction is therefore made between material space (i.e. the physical or abstract space produced through spatial practices and reproduced in everyday life); conceived space (i.e. representations of space produced by discourses of power and ideology, codified symbols, etc.); and representational space (i.e. the lived and mental space of users in everyday life, influenced by wider social, economic and political processes) (Lefebvre 1991). This book reflects on how governance practices produce urban space and are produced by the city, i.e. through spatial practices, representations of space and representational spaces (e.g. Chap. 8).

1.3.3 Scale

Scale encompasses "the spatial, temporal, quantitative, or analytical dimensions used to measure and study any phenomenon", and differs from levels which are "the units of analysis that are located at the same position on a scale" (Gibson et al. 2000: 218). The geographical or spatial scale can range from place, to landscapes, through regions, to the global level (Cash et al. 2006). These scales are not linear and thus the levels are essentially arbitrary. Other scales and their levels include temporal scales (daily, seasonal, annual, changing patterns over time), jurisdictional/administrative scales (municipal, provincial, national, intergovernmental), institutional scales (operating rules, laws/regulations, constitutions) and networks (family, kin, society, trans-society) (Cash et al. 2006). In addition, a distinction can be made between a conceptual scale (how and why do cities exist in a particular place), time scale (what are the changing patterns over time), the scale of drivers (what are the drivers of urbanization, how do regions and systems of cities collaborate), and more generally, on what scale do city governance, markets, stocks and services, and neighourhoods operate (Malpezzi 2011). The geographical reflections in this book discuss how governance operates at different scale levels and how governance practices at different scale levels influence each other. Moreover, we examine how governance practices vary in cities according to their size (small, medium-sized, large, mega).

1.3.4 Human-Environment Interactions

Studying human-environment interactions is at the core of human geography. It questions how human behaviour shapes the ecosystem and its services and vice versa, how ecosystems impact on human behaviour. In moving away from physical environments, to discuss ecosystem governance (Gupta 2015), this book intends to take a more innovative approach. Ecosystem governance takes a systemic approach, looks at 'environmental goods' as opposed to 'environmental bads', and faces different systemic boundaries which may or may not align to local boundaries (the problem of fit). Sometimes it is difficult to scale up actions from city level to beyond or scale down from national to city level, as the contextual factors are so different. However, environmental flows are not reciprocal by nature and this is a challenge for governance. As with international law which has difficulty in governing non-reciprocal challenges, where problems are caused by the city but there are no equal and reciprocal challenges caused by the surrounding rural areas, it becomes difficult for governance approaches to impose a unilateral responsibility on the city especially in the context of the weaker power of rural areas (see also Chap. 5).

1.3.5 A Cosmopolitan, Comparative and Interdisciplinary Perspective

A geographical perspective lends itself for integrative analysis and allows for the incorporation of results of other disciplinary approaches such as economics, law, politics, sociology and where necessary the natural sciences. We thereby consciously take a cosmopolitan perspective, which implies a moral stand towards global democracy based on human rights and social justice (Held 2004) and a comparative perspective that looks at how governance efforts work or fail in specific contexts.

1.4 The Governance Perspective

Since the 1960s there has been a push towards greater public participation in decision-making processes. With the rise of the non-state actor – corporations, NGOs and civil society organizations in the 1970s and 1980s, there was empirical evidence of other social actors actively participating in governance processes – leading to the broadening of government to governance. In this same period, there was growing emphasis on the decentralization of government tasks and the rise of subsidiarity – decision-making at the lowest possible level – as a principle. This has led to a paradoxical situation in which, although problems were globalizing and the

driving forces of these problems were often global, the power to deal with this was being reduced. At the same time, global discourses (see Sect. 1.2) were also influencing local level policies, sometimes in favour of, and sometimes against, inclusive development. Multiple theories of governance have since emerged (see Chap. 2).

Urban governance is increasingly trying to govern place, space, and scale. However, urban governance is often divorced from urban study disciplines. While governance calls for an interdisciplinary approach in which planning is an integral part of the entire governance process, there have been compartmentalized urban studies focusing either on planning, architecture, inclusive development, or human geography. Urban studies, furthermore, have not taken the relations with other governance levels adequately into account. In relation to human-ecosystem challenges, the focus initially was on ensuring that water and sanitation was taken care of through planning systems at least in the developed countries. Subsequently the focus was on developing nature spots and green belts as a way to deal with both the recreational needs of the urban rich as well as the need to deal with urban pollution. Many cities in the North now focus on developing adaptive cities that can cope with shocks (ecological as well as economic and social), smart cities (cities that can be managed through the use and integration of digital technologies and big data sets), just cities (cities that deal with their domestic social issues, environmental vulnerabilities and economic opportunities) and sustainable cities (integrating the social, economic and ecological; see Box 1.1). Many cities in the global South now have to leap frog ahead to find a way to become adaptive, smart, just and sustainable while still meeting priority planning issues – such as drinking water and sanitation services.

The expected, but also planned urban growth presents urban governing agents with major demands in particular in the area of housing (including utilities such as water, electricity), environmental health (sanitation, waste, air quality, pollution, climate change), infrastructure (including mobility), economic opportunities, and social and political inequality. Analyses of urban governance practices that address these issues stress the limited funding, human capacities and legal responsibilities of local governments (see Chap. 7); the strong influence of a powerful private sector and other actors operating at various levels (Klaufus 2010); and complex and contradictory understandings of citizenship in these cities. We critically assess the potential and limits of governance in diverging contexts. We examine the limits and the opportunities of city level governance in dealing with the driving factors and challenges that emerge at global level and therefore take a politics of scale perspective (Swyngedouw 1997, 2004; Gupta 2008, 2014). We look at how city networks, both within and among cites, shape, reshape and perpetuate patterns of development, inequality and sustainability (see Chaps. 3 and 4); explore the role of digitalization, informatization and spatialization therein (see Chaps. 8 and 9), but also elaborate shifting actor coalitions and changing patterns in stakeholder participation and network building (see Chaps. 4 and 7). In examining city governance, we also examine the relationship between formal and informal governance and the new cultures of informality (McGuirk 2000, see Chaps. 3 and 9).

1.5 The Sustainable and Inclusive Development Perspective

1.5.1 Sustainable Development

This section defines the sustainable development concept as used in this book (see Gupta and Thompson 2010 and Gupta and Baud in press for an overview).

Sustainable development is a multi-scalar concept, being used primarily at the global to national level, but increasingly also at urban levels (Satterthwaite 1999; Marcotullio and McGranahan 2007). It is a multi-dimensional concept (economic, ecological and social goals) in an inter-temporal context (future and current generations) with a strong North-South dimension to it – a dimension that recurs continuously in global political debates (Gupta and Baud in press). However, the challenge of trade-offs between the three goals and between the welfare of the current poor versus ensuring wellbeing for future generations of the rich play out equally strongly at city level. In other words, while the rich in the cities wish to protect the city for future generations of well-off urbanites, the poor wish to address their current interests first. These trade-offs become all the more marked in the context of the dominance of the neoliberal paradigm.

The social dimension of sustainable development focuses on the goals of social justice, democracy and human wellbeing creating the vision of a 'just city' but also a 'liveable city'; a city in which basic human needs are met and the rights to the city are recognized, and where the provision of and access to civic amenities (health, police services, etc.) and infrastructure (roads, water, etc.) is equitably distributed across the city.

The ecological dimension of sustainable development focuses on the notion of cities that can close substance cycles and have a low ecological footprint. Such cities are able to undertake policies with respect to the urban microclimate, provide water and sewers to cities, and deal with waste production, city air pollution and health epidemics. Second, such cities need also to be resilient to economic and ecological shocks including climate change. Third, the sustainability of a city needs to be seen in the context of all flows and assets beyond city boundaries (see Chap. 5).

The economic dimension examines the possibility of city residents to have gainful employment within the city context, the ability of the city to manage its resources and to develop the city further. The dominance of the neoliberal paradigm in many cities of the world has affected the purchase of real-estate at the cost of the local poor, raising the prices of land and rented property (Zoomers 2010).

Sustainable development is an increasingly elusive concept. It gained enormous popularity in the 1990s and early 2000s but lost momentum when it became a concept that was considered to be "about everything and thus about nothing" (after Kok 2004) and which was used rather arbitrarily. Recently, we see a renewed interest in the concept as it is seen as countering the dominance of the growth paradigm by pushing for recognition of the social and ecological dimensions; a consequence of the realization that we may now be living in the era of the Anthropocene. The Circles of Sustainability, for example, create opportunities to develop a sustainability profile

for each city (http://www.circlesofsustainability.org/). Moreover, the United Nations will be following up on its Millennium Development Goals which end in 2015 with Sustainable Development Goals which aim to create a common commitment for the global community to deal with social and ecological issues while aiming for development. One of these goals aims at sustainable cities; but many of the other goals will have implications for cities as well (www.Sustainabledevelopmentgoals.org).

1.5.2 Inclusive Development

The politics of achieving sustainable development has implied that it is increasingly being split up into the concepts of green economy, inclusive growth and inclusive development. These concepts try to at least unite two of the three dimensions of sustainable development. We focus here specifically on the concept of inclusive development (see also Sect. 5.4). We see this concept as being a countervailing discourse to that of neoliberal capitalism and is justified for normative, legal, economic, security and political reasons (Gupta 2014). Inclusive development combines the social and ecological pillars of the sustainable development concept, but also the collaboration of different governance actors and the recognition of their knowledges (van Buuren 2009; Peyroux et al. 2014). With its origins in social justice and human rights concepts at the individual/community level (Gupta and Thompson 2010), the focus on development indicators and entitlements at national level, and the right of developing countries to develop at international level, inclusive development is seen as a way to channel attention to the most marginalized in local through to global society (Sachs 2004). Thus inclusive development, as opposed to inclusive growth combines social aspects, ecological dimensions and inclusive economics (welfare and wellbeing).

Inclusive development (Chatterjee 2005; Rodríguez-Pose and Tijmstra 2007; Rauniyar and Kanbur 2010; Jiang 2011; Huang and Quibria 2013) has three key dimensions: (a) a substantive dimension; (b) a relational dimension; and (c) an evolving dimension in the context of the Anthropocene (Gupta et al. 2015). Each of these can be applied in the urban context. The substantive dimension calls for a focus on marginalized people and sectors in terms of place, space and context – e.g. on concentrations of poor in urban poverty spots (Baud et al. 2008); equal opportunities for participation (see Chap. 7) and using technical, scientific and local knowledge (see Chaps. 7, 8 and 9); the recognition of formal and informal/customary rights which may co-exist (see Bavinck and Gupta 2014); the understanding of how infrastructure and spatial planning can empower or disempower people in the context of space and place (Cook 2006; Kennedy et al. 2014); the need for capacity building (Chatterjee 2005); and action learning to stimulate the self-help capacity and participation in urban governance of the most marginalized (Chambers 1988; Sanz 2014). The relational dimension calls for re-examining implicit and explicit power relations in the urban context, creating redistributive mechanisms for cross-subsidizing the urban and urban-rural poor, actually redistributing public goods

such as social and infrastructural benefits (Sachs 2004; Rodríguez-Pose and Tijmstra 2007; Lawson 2010) and dealing with public bads (e.g. environmental problems and the local impacts of climate change). Finally, the relational aspect calls for understanding and dealing with the drivers of inequality (historical patterns of unequal assets exacerbated by modern formal rules and/or globalized processes). The Anthropocene dimension of inclusive development calls for sharing the ecospace that we have on Earth (Gupta 2014). Inclusive development cannot be addressed by the market as the price parameter is often outside the reach of the poorest, thus calling for policy intervention.

In practice, instruments for inclusive development include a normative framework of human rights, the rule of law, the promotion of equity, legitimacy, legality, effectiveness, participation (see Chap. 7) and accountability. It includes goals such as the Millennium Development Goals and the Sustainable Development Goals, contextualized at local level. It includes an array of instruments and infrastructure (see Chap. 6) and supporting spatial knowledge management (Baud et al. 2014) to enhance life in the cities.

Evolving rural-urban migration patterns will lead to a shift in the location and nature of poverty and exclusion and this will shape urban-rural landscapes (Chap. 5). Population inflow into cities is currently growing at the rate of 200,000 people per day (UN Habitat 2013) and cities of the South are unable to meet the continuously growing demand for basic services and urban infrastructure for the poor leading to mutually reinforcing cycles of exclusion. The growing income inequality in cities worldwide, the inability of state authorities to provide the public goods needed by people, the entrance of new players (NGOs, CBOs and the private sector) in infrastructure and basic services provisions from water and energy through to security is changing urban societies. Ironically, criminal gangs both use the lack of rule of law to flourish and are increasingly also providing civic amenities in their own way to control local people (Jaffe 2012). Will the growing number of people coming into the cities be able to continuously assert their right to the city or will first-comers create barriers for late-comers? Our book takes a perspective rooted in the concept of inclusive development. This inevitably implies a focus on conflicts in the city and a focus on how the neoliberal paradigm has led to exclusive developments in some parts of the city at the cost of others.

1.6 Conclusion

This book explores the concepts of governance (see Chap. 2), networks in urban governance (see Chaps. 3 and 4), the governance of rural-urban landscapes (see Chap. 5) and the instruments of governance (see Chap. 6). In examining the tools of governance, we look at participatory governance (see Chap. 7), managing spatial knowledge (see Chap. 8) and the potential and limits of big data (see Chap. 9). With a look to the future, we then pay special attention to scenario building (see Chap. 10).

The last chapter tries to bring together the different elements discussed in this book into an integrated storyline about the geographies of urban governance.

Cities are, and life in the cities is, changing. The distinction between on-line and off-line life is getting blurred and residents have increasingly multiple loyalties and needs. The increasing production of continuous data streams from multiple sensors and technological innovations requires governance actors to re-think and re-work conventional work processes and practices. Urban transformations are thus changing and challenge the landscape of urban governance in the Anthropocene.

Following up on Robinson's (2006) ordinary city approach, which argues against the dichotomy between development, modernity and urban hierarchies, we argue that the future city is diverse but just and lives within its ecological limits – our choice for an inclusive city in both developed and developing contexts rejects the notion of cities as hubs of uncontrolled economic development and concentration of wealth and power.

Acknowledgements The authors thank Ad de Bruijne, Elisabeth Peyroux and Richard Sliuzas for their extensive review comments of this chapter.

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Chapter 2
Theorizing Governance

Joyeeta Gupta, Hebe Verrest, and Rivke Jaffe

Abstract This chapter presents an overview of governance theories and discusses the emergence of governance as an analytical and a normative tool. It reviews theories that conceptualize the relations between different governance actors, including debates on interactive and hybrid governance, and presents different perspectives on the spatial dimensions of governance incorporating theories of multi-scalar governance. Specifically, the chapter focuses on how these debates on governance apply to the urban level and emphasizes what a geographical perspective might add to existing governance discussions. This chapter notes a number of contemporary conceptions of the city that operate as overarching goals of urban governance, including ideas of 'just', 'smart' and 'sustainable' cities.

Keywords Governance • Good governance • Interactive governance • Hybrid governance • Multi scalar governance

2.1 Introduction

The introductory chapter discussed how the multiple dimensions of globalization have transformed the geographies of urban governance in nine ways (see Sect. 1.2) and briefly introduced the concept of governance (see Sect. 1.4). Over the last few decades, theories on government and governance have developed along multiple, discipline-specific trajectories and in a non-cumulative manner meaning that they do not build on other theories of governance (Kersbergen and Waarden 2001), leading to considerable confusion in the field. As a concept that bridges a variety of disciplines, governance means different things to different scholars and is employed within different theoretical traditions. Researchers drawing on an (international) law perspective, for instance, emphasize legality, accountability and the rule of law; sovereignty would also play a role. Those working from an international relations or

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J. Gupta et al. (eds.), *Geographies of Urban Governance*,
DOI 10.1007/978-3-319-21272-2_2

political science perspective tend to focus on issues of participation, legitimacy, equity and relationality (Biermann et al. 2010), while economists generally highlight efficiency, effectiveness and financial viability. Anthropologists might emphasize contextuality and hybridity (Jaffe 2013; Maskovsky and Brash 2014). Approaches drawing on a more geographical perspective, as this book does, tend to emphasize place, space (including its relationality), nodes and networks, scale and human-environment interactions (Sparke 2006; Prince 2012) (see Sect. 1.3).

Beyond this diversity of approaches within theoretical debates, governance has also become an important concept in more policy-oriented debates; it has emerged simultaneously as an analytical and a normative tool. Governance can refer to actors and networks (the underlying powers, the relationships); the process, architecture and structure of governance (formal and informal norms and rules); and the quality of governance (e.g. 'good governance' includes elements such as rule of law, legitimacy, equity and effectiveness) (Levi-Faur 2012a). It is against this background that this chapter presents an overview of the contemporary field of governance studies. It discusses the emergence of governance as an analytical tool (see Sect. 2.2); trends in more normative debates surrounding governance (see Sect. 2.3); theories that conceptualize the relations between different governance actors (see Sect. 2.4), the spatiality of governance (see Sect. 2.5) and ends with a reflection on how our understandings of governance matter in the urban context (see Sect. 2.6). These sections pay specific attention to the ways in which these debates play out at the urban level, noting the role of different conceptions of cities such as 'the just city', 'the global city', and 'the smart city'. As argued in Chap. 1, an implicit starting point, with normative implications, is the focus on sustainable and inclusive development of cities (see Sect. 1.5).

2.2 Governance as an Analytical Tool

The theoretical emphasis on governance can be seen in part as a response to more rigid or reified understandings of political rule. Rather than focusing primarily on the actor or entity that governs (in earlier theories usually – the government), the analytical concept of governance focuses on the process of ruling and managing territories and populations. Government includes "the formal institutions of the state that perform the action of governing based on their monopoly of legitimate coercive power within a demarcated territory" (Stoker 1998: 17), while governance is "the sum of the many ways individuals and institutions, public and private, manage their common affairs. It is a continuing process through which conflicting or diverse interests may be accommodated and cooperative action may be taken" (Commission on Global Governance 1995: 2). While this is a relatively power-neutral, consensus-oriented definition, governance is a highly political process (Beall and Fox 2009; Torfing et al. 2012) – a dimension more explicitly recognized in the European Commission's (EC 2003: 2) definition of governance as "the rules,

processes, and behaviour by which interests are articulated, resources are managed, and power is exercised in society".

An analytical focus on governance rather than on government allows for, first, a more nuanced understanding of practices rather than people, organizations or nation-states – it draws our attention to the how in addition to the who of governance. Second, the concept of governance emphasizes that both state and non-state actors can play a role in shaping the rules and interactions needed to manage society – the process of governing tends to involve multiple governance actors in addition to the state. These interdependent actors and networks can range from corporations and local civil society groups to transnational social movements. In this regard, we might distinguish between two extremes in forms of governance, one more state-centred and one more network-based (Peters and Pierre 1998). Third, governance is a process that takes place across a range of spaces: practices of governance, which often involve multiple interacting governance actors, take place at multiple, interlinked levels of a variety of scales (cf. Ostrom 2009).

Moving away, then, from theories of government that assume the centralized, hierarchical nation-state to always be the analytical starting point, governance studies involve "an interdisciplinary research agenda on order and disorder, efficiency and legitimacy all in the context of the hybridization of modes of control that allow the production of fragmented and multi-dimensional order, *within* the state, *by* the state, *without* the state and *beyond* the state" (Levi-Faur 2012b: 3). While the decentring of the state in (urban) governance is often theorized as resulting from neoliberalism, as outlined in Sect. 2.3, Parnell and Robinson (2012) point out that this does not always need to be the most important factor. In the global South, distinct patterns of state formation and competing interests may be more important factors in shaping hybrid or fragmented governance arrangements, in which states may never have been the main actors.

2.3 Normative Uses of Governance

In addition to being used as an analytical tool (see Sect. 2.2) to understand how, by whom and at what scales, territories, populations and resources are governed, governance is often used as a normative tool (Kooiman 2005). Two main trends can be identified in this regard: first, a neoliberal move away from state-centric models of governance towards network-based models; and second, models of good governance that emphasize democratic ideals such as transparency and participation (see Table 2.1). In practice, these two models are often interconnected, if sometimes in contradictory ways. On the one hand, a neoliberal move towards greater involvement of non-state actors is often presented as more democratic, and good governance models' emphasis on efficiency often echoes neoliberalism's depoliticizing perspective. On the other hand, good governance models often explicitly recognize the importance of the state and the need to strengthen its capacity, a tendency that conflicts with neoliberal trends.

2.3.1 Neoliberal Models of Governance

The first normative use of governance discussed here relates to the neoliberal policies that have gained global prominence during the past few decades. Here, the normative emphasis has been on moving away from state-centric models of governance (sometimes called 'big government') towards a lean state and what in the UK has been called 'big society'. This shift has involved policies that promote deregulation and privatization, as neoliberal models generally present the market as the most appropriate or efficient institutional framework for allocating goods and services in society. Some proponents of the neoliberal model argue for recognizing the rising importance of corporations as governance actors in their own right. They encourage moving away from state-centric models of governance towards decentralized and diffuse decision-making and resource allocation. Proponents also argue that this form of governance, which involves close relations between commercial and other social actors (with converging or diverging interests), is non-hierarchical, flexible, unstructured, often informal and has low levels of bureaucracy (Krahmann 2003).

Such models have informed policies promoting the privatization of public goods (e.g. water, security, electricity or public transportation), so-called self-governance (e.g. corporate social responsibility), public-private partnerships (e.g. Kofi Annan's Global Compact and many infrastructural projects) and the decentralization of authority to the lowest appropriate governance level, sometimes also referred to as the principle of subsidiarity. Such decentralization policies initially focused on transferring authority to lower levels of government; only later was decentralization also seen as a way to transfer authority to non-state actors at the urban or local level.

These multi-nodal or multi-actor models have become well-known governance practices in cities in the global South and the global North. A widely popular example of the neoliberal governance model at the urban level has been the promotion of business improvement districts (BIDs) that involve corporate actors in the revitalization of urban commercial areas. Such policies create special urban zones in which private actors fund public services; they often involve the application of special by-laws and the establishment of public-private partnerships, with businesses taking on a central role in financing and implementation. Critics argue that BIDs involve a market-driven, consumer-oriented and externally oriented form of urban development, which sanitizes public spaces by excluding poorer urban residents in order to attain the status of world-class cities (e.g. Miraftab 2007).

Another example of urban policies relating to the neoliberal model of governance is the privatization of the provision of public goods and services. Proponents of the neoliberal model argue that privatization improves both the efficiency and the quality of service delivery. Water provision is one domain that has been privatized in many cities in the global North and South. In many cases especially in the South, efficiency gains and service delivery improvement have in fact been limited. In fact, privatization is often associated with reduced quality of service delivery, in particular to low-income groups. Exclusion and inequality may increase; experiences with the privatization of (potable) water delivery show that market parties do not mitigate existing inequalities in water distribution systems and may even further exclude low-income groups by increasing water prices (see e.g. Bakker 2010).

A final example focuses on the impacts of privatization on urban development and specifically the de facto privatization of urban planning. Allowing private actors to play a greater role in urban planning reduces the capacities of municipal authorities to effectively monitor urban development and enforce rules and regulations. In rapidly expanding small cities in Central America, municipal authorities basically 'watch the city grow' on Google Earth, incapable of influencing unsustainable processes of urban sprawl, much less providing the necessary housing and infrastructure for low-income groups. As real estate developers become more prominent actors than government planners, urban development becomes skewed towards the construction of new middle-class neighbourhoods on the outskirts of the existing city. This development has a negative effect on urban sustainability, reproducing social inequalities and promoting urban sprawl, deforestation and overexploitation of water resources (Klaufus 2010).

Neoliberal governance has arguably led to increased urban exclusion and inequality where economic growth has been favoured over wider social goals and capital has been used accordingly. These processes have invoked the rise of counter-ideas and visions of urban futures framed around understandings of justice, encapsulated in concepts such as the 'just city' (Fainstein 2010, cf. Soja 2009) or the 'right to the city' (Lefebvre 1968; Harvey 2008). These approaches emphasize that justice and inclusion should be the starting point and end point of urban governance processes. The 'just city' targets urban planners and policymakers, incorporating diversity, democracy and equity as primary concerns and emphasizing that urban programmes should be more just, both in the process of their formulation and in their effects (Fainstein 2010). The 'right to the city' involves not only the right to access but the right to transform the city and is a common rather than an individual right as it "inevitably depends upon the exercise of a collective power to reshape the processes of urbanization" (Harvey 2008: 23).

2.3.2 Good Governance

The second trend in normative uses of governance connects more directly to issues of democracy, even as it incorporates many neoliberal tenets. In contrast to the neoliberal model, however, good governance almost always presents the state as not only a key player but also the central hub of governance arrangements. While good governance models do emphasize the inclusion of non-state actors in governance, the focus is on involving these stakeholders in processes of rule formation, procedural and substantive decision-making, resource allocation and service delivery. Where neoliberal models tend to emphasize corporate involvement, good governance models focus more on the participation of citizens and civil society organizations. Associated debates on deepening democracy have included a spate of discussions on how stakeholders could be engaged along, for example, a ladder of stakeholder participation (Arnstein 1969), that ranges from more consultative to more empowering forms of participation (see Chap. 7). However, discussion may

Table 2.1 Elements of good governance (Authors, based on Ginther and de Waart 1995; UNDP 1997; Woods 1999; Weiss 2000)

Elements	Explanation	Challenges
Participation	All stakeholders and relevant actors can participate in decision-making	Full participation is rarely feasible, for practical and political reasons
Accountability	All decisions are based on specific grounds and decision-makers can be held accountable	Decision-making is diffuse in governance, making accountability difficult
	Includes upward accountability to superiors and downward accountability to electorates, citizens, investors and consumers	
Transparency	All decisions, underlying arguments and outcomes are accessible to all	Practical and political challenges to providing and dealing with full transparency at all times to all actors
Equity	Equity of decision-making refers to fair processes and procedures; substantive equity refers to the fairness of outcomes	Fair process may not lead to fair outcomes
Efficiency	Produces results by optimizing inputs, using the least resources required in decision-making and implementation	Efficient processes may legitimize non-democratic governance
Effectiveness	Effective governance achieves its goals	Effective governance may legitimize non-democratic regimes
Responsiveness	Governance responds quickly to changing circumstances (including social, economic and ecological challenges) and knowledge	Responsiveness may be captive to the politics of governance
Rule of law	Procedural rule of law emphasizes law over arbitrary power and equality before the law of all	Procedural rules may legitimize poor laws
	It is predictable, general, non-retroactive, clear, stable, certain and consistently applied	
	Substantive rule of law also looks at equity issues	

not always be necessary and may not always lead to easy solutions as embodied in the split ladder of stakeholder participation (Hurlbert and Gupta 2015).

The concept of good governance itself was developed in the 1980s, primarily to guide donors in development aid (Doornbos 2001: 93). It has been used both as a condition for aid and a development goal in its own right. Key terms in definitions of good governance include participation, accountability, transparency, equity, efficiency, effectiveness, responsiveness and rule of law (e.g. Ginther and de Waart 1995; UNDP 1997; Woods 1999; Weiss 2000). Obviously, each of these terms itself is 'colossal' and involves a specific research agenda (Botchway 2001) – each is itself used both descriptively and normatively. Table 2.1

includes brief explanations of these main elements within good governance models and lists challenges to realizing them.

At the urban level, this normative model has been articulated through the idea of good urban governance, promoted by agencies such as UN Habitat. The Colombian city of Bogotá has sometimes been presented as a model city, given its rapid improvements in fiscal responsibility, provision of public services and infrastructure, public behaviour, honesty of the administration and civic pride. Rather than stemming from democratization, decentralization or neoliberal privatization, however, these changes resulted from the increased autonomy of the mayor vis-à-vis the city council, combined with a series of responsible mayors; from a technocratic rather than a democratic governance style; from mayoral continuity in policy; and an increase in resources effected by these mayors (Gilbert 2006, 2015). In short, good urban governance may depend more on best persons or policy entrepreneurs (especially mayors) than on best practices.

The use of the concept of good governance has been critiqued for being vague – there are problems both with conceptual clarity and its application. Critics have emphasized that donors embrace the concept as a magic bullet, without ever properly specifying the concept; there is no toolbox or set of instruments to ensure good governance and different aid agencies use widely varying indicators. In addition, like neoliberal models, good governance models tend to take an apolitical stance, presuming consensus and equality, in contexts where conflicts of power, vested interests and inequality between actors characterize governance processes (Jayasuriya and Hewison 2004). The often depoliticizing effects of participatory forms of good governance (Chhotray 2007) is especially problematic in areas where empowering private sector actors mean exacerbating an already weak state capacity. Finally, some critics argue that good governance functions as a neo-colonial instrument, given that it is a largely Euro-American model of governance that is used as the criterion for dispensing or withholding development aid (Gruffydd Jones 2013).

2.4 Theorizing Actors in Governance

There is a multiplicity of theoretical approaches to different governance actors and their relations to one another. While we focus explicitly here on actor-oriented approaches to governance, there are also a number of strands of system theories, including general systems or cybernetics approaches, which focus on the system of governance as a whole (Esmark 2011); institutional theory, examining how social institutions impact governance (Peters 2011) and organizational theory, which takes a macro-level deterministic approach to governance. Taking an actor-oriented approach, governance theory in general draws our attention to the role of both state and non-state actors. More recently, authors have begun to theorize the relations between these actors more precisely. While the co-presence of multiple actors

within governance arrangements is sometimes understood as fragmented or incoherent, various theories have emerged to understand how their interrelations are structured. Three concepts, elaborated in more detail below, have been especially influential in terms of theorizing the multiplicity of governance actors: interactive governance, networked governance, and hybrid governance.

2.4.1 Interactive Governance

Interactive governance is understood as "the complex process through which a plurality of social and political actors with diverging interests interact in order to formulate, promote and achieve common objectives by means of mobilizing, exchanging and deploying a range of ideas, rules and resources" (Torfing et al. 2012: 2). The emphasis in interactive governance is on the interactions between the wide range of actors involved (Kooiman et al. 2008), regardless of the outcome. Interactive governance involves, first, a grounding in complexity and process rather than in a set of unified formal institutions or frameworks; second, the formulation of common objectives by actors who seek to produce public value despite divergent interests; and third, a decentralized form of power that can combine vertical, horizontal and diagonal patterns.

Interactive governance distinguishes between quasi-markets, partnerships and networks as the three basic types of interactive governance arrangements in which different stakeholders may have agency (Torfing et al. 2012). Three different dimensions can be distinguished in the agency of governance stakeholders: images, instruments and actions. Images are the more or less explicit and systemic ideas, facts, beliefs, hypothesis and goals that guide governance. Actors have diverging soft, legal and hard instruments at stake that they can use to influence interactions and that materialize in actions deployed (Kooiman et al. 2008: 7). Given its complexity, governing interactive governance itself requires 'meta-governance', a reflexive, higher order of governance practices. This level supplements first-order (day-to-day governing) and second-order governance (the underlying institutions or frameworks). Power relations and power inequalities shape interactions in various ways, not only through the relations between actors in interactive governance but also when actors can exert power over interactive governance, e.g. the ability of the state to exercise power over the process (Kooiman et al. 2008).

2.4.2 Networked or Nodal Governance

Networked governance theories generally focus on the interconnectedness of multiple actors in horizontal rather than vertical decision-making structures (see Chaps. 3 and 4). Theories of networked governance are related to both the rise of the network society in the context of globalization (Castells 1996) and the popularity of neoliberal models of governance and complexity theory. They analyse the emergence of

governance through dispersed networks; the consequences of the erosion of public monopoly over public services; and the possibilities for collaborative networks of governance actors to be more effective than centralized, vertical structures in governing highly complex systems. Some authors theorize governance networks as self-organizing and based on trust (Kickert et al. 1997; Koppenjan and Klijn 2004). Others see these networks as increasing inequality, showing how the unbundling and privatization of previously public network infrastructures results in 'splintered urbanism' and increased inequality (Graham and Marvin 2001).

The clustering of a network of public and private actors around the governance of specific domains has also been termed nodal governance (Shearing and Wood 2003). Rather than being organized around static governance entities, nodal governance emerges in the form of networks focused specifically on increasingly complex public domains or social problems, such as sustainability or crime (Crawford 2006). At the urban level, networked governance has been evident in policies that promote local meta-governance arrangements (Geddes 2006). In addition, a specific domain around which it has crystalized most clearly has been urban policing, as the police increasingly collaborate with private security communities and voluntary neighbourhood watches in the governance of security (Hönke 2013).

2.4.3 Hybrid Governance

More recently, a number of authors have begun to study hybridity in governance, studying the ways in which multiple formal and informal, state and non-state institutions become intertwined. They focus on situations where non-state actors interact with state actors in the context of public service provision and/or taxation and, through this interaction, begin to merge or form a new synthesis. This analysis of hybrid governance has emerged, first, in contexts of neoliberal restructuring and participatory approaches, studying the effects of marketization, decentralization, outsourcing and the increasing transfer of responsibilities to citizens. This is evident for instance in the field of environmental governance, where co-management, public-private partnerships and social-private partnerships have all been characterized as forms of hybrid governance (Lemos and Agrawal 2006; O'Reilly and Dhanju 2012). A second line of analysis has developed out of conflict studies. Drawing from African cases in particular, various authors sought to move away from normative notions of good governance and failed states (i.e. states where governments do not function at all). Focusing instead on public-private governance arrangements that actually worked on the ground, they began to identify hybrid political orders (Boege et al. 2008) or twilight institutions (Lund 2006). Here authors such as Meagher (2012) have sought to distinguish between constructive and corrosive forms of non-state order that become entangled with the state.

The focus on hybrid governance, especially in development studies, has been characterized as entailing a shift from normative good governance to pragmatic arrangements that actually work (or good enough governance). These discussions have highlighted the intertwining of formal state institutions with informal,

traditional, customary institutions in the global South (and mainly Africa). Critics argue that the current use of the concept tends to ignore the role of corporations, international NGOs and foreign governments, all of which also intertwine with national governments. Furthermore, most contemporary governance systems – including those in the global North – can be seen as hybrid, incorporating elements of multiple institutions and actors. In addition, critics emphasize that hybridity is not the same as co-existence and/or competition; in many cases, the different governance actors or institutions remain distinct rather than actually merging, and it would consequently be better to speak of institutional multiplicity rather than institutional hybridity (Goodfellow and Lindemann 2013).

2.5 Theorizing Spatialities of Governance

Various geographically oriented authors have pointed to reconfigurations in the spatiality of governance, analysing issues of place, space, scale and human-environment interactions (see Sect. 1.4). This section discusses three different strands of theorizing in this regard. First, we focus on the scale of governance, which has shifted dramatically in recent decades, devolving from the national level to subnational levels, such as the urban or community level and 'scaling up' towards the transnational or global level. Second, we note work on the reconfigurations of space and place in governance through global networks of similar governance actors in different spatial locations, such as inter-urban networks. In relation to such networks, we focus on theories of policy mobilities, which analyse the global circulation of governance models. A third and final subsection addresses human-environment interactions, discussing theories of ecosystem governance, which make explicit the extent to which socio-political governance processes must also incorporate attention to ecological factors.

2.5.1 Multi-level Governance

As the actors and fora of governance change, this is accompanied by shifts in the spatial direction of governance: horizontally towards other social actors, upwards towards the supranational and downwards towards the sub-national level, and diagonally zigzagging between actors and scales (Torfing et al. 2012). This points our attention to the relationship between governance and scales, with the latter understood as those arenas "where sociospatial power relations are contested and compromises are negotiated and regulated" (Swyngedouw 1997: 143). New scales emerge from shifting power relations between social forces in ways that are not pre-determined. Brenner's (2004) work on shifts in the scale of governance focuses on changes in processes of capital accumulation and broader processes of neoliberal globalization, and how these result in the reconfiguration and rescaling of forms of territorial organization such as cities and states. His work on state rescaling, in

which governance processes shift from the national scale towards other socio-spatial arenas, underlines the emergence of the urban as a central level of governance. However, our book shows that while the urban is important, its governance is embedded in multiple layers of governance.

This privileging of the urban level has been associated with the rise of entrepreneurialism as a mode of urban governance (Harvey 1989; see Chap. 3). This mode involves municipal authorities acting more like corporations – emphasizing efficiency, competitiveness and risk-taking – and is associated with inter-urban competition, as city governments compete nationally and globally with other cities for investors, tourists and wealthy residents. When successful, this strategy provides local authorities and other governance actors with considerable power vis-à-vis regional or national government. However, the shift towards the urban level is by no means universal, as many municipal governments have limited autonomy in relation to higher levels of government, due to a limited tax base and/or tax powers. In strongly vertical governance arrangements, local governance remains firmly nested within or subordinate to governance arrangements at higher political levels; local actors must cope with interference from other levels and also depend on them for technical and financial resources. Especially in the context of cities in the global South, this means that the scope of local authorities to shape urban economic development and deliver urban services independently of the national government remains restricted (Stren 2001; Ghosh et al. 2009).

In certain cases, social actors may be able to address different scales and levels of governance to suit their political ends, employing strategies of scaling up or scaling down (i.e. pushing issues to other levels of governance; see also Chap. 3). This may involve appealing to global governance mechanisms to put pressure on local or national actors (Keck and Sikkink 1998) or engaging with neighbourhood-level actors to ensure local ownership and thus commitment to addressing a specific problem. Internal interests often determine whether external intervention is needed, wanted or resisted, while strategic, extraterritorial reasons may also lead actors to globalize or localize an issue. Many local problems are caused by a variety of drivers that operate at multiple levels of governance, especially in the context of a globalizing world (Gupta and Pahl-Wostl 2013). Many social-economic challenges, then require coherent strategies that are used and developed by multiple actors at multiple levels of governance, with each strategy targeted towards specific ends.

2.5.2 Inter-local Governance Networks and Policy Mobilities

While networked governance (see Sect. 2.4.2 and Chap. 4) refers to networks of distinct (state, corporate and voluntary) governance actors, another important spatial phenomenon is governance through networks of similar governance actors – such as municipal governments – across different locations. This type of inter-local governance networks have been identified primarily at the urban level, for instance in European transnational municipal city networks focused on climate protection (Kern and Bulkeley 2009). Other inter-local examples include networks of mayors,

such as the UN's Compact of Mayors, and the Cities Alliance, a global network aimed at urban poverty reduction that connects local authorities but also includes NGOs. While such interurban networks – similar to other forms of networked governance – are often lauded for their flexible, collaborative nature, Leitner and Sheppard (2002) emphasize that they demonstrate internal power hierarchies, given that they emerge out of pre-existing processes of uneven development and hierarchical state structures (see Chap. 3). However, they found that these networks can also function as catalysts of resistance to neoliberalization.

These more or less formal governance networks are typical of trans-local networks that connect cities and shape urban governance outcomes. In addition, less formal circuits of policy mobility connect and transform cities through the circulation of urban policies. Popular examples of urban policy that have become globally mobile include the previously mentioned BIDs, or urban branding strategies or urban security policies (Cook 2008; McCann and Ward 2011). Those policies, which most likely will become globally mobile, tend to originate in a select number of cities in the global North, such as New York or Vancouver. This tendency stems in part from a belief that only certain cities are capable of producing the type of innovative policies that can be disseminated around the world. This spatial elitism (Blaut 1993 in McCann 2011) entails the risk of neglecting innovative policies produced in other places. In addition, it involves an outdated view of policy transfer that sees successful urban policies or best practices as universally applicable and assumes that they can be transposed to other cities, regardless of local specificities. The uncritical transfer of city models from the global North to the global South also evidences the neo-colonial character of existing circuits of urban knowledge production (Vainer 2014, cf. Roy 2009).

When mobile urban policies entail persuasive visions of the urban future, they can have a strong governmental effect on the cities where they are adopted. This is perhaps clearest in the case of the global city, a universal model of urban development that has been the source of countless city rankings and that has been employed in a broad variety of contexts, often with highly exclusionary effects. Robinson (2006) argues that this classifying and labelling of cities is reductionist and creates unreachable aspirations. Instead, she calls for an emphasis on the 'ordinary city', which exists everywhere – each city being a unique assemblage of people and (transformative) processes. 'Ordinary cities' are affected by global interactions and flows; these cities are diverse and creative, and each city can learn from others. She argues that there should be no common goal for cities to work towards; each will have its own future and distinctiveness.

2.5.3 Ecosystems Approaches

Beyond scale and inter-local networks and mobilities, another group of spatially oriented approaches centres on the relations between societies and ecosystems, embedding governance processes more directly in their natural environment. These

approaches point to the need for governance to take ecosystemic limits into account, to integrate social, economic and ecological aspects, and to ensure that governance actors are aware of, and proactive towards, the uncertainty of future developments. Such approaches include the concepts of governance of the commons, earth system governance, and adaptive governance.

The governance of the commons can be traced back to Hardin's (1968) tragedy of the commons, which refers to the idea that rational economic actors will inevitably overexploit common resources, as each individual seeks to maximize his/her own advantage at the cost of collective solutions. While Hardin originally used the example of collective grazing grounds to illustrate the commons, this perspective has also been applied to natural or human-made common pool resources (CPRs) – such as fisheries, groundwater or transport systems – from which potential users cannot be excluded, but one person's use means less for another. Hardin's pessimistic perspective has been countered empirically in studies that point to forms of governance, and relations between rules, rulers and the ruled in particular, that ensure collective action for the common good (Ostrom 1990).

Earth system governance refers to "the interrelated and increasingly integrated system of formal and informal rules, rule-making systems, and actor-networks at all levels of human society (from local to global) that are set up to steer societies towards preventing, mitigating, and adapting to global and local environmental change and, in particular, earth system transformation, within the normative context of sustainable development" (Biermann et al. 2009: 4). This approach has five analytical components focusing on the architecture, agents, adaptiveness, and accountability of governance and the way in which access to, and allocation of, resources is governed. Its cross-cutting themes are the role of power, knowledge, norms and scale. While the tools of earth system governance can be used at all levels including the urban level, its need to be embedded within other levels of governance is seen as critical in the context of the Anthropocene (see Chap. 1).

Another related approach is adaptive governance, which calls for experimentation, learning (especially double and triple loop learning) and redundancy rather than efficiency (see Folke et al. 2005; Moser and Satterthwaite 2010; see also Sect. 5.4). This approach analyses how multi-level governance can contribute to resilience to cope with the challenges of global change. It calls for flexible and experimental learning processes, cross-scale linkages and greater collaboration with stakeholders to deal with uncertain and abrupt changes. It focuses on analysing social, economic and ecological aspects of the governance of complex social-ecological systems (Füssel 2007; see also Chap. 5).

Applying ecosystems approaches to the urban level, one vision of urban futures that has been influential is that of the sustainable city. Taking into account the ecological aspects of urban development, this approach emphasizes the need to pursue a circular economy closing substance cycles and reducing cities' ecological footprint (see Chap. 5). Another more recent urban goal has been conceptualized through the idea of the smart city (see Chap. 9), which builds on the concepts of closing substance cycles and conserving resources through the use of smart grids and big data. Hajer and Dassen (2014: 11) summarise the smart city discourse as innovative

urban planning that makes use of big data to sense behaviour with a view to managing urban dynamics and fine-tuning services within cities as a 'living lab' to cope with life in the Anthropocene. However, they propose going beyond this discourse. They argue that, given that cities have to live within certain boundaries, a shift towards 'smart urbanism' is needed, guided by principles such as decoupling prosperity from resource use, a persuasive storyline about the future, strategic use of urban metabolisms, a focus on the default in infrastructure, the need for social innovation to complement other innovations, new and collaborative politics and a globally networked urbanism (see also Chaps. 1, 3, 4 and 5).

2.6 Conclusion: Governance and the Urban Context

As this chapter shows, there is a broad range of governance theories and analytical approaches, many of which link closely to normative models and practices. How we understand governance matters to outcomes in cities, as the popularity of specific models (such as the neoliberal and good governance models) demonstrate. Similarly, the conceptions of cities and urban futures – as 'just', 'global' or 'smart' – can have a direct impact on which stakeholders, mechanisms and technologies take on a central role in urban governance.

In addition to directing our attention to the multiplicity of public and private governance actors that shape urban life, contemporary governance theory points to the role of globalization processes as multiple drivers at local through to global levels that shape urban dynamics. As the geographies of urban governance become increasingly complex, new research and policy questions emerge: how can governance at the urban level deal with those dynamics that arise from urban-rural relationships (see Chap. 5)? Can it mitigate the city's ecological footprint (see Chap. 5), negotiate constructively with corporate actors who settle in the city in the context of global markets (Chap. 4) and protect residents' privacy against the God's eye of mega data miners (see Chap. 9)? Can transnational urban network governance effectively cope with these problems (see Chap. 4)? Answering these questions involves a scope that goes beyond municipal governments and other city-based actors alone. As the various theories and concepts discussed indicate, studying the geographies of urban governance requires attending to the nestedness of urban actors and mechanisms in multiple levels of horizontal and vertical governance systems, and recognizing the interconnectedness of a vast array of actors.

Acknowledgements The authors acknowledge the comments of the reviewers Loraine Kennedy, Sue Parnell and Jochem de Vries with thanks.

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Chapter 3
Governance Networks: Conceptualization, Genealogy, and Research Frontiers

Tara van Dijk

Abstract The benefits of governance networks in the field of urban governance are too often presumed rather than theoretically and empirically demonstrated. This chapter addresses this issue through a thorough conceptualization of networks. This is followed by a genealogy of the emergence and acceptance of networks in the domains of governance via their connections to various projects or trends within the cultural political economy. Lastly, research frontiers that position governance networks and their capacity to promote inclusive and sustainable cities as phenomena in need of explanation and critique are discussed.

Keywords Governance networks • Cultural political economy • Governmentality • Capital accumulation • Urban-land nexus

3.1 Introduction

This chapter focuses on networks in urban governance. First, it conceptualizes governance networks (GNs) in terms of their parts, capacities, and how these are shaped by social-spatial conditions (Fawcett and Daugbjerg 2012). This allows for better discernment between what is contingently or essentially attributable to GNs when it comes to efficiency, inclusivity, and sustainability (see Sect. 3.1.1) and clarifies the conceptual criticism around governance, networks, and governance networks (Walters 2004; Wachhaus 2009; Börzel 2011; Marsh 2011; Fukuyama 2013) (see Sect. 3.1.2). To exemplify the aforementioned conceptual concerns, we then discuss the aspects of cities and urbanization (urban-land nexus, capital accumulation, and informality in cities in the global South) that produce wicked governance challenges arguably more amendable to networked forms of governance (see Sect. 3.2). Next, a genealogy of GNs connects their rise to cultural political economic shifts and strategies, thereby linking them to larger ontological and theoretical debates (see

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J. Gupta et al. (eds.), *Geographies of Urban Governance*,
DOI 10.1007/978-3-319-21272-2_3

Sect. 3.3). Lastly, this chapter focuses on the frontiers of governance networks research capable of addressing the gaps and blind spots highlighted earlier (see Sect. 3.4). Specifically, we suggest a governmentality approach related to historical and spatial conditions for addressing the promises and pitfalls of GNs in relation to efforts to form more inclusive and sustainable cities (see Sect. 3.5) after which we conclude the chapter (see Sect. 3.6).

3.1.1 Conceptualization and Conceptual Questions of Governance Networks

A governance network refers to a public function handled partly or completely by non-state actors or organizations (NGOs). GNs can be disaggregated based on the function, good, or service they provide, namely policy formulation, regulation, implementation, provision, and/or evaluation. GNs are often represented as consensus-oriented, problem-solving arrangements (Sørensen and Torfing 2007; Klijn and Koppenjan 2012), which are better equipped with resources, knowledge, and geographical coverage to react more quickly and decisively than time-consuming state political institutions and path-dependent bureaucracies (Rhodes 2007; Lecy et al. 2014).

A network refers to a type of structure that consists of nodes (actors and actants), links (the connections between nodes), and the mesh (van Loon 2006). The mesh refers to the characteristics of links in terms of deontic relations (i.e., obligations, expectations, entitlement, responsibility), to the goals or ends (profit, public welfare, efficiency, sustainability), levels of operation (from micro to global), zone(s) of operation (production, social reproduction, capital accumulation, culture, politics) and orientation towards the zone(s) of operation (reform, maintenance, revolution, corruption). The mesh is seen as an emergent property of the dynamics between nodes and links, which over time and with sufficient interaction, begin to exert a regulating force on the nodes and links and the zone(s) they connect to or transverse. Networking refers to the forming of interconnections across geographically dispersed locations, organizational units, and/or sectors (Castells 2000). Networks and networking are often used metaphorically to describe and encourage relations between actors not bound together by law or other forms of centralizing authority (e.g., religious, political, corporate). Networks can be collaborative or competitive, based on trust or distrust, and have a mix of horizontal and vertical connections (O'Toole et al. 2005; Davies 2012). There can be networks in hierarchies and hierarchies in and between networks (Thompson 2003). More mature networks tend towards polycentricity (several points of concentration) and complexity, where cause and effect and sources of path dependencies are enigmatic (Ostrom 2010). The interests and points of view of political and economic elites often prevail, with non-elite GNs or non-elite GN members being too much in the shadow of hierarchy (i.e., implicitly working in line with hierarchical rules) for GNs to be considered

autonomous or genuinely democratic in means or outcomes (Marsh et al. 2003; Heritier and Lehmkuhl 2008). For example, even if a GN is ostensibly open to everyone, and everyone is treated equally, this does nothing to control for outcomes that rest significantly on what skills and power participants bring to a collaborative forum and have at their disposal outside this space or process. GNs can become too exclusive and path dependent, or they can become too governmentalized, via agenda setting, performance assessments, and emersion into elite discourses to be substantively inclusive of local needs and perceptions (Kutay 2014). Lastly, GNs, like markets, can and do fail and when they do, the state is responsible for taking over or bailing out (Jessop 2013).

While GNs can transverse organizational, institutional and geographical borders, they remain influenced by their material, social, and discursive settings (Joseph 2010). It is important to remember that GNs rarely take over state functions, but rather take on certain work and decision-making for the state. The role and capacities of GNs need to be understood in relation to contingent processes of destatization that comes in forms of marketization, socialization (partnering or outsourcing to civil society organizations (CSOs), NGOs, and citizens), or scientization (rule by experts) (Jessop 2014: 212). As external conditions (i.e., social relations, political economy, and state strategies) dominate the aims and means of GNs, it becomes problematic to attribute causal efficacy to them. In other words, to scientifically argue that GNs 'make a difference' one needs to reasonably analytically separate effects attributable to GNs from external social conditions (Przeworski 2004). The issue of structure and agency needs to be addressed to move past authoritative conjecture (Box 3.1).

Box 3.1: Structure and Agency and the Principal-Agent Problem

Structure – the determining social structures (class/gender/race) and how these are experienced (expectations, roles, identities) – versus agency – the autonomy of actors (individual, organizations, or government) – are decisive regarding what actions seem possible or rational, and which options are obscured or seem radical. Social structures such as gender are not uniformly institutionalized or experienced. Women experience and perform their gender differently at home than at work, and states can pass laws against discrimination, but that does not mean that everyone immediately is disabused of previous habits, privileges, and conditioning. Social interaction, agency, and coordination would be impossible without social structure; it would be like playing chess with someone who is playing checkers. However, structures are the outcomes of past human actions and thus are vulnerable to agency. See Sewell (1992) and Searle (2006) for detailed treatment.

The principal–agent problem refers to challenges superiors face to get their subordinates to implement policies/projects and enforce rules and regulations. It also refers to the difficulty of exercising oversight (congressional committees over security agencies). It is related to challenges of governing and holding accountable from a distance. See Miller (2005) for more information.

3.1.2 Governance Networks and Good Governance

Many argue that the state's monopoly over regulating society and the environment is increasingly anachronistic in the present epoch; if a city wants to thrive in this globalising, hi-tech world, a shift from government to governance is necessary (see Chaps. 1 and 2). This is because states can no longer govern efficiently or develop suitable policies; they need the resources of other actors (i.e., money, labour, knowledge, influence) in order to compete in the globalizing world. The state's physical borders, its jurisdiction, institutional capacity, and scale no longer match with the geography of risks and opportunities arising in urban sectors. Hence, city managers need to initiate GNs comprised of value-adding private sector and civil society actors to render arenas of decision-making and implementation more flexible and efficient (O'Toole 2015). Certain domains of urban governance need to be depoliticized (removed from electoral politics and given over to GNs) to allow for more data and evidence-based policies and practices. Thus, the GN is seen as an ideal organizational form for good governance (Sørensen and Torfing 2007; Rhodes 2007): it is less hierarchical, more inclusive, more efficient, and thus better equipped to steer the city towards prosperity. Good governance depends on how different state levels can steer and manage GNs to add value and enhance economic growth, transparency, and mobilize public support for reforms (Chhotray and Stoker 2009). This faith in GNs enables government agencies to shift responsibilities to non-public arenas and benefit from the resources of stakeholders and partners. Further, private sector firms acquire access to new markets via privatization and outsourcing, while CSOs increase their access to decision-makers and funds.

However, empirically based work shows an uneven geography of the capacities, durability, and inclusivity of GNs (O'Toole and Meier 2004; Davies 2007; Loopmans 2012; Blanco 2015). When GNs fail or encroach upon powerful political or economic interests, the state can reassert itself (Peters 2011; Larsson 2013). Elites, NGOs, CSOs, and private sector firms and corporations can be self-serving when it comes to where, when, and for whom the state should intervene, and state actors engage or disengage strategically with GNs when it suits their agendas or when the political calculus changes (Swyngedouw 2004, 2005). This problematizes a technocratic or overly functionalist conceptualization of good governance and the role of GNs.

3.2 Governing Cities

Cities are concentrated sites and nodes of capital accumulation, social reproduction, superimposed state jurisdictions, and territorial projects (see Chap. 1). Urban governance is the domain where these configurations of functions and requirements are directed and where conflicts and opportunities are managed (see also Chap. 2). Urban governance must deal with wicked problems (where science and values are

contested; costs and benefits diverge). This section discusses the abilities and limitations of GNs to deal with these issues. Moreover, it addresses the question of how local conditions, i.e. core characteristics of cities in the global South, shape the capacities and relevance of GNs in such contexts.

3.2.1 The Urban-Land Nexus

> Activities that benefit from proximity generate density, which leads to competitions over location and to differing requirements regarding services, taxes, zoning, planning and policies. This competition culminates in the urban land nexus where efficient, accommodating and sustainable governance is a goal never reached for long (Storper 2014: 118).

The essential nature of urban land is that it is simultaneously private and public, individual and collective, and that its shape and form express the intertwined dynamics of the individual actions of firms and households and collective action on the part of diverse institutions of control and governance (Scott and Storper 2014: 8).

Interdependencies, fragmentation, and irreconcilable differences are central to urban governance challenges (Storper 2014). Both the wellbeing of residents and the urban economy are emergent properties or effects of many actors (individual and collective); however, there is no principal political authority because of the fragmented political geographies. This leads to coordination problems being the norm both between scales and between departments (Storper 2014: 117), thus implying a mismatch between authority, capacity, territory, issues (e.g., flooding, housing shortages, crime), and the affected constituencies (Scott and Storper 2014). This urban-land nexus produces many collective action and principal-agent problems (see Box 3.1), often managed through experimentation, bricolage, and path dependencies rather than through comprehensive institutional or organizational changes (Storper 2014). Such ad hoc and reactive governance lends itself to the GN form, which can be more easily altered to the task at hand, and can go dormant when no longer needed, thereby not taking powers away from formal governance institutions or urban growth regimes. However, reducing spatial inequalities and undoing class, race, and/or ethnic segregation requires political mobilization, state interventions, and cultural shifts that GNs are much less equipped to handle (Davies 2012).

3.2.2 Capital Accumulation

Cities are also sites of capital accumulation for actors, such as corporations, financial institutions, investors, and entrepreneurs, which may not be city residents or nationals, but have economic or financial stakes (shareholders, bond holders, real estate investors) in how cities are governed and develop (Moreno 2014). Capital accumulates through three circuits that allow value to be produced and/or extracted

(Harvey 1978). The productive circuit refers to the production of goods and services for profit. The second circuit concerns accumulating capital through investing in real estate and the built environment, and the tertiary circuit refers to investment in research, technological development and health, education, and environmental protection that over time increase the potential for accumulation in the first and second circuits (Gottdiener and Hutchison 2011). While finance does not have its own circuit, it accumulates rents through the financialization of the other circuits, through loans and various instruments for managing risk and hedges for firms, individuals, and governments. These circuits are interdependent and impact each other. As these circuits can have local to global political geographies, it is another sort of principal-agent, and collective action issue where the 'geography of affect' (Barnett 2012; Thrift 2004) does not match formal political boundaries (see Chaps. 1, 2, 4 and 5). Governing these three circuits in a legitimate manner by a diverse citizenry and stakeholders is a never-ending effort punctuated by crises and conflict. For example, many state and municipal governments have become bill collectors for financial institutions in the form of austerity (Streeck 2011); changes in urban governance enable the transfer of capital from the productive and tertiary circuits to the second circuit, which leads to speculation, bubbles, crashes, weak job growth, stagnant wages, and increased urban inequalities (Harvey 2014; Sassen 2014).

The shift from urban government to governance (Harvey 1989, see also Chap. 2) is a shift from managerial city government focusing at citizen wellbeing to entrepreneurial urban governance aiming at a good business climate and credit worthy municipalities. Entrepreneurial governance corresponds with GN forms (Leitner et al. 2007). Today what are called GNs were once more commonly conceptualized as urban regimes, i.e., the nexus of urban capitalists, landlords, and municipal government officials. The congruence of political and economic interests between these actors produces development strategies that privilege capital accumulation and increasing ground rent and revenues (Stone 2006; Blanco 2013). Regimes connote elites, projects and strategies, and *quid pro quo*. Indeed, elite influence has increased over the period marked by discourses promoting the shift to GNs (Savage and Williams 2008; Wolin 2010; Crouch 2011) and this begs the question if shifts to inclusive GNs are actually happening, and to the extent that they are, if they are, effective mechanisms for bringing about more just urban governance processes (see Chap. 4).

3.2.3 Cities in the Global South

The complexities emerging from the way the urban-land nexus and circuits of capital accumulation are governed reveal the antagonisms and heterogeneities within state, civil society, and capital interests. However, these effects tend to be marginalized (Golubchikov et al. 2013) or unreflectively take Euro-American cities to be the norm (Sheppard et al. 2013). Nevertheless, in developing countries, the majority of urban populations work in the informal economy (Harriss-White 2010), most of the

built environment contravenes land-use laws, development codes and regulations, and many tenure arrangements contravene private property laws (Roy 2009). Urban informality streams from the disconnect between capital and labour in Southern cities, where corporate and middle-class capital is invested in property rather than in labour-absorbing productive enterprises (Chatterjee 2008; Schindler 2014). The comprehensive proletarianization and the consequent class compacts that were struck around working conditions, wages, and standards of living in Western cities during the twentieth century occurred much more unevenly in post-colonial Southern cities.

The process of commodifying, capitalizing, and financializing land and the built environment remain contemporary phenomena (Springer 2013; Lin and Zhang 2014). In India, beyond elite-occupied portions of city centres, the majority of urban and peri-urban lands have only recently begun to be capitalized (Ghertner 2014) and urban development in Asia, focuses on world-class, slum-free, and hi-tech cities that requires gentrification and state-facilitated enclosures (Banerjee-Guha 2013). Whereas there is arguably a movement from state hierarchical government to governance by networks in Northern cities, in the South the urban-land nexus and circuits of capital accumulation are marked more by informal governance networks than by centralized and hierarchical public authority. State consolidation over urban land management and city development is uneven, and most inhabitants are not integrated into the formal economy or norms of liberal civil society (Chatterjee 2004). Perhaps, in some cities, more rather than less state hierarchy is needed in urban governance. To accurately examine the capacities of GNs, the effect of the local context and external conditions, hence of place and space based dynamics, must be incorporated into the analysis.

3.3 The Genealogy of Governance Networks

Networks in governance are not new. However, policy networks, growth coalitions, lobbyists, interest groups, and other forms of participation in governing are part of the modern state and increasingly socially accepted. Forming governing GNs are now core capacities of legislators and administrators. What events and circumstances (and their interpretations) contributed to this shift? This section sketches a genealogy (social conditions of possibility) of GNs.

Historical institutionalist approaches to governance probe the historical trajectory of the rise and fall (and rise) of hierarchies, markets, and networks (Davies and Trounstine 2012) seeing institutions as the depoliticized product of past power struggles. Privilege, esteem, and authority remain unstable until institutions form to reinforce them, by rendering these power relations as normal and necessary. Path-dependency, referring to the weight or cost of past material and non-material investments put on change, explains why people or organizations act in ways that go against their longer-term interests; however, exogenous shocks may create room for path-shaping activities (Torfing 2009). In periods of relative stability, the biases and

antagonisms remain sufficiently manageable; however, the higher the level of suppressed contradictions, the greater the likelihood that exogenous shocks, like a financial or natural disaster, will punctuate the equilibrium and substantive change becomes likely (Hay 2007). These moments are not enough for change to occur; actors will need to define the problem and push for possible solutions before old path dependencies reassert themselves. The ascent of GNs needs to be related to crises in the political economy and those who presented GNs as necessary or natural developments.

3.3.1 Cultural Political Economy of Governance Networks

The shift to entrepreneurial urban governance through GNs can be connected to broader shifts in capitalist societies, namely the shift from Fordism and Keynesianism to Post-Fordism and varieties of neoliberalism (Brenner et al. 2010). Regulation School approaches analyse structural political economic change by looking at how different regimes of capital accumulation and modes of regulation operate to understand what precipitates their ascendance, stabilization, and entropy (Jessop 2013). They argue that the accumulation regime of Fordism and welfare states constituted after WWII, aiming at mass production/consumption, low unemployment, progressive taxation, profits and growing wages, started to become undone in the 1970s. With the fall of the Berlin Wall and the epoch of TINA (There Is No Alternative) to free-market capitalism, roll-backs to the welfare state gained footholds. Today, neoliberal rationalities of governance dominate, externalizing social reproduction responsibilities to unburden circuits of capital accumulation, as much as socially possible, from taxation, union demands, regulations, trade barriers, and capital controls for accumulation to continue. From this perspective, the shift to GNs looks like, "state-organised unburdening of the state" (Offe 2009: 55) in response to the demands of capital interests to reduce their responsibility for areas once considered collective goods or responsibilities, such as health care, education, basic services, or even prisons. The process of externalization both reduces the tax burden on corporations and financial institutions and opens up new markets for them. The once public goods or responsibilities that capital is not interested in 'opening up' will need to be picked up by civil society or fall upon families themselves to cover, hence rise of discourses of self-reliance and entrepreneurialism (Shamir 2008). This approach highlights the role the advent of GNs play in the politics of externalizing costs and responsibilities of social reproduction. Do GNs only 'add value' and fashion 'win-win' scenarios, or can they also exclude and extract in ways that can be traced to the biases of their dominant participants and larger, demonstrably unequal, social structures? How and to what extent is the shift to GNs exploitive and governmentalizing towards purposes of externalizing social reproduction from the state and the economy to civil society and citizens?

Contemporary theorists of the cultural political economy often look at shifts in capitalist economies through the metaphor of the fix (Brenner 2004; Harvey 2009).

Fixes do not solve problems, but rather displace them (temporally, spatially, institutionally, and/or ideologically) to postpone, as long as possible, shifts in social relations of production and consumption that may lead to redistribution of wealth and esteem. The economic goal of fixes is to remove or bypass barriers to accumulation. In this sense, regulatory fixes are about reducing turnover time central to increasing capital accumulation. The bureaucratic welfare or developmental state and its various interventions into markets became seen as problematic as they slow down turnover time between capital investment, returns, and reinvestment. Processes viewed as needing to operate on a capital space-time logic (Castree 2009), rather than on political or social reproductive space-time logics, would be better governed via GNs to reduce informational and temporal drags on accumulation that come from a more rigid boundary between the private sector and the state (Fuchs 2009). Networks that cut across or go around political institutions and state bureaucracies thus became part of governance reforms seeking to react to opportunities and respond to risks quickly. This explains why actions that used to be considered conflicts of interest, elite capture, or class conflicts are now described as collaboration, integration, partnerships, stakeholders, and knowledge management via GNs (Jessop 2014).

The political-ideological goal of regulatory fixes is to shield capital and markets from accountability and to keep their needs central to governance and development praxis (Harvey 2009, Prologue). This requires that states and governments be discursively fixed as both the problem and solution for economic slow-down and increasing inequalities. After the problems caused by structural adjustment in the South, new public management in parts of the West, and market fundamentalist transition in the former Soviet Union, the idea that markets require states was re-remembered (Joseph 2012). Rather than weakening the state and removing it from the domain of the market, the goal became to restructure states. Targeting the global South, the World Bank (1997, 2002) produced two important publications outlining how states needed to reform their economies to grow and for growth to be optimally distributed and reinvested. While necessary, states are seen as potential threats to properly functioning markets and need to be assessed by civil society and business and through international benchmarks and rankings of how policies and practices are helping or hurting markets (World Bank 1997, 2002). To better protect the urban economy, and thus residents, from arbitrary state power or incompetence forming GNs with business and civil society organizations is essential. This made GNs flanking mechanisms for centres of power interested in reconfiguring how and with whom states govern. Institutions like the International Monetary Fund (IMF), the United States Agency for International Development (USAID), and the United Nations mobilized the support of private sector and civil society organizations with shared (enough) visions and interests to engage with different state scales and agencies.

The forming of GNs for this purpose is strategic. Gaps and antagonisms exist within central and municipal government; GNs, to be effective change agents, need to comprise actors who can partner up with reform-friendly actors within the state, thus allowing for a mix of pressure and encouragement from horizontal and vertically positioned actors and organizations. Power is diffused, but significantly guided

by international actors wanting to construct urban governance as a permeable terrain that can be shifted towards their understanding of good urban governance. Discursively, the onus is always on states to act and react in ways that protect and expand markets and draw in capital investment. This discourse absolves markets and capital of being accountable to cities and citizens. A similar process has been occurring between the European Union (EU) and (potential) member states (Joseph 2012). GNs developed as a strategy for regulating the regulators in ways supportive of establishing a more flexible but sufficient regulation of capital accumulation (Davies 2012; Jessop 2013).

3.3.2 Techno-Ideological Fix: Network Society and Informational Capitalism

> Only under the conditions of the recent wave of information and communication technologies could networks (an old form of social organization) […] reconfigure themselves in real time, on a global–local scale, and permeate all domains of social life (Castells 2004: 221).

Two important texts have come out in the last 10 years describing how networks and networking are the spirit of contemporary capitalism: Fisher (2010) argues that discourses on ICT, network technology in particular, form a network cosmology that helps legitimate many of the personal, social, economic, and cultural transformations since the late 1980s. Boltanski and Chiapello (2006) argue that the network, as superior to hierarchy, in firms and corporations started in business management studies and has since spread to public and social spheres. Both books conclude that the network and networking in the world of work/employment helps manage the trade-off between material inequality and alienation. Networking reduces the alienation associated with Fordist modes of production, but does little in terms of redistribution of wealth and may increase inequalities (Fisher 2010: 102–106). Work becomes more flexible, workplaces more social, employer-employee interactions become more casual, and sharing one's ideas and thinking outside the box are encouraged; all the while, job security, benefits and the overall costs and burden of social reproduction are externalized (Fisher 2010: 84–89).

Notions like network society coat these shifts with a technological determinism that minimizes or conceals the individuals, firms, agencies, and institutions shaping contemporary temporalities and spatialities for particular purposes (i.e., quicker turnover time, increased productivity, and externalizing costs/efforts related to social reproduction). Ideologically, these shifts from hierarchical policymaking modes to a more networked form of governance are presented as positive sum-games tied to historical necessity and technological shifts rather than to social processes and class projects (Davies and Spicer 2015). The technological determinism secreted in with the network/networking ethos gives networks an ideological function, namely of treating the social antagonisms inherent in capitalism (domination and exploitation in particular) as growing pains or adjustments we have to endure

and adapt to given the new inevitable reality which is not open to debate (Barney 2004; Sutherland 2013; Roberts and Joseph 2014).

When powerful actors in the economy (transnational corporations, hedge funds, Goldman Sachs, Bill Gates, IMF) of the polity (treaty and trade negotiators, EU, United States, China, the World Trade Organization (WTO)), the media (Murdoch Corp. in the West; Reliance in India), and entertainment (Hollywood and Bollywood) want or need to operate at a global scale and you combine this with ICT innovations, then terms like network society become ideologically performative (Hassan 2011). This interaction between powerful actors and ICT innovations sensitizes us to giving over too much agency to ICT, and how useful it is for powerful actors to use discourses of technological determinism when taking decisions that reduce collective consumption, lower wages, and/or increase unemployment and underemployment. When centres of power (media, political, economic) use these discourses, of adapt or languish, this signals the rise of participatory authoritarianism (Cohen 2012) to the extent we act accordingly and provide the flexible free labour, data, networking, and information needed for economic dynamism and growth in the age of Informational Capitalism in the network society. These arguments invoking epochal shifts must be questioned as they are not simply recognizing but constituting the present era of the network society (Joseph 2010). Consequently, consensus and coordination become hegemonic, while modes of dissensus and contestation, such as resistance, political mobilization, and social movements wanting more comprehensive structural change are marginalized (Eagleton-Pierce 2014).

Thus, the emerging prominence of GNs can be attributed to institutional, ideological, political-economic, and technological shifts that promote GNs to change relations and boundaries between the state, civil society, labour, and capital related to capital accumulation and social reproduction processes and responsibilities. GNs entered the scene in the US and the UK in the late 1970s, and then spanned the globe via good governance policies and campaigns, audits, and aid or loan conditionalities promoted by global governance organizations, specifically the World Bank, United Nations Development Programme (UNDP), USAID, IMF, and the World Economic Forum. However, this time period is not marked by decreases in market and regulatory failures (Crouch 2011), yet there is, to date, little sign of the popularity of GNs' waning. This indicates other factors sustaining the network fix beyond stated aims of efficiency, inclusivity, and flexibility.

3.4 Research Frontiers

3.4.1 Governmentalization of Civil Society and States

While theorists like Castells take networks as an ontological condition of our times, governmentality considers them to be a strategy or tactic used to promote a type of self-governance via the injunctions, invitations, or nudges to participate and

collaborate in rational problem solving (Barney 2004; Roberts and Joseph 2014). Foucault defined governmentality as the capacity to conduct the conduct of people and their relations, and defined technologies of government as methods of acting upon people, places, and things for the purpose of getting them to freely act properly (McKee 2009). Governmentality is shaped by the dominant rationalities of government, meaning ways of perceiving and representing territory, populations, and the aims of government, i.e., economic growth, wellbeing, and sustainability (McKee 2009). The power to conduct the conduct of others requires apparatuses with reinforcing discursive and practical components that function to create and maintain the spaces, subjects, and activities required to bring about a certain type of governance (see Chap. 2). The discourse of GNs and the methods of constructing and steering them through capacity building, audits, best practices, and workshops are a form of productive power (Joseph 2012). Bringing NGOs and other organizations into GNs steered by the state opens up these organizations as well (Kutay 2014). It opens their activities and identities to reformulation (i.e., to processes of managerialization, professionalization and economization) thereby allowing more information about them to be collected, which then increases the state's ability to shape them (Rose and Miller 2010). The reflexive, responsible, self-governing actor (individual and collective) that can network with other such actors is constituted via acknowledgement in discourses and through being the target of techniques related to good governance and GNs. These actors are constituted much more so than discovered. When this process succeeds, actors start to see themselves in line with prescribed values and capacities, and thus begin to act accordingly. However, they will likely perceive this as their choice rather than the effect of technologies of government (Marinetto 2003; Shamir 2008; Madra and Adaman 2014).

Good governance can also be conceptualized as a governmentality targeting states rather than populations. Global governance organizations (WTO, World Bank, IMF, UN) deploy it to encourage governments to implement certain practices and policies, and to allow their performance to be ranked and evaluated by observers via performance indicators and benchmarks in World Development Reports and the World Economic Forum's Competition Index (Ilcan and Phillips 2010; Joseph 2012). Good governance conditionalities tied to loans, aid, and technical assistance between national and municipal governments and between these and other states or international organizations are a type of technology of government. They construct an image of the city that depoliticises the role of markets and market rationality in civil society and in government. The GN discourse within good governance gives the impression that this form of governmentality offers opportunities for many different actors. It becomes a means of integrating national and municipal governments into networks of external regulation, while being able to deny its instigators' responsibility for these shifts and related outcomes (Chandler 2006). Ownership discursively shifts responsibility to states, empowerment shifts responsibility for good governance to civil society and individuals, transparency and accountability shifts responsibility away from international institutions, and globalising capitalism to corrupt or low-capacity state practices and institutions (Chandler 2006). Why

certain states and international organizations have the legitimacy to fix the discourses and practices for the 'capacity building' of governments and the 'empowerment' of civil societies remains obscured (Murray-Li 2007).

Looking at GNs as a technology of good governance suggests that GNs have autonomy to the extent that they can be trusted to conduct themselves appropriately and to make valued governance contributions to elite-determined aims and rationalities. This leads to a set of important questions. To what extent are actors governmentalized in line with elite norms and projects through participating in GNs? What roles do GNs and their sister technologies (audits and rankings) play in constituting governable cities, municipal governments, and populations? What assumptions does the discourse of GNs make about the civic culture, civic politics, and the nature of urban problems? What are the contradictions between these assumptions and the social-spatial conditions within cities?

A governmentality approach to good governance highlights the technologies and discourses that help bring about responsible, rational, and entrepreneurial governance and the type of actors that stable capital accumulation presumably requires. It also emphasizes the roles that GNs play as a discourse and practice. Governmentality approaches show that GNs, while ostensibly being a form of decentralization, may be more accurately seen as a governmental technology of extending concentrated powers' power to conduct from a distance. This approach encourages us to closely examine the actors constructing and pushing for good governance and the developmental consequences across different cities.

Given that the point of governmentality is to set up the conditions and structures to enable governance actors to freely act in line with a rationality of government, the process of forming GNs is more important than the outcomes of various projects and interventions, which in terms of governmentalization are means to the end of changing how governance actors perceive problems and possible solutions (Joseph 2012). Lastly, governmenality offers insights into the genealogy of today's GNs. Before they could become accepted practice, urban governance needed to be established (rendered knowable and thematized) in ways that make GNs seem necessary and good (Jessop 2014).

3.5 History and Geography Matter

While new forms of urban governance including GNs draw attention in the global South, pre-existing governance forms such as vote-bank politics, patronage, clientelism, brokerage, and bossism are too often ignored. They are regarded as anachronistic or aberrant forms vulnerable to the incentives and rules being forged by liberalization and good governance campaigns (Hadiz 2004). However, local political actors and forms of informal public authority can successfully adapt to changing organizational and institutional landscapes without incurring significant reductions in influence. For example, in West Africa:

> The coexistence of many modes of local governance seems to us to be a central characteristic of Niger as well as many African countries. The process of 'piling up' types of power in local arenas has become generalised: when a new form of political authority is set up (either by the state or by development agencies) it does not substitute for the layers of institutionality already in place but adds to them […] There are layers of power and legitimacy dating from different periods which all coexist in the same sociopolitical space, displaying a complex mixture of mutual recognition and blind competition, of tolerance and masked rivalry (de Sardan 2011: 23).

Already existing modes of local governance, with their different modes of accountability, governing rationalities, and capacities, influence both how policies like forming GNs are taken up on the ground, and the extent to which GNs contribute to urban sustainability and inclusivity. These arguments highlight how reforms coming from elsewhere tend to miss the importance of already embedded modalities of civic politics and public authority at the city and street level.

The missing or dismissing of existing fields of local governance and civic politics championing GNs (even in the era of supposedly 'bottom-up' development) remains a problem. Donors, policymakers, or governance experts who only know areas on paper, if at all, have little idea, and thus little control, over what processes and which actors GNs will strengthen in practice. In other words, the civic political culture shaping practices and interactions on the ground between citizens and between citizens and public authorities may be incongruous with the civil society or 'social capital' required for effective and democratic GNs to take root and flourish. Subaltern Studies' main subject matter is the durability and magnitude of institutions rendered informal (subaltern in their lexicon) in relation to liberal-capitalist political and economic institutions that dominate higher-level state processes, corporate capitalism, and the 'new middle-classes'. They argue that these informal institutions, referred to as political society by Chatterjee (2004), are both incompatible with Western-derived theories and practices of governance and urbanism in particular, and incompatible with Western-derived universals of capitalism, liberalism, and modernity in general. Basically, the productive, political, and cultural lifeworlds of the majority of the populations in postcolonial contexts cannot be sufficiently understood by applying concepts developed through the study of Western societies. From this understanding it logically follows that reforms based on Western rationalities of governance fall short because they mistake discourses and institutions that are dominant in official documents and in elite circles to be prevalent throughout society. This mismatch is unlikely to be reduced by only retooling best practices or including 'local partners' in GNs. David Harvey rebukes:

> All universalization projects, be they liberal, neoliberal, conservative, religious, socialist, cosmopolitan, or rights-based run into serious problems as they encounter the specific circumstances of their application. Noble phrases and ideals [good governance] crumble into shoddy excuses, special pleadings, misunderstandings, and too often into violent confrontations and recriminations…[For example] the failure of neoliberals to imagine the consequences of imposing private property rights and monetized market solutions on divergent geographical, ecological and anthropological situations is one of the more astonishing conceits of our times (Harvey 2009: 8, 55).

This points to the significance of geography. To what extent do ideas, policies, and practices originating in liberal, advanced capitalist Western countries and then implemented elsewhere result in urban governance conducive to stable capital accumulation and social reproduction? While changes are presented as needing to come from within urban governance in terms of setting up GNs and constituting a civic culture that enables GNs to functions properly, the push for this project comes mainly from the outside, namely the EU, World Bank, and USAID, who are seen as able to intuit the requirements of amorphous concepts like globalization, sustainability, and the knowledge economy.

The spatiality of GNs needs more attention, in terms of their scale(s) of operation, the sectors or practices they attend to, and what level of public authority supports and/or enables their functioning (Swyngedouw 2004). GNs are not only city-level phenomena. Central state actors, international organizations and other, more powerful states, can also be nodes in knowledge networks or value chains that are encouraging municipal governments to adopt rationalities perceived to maximize opportunities and minimize risk. The formation, functioning, and guiding of GNs need to be examined in relation to state, capital, civil society strategies, and projects they are, or are not, implicated in. The declared and undeclared, the intentional and emergent aims and capacities of GNs, and how these interact with pre-existing social-spatial conditions and urban politics need to be examined and compared.

3.6 Conclusions

The positive aspects of GNs are too often asserted, rather than theorized, problematized, and empirically demonstrated. More conceptual and empirical work is needed to judge if, how, where, and why GNs contribute to changes in urban governance, and where and to whom costs and benefits accrue. Similar to ICT, GNs are not essentially progressive, regressive, or in service of the status quo; geography and history matter. Projects of restructuring the rationalities, practices, and organizational form of governance, spearheaded by the EU in Europe and the World Bank (among others) in the global South have had limited and uncertain success when it comes to stabilizing capital accumulation and promoting wellbeing. The role and whereabouts of power in this uneven geography of implementation and results needs to be analysed (Griffin 2012). The genealogy of GNs serves as a reminder not to take as given what needs to be examined and explained in terms of their cultural political economic (re) constitution. We must question both declared and undeclared intentions and capacities of GNs and how these change over time and space.

The influence that GNs mobilize over or with state powers and agencies in urban governance, remain empirical and theoretical questions. The presence, prowess and powers of GNs in different domains (urban-land nexus, capital accumulation, and social reproduction) is geographically uneven given different social-spatial conditions within and between cities. Like with any governance reform or intervention,

there are winners and losers in terms of territories, scales, sectors, networks, actors, and places (Jessop et al. 2008). It becomes important to research and reflect on what cultural, political, economic, and spatial interests are involved, what kind of redistribution of roles, responsibilities, and powers are involved, what frictions and obstacles do attempts to network governance meet and to what extent, where, and by whom these antagonisms or bottlenecks are reconciled or postponed (Brenner 2004; Baud and de Wit 2008).

GNs enabled by ICT and technological determinism may be able to take decisions and act more quickly, and some times more optimally, but not with the attention to the bigger picture, nor to democratic values and processes. Is there a speed limit to democracy (McIvor 2011)? Reflection, research, discussions, and deliberations take time; but time is short in this fast-paced, complex, and risky world. Important questions become to what extent do the norms, means, and ends that bind GNs together represent those of the broader public? Where does GNs' legitimacy to govern come from, what kind of sovereignty is at work here, if any, and how can GNs be made accountable (Leviens 2014)? These questions are central to protect democracy, justice, and equality.

Acknowledgements I would like to thank Ulrich Mans, Peter Knorringa, and N. Sridharan for their comments on earlier versions of this chapter. Also, it was my good fortune to have Isa Baud as both my master's thesis supervisor and my doctoral promoter. Usual disclaimers apply.

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Chapter 4
Beyond the Network Effect: Towards an Alternative Understanding of Global Urban Organizations

Paul James and Hebe Verrest

Abstract Global organizations providing network relations for cities are bourgeoning. Organizations such as Metropolis, UN-Habitat, ICLEI – Local Governments for Sustainability, the Global Compact Cities Programme, and the C40, as well as City-to-City arrangements, have become increasingly important to managing urban networking and global urban governance. The growing literature on global urban networking tends to assume that networking is bringing positive outcomes for urban development and that increased connectivity is making a significant difference to enhancing political engagement in itself. In practice, there is considerable interchange happening, and globally accessible websites and global newsletters outlining the latest and best practices are omnipresent. However, to what extent networked relations provide direct guidance for governance, let alone change existing paradigms, remains unclear. This chapter explores the added value of networked relations, asking more specifically how different forms of networking and various forms of knowledge exchange are acknowledged in efficaciously enhancing work in urban sustainability.

Keywords Global urban networks • Policy mobilities • Knowledge • Urban sustainability • Embodied exchange

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J. Gupta et al. (eds.), *Geographies of Urban Governance*,
DOI 10.1007/978-3-319-21272-2_4

4.1 Introduction

Having covered many urban governance theories and practices in the previous chapters, this chapter explores the role of networked relations in responding to urban sustainability questions. Increased attention to the role of various networks in urban governance reflects changes in governance thinking and practices over the past two decades (see Chaps. 2 and 4). A key shift has been towards treating networks as the preferred mode to realize better governance (see Chap. 3). Such network arrangements consist of a "complex set of relationships between different public bodies, private, voluntary and community organisations" (Blanco 2013: 278). Networks operate at the city level, but increasingly also between cities and across multiple scales. Globalization facilitates networks between globally active cities as part of a "world city network making process in which the balance between inter-state and supra-state plus trans-state activities is appreciably tilting away from the former" (Taylor 2005: 705). Overlapping and intersecting flows of ideas, knowledge, people, money, transactions and goods not only link major cities and major city-regions, but increasingly also small towns and remote villages (see Sect. 5.3.2). These flows and networks are extended and intensified with expanding global circuits of power: contemporary forms of networking and globalization are developing together.

Networks are expected to be efficient and effective forms of governance, and networking is therefore presented as the essential basis of successful political engagement (see Chap. 3, Rhodes 2007; Sørensen and Torfing 2007; Klijn and Koppenjan 2012; Lecy et al. 2014). More broadly, 'networking' has become the dominant term for social relations in our time. We are supposedly networking all the time, and not just through the social media platforms such as About.me, Academia, Facebook, LinkedIn, Mylife, Twitter and Sina Welbo. Whenever more than two people engage in an *event* – once called 'getting together' or 'discussing work' – the explanatory concepts immediately evoked are 'networking' and 'networks'. Similarly, wherever complex webs of mediated or public interchange develop they are almost always called 'networks'.

Networked relations have become the basis of theories of all facets of social life, ranging from human-object engagement (Latour 1993) to global information exchange (Castells 1996) and international urban governance (Blanco 2013). Specifically, theories of networking and information-based interchange have gained significance in the early twenty-first century, just as theories of power and difference did in the late twentieth century. If in the 1990s we had 'the Foucault effect' (Burchell et al. 1991) – that is, the theoretical projection that power is everywhere – we now have 'the network effect': the assumption that networking is everything.

In responding to the network effect, the present chapter sets out to understand how (global) urban networks operate. After discussing the origin and rise of the network concept (see Sect. 4.2), it explores three questions to frame the discussion. First, how do networks and networking relate to different ways of engaging socially (see Sect. 4.3)? Second, how does the nature of social engagement relate to different forms of knowledge (see Sect. 4.4)? Third, linking the first two questions, how do different forms of social engagement (including networking as one form of social engagement

Box 4.1: Engaged Theory
Engaged theory moves between high theory and grounded discussions of critical issues in the world. It seeks to bring generalized arguments to bear on local/global situations, recognizing both common (sometimes global) patterns of practice and meaning and the particularity of any one situation or locale. In doing so, the approach is sensitive to the standpoint from which it makes its arguments: from empirical analysis to more abstracted analyses of social formations, and back again. It is theory engaged in the world. It is theory that makes explicit both its political arguments about the world and about theory (see for example, James 2006).

among many) and the different forms of knowledge relate to the issue of more effective global urban governance (see Sect. 4.5)? We answer these questions using an engaged theory approach (Box 4.1), which (1) distinguishes different forms of networking that differ both in the degree of interaction and in the form of integration (see Sect. 4.3), and (2) proposes a new taxonomy of knowledge, distinguishing between sensory experience (feeling), practical consciousness (pragmatics), reflective consciousness (reflection) and reflexive consciousness (reflexivity) (see Sect. 4.4).

We draw from practical and theoretical work produced by urban networks such as the World Association of Major Metropolises (referred to as Metropolis), the Cities Climate Leadership Group (C40), ICLEI – Local Governments for Sustainability (further abbreviated as ICLEI), the United Nations (UN) Global Compact Cities Programme, city-to-city arrangements and UN-Habitat initiatives (Verrest et al. 2013; James et al. 2015) (see Table 4.1). We thereby acknowledge the cross-cutting contingency of networks:

> The complexity of the networks and the partnering processes, make outcomes unpredictable. However, when they work, they provide incentives for citizen investment, as stakeholders in monitoring the long-term sustainability of public services (Baud and Dhanalakshmi 2007: 146).

4.2 The Rise of the Network Concept and Urban Network Governance

A simple indication of the power of the network concept is provided by an N-Gram[1] search of five million books (Oxford English Dictionary Online 2015). The search shows that while the concept was only occasionally used prior to the 1920s, it has bourgeoned since the 1990s. By comparing the term network with other words for sociality such as web, social relations or interchange, its prominence is brought into

[1] An N-gram is a statistical method to reflect the incidences (*N*) of a word or short sentence in texts. The Google NGramviewer allows for N-grams based on the corpus of Google Books.

Table 4.1 Examples of global city networks

Network	Aim	Source[a]
C40 Cities Climate Leadership Group (C40)	Cities working together to address climate change, with topical networks where "city representatives connect with one another on topics of common interest" (C40 n.d.)	www.c40.org/networks
Metropolis	Platform of 130 cities with more than 1 million inhabitants where members "explore issues and concerns common to all big cities and metropolitan regions"	www.metropolis.org/mission
UN Global Compact Cities Programme	Focuses on "collaboration between all levels of government, business and civil society in order to enhance sustainability, resilience, diversity and adaptation within cities and in the face of complex urban challenges"	www.citiesprogramme.com
ICLEI – Local Governments for Sustainability	Network of more than 1,000 local governments that aims "to build and serve a worldwide movement of local governments to achieve tangible improvements in global sustainability"	http://www.iclei.org/resources/publications/iclei-case-studies.html
Participatory Slum Upgrading Programme (PSUP)	UN-Habitat initiative aiming at "contributing to the improvement of the living conditions of the urban poor"	http://unhabitat.org/initiatives-programmes/participatory-slum-upgrading/
World Urban Forum (WUF)	UN-Habitat initiative aiming at "examining the most pressing issues facing the world today in the area of human settlements"	http://wuf7.unhabitat.org
Global Network on Safer Cities	UN-Habitat initiative aiming at "equipping local authorities and urban stakeholders to deliver safety"	http://unhabitat.org/urban-initiatives/
Global Land Tool Network	UN-Habitat initiative aiming at "contributing to poverty alleviation and the MDGs through land reform, improved land managements, and security of tenure"	http://mirror.unhabitat.org/bp/bp.list.aspx

[a]All web pages accessed on 25 March 2015

relief (see Fig. 4.1). Even concepts such as web and globalization are eclipsed by the growing use of the network concept. The meaning of the concept shifted from woven fabric and organic plant and animal tissue in the mid-sixteenth century, via topographical and infrastructure systems in the nineteenth century, to "a chain or system of interconnected immaterial things" in the twentieth century (Oxford English Dictionary Online 2015).

While the term began its long life as an organic and then structural metaphor based on a material thing – a woven net – it has become abstracted as a system of interconnections. As such, the term came to be used to subsume, firstly, the connected objects and then, much more recently, our relations with other people. In short, despite the complex etymology of the concept, human relations have been increasingly made over in terms of 'networks'. This development seems to be blinding us to the issue that social relations, including governance relations, are layered in tensions between more embodied integrative relations and more abstracted relations (explained below).

Not only conceptually but also in practice, networks and networking have become important phenomena. For example, given that cities are both causes of, and will be impacted by climate change, networking helps them to find common solutions (see Box 4.2). City-based networks have become part and parcel of governance practices as specific, bounded and intentional arenas for urban change (le Galès 2001; Bulkeley 2005; Klijn and Skelcher 2007). For example, in 2002, the year in which United Nations Human Settlements Programme (UN-Habitat) was elevated to a fully-fledged United Nations programme, it made city-to-city (C2C) cooperation the theme for World Habitat Day (UN-Habitat 2002). By doing so, it confirmed the importance of a new concept (C2C) that for a time had been emerging with significant status.

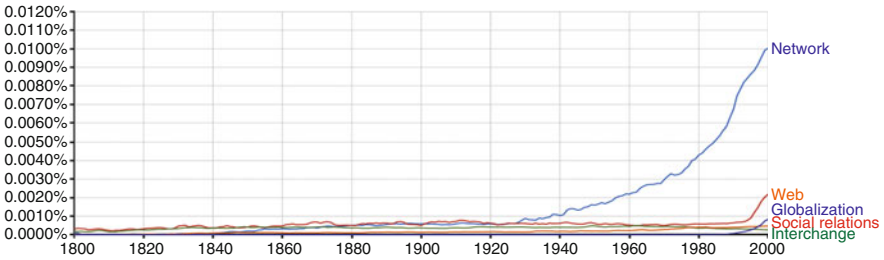

Fig. 4.1 Comparative use of the network concept, 1800–2000, N-Gram (https://books.google.com/ngrams)

Box 4.2: Cities and Climate Change

Cities as concentrations of production and consumption activities and very high densities of people are both sources of a high proportion of global greenhouse gas emissions as well as concentrations of vulnerability to the possible impacts of climate change. A recent OECD report shows that especially port cities will be among the worst hit in relation to climate change. These impacts include rising sea levels, changes in precipitation levels, water scarcity, air, water and solid waste pollution, which may affect the lives and livelihoods of residents as well as their infrastructure. This makes it important to focus climate policy at a city level. The current slow-down in global negotiations on climate change has also reinforced the importance of taking action at subnational levels.

(continued)

Box 4.2: (continued)

The Intergovernmental Panel on Climate Change argues that cities have inter-dependent systems that can be used to develop adaptation strategies within a multi-level governance setting; if done cleverly this can also lead to mitigation co-benefits. Cities are of a scale that is both sufficiently dense to allow for change in their development strategies as well as small enough to be laboratories of experimentation. They are better able to develop disaster risk management and to ensure that these use ecosystem-based approaches.

City-level networks since the end of the 1980s have been building coalitions to deal with environmental challenges including that of climate change. ICLEI Local Governments for Sustainability has over 1,000 members who are trying to share best practices and learn from each other in promoting sustainable development. In particular, the C40 Cities Climate Leadership Group has membership from megacities worldwide and helps to reduce their emissions of greenhouse gases and address their climate risks.

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From 1982 to 2004, the number of sustainability-related city networks rose from 8 to 49 (Keiner and Kim 2007). Global urban networks consist of private, public, and civil actors, assembled around specific issues. Well-known examples are listed in Table 4.1.

Several factors contributed to the rise of global urban networks and influenced cities to engage in them. First, urban networks began to function as core agencies countering the global forces of environmental change, such as in the case of C40 that aims to respond to climate change. Second, urban networks have become stronger with the enhancement of the independent capacities of local municipalities. Metropolis and UN-Habitat network activities depend on the relative autonomy of cities to engage beyond the nation-state. Third, urban networks have been extended as a result of the information technology revolution, which enables cities to connect with remote partners (see Chaps. 8 and 9). Fourth, networks not only respond to globalization but also have themselves become more globalized. Metropolis, for example, acts and presents itself as a global network (Metropolis 2008) – even while it also continues to be a classical international organization with its headquarters in Barcelona and its politics organized around strong national and regional foci. Fifth, engaging in (globally) networked organizations provides cities with a certain status associated with being at the centre of a strong network. Finally, networking may provide financial and political opportunities (Betsill and Bulkeley 2004; Bulkeley 2006; Gordon 2013).

4.3 How Does Networking Relate to Different Ways of Engaging Socially?

Engagement is a core characteristic of networks. It emerges from events in which people relate to each other, whether as strangers, acquaintances, or friends, whether in face-to-face interactions or in technologically mediated events. All these processes are understood as contributing to the formation of networked relations. Networks have been classified based on geographical scope, size, budget, membership, and organizational structure (see Keiner and Kim 2007 for various network typologies). However, all these classifications focus on these dimensions as if they are a function of degree and number.

Arguably, the overriding problem with the network effect is that it reduces social life to a single modality that can be counted and mapped: namely, abstracted interchange. Interchange is defined here to cover the many kinds of events in which people come into inter-relation – whether as strangers, acquaintances, or friends; whether in face-to-face interactions or through technologically mediated systems. All these processes are understood in the network literature as contributing to the formation of networked relations. It does not matter whether a relationship is ontologically integrated by embodied ties of reciprocal mutuality or lifted out into disembodied circuits of communication. They are all networks, characterized in Fuhse's analogy (2015) by on-off switches. Networks, he says, tend to be reduced to two accentuated modalities: they are 'on' (interactions are occurring) or they are 'off' (there are no interactions).

Indicatively, Bruno Latour (2014) has made networking an ontological basis of the human condition. His Actor Network Theory (ANT) sees objects (human and non-human) as part of multiple networks, and explains events and interactions as if networking is the basis of all active engagement. It is also indicative that another writer, for whom in an earlier classic text 'the network' did not exist as a category of explanation (Castells 1977), later describes it as the emergent framework of contemporary society (Castells 1996). Latour and Castells have sophisticated descriptions of the social world, but they locate these descriptions in reductionist theories that are so enthralled by networks as abstract systems that complex layered social relations are reduced to the flat metaphor of lines of interchange across two-dimensional spaces (Sharp 1997; Cooper 2008). Everything is reduced to network relations.

While ANT is problematic, the network concept remains useful if its current use is recognized for what it is: namely, as a description of a very particular set of differently abstracted relations within a still wider set of many possible human relations. Here 'abstracted' is used to describe the material process of drawing away from the relational consequences of embodied co-presence. This abstraction can take many forms, from treating the other as an object, through to mediating the presence of others spatially through technologies of communication. Under the dominance of contemporary political life, people acting through more abstracted connections to others tend to instrumentalize other continuing forms of social

relations (Sharp 1997; Cooper 2008). In more familiar terms, this means that networking tends to use relationships as means to other ends. These ends might include exerting influence, gaining information or increasing productivity. Put more positively, networking is important to inter-urban governance, but only as one modality of the many possible ways in which people relate socially to one another.

This section argues that making sense of the different ways of engaging socially and being able to understand the nature of urban global networks requires a deeper analysis of the different forms of the interchange. Interchange is thus used here to include both *interactions* (the way in which network theory would understand them) and as building *integrative relations* (a focus of engaged theory). This analysis turns on a distinction between *interaction* as any connection between persons, face-to-face or more abstractly mediated by technologies and *integration*, the social form of those relations. Defining geographical scope, size, budget, membership and organizational structure poses empirical questions of interactions. How many? How extended? How intense? Defining the nature of integrative relations poses qualitative questions of social form.

What is the dominant form taken by the relations? How do these forms intersect in any single pattern of interactions? Four forms of networked relations are identified here (Fig. 4.2). They are *forms* rather than 'ideal types' of networked relations

Forms of networked relations	As patterns of interaction	As forms of integration
Embodied relations	Between persons relating to each other in face-to-face events	Enabling the development of embodied mutuality, trust, and reciprocity, carried in the practical meaning of the relationship beyond times of immediate interaction
Object-extended relations	Between persons engaging in object-relating systems and/or using objects as mediating actants	Based on objects being part of systems of ongoing exchange and/or given contextual meaning that carries over time and space
Agency-extended relations	Between persons acting in their capacity as agents of an institution: for example, as representative of a municipality or state	Involving persons acting primarily as institutional agents
Disembodied relations	Between persons where their relations are mediated by systems that facilitate interchange at a distance: for example, web-based interchange	Emphasizing the dominance and constitutive framing of the process of interchange by technologies and techniques of mediation

Increasing abstraction of social relations ↓

Fig. 4.2 Different forms of networked relations

in the sense that in any particular network or event these forms intersect and entangle with each other. They can only be separated out analytically.

First, *embodied* networked relations are connections that bring persons and groups together from near and dispersed localities through embodied interactions. To the extent that these persons meet as close associates, not just as representatives of an institution, this encompasses the direct relations that individual mayors, administrators and urban practitioners sometimes forge in meeting each other at different forums. Embodied networking refers to relations of reciprocal mutuality that are based on direct relations between persons carried across time, and despite discontinuities. We further distinguish the embodied networking between relative strangers, the embodied networking of intermittent colleagues and the patterned acts of friends and colleagues meeting each other in global urban forums. We do not consider the latter as networking, but as *personal or communal ties*.

The emphasis here in describing embodied networked relations is on person-to-person relations rather than institutionalized connections. Such networked relations can amount to no more than patterns of *interaction* or they can forge *integrative relations*. That is, on the one hand, despite being based on face-to-face contacts, embodied networked relations can be just as instrumental and abstract as any other form of networking. On the other hand, despite the events being separated by many months, these patterns of interaction may be the basis of long-term relations. For example, thousands of people may turn up to the bi-annual UN-Habitat World Urban Forum, most of them unfamiliar to each other, all seeking to forge networks, but at those meetings other kinds of relations are developed. These relations, threaded through the networking of strangers and colleagues, tend to be extraordinarily resilient with personal ties being renewed in an ongoing way.

Embodied relations, formed in the first instance through networking, may go beyond just a series of face-to-face interactions and evolve into integrative relations of ongoing mutuality and collegial interdependency. The Metropolis platform illustrates this process. Metropolis has organized regular meetings attended by colleagues and associates for over three decades. Its various fora of mayors, tri-annual conferences and annual meetings are, however, not just networking occasions. They equally provide settings for colleagues, many of whom know each other well and interact beyond the events, to work closely together for a common purpose. In other words, Metropolis depends on relations of collegiality and even long-term friendship that go beyond just networking. Relations that started as networking with status orientation have become interwoven in contradictory and complex ways into the fabric of Metropolis' governance.

These more integrated embodied relations that emphasize non-instrumentalized relations between particular known others, often form as an unnoticed level of networking. It is true that in the world of urban networks, such relations tend to be subordinated to the more abstract forms of networks described below, but it is important not to underestimate their continuing resilience and productivity, even as those more abstracted networked relations swirl over and around them (McCann 2011). An example of such integrative embodied network relations are the City-to-City (C2C) partnerships described in Box 4.3.

Box 4.3: City-to-City Partnerships through Diasporas: An Example of Integrative Embodied Relations

One example of networks between cities concerns the integrated embodied relations between local government officials in migrant-source and destination countries based on long-established diasporic ties. Many of these partnerships were established around the year 2000 and focus on strengthening local governance processes on both sides. They offer specific learning opportunities about social cohesion and diversity for municipalities in destination countries as they have been looking for ways to strengthen social cohesion within their own municipalities and learn from issues related to cultural diversity. Van Ewijk (2013) describes Dutch-Moroccan and Dutch-Turkish municipal partnerships in which a wide variety of actors, including waste management experts, policemen and teachers, exchange knowledge. Despite the existing transnational linkages and the possibility to communicate via computers and phones, face-to-face exchanges appear to be crucial as many professionals do not have access to computers or they just do not use the internet as a communication highway. Moreover, face-to-face contacts are essential to establish trust and friendship, which help to establish good partnerships and to exchange tacit knowledge related to practical work experiences (van Ewijk and Baud 2009). Migrants have played a role as translators and also helped to overcome cultural differences in knowledge-exchange processes. Furthermore, they have initiated several exchanges and provide specific knowledge and networks.

In addition to exchanging knowledge on project level, these partnerships have a broader aim of combating prejudices and building bridges; both between the source and destination migrant countries and between formal institutions and the diasporas in migrant destination countries. This appears to be particularly relevant as a large share of the migrants are Muslims, and tensions connected to religion have remained paramount ever since 9/11 (van Ewijk 2013). The linkages between migrant source and destination countries thus contribute to countering a specific negative force related to globalization: tensions related to cultural diversity (Gordon 2013).

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Second, *object-extended* networked relations link objects into patterned relationships. For example, the gifts given to key participants at urban conferences become ongoing carriers of those relations. The most prevalent system today is the network of consumer commodities, largely supplanting even those most ubiquitous objects of communication and interchange: coins, notes and stamps. While these kinds of networks are critically important to broader processes of globalization, and although such objects as promissory notes played an important role in the Medieval and Renaissance urban networks, object-extended relations are today less relevant to inter-urban networking than other forms. Nevertheless, urban networking is full of

the exchange of objects – culturally chosen objects given as mementos of city-to-city visits; objects distributed to mark involvement in conferences; and sculptures distributed to associate the brand name of a sponsor with a particular event. Many such objects lose their intended meaning, but amongst the many pens, plaques and plates, there is the occasional object that carries deep integrative import. It is precisely these kinds of objects that signify an integrative relation rather than just being a material thing moving in fluid 'networks of things'.

Third, *agency-extended networked relations* are connections between representatives of institutions such as corporations, municipalities and states – that is, through persons acting in their capacity as institutionalized agents. As a form of networking, this mode gives rise to the perceived status of organizations involved in networks, particularly as hosting or acting as a secretariat to networks. Think for example about the Royal Melbourne Institute of Technology (RMIT University), which hosts the secretariat of the Global Compact Cities Programme; the partnering of the Arup company with C40 in various projects (C40 n.d.); and the hosting of ICLEI branches by the city of Bonn, Melbourne, Belo Horizonte and Seoul (ICLEI n.d., a). The institutionalization of networks as organizations, exemplified by the Global Compact Cities Programme, the C40 or ICLEI, is crucial to their success. However, without it being necessarily recognized as dependent on other forms, this mode of networking today relies upon both face-to-face networks and more disembodied networks.

Fourth, *disembodied networked relations* draw connections between immaterial things and processes including images, electronic texts and encoded capital. As a globalizing system of interconnections, this is the only relatively new phenomenon in networking, but it has taken on an overriding force due to the intersection of electronic communications and other technologies of interchange, techno-science and late-capitalism. As Chaps. 2, 8 and 9 describe, the mediated circulation of policy documents and global attention for cloud-based and big data systems are illustrations of this form of networked relations. Disembodied networking then refers to the multitude of interactions through the burgeoning webs of information flow. At this level, websites, email-delivered newsletters and twitter have become *de rigueur*. Through email, persons may be still using the technologies to carry various integrative relations, including an embodied or agency-extended kind, but the emphasis here is on the abstracted interchange rather than the forging of particularistic integrative relationships.

Disembodied networked relations have gained extraordinary momentum over the past few decades. C40 networks, for example, establish communication in networks through "virtual exchange and in-person gatherings" (C40 n.d.); Metropolis has developed Facebook and Twitter online communities (Metropolis n.d.); and in ICLEI subscription to a mailing list is one of the core strategies to get involved in the network (ICLEI n.d., a). An extreme example of an approach focusing on disembodied relations is the smart cities approach. Despite the fact that the smart cities concept should imply more than ICT (see Chap. 9), the smart cities' public and policy literature emphasizes the overriding importance of high-technology systems for developing more livable and sustainable cities. As such it carries forward the narrow understandings of networking and digital communication. IBM, followed

by other companies such as Siemens, Phillips and Cisco, was a frontrunner, going back to 2009 with its 'Smarter Planet' campaign (Dirks and Keeling 2009; Dirks et al. 2009). It is certainly not face-to-face integrative relations that are being emphasized. Hitachi, for example, the Japanese technology conglomerate, writes on its website that:

> In order to realize a smart city, it is important to use IT to connect a variety of everyday living services to public infrastructures, such as electric power, railways, and water. To this end, a communication network is necessary to establish all sorts of connections, including human to human, human to machine, machine to machine (Hitachi 2015).

In the same way that embodied and abstract forms of networked relations can be distinguished, we distinguish the interactional dimension of networking from the deeper relations of integration that can sometimes develop through networking. Just as in the theories of networking, the integrational dimension of urban networks has largely been overlooked in most discussions of global cities (e.g. Sassen 2001; Taylor 2005). Similarly, in the promotional folders of businesses, networks are treated as just extensions of relations over various reaches of space and time, whether they are persons, transport nodes or communications systems. In the words of IBM, "Today's cities, home to more than half the world's population, can be seen as complex networks of components: citizens, businesses, transport, communications, water, energy, city services and other systems" (Dirks et al. 2009: 1). Here, relations between people are just another *component* of the city. The different relations between strangers, colleagues, friends, daughters and intimate others are all gathered together under the portmanteau concept of 'citizen'. Citizens become just another component, abstracted in the same way as transport systems. They are both complex, and they are both systems.

Critical discussions on smart cities (c.f. Hajer and Dassen 2014; Bulkeley and Castán Broto 2013) go some way to redressing this flattening of social relations. They stress the importance of understanding and implementing smart technologies in the context of urban metabolism (see Chaps. 5 and 9) and local governance configurations, and hence the importance of including other forms of interaction than technologically mediated communications. However, they have little to say about the forms of integration.

Hence, both the personal ties and embodied networking that brings together intermittent associates are important to strengthen urban movements. Speaking empirically, personal ties continue to inform almost all aspects of organizational life, even if disembodied networking clearly predominates in terms of numbers of interactions. The UN Global Compact Cities Programme provides a telling example here. The nature of the organization – small and based in Melbourne away from the centre of United Nations' activities in such cities as New York and Nairobi – means that it is dependent for its unexpected influence on both extremes of the disembodied/embodied nexus. Consequentially, it is a vulnerable organization that risks being reduced to a website of named city members who have little relation to each other – but could be carried into the future by an energetic series of personal ties based on the extensive personal engagement in its 90 engaged cities.

4.4 How Does the Nature of Social Engagement Relate to Different Forms of Knowledge?

The second question concerns the kinds of knowledge that are being produced, exchanged and disseminated through the various forms of social engagement in networking, emphasized by van Ewijk and Baud (2009: 220):

> When discussing the possibilities for knowledge exchange and mutuality in C2C networks, we have to recognize what types of knowledge exist as well as the models within which different types of knowledge are produced and disseminated.

Just as we need nuanced distinctions to understand the layered nature of urban networking, we need to distinguish between the different modalities of knowledge that arise in these circumstances. van Ewijk and Baud distinguish tacit, embedded and codified/generalized knowledge (2009; see also Chap. 8). Tacit knowledge, they argue, is generally treated as less consequential than codified knowledge and "knowledge production systems consist of the constant interaction and translation between the three different types of knowledge" (van Ewijk and Baud 2009: 220).

Building this further, we set out an alternative taxonomy of forms of knowledge, based on 'knowledge circles', where these different forms of knowledge overlay each other and intersect in contradictory ways. The urban sustainability field of practice privileges reflective consciousness, evidenced in empirical analysis, blueprint designing, precinct planning and network building. In all the networks examined in this chapter, we see this reflective knowledge emphasis. A good example of this is the Participatory Slum Upgrading Programme (PSUP) initiated by UN-Habitat based on analysis and discussion in networks, which is a blue-printed approach for slum upgrading (Verrest et al. 2013). Another example is the C40 approach to urban change, which established seven network themes based on existing data. Cities relevant for a theme were brought together in a network. A combination of data, research and peer-to-peer knowledge exchange is considered relevant to address an issue (C40 n.d.).

However, reflective codified knowledge fits into a larger whole of theories. Among the many different ways of knowing, the engaged theory approach (see Box 4.1) distinguishes four forms: sensory experience (feeling); practical consciousness (pragmatics); reflective consciousness (reflection); and reflexive consciousness (reflexivity) (James 2006; Circles of Sustainability 2014).

The first form of knowing is *sensory experience*: feeling things. This is the phenomenal sense that something exists in relation to us, or has an impact on us. The concept of 'affect' (i.e. the experience of feeling or emotion) attests to this kind of consciousness, as does 'sense data' (i.e. unanalysed experiences). Sensory embodied experience is felt, but not necessarily reflected upon. How we feel about our cities and homes is critical to how we act upon them. It is surprising how often these slip unnoticed into planning and urban design approaches as well as into practices in global urban networks. There is often the implicit acknowledgement of feelings of excitement, dynamism or insecurity attached to particular cities acting as a base for understanding the urban feel and for developing plans and programmes. However,

the city-specific and individual-specific character of this knowledge impedes a smooth transfer of urban policies and urban experiences in urban networks.

The second form of knowing is *practical consciousness*: knowing practically or pragmatically how to do things; knowing how to go on. Practical consciousness is basic to human action in the world. Often we just know how to do things without reading instruction manuals. This way of knowing comes from long-term practical experience, producing tacit knowledge. This knowledge form plays a minor role in the urban networking literature, though it is key to making networks in the first place and contributes massively to their success. The exchange of this kind of knowledge takes place predominantly through face-to-face networking and collegial exchange (van Ewijk 2013).

The third knowledge form in our taxonomy is *reflective consciousness*. This is the modality in which people reflect upon their felt experience and practical knowledge and develop a codified understanding of the world. It is rooted in ordinary philosophy, and it is what thoughtful urban practitioners often do when they get a chance to step back from a project – thinking about what has been done, what is to be done and how could it be done better. It is the basis of good interpretation and it is necessary to good urban design and project management. This is the dominant form of knowledge tapped into in networks during conferences and gatherings, and appears throughout the more strategic documentation of all successful urban networks. Examples include UN-Habitat's Safer City Programme or its PSUP.

The fourth form is *reflexive consciousness*, or knowledge that comes in interrogating the nature of knowing while seeking to understand the world. Reflexivity requires reflection on the constitutive conditions of being here or doing things. Reflexivity goes beyond reflecting upon techniques, processes and practices. It involves standing back from and reinterpreting those techniques and practices in the light of the nature of thinking and acting that underlies those practices. This process of interrogating the conditions of our practice is tenuous, recursive and always partial. However, it is this kind of knowing, linked to integrative relations of mutual trust that are beneficial not only to creating urban change but also to creating and sustaining good networks.

Knowledge circles, or hermeneutic circles as they are known in philosophy, treat these ways of knowing as deeply connected to each other. Each non-mutually exclusive category contributes to remaking our cities. In any given situation, these forms of knowing intersect with each other in circles of changing hermeneutic possibilities (Circles of Sustainability 2014). These alternative ways of knowing shape the workings of global urban networks. Unlike the usual hierarchical lists of forms of knowledge – data, information, knowledge and wisdom – knowledge circles set up no hierarchy of knowledge importance. As such, with the current trend to emphasize the importance of (big) data for urban development, it is important to realize that data are just sets of codified information. There is no doubt that big data can be extraordinarily useful, but only if it is drawn into a broader epistemological framework (see Chap. 9). Similarly, urban development practitioners emphasize training and capacity development for local governance, but teaching techniques and processes, independently of larger circles of interpretation, leaves both the teaching and learning thin and unsustainable.

Communicating best practices is also an important form of knowledge exchange in urban networks. UN-Habitat, for example, supports a 'best practice' database showcasing 4,000 cases that address economic, ecological, political and cultural problems (UN-Habitat n.d.). An example of best practices on sustainable cities is the Oursus initiative (see Box 4.4). However, they need to be embedded in more reflexive and reflective bodies of knowledge as well as locally based sensory knowing in order not to omit local relevance (Verrest et al. 2013). The critique links with the understanding brought forward in the ordinary cities approach by Robinson (2006), which emphasizes the importance of local historical pathways and governance, social-economic, spatial and cultural characteristics in development patterns and transformational processes (see Chap. 2). As such the ICLEI case study approach is interesting as it addresses for each case the local context and the "project replication potential" (ICLEI n.d. a, b).

Box 4.4: Our Sustainable Cities (Oursus)

The International Geographical Union (IGU), the world's leading organization for geographers, brings together human and physical geographers of various sub-disciplines including regional planning and economic, political, urban, cultural and political environmental geography (Dietz 1996). The IGU was late, though, to embrace the sustainable cities concept coined in the early 1990s, first by activists like Walter, Arkin and Crenshaw (Walter et al. 1992) and scholars like Stren et al. (1992), based on a colloquium held in Toronto in 1990. Later the concept was popularized by urban planners like Campbell (1996) and geographers like Satterthwaite (1999). This was followed by an avalanche of publications, of which Haughton's and Hunter's *Sustainable Cities* (2004) became the most cited book.

The IGU is a truly global organization, with a remarkable presence of East Asian members. It is in China that a team of urban sustainability thinkers with a link to the University of Amsterdam in the Netherlands decided to build a website that would stimulate worldwide exchange of information about the various aspects of sustainable or 'green' cities. The website (www.oursus.org) stands for 'our sustainable cities'. The site was built around seven domains (transport, energy and buildings, climate/atmosphere, flora and fauna, water, waste and efficiency and lifestyles) and four approaches: 'experiences', where everyone could add urban sustainability experiences (or the lack of it); 'products and cases', where producers and others could add examples of sustainable products and approaches; 'challenges', where agencies, many of them NGOs or citizen groups, could point at deficiencies and criticize unsustainable products and practices; and finally 'campaigns', where people can mobilize others to improve their cities and making them more sustainable. There is a Chinese-language site, with a lot of activities on it and an English one, with 30 participating cities. City showcases will be presented at the IGU congress in Beijing in 2016.

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4.5 How Do the Different Forms of Social Engagement and Knowledge Relate to the Issue of 'Good' Urban Governance?

Our final question – how do the different forms of social engagement within networking and the different forms of knowledge relate to the issue of 'good' urban governance? – raises a normative issue. It is too often assumed that 'good' governance equates to highly networked governance and that urban networking is the answer to responding to the complexity of global-to-local challenges (see Chap. 3).

Exploring plans, websites and reports of the various networks, it becomes clear that information sharing is important in addressing major global-local issues such as climate change (see Box 4.2), and that the potential to connect leaders, share and acquire knowledge is a core value of networks. City networks are thought to foster peer-learning and exchange of best practices (Bulkeley 2006) and as such help to put a local handle to international policies and goals. Policy learning and developing better urban policies is expected to be a core benefit of the networks (McCann and Ward 2012). Moreover, city networks connecting leaders (e.g. the Compact of Mayors) are better able to promote strategic sustainability policy (e.g. greenhouse gas reductions) (C40 2014).

However, a few studies examine how this acquired knowledge contributes to building policy (Bulkeley 2006) and, to the extent discussed, show mixed results. Some evidence suggests that networks can have considerable impact on policy formulation and implementation (Bulkeley et al. 2003). For example, Turkish and Moroccan governments involved in City-to-City networks with Dutch municipal governments strengthened local governance through these partnerships (van Ewijk 2013). Bouteligier (2013), however, indicates that few of the many best practices disseminated through networks are actually being taken up. Furthermore, the success of mobilities of the same policy differs between regions and between small local governments and global cities (Toly 2008). Moving from commitment to action still remains a challenge for many local governments and the local context matters a lot. Finally, the influence of local urban governments on realizing sustainability goals is limited. Policy and politics outside the urban arena, as well as the ways in which ecological, economic, political and cultural processes across different levels and systems of governance interact are influential as well (in Bulkeley et al. 2010).

Aside from the limited work on the benefits of networks for sustainable cities or better urban governance, in particular, there is a lack of inside knowledge about *how* successes or failures of policy learning are achieved. Keiner and Kim (2007) and McCann (2011), for example, indicate the importance of virtual cooperation, personal and face-to-face contacts through seminars and conferences, but they do not discuss the importance of different relationships and integration that need to develop during these exchanges. There is, however, recognition that this needs to be redressed. McCann (2011: 107) argues that a proper understanding of policy mobilities "must take seriously the role that apparently banal activities of individual

policy-transfer agents play in the travels of policy models and must also engage in fine-grained qualitative studies of how policies are carried from place to place, learned in specific settings, and changed as they move". Hence, we call for attention to forms of interchange and relations, and to different and multiple types of knowledge being created and distributed within and beyond networks, in order to understand the role of urban networks and giving empirical and ontological meaning beyond the network effect.

4.6 Conclusions

This chapter addressed the rise of urban networks, their functioning through understanding diversity in terms of social engagement and mobilization of knowledge, and how they address (sustainable) urban development. We introduced the concept of network effect to describe the idea that networks seem to be everything and do everything. We criticized the network effect for reducing social relations to a single modality: abstracted interchange. When the concept and practice of networking is applied to urban governance in its current dominant usage, it tends to thin out the meaning of political engagement.

Globalizing urban networks can be understood as epistemic communities, transnational advocacy networks or as part of an emerging global civil society (Betsill and Bulkeley 2006: 147). In fact, globalizing urban networks can be seen as simultaneously all of these things. Networks can be good and useful (Bouteligier 2013) as spaces of innovation offering new possibilities for good governance. However, those designations, including the concept of epistemic community, remain fairly flat. The definition does not specify the different knowledge forms through which they might interrogate the current situation, nor does it recognize the different forms of networking. Without a reflexive interrogation of the forms of network, the possibilities of integrated relations of mutuality and co-operation, bringing together different forms of knowledge, networking is likely to instrumentalize social relations and flatten knowledge systems. Information sharing, for example, is undoubtedly important, but it does not change processes of governance for the better if instrumentalization of both relations and knowledge has become the predominant rationale. That does not lead to better governance, but rather more of the same through other means.

We argue that it is not the level of networking that makes it good, but rather the reflexive sensitivity of practitioners to bringing together different forms of social engagement and different ways of knowing and learning. Neglecting the implicit existence of various types of knowledge in networks and the lack of explicit exclusion of various types of knowledge in networks hampers the possible relevance of urban networks in creating better cities. If we are going to remake our world in positive ways we need to use all our ways of relating and knowing.

Acknowledgements We are grateful for the insightful comments from the reviewers Edith van Ewijk and Pieter Terhorst and for the text boxes written by Edith van Ewijk, Ton Dietz and Joyeeta Gupta.

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Chapter 5
Governing Beyond Cities: The Urban-Rural Interface

Mirjam Ros-Tonen, Nicky Pouw, and Maarten Bavinck

Abstract If 70 % of the global population will reside in metropolitan regions by 2050, this poses new governance challenges related to urban-rural interfaces and linkages. It calls for governance that stretches across scales and beyond urban boundaries, taking into account both problems and opportunities of urbanization. This chapter reviews the literature on urban-rural interfaces and linkages and discusses suggestions for dealing with them. It also addresses three governance problems that hinder a more integrated approach towards the urban-rural interface, specifically fragmentation, institutional inertia, and the inability to realize inclusive development. Based on potential governance approaches to address these three problems, we present six institutional design dimensions for a more inclusive governance approach for urban-rural regions. Bridging organizations, nested issue-based platforms, and combining governance with strong government are identified as pathways towards inclusive urban-rural governance.

Keywords Urban-rural linkages • Peri-urban fringe • Urban-rural regions • Institutional design dimensions • Inclusive urban-rural governance

5.1 Introduction

No study on urban governance can be complete without an understanding of urban-rural interfaces and linkages. Assuming that 70 % of the global population will live in urban areas by 2050 (OECD 2012a), these spaces are likely to increase their economic, social and ecological footprint on the rural landscape (Rees and Wackernagel 1996). Meeting the urban demand for food, energy, water, timber and other resources means increased pressure on the surrounding natural environment as well as

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J. Gupta et al. (eds.), *Geographies of Urban Governance*,
DOI 10.1007/978-3-319-21272-2_5

competition with other resource users, with potentially adverse effects on human wellbeing. Urban pollution and the emission of greenhouse gases have climate effects far beyond city boundaries. Furthermore, population flows from rural areas into urban agglomerations impact on rural and urban life (Day et al. 2014), potentially creating hardship and new opportunities. Hence, synergies are needed between policies to enhance resource sustainability, human wellbeing and climate change resilience at city level. Such synergies stretch governance across scale levels and beyond urban boundaries (Bulkeley and Betsill 2005; McGranahan 2007; Seitzinger et al. 2012).

Little has been written about how to govern the urban-rural interface. This chapter fills this gap by analysing this interface (see Sect. 5.2), reviewing the literature on peri-urban and urban-rural governance (see Sect. 5.3), presenting institutional design principles to address some major governance challenges (see Sect. 5.4) and indicating the way forward to integrated urban-rural governance. It builds on the geographical perspective of Chap. 1 in four ways. First, it analyses the contextual challenges confronting the urban-rural interface as *place* (see Sects. 5.2 and 5.3). Second, it conceives peri-urban and urban-rural interfaces as *spaces* produced by the activities and perceptions of the people who live, work, govern, commute and recreate in these spaces (see Sect. 5.2.2). Third, it addresses both the horizontal/territorial dimensions of *scale* (the urban-rural continuum, see Fig. 5.6) and the need to govern across jurisdictional and institutional scales (see Sect. 5.4). Finally, it examines *human-environment interactions*, expressed in material and immaterial flows which produce public 'goods' and 'bads' (see Sect. 5.2.2).

5.2 The Urban-Rural Interface

The urban-rural interface is conceived as a peri-urban transition zone with mixed livelihoods and spatial uses and flows of people, goods, capital, information, natural resources, waste and pollution between urban and rural areas (Douglass 1998; Allen 2003; Simon 2008; Rauws and de Roo 2011). This zone corresponds with the zone of direct impact of the city, where the effects of urbanization and pollution are directly felt (Phillips et al. 1999). Urban-rural and rural-urban flows represent a wider zone of influence (Simon 2008). The area comprising the core urban region, the peri-urban transition zone and the more distant rural areas is also known as the urban-rural region (Nilsson et al. 2013a; Zasada et al. 2013). This section elaborates on these conceptualizations and provides examples from developed and developing contexts.

5.2.1 The Peri-urban Fringe or Zone of Direct Impact

Peri-urban areas are zones where urban areas expand into surrounding rural landscapes, blurring the urban-rural distinction as a result of population growth and urban sprawl (Dwyer and Childs 2004; Ravetz et al. 2013). Urban sprawl, i.e. "the low-density expansion or leapfrog development of large urban areas into the

surrounding rural land" (Nilsson et al. 2013a: 1) leads to "a new fusion of space" "that is not rural but not yet urban" (Lerner and Eakin 2011: 312). The peri-urban fringe has a lower population density, built-up area and infrastructure than urban areas, resulting in a dynamic, hybrid and multifunctional space "characterized by strong urban influences, easy access to markets, services and other inputs, ready supplies of labour, but relative shortages of land, and risks from pollution and urban growth" (Phillips et al. 1999: 5–6). Its urban features are fragmented and uneven and the landscape still has rural elements (McGranahan et al. 2001; Allen 2003; Lerner and Eakin 2011), leading to a perception of "messy edges" (Scott et al. 2013: 44). The mixed character of peri-urban areas is reflected in (1) the heterogeneity of its population (from small farmers, to informal settlers, industrial entrepreneurs and middle-class commuters) (Allen 2003), (2) the corresponding diversification of land uses and livelihoods, and (iii) the related diversity of lifestyles (Præstholm and Kristensen 2007). Patterns of urban sprawl differ in spatial extent, population density, and growth rate (Schneider and Woodcock 2008, UN Habitat 2013) and the nature of the peri-urban fringe varies accordingly (see Fig. 5.1, 5.2, 5.3, 5.4).

Characterized by chaotic sprawl in transition and developing countries, it is a zone of spatial restructuring in post-industrial countries (Ravetz et al. 2013: 13) where cities are sometimes even shrinking (UN Habitat 2013).

Despite the differences, peri-urban areas share common concerns in the North (Putnam 2000; Theobald 2001; Nilsson et al. 2013b; Westerink and Aalbers 2013; Zasada et al. 2013; Nilsson et al. 2014) and South (Douglass 1998; Simon et al. 2004; Simon 2008; Cobbinah and Amoako 2012) (see Sect. 5.3). However, their multi-functionality and hybrid rural-urban features allow them to develop into "zones of innovation" (Rauws and de Roo 2011: 270) and "opportunity spaces" (Scott et al. 2013: 2). Urban-oriented production and direct marketing of horticultural products, ornamental plants and fish can, for instance, increase farmers' income (Mukherjee 2006; Simon 2008; Zasada et al. 2013; see Box 5.1).

Fig. 5.1 Peri-urban area in Feldkirchen, Austria (Commons Wikimedia 2015a)

Fig. 5.2 Peri-urban area in Chicago, USA (Commons Wikimedia 2015b)

Fig. 5.3 Peri-urban area in New Delhi, India (Commons Wikimedia 2015c)

Box 5.1: Von Thünen Goes South!

A classical study in economic geography and political economy is Johann Heinrich von Thünen's '*Der isolierte Staat*', published in Germany between 1826 and 1863 (Von Thünen 1875). It argued that the costs and risks involved to get agricultural products to cities determine the crop choices that farmers make and that there are rings of specialization around (expanding) cities. Particularly perishable crops and livestock products were often found in a

(continued)

Box 5.1: (continued)
circle immediately around cities, creating niche opportunities for farmers and traders who specialize in those products.

More than 150 years later, agricultural production has been globalized. However, an important part of the world's agricultural product-consumer linkages are still connecting urban areas with their immediate hinterlands – the nearby countryside. Local family farmers face difficulties in competing with large-scale (corporate) farmers and value chain entrepreneurs in export-oriented markets (Bélières et al. 2002). Rather than producing for the urban population in long-distance metropolises, they become better connected to the demand for agricultural produce from expanding urban populations nearby (Mortimore 2003; Brookfield 2008). FAO-based figures confirm this: in Africa more than 75 % of food, feed and fibre enters local markets and less than 25 % is currently exported (Akinyoade et al. 2014). Many of these local-level exchanges are dominated by family farms and by relatively small-scale traders, transporters and service providers.

Small-scale family farms can survive and thrive if they specialize in niche products for nearby urban markets, and particularly if these are either perishable, or serve urban demand favouring local produce for these niche products (Bebbington 1999; Mortimore 2003; Hazell 2005). By doing so, family farmers contribute to food and nutrition security of their own families and urban consumers in different income brackets. This inspires contemporary scholars to rediscover Von Thünen's ideas in a period of expanding urbanization and agricultural dynamization, for research in Asia and Africa (e.g. Zaal and Dietz 1998; Burger and Zaal 2009; Greiner and Sakdapolrak 2013). Indeed, Von Thünen goes South.

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Fig. 5.4 Peri-urban area in Thimphu, Bhutan (Commons Wikimedia 2015d)

5.2.2 *The Broader Zone of Influence*

The urban-rural interface comprises urban-rural linkages and their effects on the wider environment (Tacoli 1998). It has been conceptualized as two-way flows of people (labour, students, shoppers), goods (agricultural inputs and products, consumer durables), public and private services (health, education, transportation and repair services), capital (credit, remittances) and information (about job opportunities, commodity prices or political affairs) (Douglass 1998). For the material flows (nutrients, water, energy) the urban metabolism concept was coined in the 1960s (Wolman 1965) and re-introduced recently (UNEP 2013; Villarroel Walker et al. 2014; Hajer 2014) (see Sect. 5.3.2). Environmental flows include, first, environmental services such as supporting services (e.g. biodiversity), regulating services (e.g. carbon sequestration), provisioning services (e.g. fresh water, air, raw materials), and cultural services (e.g. tourism, recreation) (MEA 2005). Second, they comprise environmental burdens such as deforestation, overfishing, water depletion, pollution, and solid and liquid waste problems (Tacoli 1998; Allen 2003), framed as 'ecological footprints' (Rees and Wackernagel 1996; Tacoli 1998; McGranahan 2007) (Fig. 5.5).

Urban-rural linkages also include non-material flows – financial, social, political and cultural. The impact of remittances, for instance, leads to 'remittance landscapes' (Lopez 2015: 1) in both the South and the North (Kelly 2011; Mazzucato 2011; Lopez 2015). Cities and rural areas are also linked through bonding social capital (e.g. family networks), bridging social capital that enables horizontal links between groups (e.g. unions and associations with a hub in urban centres), and linking social capital that enables networks and alliances across scales and levels (e.g. public-private partnerships involving agricultural producers) (Pretty 2003). Cultural flows have traditionally been framed in terms of cities as centres and sources of innovation and creativity (Davelaar and Nijkamp 1989) and rural populations as preservers of community cohesion values and guardians of nature (Bunce 1998). However, with the advance of media and information technologies, the urban-rural divide in perceptions, values and innovation capacity has blurred or even vanished (de Bruijn et al. 2001; Scott et al. 2007). Recent developed country literature on cultural flows deals with the effects on peri-urban land use and settlement patterns of urban consumer preferences regarding landscape aesthetics (Howley 2011) or multifunctional farming (organic, lifestyle, recreation-oriented farming, etc.) (Zasada 2011). There is also attention for narratives concerning food security (Lerner and Eakin 2011; Forster and Escudero 2014) and the rural idyll. An example of the latter is the "holiday packaging" of the countryside as peaceful, simple and pure (Bell 2006: 1).

Globalization and developments in information and communication technology (ICT) have impacted on material and non-material flows (Castells 2010). Material flows of goods, energy and wastes now occur over long distances, stretching urban-rural linkages beyond urban boundaries (Seitzinger et al. 2012). Immaterial flows are created through teleworking, teleshopping, telebanking, tele-dating, long-

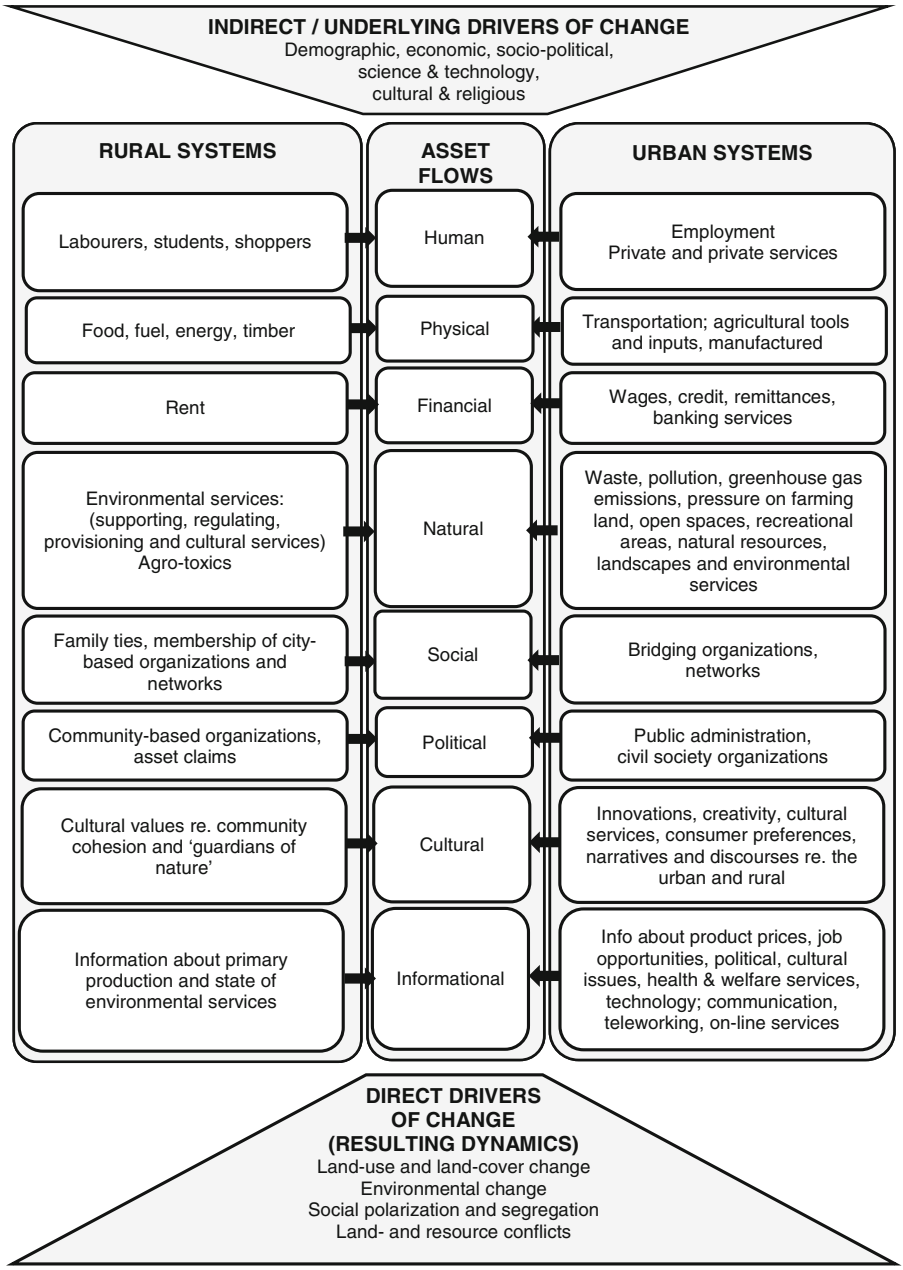

Fig. 5.5 The urban-rural interface as a set of asset flows. Flows and direct drivers adapted from Douglass (1998) and Allen (2003), flows restructured as asset flows, taking account of the notion of the 'space of flows' (Castells 2010). Indirect drivers and environmental services based on MEA (2005)

distance learning and even on-line health care, resulting in a virtual space of flows that fundamentally transforms spatial and social relations. Many flows (see Fig. 5.5) are embedded in a global information network society with extended metropolitan regions (EMRs) as nodes in a globally connected network (Castells 2010). Such EMRs present themselves in various spatial forms, including urban corridors along transportation routes (e.g. Kuala Lumpur, Malaysia, or Chennai, India), city regions (e.g. London, Cape Town, Bangkok) and functionally connected polycentric mega city regions (e.g. the Randstad in the Netherlands, and the Sao Paulo/Rio de Janeiro region in Brazil) (UN Habitat 2013; Evers and de Vries 2013).

Despite the growing connectedness of EMRs to global networks, many flows still occur over short distances and therefore remain place-based (Zasada et al. 2013). Within 'the space of places' (or 'cityscapes', see Chap. 11) people move between their home and work, shopping malls, recreation areas, parks, and sport stadiums (Castells 2010: 405), and goods ordered online need to be transported to consumers (UN Habitat 2013). Rural populations use services that cities provide, such as health care and higher education (Zasada et al. 2013). Similarly, cities depend on their surroundings; in the North less for food and fuel that is often imported, but still for water and waste flows (Villarroel Walker et al. 2014); in the South also for food, fuel and timber (Box 5.1). Northern and Southern cities depend on surrounding rural areas for environmental services like water provision, carbon sequestration and biodiversity (Billen et al. 2012). This implies that mega-cities in particular will impact the spatial structure of peri-urban and rural areas, fuelled by demographic, economic, socio-political, scientific/technological and cultural drivers (MEA 2005). Cities will continue to leave an economic, ecological and social footprint on their direct surroundings extending even globally (McGranahan 2007; Simon 2008; Billen et al. 2012; Seitzinger et al. 2012). Increasing pressure on available land and water triggers competing claims and conflicts, particularly in the global South where land, water and nature grabbing displaces, marginalizes and excludes the rural poor (Zoomers 2010; Fairhead et al. 2012).

5.2.3 Common Challenges and Opportunities

Commonly perceived problems and opportunities regarding the urban-rural interface include:

- Finding solutions for the increasing pressure on open and recreation areas, productive farming land, ecosystems, water sources, and associated landscape fragmentation; loss of environmental services, including water quantity and quality; threats to food security; increased greenhouse gas emissions, noise, air pollution and traffic congestion; and polarization and conflicts over land use and resources (Douglass 1998; Allen 2003; Seitzinger et al. 2012; Evers and de Vries 2013; Nilsson et al. 2014; Hajer 2014);

- Addressing extreme socio-economic inequalities and the processes that lead to their exacerbation. Socio-economic differentiation, erosion of rural communities, and exclusion may increase as a result of urban sprawl and urban-rural/rural-urban flows. Examples include increasing health inequalities in American cities (Gordon-Larsen et al. 2006), growing income inequality between urban and rural regions in China, India, South Africa and the Russian Federation (OECD 2011); and increasing socio-economic segregation and social isolation in Kumasi, Ghana, with the poor concentrating in core regions and mushrooming of slums and squatters at the periphery (Cobbinah and Amoako 2012). Pre-existing social and cultural institutions can sustain or deepen urban-rural inequalities, despite labour migration. For example, in the case of the Chinese household registration system, rural citizens, despite migrating to the city for work, lack the entitlement to urban service provisions whilst rural investments have been neglected (Whyte 2010; Afridi et al. 2012); and
- Stimulating integrated, sustainable and multifunctional landscapes with an intrinsic potential for positive social, economic and environmental change (Rauws and de Roo 2011; Scott et al. 2013).

The next section explains how such challenges and opportunities can be dealt with.

5.3 Governance Beyond the City

The dynamics of urban-rural linkages and the challenges and opportunities that they create have led to a shift in thinking about urban governance and how it stretches beyond urban borders. Building on the problems and opportunities from Sect. 5.2.3, this section reviews ideas about peri-urban governance (the zone of direct impact), and synthesises ideas regarding urban-rural governance (the wider zone of influence) (see Fig. 5.6).

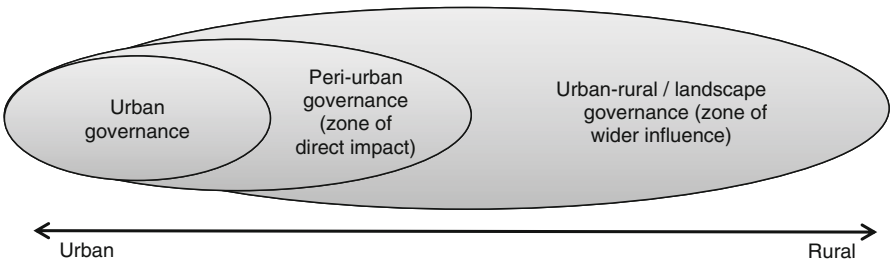

Fig. 5.6 Governing the urban-rural continuum

5.3.1 Contemporary Thinking About Peri-urban Governance

Peri-urban governance sees the peri-urban fringe as a space in its own right with specific ecological and institutional characteristics and dynamics for which neither exclusively urban or exclusively rural policies are suitable (Rauws and de Roo 2011; Scott et al. 2013). Influenced by resilience thinking (Holling 1973) and complexity science (Plummer and Armitage 2007; Bertolini 2010), peri-urban dynamics is complex and non-linear. Changes are partly autonomous (i.e. independent of government policies) and based on processes of self-organization (e.g. illegal settlements at the urban fringe in developing countries or agro-tourism in developed countries); partly path-dependent based on historical developments (e.g. transport infrastructure); and partly place-independent through contextual influences (e.g. increasing car mobility, shifts in the agrarian economy and increasing urbanization) (Rauws and de Roo 2011). Some of these drivers push for change, whereas others pull towards old or new levels of relative stability, making their outcome uncertain and beyond planners' control (Rauws and de Roo 2011). This requires peri-urban governance to be flexible and adaptive (see Sect. 2.5.3) whereby the challenge is to connect autonomous and context-driven processes with place-specific peri-urban functions to turn peri-urban fringes into innovation spaces (Rauws and de Roo 2011; Scott et al. 2013: 2).

Specific proposals for dealing with peri-urban dynamics are:

- Promoting territorial cohesion through coordination and planning regulations regarding land use/pricing, housing, infrastructure, transportation and taxes (Evers and de Vries 2013; Nilsson et al. 2014);
- Developing green compact cities by concentrating urbanization within city boundaries and along public transportation nodes (Westerink and Aalbers 2013) and creating multifunctional neighbourhoods and green spaces (Nilsson et al. 2014);
- Preservation and creation of green and blue corridors such as the Green Ring of Leipzig or the Red Rose Forest of Greater Manchester for environmentally-friendly means of transportation (walking, cycling), conserving ecosystem services, and improved human health and wellbeing (Nilsson et al. 2014); and
- Preservation of farming land and stimulation of peri-urban farming (Zasada et al. 2013, Nilsson et al. 2014).

The above visions for governance beyond the city focus on spatial planning of the peri-urban fringe. The next section looks at proposals to integrate the rural into (peri-) urban governance (OECD 2012b; Harrison and Heley 2014).

5.3.2 *Contemporary Thinking about Integrated Urban-Rural Governance*

The call to govern beyond the metropolis (Harrison and Heley 2014) and connect to rural regions (Seitzener et al. 2012) is based, first, on the urban metabolism concept that focuses on material flows, notably nutrient, water, energy and waste (see Fig. 5.5) (Ravetz 2000; UNEP 2013; Hajer 2014; Villarroel Walker et al. 2014). Responsible management of urban metabolism is advocated in the smart urbanism discourse (Hajer 2014, see Chap. 1), with the aim being to create a resilient, socially just and sustainable safe operating space (Rockström 2009; Swilling and Annecke 2012; UNEP 2013). Smart urbanism suggests to delink or decouple these flows from urban growth (UNEP 2013), through either resource decoupling (more resource-efficient production and greater productivity) or impact decoupling (through 'green' investments in low-carbon and resource-efficient infrastructure and energy sources and recycling resources) (UNEP 2013). This could lead to more liveable cities for urban residents and is being promoted by networks like C40 Cities, ICLEI, UN Global Compact, the Global Initiative for Resource Efficient Cities, and the IHDP Sustainable Urbanization Initiative (Hajer 2014, see Sect. 5.2 and Chap. 4).

Second, integrated urban-rural governance is proposed to enhance food security and protect ecosystem services. A holistic landscape or place-based approach aims to promote sustainable urbanization and create regional food systems that are resilient to vulnerabilities and shocks. These regional food systems comprise urban, peri-urban and rural landscapes (Forster and Escudero 2014). Examples of such planning approaches include FAO's Food and Cities Initiative (FAO 2011), Local Governments for Sustainability (ICLEI 2013); and the work of global NGOs such as EcoAgriculture Partners, the World Resources Institute, and the Resource Centers on Urban Agriculture and Food Security Foundation (RUAF) (Forster and Escudero 2014). These ideas fit into the broader debate of landscape approaches, which aim to provide integrative responses to global challenges such as food insecurity, climate change and biodiversity loss through multi-stakeholder negotiations of land-use objectives and trade-offs and adaptive learning (Sayer et al. 2013; Ros-Tonen et al. 2014).

Third, integrated urban-rural governance can aim at equity of access to services and economic opportunity of inhabitants of less developed regions, tap into the growth potential of these regions, and strengthen public finance to that end (OECD 2012b).

Thinking about how to include and operationalize the distant rural in (peri-) urban governance is still in its infancy (Harrison and Heley 2014). One attempt is the delineation of 906 rural-urban regions (RURs) covering Europe, based on functional economic relationships between urban core areas, peri-urban zones, and their rural hinterlands (Zasada et al. 2013).

5.4 Hindrances to Integrated Approaches and Governance Answers

Several hindrances exist to integrated urban-rural governance. The first is institutional fragmentation, legal pluralism and overlapping jurisdictions (Evers and de Vries 2013; Gupta and Bavinck 2014). The metropolitan area of Warsaw, Poland, which covers 72 independent municipalities, illustrates how planning authorities can be scattered over functional areas (Nilsson et al. 2014). In the global South peri-urban areas are less appealing to urban politicians due to the lower number of inhabitants (=votes) and lesser infrastructure and economic value compared to the core city, resulting in a deficiency of financial resources, capacity and political will (Simon 2008: 181). Other challenges include the need to deal with distant players; high transaction costs of bringing stakeholders from different scale levels together and creating an equal and transparent playing field; and the alignment of outcomes of interactive governance (see Chap. 2) with existing administrative structures and jurisdictions. The governance response to fragmentation is embedded in the formulation of the problem itself: interaction can assist in overcoming the urban-rural governance divide (Torfing et al. 2012). This applies to both horizontal interaction (between urban, peri-urban and rural actors and sectors); vertical interaction between different organizational levels within a scale (geographical, institutional or jurisdictional) (Cash et al. 2006), and diagonal or 'zigzagging' interaction (Torfing et al. 2012; Osofsky and Peel 2013). Overcoming horizontal fragmentation requires an integrated approach; overcoming vertical fragmentation multi-level governance (see Table 5.1).

The second hindrance is institutional rigidity or inertia (Kingston and Caballero 2009): the institutional system insufficiently accounts for urban-rural dynamics and relationships. "Institutions are sticky; they often remain in place long after mismatches between regimes and the biophysical and socioeconomic settings with which they interact become severe and widely understood" (Young 2010: 378), also because vested political and economic interests coming into a rural area from outside supersede those of the local population. This can be addressed, first, through institutional configurations (Baud et al. 2014) that transcend geographical and administrative boundaries (Evers and de Vries 2013; Scott et al. 2013; Nilsson et al. 2014; Forster and Escudero 2014). Second, promoting the adaptiveness of the governing system and its learning ability (Yeo 2005) may result in a higher capacity to deal with events and challenges at the urban-rural interface.

The third hindrance is the governance system's partiality, or inability to realize inclusive development, which is "development that includes marginalized people, sectors and countries in social, political and economic processes for increased human wellbeing, social and environmental sustainability, and empowerment" (Gupta et al. 2015). Urban sprawl and the consequent inflow of people from middle to high income classes increases land and housing prices and exacerbates the vulnerability of, or may displace, low income classes (Squires 2002; Cash 2014). Similarly, profit-oriented development at the peri-urban fringe may displace farming

Table 5.1 Institutional design dimensions for peri-urban and urban-rural governance

Dimension	Addresses the problem of:	Meaning	Authors
Integration	Fragmentation (horizontal)	Integrated vision of city regions or rural-urban landscapes as social-ecological systems (SES) that should be steered for resilience	Folke et al. (2005), Rauws and de Roo (2011), Scott et al. (2013), Forster and Escudero (2014)
Interaction and collaborative governance	Fragmentation (horizontal)	Decision-making based on coalitions and interactions between societal actors (households, businesses, public sector, civil society organizations) oriented towards defining and resolving societal problems and creating new opportunities	Kooiman and Bavinck (2013), Hajer (2014)
Multi-level governance	Fragmentation (vertical)	Governance involving interactions between different levels within a scale: from global to local on a geographical scale or from constitutions to operational rules on an institutional scale	Bulkeley and Betsill (2005), Cash et al. (2006), Corfee-Morlot et al. (2011), FAO (2011), Biermann et al. (2012)
Adaptiveness	Institutional rigidity	Flexibility to adapt to complex and unpredictable dynamics associated with the uncertainty caused by global environmental, financial, social and demographic trends and their impact on the urban-rural landscape; coping with risk	Torfing et al. (2012), Kooiman and Jentoft (2009), Rauws and de Roo (2011), Scott et al. (2013), Forster and Escudero (2014)
Continuous and shared learning	Institutional rigidity	Willingness to learn from and reflect on past mistakes; trial and error; peer-to-peer learning	Folke et al. (2005), Hahn et al. (2006), Olsson et al. (2006), Berkes (2009), Leys and Vanclay (2011), Kooiman and Jentoft (2009), Sayer et al. (2013), Scott et al. (2013), Hajer (2014), Miranda Sara and Baud (2014), Gupta et al. (2015)
Inclusive development perspective	Inequality, marginalization	Bottom-up process of identifying needs and priorities of the poor and marginalized, multiple stakeholders and competing claims	Allen (2003), MEA (2005), McGregor (2007), OECD (2012b), Evers and de Vries (2013), Scott et al. (2013), Forster and Escudero (2014), Hajer (2014), Nilsson et al. (2014), Pouw and McGregor (2014), Gupta et al. (2015)
		Identify drivers of human/environmental degradation in rural-urban interface	
		Address persistent power inequities	

and informal economic activities (e.g. Du et al. 2013; Martellozzo et al. 2014) leading to social and political conflict, structural poverty, disempowerment and unsustainable practices.

Both smart urbanism and landscape approaches towards regional food systems (see Sect. 5.3) acknowledge the need to address income disparities, unequal access to resources and services, and the right to food (Forster and Escudero 2014; Hajer 2014):

> We should not only stay in the 'safe operating space' within 'planetary boundaries'; this space should also be socially just […] Fusing socially just and safe operating spaces lies at the heart of the current debate on Sustainable Development Goals (SDGs) (Hajer 2014: 40).

The governance answer here is an inclusive development perspective that takes stock of poor/marginalized people's priorities and resource needs (McGregor 2007; Pouw and McGregor 2014) and identifies stakeholders and their shared and conflicting interests in multiple asset flows within the rural-urban interface (Allen 2003). Historical and constitutive power differences are also taken into account, as pre-existing rural-urban inequities tend to be reproduced/deepened with biased institutions and investments in development. Examples are the urban-biased policy mix in China (Lu 2002: 420) and "the primacy of institutions over geography" in economic development (Rodrik et al. 2002). Furthermore, identifying direct and underlying drivers of human and environmental degradation in the landscape is critical for resolving them (MEA 2005). Finally, addressing power inequities between population groups in governing resources for human wellbeing and creating a level playing field for the benefit of poor and marginalized people can negate pre-existing and future conflicts over land and other resources (OECD 2012b; Gupta et al. 2015). With inclusiveness, governance can achieve higher legitimacy and effectiveness through poverty reduction, giving voice to minority interests and minimizing conflict, thus contributing to social justice and human wellbeing (Gupta et al. 2015, see Table 5.1).

5.5 Conclusions and the Way Forward

Globalization and urbanization increase the dynamics and complexity of the urban-rural interface, affecting the nature and extent of asset flows between urban and rural areas. Increasing demand for natural resources and competing claims affect vegetation cover, land, natural resources and environmental services, risking exclusion of vulnerable people and sectors. However, a dynamic peri-urban fringe also offers new opportunities. Contemporary literature emphasizes that the dynamics of urban-rural linkages require a shift towards integrated peri-urban and urban-rural governance, which is hindered by fragmentation, institutional inertia and exclusionary trends. Six institutional design dimensions are proposed to overcome these threats: integration, interaction, multi-level governance, adaptiveness, continuous and shared learning, and an inclusive development perspective. Pathways towards integrated urban-rural governance along these dimensions are threefold.

First, bridging organizations – research organizations, NGOs or eco-museums (Hahn et al. 2006) – can mobilize actors, finances and political support; broker information and knowledge from different sources; build trust and social capital; mediate conflicts; network and communicate across scales; facilitate linkages between communities, NGOs, government agencies, research organizations, and other parties in collaborative arrangements; and create platforms for collective learning (Folke et al. 2005; Hahn et al. 2006; Berkes 2009; Leys and Vanclay 2011). They are particularly important at landscape level, where boundaries often do not coincide with administrative jurisdictions. Leadership (including communication skills and conflict management capacity) and vision may be more important than organizational structure (Hahn et al. 2006; Olsson et al. 2006; Berkes 2009), while formal recognition and support may reduce their vulnerability (Hahn et al. 2006). The Washington-based EcoAgriculture and Partners, which combines research, advocacy, and capacity and institution building to promote a 'whole' (i.e. integrated) landscape approach (Scherr and McNeely 2008), is an example of such a bridging organization. It coordinates the international collaborative Landscapes for People, Food and Nature Initiative that shares knowledge, promotes dialogue, and undertakes action in support of integrated landscape management, simultaneously addressing the objectives of enhanced food production, ecosystem conservation, and sustainable livelihoods (Landscapes for People, Food and Nature 2015).

Second, multi-stakeholder processes can be bolstered by creating issue-based platforms or networks at the level (local, regional or global) where the problems are felt most intensely (Allen 2003; Forster and Escudero 2014). When local, such efforts can gradually scale up to involve actors at higher levels with a stake in, and/or impact on, the issue addressed. Such actors may include national or intergovernmental bodies, companies and other actors in international value chains, or NGOs that can mobilize support. Landscape approaches demonstrate that multi-stakeholder processes work best with actors who identify themselves with a particular landscape. After all the notion of a landscape as the 'space of places' within which people act and interact, to which they attach meaning, and from which they derive identity (Greider and Garkovich 1994; Castells 2010) has important implications for who is eligible, and considers him/herself eligible, as a stakeholder in negotiation processes and decision-making. However, the complex urban-rural linkages and their connection to distant places and players, requires a nested approach that connects local authorities with national and global actors, global city networks (see Chap. 4), and the nearby and distant rural areas and inhabitants that they affect (Seitzinger et al. 2012; Forster and Escudero 2014). Connectivity to distant actors can be enhanced through web-based information and communication technologies, although their effectiveness compared with face-to-face communication is yet to be proven.

Third, although governance stretches beyond government to include the private sector, civil society and citizens, there is a need to combine governance with government in addressing problems and opportunities of city regions (Evers and de Vries 2013; Nilsson et al. 2014; see Chaps. 3 and 4). Strong regulation is needed to direct land use, environmental protection, land tenure, and access to resources (particularly in dynamic transition zones at the peri-urban fringe), and to accommodate and regulate multi-stakeholder processes (Forster and Escudero 2014).

Finally, an inclusive development viewpoint ensures that such efforts focus on marginalized people, sectors, and regions across the urban-rural continuum, on human wellbeing, and on environmental sustainability.

Acknowledgements The authors thank Leo de Klerk, Johan Post, and Jochem de Vries for their extensive reviews of earlier versions of this chapter.

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Part II
Instruments, Methods and Practices of Urban Governance

Chapter 6
Instruments of Urban Governance

Stan Majoor and Klaas Schwartz

Abstract Governance instruments are the operational tools of public policy. While the functionalist approach sees them as neutral tools aiming to solve problems, the political sociology approach considers them as a means to incorporate a specific representation of the issue that they seek to influence. We review different taxonomies of governance instruments and highlight a change in instruments used when moving from hierarchical government to network governance. The neighbourhood revitalization policy in the Netherlands and water supply in urban Uganda are used as examples to discuss potentials and limits of urban governance instruments. They show the importance of framing, governance complexity, geographic specificities and implementation at different, often interrelated, scale levels. A further exploration of intelligent instruments is proposed for guiding extremely complex systems such as cities in a more organic manner.

Keywords Governance instruments • Networks • Framing • Complexity • Political sociology

6.1 Introduction

Having discussed the urban governance concept (see Chap. 2), the role of actors and governance networks in the urban context (see Chaps. 3 and 4) and the challenges and opportunities of the urban–rural landscape (see Chap. 5), this chapter looks at the specific instruments of urban governance, and especially those that assist in implementing the sustainable development goals to make cities (more) inclusive, safe and resilient (see Chap. 1). Governance instruments are the "techniques of

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J. Gupta et al. (eds.), *Geographies of Urban Governance*,
DOI 10.1007/978-3-319-21272-2_6

governance, which, one way or another, involve the utilization of state resources, or their conscious limitation, in order to achieve policy goals" (Howlett and Rayner 2007: 2). They are "the set of techniques by which governmental authorities wield their power in attempting to ensure support and effect or prevent social change" (Vedung 1998: 21). In the context of urban governance, however, the state does not automatically employ instruments and organize the complex arrangements within which public and private instruments interact. These definitions require that governance instruments are used to intervene in society to stimulate specific types of behaviour and activities, while seeking to discourage undesirable behaviour. Governance bodies use these instruments to alter behaviour produced by market and societal mechanisms. For example, merit goods and services, such as education or health care, are deemed to have positive externalities or are considered to be so important that everyone should have access to them. However, they are often under-produced and under-consumed if their provision is left only to the market. Governance instruments aim to stimulate the production and consumption of such goods and services and incorporate an element of 'social steering' (Voβ 2007). Governance instruments are targeted "to get people to do things that they might not otherwise do; or it enables people to do things that they might otherwise not have done" (Schneider and Ingram 1990: 513). Policy instruments require the presence of government authorities that implement this mix of instruments and overarching goals or objectives to which the application of these instruments contribute. As such, governance instruments form the operational tools of public policy.

This chapter presents an overview of urban governance instruments. It elaborates on the functionalist and the political sociology approach (see Sect. 6.2) and different taxonomies of governance instruments (see Sect. 6.3). Using an example from both the global North (the Netherlands) and South (Uganda), the advantages and disadvantages of types of policy instruments are discussed, emphasizing the implications of the choice and workings of governance instruments in contemporary multi-faceted networked governance situations (see Sect. 6.4). The chapter concludes with a discussion of the potentials and limits of urban governance instruments in dealing with urban complexities and uncertainties (see Sect. 6.5).

6.2 Approaches Towards Governance Instruments

The literature discusses two dominant approaches towards analysing, designing and using governance instruments. The functionalist or instrumentalist approach sees instruments (or a mix of instruments) as neutral, rational and pragmatic tools, aimed at solving problems and achieving certain specified goals. Instruments are seen as technical solutions to technical problems and political decision-making is limited to setting particular goals (problems to be mitigated and/or solved). The choice of instrument for addressing the politically identified problem is undertaken by rationally choosing the most effective policy instrument to realize the desired effect. The political sociology approach stresses that instruments are not neutral, purely

technical tools, but embody a particular meaning about the relationship between government and citizen and about "social control and the ways of exercising it" (Lascoumes and Le Gales 2007: 1). Instruments guide and shape the behaviour of actors and thus incorporate a specific representation of the issue they seek to influence, thus reflecting a particular problem definition. As different instruments provide different opportunities to actors in society, these actors utilize their social power and agency to pursue their interest within the frame provided by the instrument. Instrument selection is understood not as a technical exercise but instruments are constructed and used in social relations between actors, reflecting their balance of power (Kassim and Le Gales 2010: 5). The selection of instruments also becomes integrated in the political domain and choices are based on cost, effectiveness and feasibility of instruments (Lascoumes and Le Gales 2007). This implies that instruments are never neutral but always political and value-laden (e.g. maps, see Chap. 8), and also normative for example regarding gender, ethnicity or racial issues.

Instrument choice, and as such, the resulting mix of instruments, is strongly embedded within a particular socio-political context ('place'), which reflects a particular state-society relationship and ideological foundation. Such a context shapes preferences for different types of policy instruments. As a result, although the possible range of governance instruments may be broad, government authorities tend to develop a preference for a particular mix of instruments. In this way, underlying institutions mostly outlast instruments that depend on (short-term) political agendas. For instance, in the Randstad, the major urban agglomeration in the Netherlands, four institutional patterns underlie its governance structure:

- "A long-term planning tradition and a strong planning mythology;
- A fine-grained administrative structure with multiple layers, jurisdictional boundaries and positions;
- A pattern of formal-institutional conservatism and informal-institutional progressiveness; and
- A political culture stressing consensus, compromise and consultation" (Hendriks 2007: 935).

Such institutional patterns are reflected in the choice of governance instruments. Another factor influencing the choice of governance instruments is the practical experience that organizations and individuals have had in implementing them. People tend to have a preference for instruments that they are familiar with and which in their view 'work'. Instruments known for being contextually successful are thus utilized more often. Finally, the international context plays a role in shaping the mix of governance instruments. Urban governments experience external pressures on the selection of instruments for managing their city. This pressure can take on several forms. First, the selection of policy instruments may be coerced; (inter) national organizations and national policies may force urban governments to adopt certain instruments. Second, policy instruments may be copied from other locations: through visits or trainings, urban managers become informed of particular successful approaches towards urban governance and associated policy instruments. Third, certain policy instruments are promoted through a variety of communication

channels and thus become fashionable. In urban governance in particular, the use of best practices has led to the copying of governance instruments and even to instrument hypes. However, the emphasis on best practices is not equally suitable for each location; rather, emphasis is placed on the best fit to local circumstances (Watson 2013; Ramalingam et al. 2014).

The political sociology approach towards the analysis, design and use of governance instruments has enriched our understanding of the choice of instruments. Specifically, the choice for a particular set of governance instruments not only depends on the rational choice of a government official. Rather, it is often a compromise, an outcome of negotiations and interactions between different actors (government, private sector, civic society) operating at different geographical levels (urban, national, international). "Cities, to a much higher degree than national government, are deeply embedded in a web of institutional, economic, and political constraints which creates a set of complex contingencies in the process of governing" (Pierre and Peters 2012: 72). These constraints define the portfolio of governance instruments available for urban governance. The political sociology approach also underscores the holistic approach to policy instruments considering the political and societal setting when assessing their origin, content and effects.

6.3 Defining Governance Instruments

This section elaborates on different taxonomies of governance instruments (see Sect. 6.3.1) and the distinction between hard and soft governance instruments (see Sect. 6.3.2).

6.3.1 Different Taxonomies of Governance Instruments

There are several taxonomies of governance instruments, depending on the criteria used for classifying them (Panayatou 1994; Vedung 1998; Howlett 2000; Hood 2007; Hoogerwerf and Herweijer 2008). This section distinguishes categorizations that (1) focus on the mechanism used to induce behavioural change, (2) differentiate the resources that instruments utilize, (3) focus on the purpose of instruments, (4) categorize their different applications, and finally, (5) centre on the impact of instruments.

Focusing first on the mechanism used to induce behavioural change, a distinction can be made between instruments which prohibit (e.g. bans), empower (e.g. property rights) or compel (e.g. standards) behaviour (regulatory instruments), instruments which induce behaviour by providing financial incentives and disincentives (economic instruments) and instruments which seek to achieve behavioural change by persuading actors (suasive instruments). This trichotomy of instruments has been

Table 6.1 Different taxonomies of governance instruments

Distinguishing criteria	Type of instruments
Mechanisms	Regulatory instruments
	Economic instruments (Panayatou 1994: 9)
	Suasive instruments (Australian Public Service Commission 2009)
	Physical infrastructure
Resources	Nodality
	Authority
	Treasure
	Organization
Purpose/Goal	Substantive
	Procedural
	Effector
	Detector
Application	Individual
	General
Impact	Expanding
	Limiting

Based on Hood (1986), Vedung (1998), Howlett (2000), and Hoogerwerf and Herweijer (2008)

referred to as carrots, sticks and sermons (Vedung 1998) and can take on different levels of intensities and forms (see Table 6.1). The suasive schemes may also be anchored in regulatory instruments, for instance compulsory disclosure schemes or product labelling. Ideally, a combination of regulatory, economic and suasive instruments may help to create the desired changes in social behaviour. In recent years, a fourth category of instruments has been distinguished in the literature which uses a particular technological mechanism to induce change. It concerns the introduction of physical infrastructure such as speed bumps and public toilets in public spaces that influences the behaviour of individuals (Hoogerwerf and Herweijer 2008).

Closely linked to classifying governance instruments by mechanisms is the distinction between instruments based on government resources on which they are founded. Four main resources can be utilized to solicit change, in particular nodality, authority, treasure and organization. Nodality revolves around the ability of the government to function in, and influence, societal networks and has a strong connection to the suasive instruments. Authority concerns the government's legal authority and is closely linked to the regulatory instruments mentioned above. Treasure symbolizes the government's fungible assets and is connected to economic and financial instruments and to financing related administrative, monitoring and compliance activities. Organization refers to the government's ability to directly provide services and goods through government agencies and organizations (Hood 2007).

A third classification is based on the purpose of the instrument rather than the mechanisms or resources to alter behaviour. Howlett (2000) distinguishes between procedural and substantive instruments. Procedural instruments are indirect and "act to guide or steer policy processes in the direction government wishes through the manipulation of policy actors and their interrelationships" (Howlett 2000: 424). They target the behaviour of actors involved in policy implementation. Procedural instruments are also referred to as rules of the primary order, while substantive instruments are known as rules of the secondary order. Substantive instruments "directly affect the nature, types, quantities and distribution of the goods and services provided in society" (Howlett 2000: 415). Another distinction with respect to purpose of governance instruments relates to whether instruments effect change (effector instruments) or whether they aim at gathering information in order to detect changes (detector instruments).

Instruments can also be classified in terms of their application. Instruments may have an individual application, meaning that they only target specific individuals whose behaviour or situation is envisioned to change, for example, by providing subsidies or grants to actors who are eligible for such a particular benefit. Alternatively, an instrument may have a general application, such as laws that apply to all inhabitants in a particular location.

Finally, one can distinguish between different kinds of impact of an instrument on its targeted audience. The instruments may narrow down possible behaviour and thus limit the actor's room for manoeuvre or an instrument may increase possible behavioural options for the targeted audience, thus reducing barriers or obstacles and increasing choice for actors. Table 6.1 summarizes these five different taxonomies.

6.3.2 Hard and Soft Policy Instruments

Chapters 2, 3 and 4 elaborated on the move from hierarchical governance to networked governance. This shift is often accompanied by a change in instruments employed. In other words, the changes in governance modes are reflected by changes in the operational tools of public policy. Even if the broad policy goals may not have necessarily changed, the techniques for achieving these goals have shifted (Richards and Smith 2002). Consequently, the traditional 'hard' government instruments that were seeking to command and control are increasingly complemented by 'softer' less intrusive instruments. This creates an additional perspective on the taxonomy of instruments given in Table 6.1 as soft instruments underscore persuasion, advocacy and information provision in, and through, a network of involved actors. By complementing traditional harder instruments, these 'new instruments' fine-tune the policy mix to a new situation. Lascoumes and Le Gales (2007) identify these instruments as being based on agreements (such as contracts), incentives, communications and information. These are less interventionist and entail different governmental arrangements compared to authoritative tools (Savini 2013: 1596).

Particularly in the global North, in a context of diminishing financial and political capacities of governments to intervene directly in society, these tools increasingly focus on incentives, political manipulation and information exchange (Salamon and Elliot 2002). 'Soft' governance instruments that governments could use to influence local planning situations include (Savini 2013: 1597–1598):

1. Monetary impulse: governments aim at triggering decision-making on specific issues of development, without taking direct responsibilities for their implementation such as seeding grants or initial small subsidies; they can be allocated competitively.
2. Propulsion: governments stimulate decision-making at a local level but remain in the background of the process. They facilitate procedures through non-mandatory guidelines or by troubleshooting during the definition of a project. The expected adoption of the SDGs, including Goal 11 on cities (see Chap. 11), could have such an effect.
3. Endorsement: governments actively influence the power relationships in networks by organizing institutional settings, facilitating the access of key stakeholders within networks and strengthening interconnectivity between actors.
4. Effectuation: governments stimulate policy implementation through direct investments in real estate and land development.

'Softer' sermon-like instruments are generally indirect, and "…rely heavily on 'third parties'[…] to deliver publicly financed services and pursue authorized public purposes" (Salamon 2000: 1613). The proliferation and changing nature of instruments have also placed increasing demands on public managers. "Instead of a single form of action, public managers must master a host of different 'technologies' of public action, each with its own decision rules, its own rhythms, its own agents, and its own challenges" (Salamon 2000: 1619–1620).

Haughton et al. (2013) define these instruments within a broader context of emerging "soft spaces of governance". Governance complexity has been increased both quantitatively in terms of the number of units of territorial governance established and qualitatively in the ways in which multiple networks of actors are continuously made and remade to carry particular strategies forward (Haughton et al. 2013: 217). Behind the evolution of soft spaces of governance lies a kind of politics that can be characterized in terms of decreased confidence in government as arbiter and deliverer of improved lives (Haughton et al. 2013: 221).

The different taxonomies reflect the complexity of the topic and the wide variety of perspectives that can be deployed to understand and assess policy instruments. Governance reality obviously does not fit into neatly produced tables by academics. Complex instrument packages can have multiple places in taxonomies. Over time, instruments or combinations thereof could also evolve. Such a more fluid perspective could help to understand the interfaces between instruments and governance processes. The next section assesses, in general terms, the different strengths and weaknesses of governance instruments.

6.4 Assessing Different Types of Instruments

This section discusses the advantages and disadvantages of different instruments (Hoogerwerf and Herweijer 2008; Osborne 2010) and their use in two cases of Dutch neighbourhood revitalization and Ugandan water supply respectively.

Regulatory instruments are effective as they have a direct impact on the goals they seek to achieve. These instruments are also relatively predictable, a necessary condition for the rule of law. This predictability also has a drawback as these instruments are inflexible and do not motivate actors to achieve more than the minimum standards. Furthermore, the direct and relatively inflexible nature of this instrument also means that considerable knowledge and expertise is required to ensure that the instrument will have the desired impact. Moreover, their coercive nature may unleash considerable resistance. Particularly in the age of governance, in which policy decisions are negotiated through policy networks and services and goods are mostly being delivered through collaborative networks, strong-handed governance instruments are politically less feasible.

Economic instruments are considered effective in activating certain behaviour. Because they do not directly intervene in actors' affairs, they are considered politically more feasible than regulatory instruments, but with variable implementation costs. Some economic/legal instruments, such as property rights, may be implementable without large costs for the government, but subsidies and grants may come at a higher cost. With economic pressures inspiring a fundamental questioning of the effectiveness of large public bureaucracies (Hood 1991; Aberbach and Christensen 2001; Hughes 2003), a few governments appear to be willing to accept such costs, meaning that some economic instruments may be less appealing. Another problem of economic instruments is that they assume that actors will act rationally. This assumption may not hold in practice, making economic instruments less enforcing than regulatory instruments which dictate or prohibit specific behaviour.

Suasive instruments are most effective in combination with other policy instruments. They are relatively cheap and less intrusive than regulatory instruments and able to internalize desired behaviour. However, their impact is uncertain and depends on the quality of information available.

Infrastructure instruments have the advantage that they are relatively direct in their functioning by physically generating certain behaviour. At the same time, the instrument is relatively inflexible and requires considerable knowledge about social and bio-physical processes. The pros and cons of the various policy instruments are summarized in Table 6.2. Boxes 6.1 and 6.2 illustrate the potentialities and limitations of governance instruments by means of two cases; one in the global North (the Netherlands) and one in the global South (Uganda).

Table 6.2 Advantages and disadvantages of various governance instruments

Instruments	Advantages	Disadvantages
Regulatory	Direct impact	Relatively inflexible instruments, which require considerable knowledge and expertise
	Relatively clear and can be made applicable to a broad group of actors	
Economic	Steer actors' behaviour through market signals and are less intrusive than regulatory instruments	Assumes rational behaviour
		Actual impact of instrument uncertain
		Depending on type may come at considerable cost
Suasive	Relatively cheap	Impact uncertain
	Less intrusive than regulatory instruments	Requires accurate information
	Can internalize desired behaviour in the target audience	Often most effective in supporting other instruments (regulatory, economic or infrastructure)
		Impact depends on the quality of information available
Physical	Direct impact	Relatively inflexible instruments
		Require considerable underlying knowledge and expertise
		Depending on the type of infrastructure they can become costly

Box 6.1: Dutch Neighbourhood Revitalization Policy Instruments: Insufficiently Embedded in Research

The Netherlands is known for its strong models of governing space. Perhaps the most convincing evidence of what strong governance means can be found on a trip across the border between Belgium and the Netherlands. Dissimilarities in the physical scenery make it immediately clear what a difference it makes when housing markets and urban planning are or are not firmly controlled. The Dutch seem to deserve the label 'control freaks'. Usually policies are the result of so-called 'polder modelling', which implies that government, market players, residents, users, or any other actor, are all involved in the development of policy instruments. Perhaps the 'polder-model' actually explains the typical Dutch rigour when it comes to spatial interventions. However, many policies are hardly based on research, and therefore run the risk of failure.

This may be illustrated by the most recent neighbourhood renewal policies, which are in fact remnants of integrated area-based social mix policies designed by former governments that are implemented with a time lag. These policies aim to combine regulatory, economic, suasive and physical governance instruments to physically upgrade neighbourhoods and coordinate and intensify social policies. This type of policy has become a shared Western European paradigm. The Dutch intervention, however, seems to be more outspoken than approaches elsewhere.

(continued)

Box 6.1: (continued)

Yet, over-enthusiastic 'polder governance' has its price when it is insufficiently supported by research. At least two failures characterize the latest neighbourhood policies, which aim at realizing a social mix in 40 selected 'bad' neighbourhoods. First, a key assumption of the policy was that neighbourhoods in Dutch cities are severely divided, with a clear distinction between a limited number of neighbourhoods with a lot of problems – the key reason to select only 40 of them – and all other neighbourhoods with only limited problems. It has been shown, however, that there is no such clear divide. When applying various definitions for 'social problems' the 40 neighbourhoods that were targeted because of their social problems appeared to exhibit only a maximum of 8 % of the social problems in the country, whereas 5 % of the population was living there. The vast majority of people with social problems in the Netherlands were not targeted (van Gent et al. 2009)! Second, firm efforts were made to realize a diverse society sometimes at micro neighbourhood level and sometimes between social categories that showed large social distances to each other. However, empirical research has shown that individuals tend to move from a neighbourhood when their social position starts to diverge from the social level of the neighbourhood. They then move to neighbourhoods that better fit their own social position (Musterd et al. 2015). Policies that ignore such research outcomes are not sustainable.

Sako Musterd

Box 6.2: Water Supply in Urban Uganda

The evolution of the water supply sector in the urban environments of Uganda can be divided into three broad time periods. The first period (1972–1997) is that of public management. During this period, the utility was strongly controlled by government agencies. The second period is that of privatization (1997–2003), in which the private sector became involved in operational activities of service provisioning. The third period is that of new public management (2004–present), in which public ownership of the utility is combined with private sector management practices and principles. During each time period, a particular mix of governance instruments was used to develop service provisioning in the country's urban environments. The different time periods and accompanying mix of instruments are briefly examined below.

The National Water and Sewerage Corporation (NWSC) was established as a parastatal organization in 1972 by Decree 34 of the Ugandan Government. The utility was fully owned by the Ugandan government and the utility was tasked with providing water services to all large towns in Uganda.

(continued)

Box 6.2: (continued)
Establishment of the NWSC followed recommendations of a study on how to corporatize utilities, funded by the African Development Bank. The Minister of Mineral and Water Resources (MWR)[1] appointed a Board of Directors, consisting mainly of political appointees. The Board appointed a Managing Director and oversaw the corporation's activities. In this set-up, the Ministry of MWR was essentially responsible for designing policy and regulations in the water supply sector as well as for the actual service provision. As a result of this concentration of responsibilities, the Ministry of MWR steered day-to-day functioning of the utility and enforced the regulations and guidelines that emanated from its policies. This direct involvement in all aspects of water services led to cumbersome reporting requirements to the responsible Minister (Mugisha and Berg 2008) and meant that water services had essentially become a political tool. "Service expansion was politically-driven mostly in return for political favours" (Mbuvi and Schwartz 2013: 379). By the end of the 1990s, the utility serviced less than 50 % of the population, was not able to account for 51 % of the water that it produced, and had accrued a debt of more than USD 53 million (Schwartz 2008).

In reaction to these problems, and in the context of a broader Economic Recovery Programme pushed by the World Bank, privatization was promoted as the way to address the service provision crisis in Uganda. To make the privatization of urban water services possible, the legal and policy framework for water service provisioning in Uganda had to be adapted. This was achieved by the enactment of the Local Governments Act and the Water Act in 1997. Complementing these Acts was the adoption of NWSC Statute No. 7 in 1995, which concerned "the reorganization of the NWSC into an autonomous corporate body with institutional as well as financial autonomy from other government bodies" (Gutierrez and Musaazi 2003: 4). As a way of promoting privatization, the World Bank facilitated the procurement of a 3-year management contract from 1998 to 2001 to run the Kampala Revenue Improvement Programme, which was awarded to a German engineering company, H.P. Gauff. This contract was followed by a 3-year contract (2001–2004) for improving services in Kampala, awarded to the French water company Ondeo Services Uganda Limited (OSUL). The underlying idea was that large-scale involvement of the private sector could be promoted by showing the benefits of such involvement in the country's capital. Along with the increased involvement of the private sector in water provisioning, increasingly cost recovery and operational autonomy of the NWSC were stressed. This emphasis on private sector involvement and cost recovery has meant that the use of government subsidies for water service provisioning has declined. In withdrawing

[1] The Ministry of MWR was transformed into the Ministry of Water, Lands and Environment in the early 1990s and into the Ministry of Water and Environment in 2007.

(continued)

Box 6.2: (continued)
the services provided and monitoring these standards became increasingly more prominent.

Both private sector participation contracts did not live up to expectations (Muhairwe 2009) and this coincided with a broader loss of momentum for increased private sector participation as the "privatization decade" (Franceys 2008: 45) proved disappointing on a global scale. The privatization period was followed by a period of New Public Management, or what Smith (2004: 375) has called "the second wave of neoliberalization". In this period, many of the instruments, management principles and discourses characteristic of privatized service provisioning were maintained, but implemented by a public utility, the NWSC. This development was aided by the legal framework for water provisioning in Uganda, which during the period of privatization had been altered to allow for commercial operation of water services. Under this strongly neoliberal legal framework, the management of NWSC implemented a series of utility reforms emphasizing decentralization of operational autonomy to urban service areas, efficiency gains, competition between different urban service providers within NWSC through internal benchmarking, performance management through so-called Internally Delegated Area Management Contracts, and entrepreneurialism within the utility. In this third period, the nature of governance instruments largely stayed the same as during the privatization period, with the exception of increased decentralization to local area service providers, which are part of NWSC. The main differences lie in the acceptance of having a public utility operating on a commercial basis and the rescaling of service provisioning through increased autonomy of operational urban service areas within the utility.

Klaas Schwartz

6.5 The Potentials and Limits of Urban Governance Instruments

The two geographically very different examples help to reflect on some of the potentials and limitations of urban governance instruments.

6.5.1 Frames as Quintessential Context for Governance Instruments

The complexity of policy situations, illustrated by the text Boxes 6.1 and 6.2, demonstrates that there are multiple understandings of what certain policy problems are, against the premise of the functionalist approach (see Sect. 6.2). The way in which

actors frame a certain situation heavily influences not only the type of intervention proposed but also the subsequent policy instruments justified to achieve these goals (Rein and Schön 1994). Is water supply a basic human need or is it also a commodity? If a low-income neighbourhood in the Netherlands is framed as 'disadvantaged' and emphasis is put on its social and economic problems, a completely different mix of policies can be defended than if the (same) neighbourhood is framed as providing an affordable place for living and establishing businesses. Frames are therefore not just linguistic constructs. The process of framing is in itself highly political and reflects power (im)balances in society. As such frames are the settings in which the analysis and discussions on urban governance instruments are to be understood. It is too narrow-minded to only look at instruments as an isolated object of research.

6.5.2 Governance Instruments in Complex Governance Situations

As indicated in Chaps. 1 and 2, problems of urban inequality, sustainability and safety have both a multi-scalar and geographical nature. This has important implications for urban governance instruments and their local implementation and impacts. First, effectively tackling these problems requires a (coordinated) input of instruments on different policy levels. Sustainable development as a transformation towards the use of renewable energies needs both global agreements on complex political and trade issues and much more "local" policies to help (or force) individuals and communities to make a transition towards the use of sustainable energy sources. Similarly, the provision of water supply services is influenced by important dimensions such as the international human right to clean drinking water and sanitation services, national policies and standard setting and local provisioning. Social and economic problems in disadvantaged neighbourhoods in the Netherlands cannot be solved by policy instruments focusing on local solutions only. As indicated in the example, the problems that some residents of these neighbourhoods are facing are connected to broader domains of health and employment. These examples show that contemporary problems are mostly networked problems, which need relational solutions. This means that actors at different geographical levels need to be involved in addressing these problems, requiring a mix of governance instruments that operate at different levels, taking account of the situated context.

In addition, there is no commonly agreed solution on the optimum mix of instruments. Reality is shaped by the existence of a mix of governance instruments from different government levels originating from different time frames with different political preferences, goals, means and methods that were implemented in different and evolving contexts of rights and responsibilities. The 'new' instruments that were proposed by the Dutch government to deal with the problems in the most disadvantaged Dutch neighbourhoods were the latest addition to a large range of existing social, spatial, economic, financial, educational and sustainable policy instruments that already existed, originating from local municipalities all the way up to European Union (EU) policies, including policies developed by other social actors, such as

housing associations, welfare organizations, energy companies and banks. This complexity highlights that it is often much easier to start with a new instrument than to stop employing an old one which makes reality even more blurred. In such situations it is hardly possible to localize the effect of one single policy instrument on a specific situation.

6.5.3 Geographical Specificities and Governance Instruments

In the last decades, cities, particularly the larger urban metropolises, have been celebrated as powerful government levels potentially capable of actively steering the direction of urban development (Savitch and Kantor 2002; Barber 2013). While considerable differences in their governance powers exist worldwide, large metropolises are the major sites where global markets and multinational corporations meet actively in forums of political decision-making. The surge of China in recent decades has often been attributed to the proactive role that large cities have played in economic, spatial and infrastructural policies (Wu 2007). However, most regulatory power is still nationalized in many nation states, while (perceived) competition between cities often limits their bargaining power vis-à-vis private investors. The Chinese example shows that a more central position of cities does not automatically imply more democracy. Nevertheless, although the city level can be seen as a potentially powerful one, the two examples show that an important aspect of the complexities lies in the geographical specificities of these networked problems; networks that are often not constrained by city (government) boundaries.

Urban water provisioning depends on a variety of factors, such as biophysical processes that determine local availability of suitable freshwater resources and the topography. Ecological systems of large rivers are typical geographies of integrated economic and environmental problems and opportunities that often may not coincide with specific formal administrative boundaries. Problems that are located in disadvantaged neighbourhoods in the Netherlands are related to geographical levels largely outside these delineated areas, questioning the effectiveness of spatially targeted instruments focusing exclusively on a demarcated neighbourhood.

Haughton et al. (2013) therefore refer to the 'fuzzy' geographies of most contemporary problems. However, fuzziness can also be a tactic employed by governance actors "to mask clarity about whether a particular area or place is included in a policy framework or not, disrupting accountability and transparency" (Haughton et al. 2013: 218). Important policies nowadays are made on in-between spaces of governance, outside, alongside or in-between formal statutory scales of government (Haughton et al. 2013). There can be different relationships between such soft spaces and more formal government spaces. Softer spaces can occur temporarily to address a specific (short-term) problem or issue. Consequently they could disappear after a while. They can challenge existing government spaces but can also harden out and evolve towards more officially established government layers. 'Soft spaces' can also deliberately be established to address particularly sensitive, cross-boundary or

cross-sectoral issues that are being overlooked by existing government bodies. The instruments of the 'hard' statutory spaces of government are embedded in formal territorial units of government, with legally defined and definite territorial boundaries linked to administrative structures (Haughton et al. 2013: 218). Instruments in these hard statutory spaces are thereby theoretically embedded in a form of electoral accountability. Softer spaces usually employ a type of governance and instrument use geared towards (facilitating) cooperation between (networks of) actors. These soft spaces and the instruments used in them blossom in neoliberal market-led development environments (Haughton et al. 2013: 222).

The example of urban water services in Uganda highlights how international agencies can influence the adoption of new national legislation and policies aimed at increasing decentralization and private sector involvement. However, how this legislation subsequently leads to the everyday practices of water services provisioning is very much locally determined. In this sense, urban governance is the result of multiple interdependent domains: a global domain in which particular principles and practices are anchored and promoted; a national policy domain in which a legislative and policy framework is developed and sometimes matched with funds to implement the set policy; and a city domain where implementation of instruments are to lead to the desired changes in behaviour. In this sense, urban governance can only be seen within the context of the global and national domains. At the same time, considerable room for manoeuvring often exists at the city level to influence the actual everyday practices of urban governance.

How much room for manoeuvring exists depends on factors, mainly related to the particular sector or issue being governed. In the water supply sector, given the health and economic impacts of poor service access, an influential global community exists and national governments will almost certainly have some kind of legislation stipulating the rights of residents, dictating standards of service provisioning and possibly even organizational forms of how these standards should be met. In such a sector, the scope for manoeuvring at city level is limited. Apart from the sectors and issues impacting the health of the population, other factors that influence the role of the city in urban governance concern the technical complexity of the activity, the financing of the activity and the level of externalities that accompany an activity.

Externalities concern the quantity and types of external effects (such as land or noise pollution, etc.) and geographical spillovers associated with a particular issue. The higher these externalities are, the more likely the room for governance at the urban level will be limited. These externalities should preferably not exceed the administrative boundary for decision-making. Financing of activities or services is another factor that limits the role of urban governance. Issues such as flood protection may require investments that are well beyond the ability of an urban population to raise. Particularly if it is not possible to charge the user for a particular service (such as flood protection) the investment will have to come from the government, which may have a limited tax base. Moreover, the technical complexity (both in terms of infrastructural complexity and organizational/ managerial complexity) influences which level of government is most prominent in a particular activity.

6.5.4 *Instruments and Policy Outcomes*

The ability to use a particular mix of instruments can be grouped along two dimensions: the actors' capacity to design and implement these instruments and the complexity of a policy subsystem. As regards the first, of particular importance is the degree to which the instruments require state involvement in regulating and provisioning goods and services. Suasive instruments, which assume citizens will voluntarily conform to a particular behaviour, require relatively little capacity of implementing actors. Other instruments demanding compulsory adherence to particular behaviour or standards, require considerably more capacity. In addition, infrastructure instruments may both require relatively little government capacity, for example in the case of placing a speed bump, or a lot of capacity in the case of large and technologically complex infrastructural projects. Howlett (2000: 416) has added a second dimension which influences the selection of suitable instrument mixes. This second dimension concerns the policy subsystem complexity, which "relates to the number and types of actors governments must affect in designing and implementing their programs and policies". By combining the capacity of government and the complexity of the policy susbsystem, Howlett (2000: 417) develops a classification of various instruments presented in Fig. 6.1.

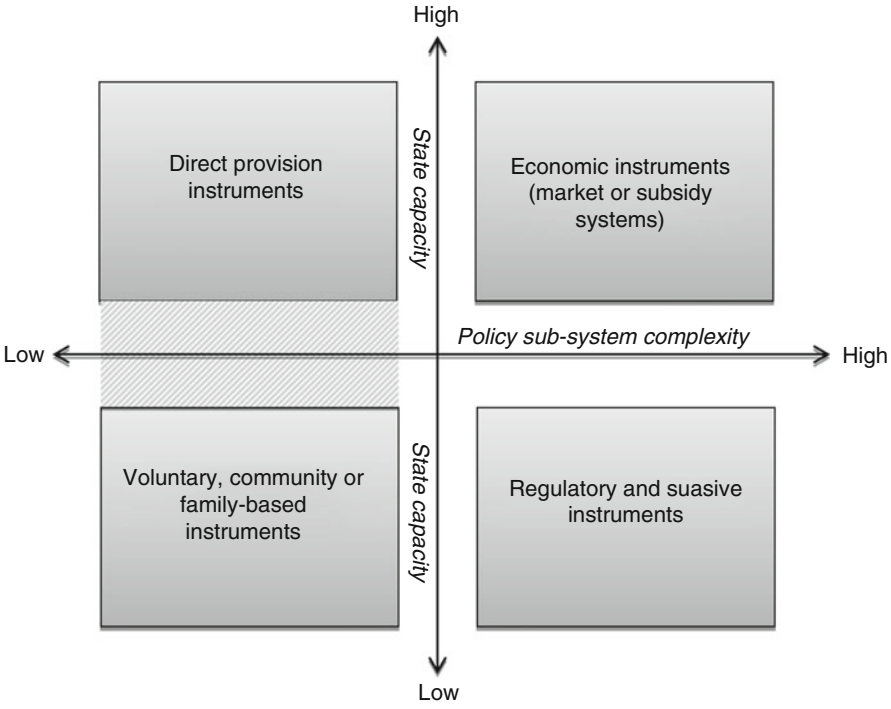

Fig. 6.1 A model of likely policy instrument choices (Based on Howlett 2000)

The mid twentieth century belief in modernism and societal steering by governance instruments has been a foundational belief of most planning and government systems. Physical instruments like infrastructures, building codes and land-use plans have been implemented to induce behavioural change. For example, town planning concepts to make inhabitants behave in a more 'eco-sensitive' manner in their transport choices, housing locations or resource usage have been a holy grail in urban and regional planning all over the world in the last decades. However, most of these instruments have been implemented with questionable success (Scott 1998). The reality has been more complex and the capacity to steer society via the use of governance instruments has to be relativized. Concepts of resilience or even anti-fragility (Taleb 2012) open the intellectual windows to discuss what it takes for complex systems – like cities – to develop in a much more organic way towards certain outcomes. The role of concrete governance instruments in such perspectives need to be further explored.

Acknowledgements Many thanks to Sako Musterd for his contribution, and to the editors and reviewers Glen Robbins and Willem Salet for helping to structure and improve the argument of this chapter.

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Chapter 7
Participatory Instruments and Practices in Urban Governance

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Abstract This chapter discusses both citizen and stakeholder participation as an instrument in urban governance. Citizens and other non-state actors can be involved in local decision-making in many different ways. Privatization of previously public entities such as municipal water companies, port authorities or educational institutes has created new local actors, adding new challenges to urban governance. Communication technologies both facilitate and complicate interaction between actors in the governance process. Where governance outcomes are contested, ordinary citizens increasingly take recourse to legal action or mobilise on 'the streets' to hold their governments to account. This chapter discusses these general trends while highlighting how issues of scale and local context shape participatory practices locally.

Keywords Participation • Decentralization • Privatization • Stakeholder • Deliberation

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J. Gupta et al. (eds.), *Geographies of Urban Governance*,
DOI 10.1007/978-3-319-21272-2_7

7.1 Introduction

In response to citizens' disenchantment with political decision-making and supported by the ascendency of the 'good governance agenda' (Chaps. 2, 3 and 4), governments all over the world are experimenting with 'participatory processes' as a means to bridge the gap between those who govern and those who are governed. This chapter elaborates on participation in urban governance, which is gaining in significance as an effective channel for 'face-to-face' participatory politics. It is considered as a means to strengthen urban democracies through increased citizen power and to countervail the forces of global capital, politics and technology that shape urban futures (Purcell 2006; Silver et al. 2010: 61). Against this background, this chapter examines the potential and limits of participatory processes in the urban context, and its instruments and practices. It discusses the theory and modes of participation (see Sect. 7.2), presents different instruments for enhancing participation (see Sect. 7.3) and critically discusses participation (see Sect. 7.4), followed by geographical reflections (see Sect. 7.5) and conclusions (see Sect. 7.6).

7.2 Theory of Participation

7.2.1 The Evolution of Participation

Cities, states, citizens, civil society and participation are intrinsically linked. In the Greek city state (polis), all free-born adult men were entitled to take part in public deliberations and decision-making on the affairs of the polis. The New England Town Meetings, held in the early seventeenth century in the settler colonies of the United States, brought together all members of the community to discuss public affairs (Fung 2009). In the seventeenth and eighteenth century, European cities were the "anchor points of relatively autonomous 'civil society' before there were nation states" and "developed governance has always been urban" (Hirst 2005 cited in Silver et al. 2010: 456) As cities grew, direct democracy gave way to representative democracy where decision-making is delegated to elected representatives. However, this has created a distance between residents and authorities (Urbinati 2006: 6). The modern metropolis is far from the Greek polis "where men could know each other and each others' character personally" (Aristotle cited in Hordijk 2012: 201). Problems of scale, technical complexity and privatization of many aspects of public life make the reinstitution of the Greek assembly untenable (Fung 2009: 4). There is however room and a need for 'experiments with democratization' (Giddens 2000: 75–76), including processes of participatory urban democracy. Since the 1990s, the move from government to governance and the accompanying processes of decentralization and privatization (see Chap. 2) have increased the demand for mechanisms that enable improvement of relationships between local governments and citizens. Privatization of public services such as water, energy, municipal waste

management, education or health combined with greater access to information by 'ordinary' citizens through the implementation of information and communication technology (ICT) (see Chaps. 8 and 9) and the emergence of the network society (see Chaps. 3 and 4) have multiplied the actors in policymaking. Urban governance has increasingly become a multilevel process (see Chap. 2 and Box 7.1). Communication technologies can facilitate interaction between actors in the governance process, but they may also be used technocratically and lose sight of context and people (see Chap. 9). Where governance outcomes are contested, citizens increasingly seek justice by using the possibilities provided by the legal system to hold their governments to account (see Box 7.4), or they mobilize to express their concerns.

Box 7.1: Multilevel and Multi-Actor Engagement in the Extension of the Port of Rotterdam (the Netherlands) (Wesselink et al. 2011)

The relatively small city of Rotterdam (600,000 inhabitants) is home to one of the world's largest harbours. The 1993 decision to expand the port involved a variety of actors, both public and private, ranging from local to international. They interacted in multiple spaces or arenas and in simultaneous and sequential decision-making processes. This box presents two decision phases of this complex process.

In 1993, the municipal port authority and the provincial authority of the former Dutch Ministry of Housing, Spatial Planning and the Environment (VROM) developed alternatives for expanding the port and established a project organization to coordinate a transparent decision-making process. Various actors including politicians, interest groups, scholars, port authorities and other public and private actors were invited to discuss the port expansion in working groups, expert meetings, sounding boards and round table discussions. The discussions in these different forums were coordinated and connected by the project organization, and continued at the national level of the Ministry, since the project was considered to be of national importance. Although high-level civil servants from various ministries had the responsibility and power for making final decisions, they had to consider the outcome of the participatory process. However, some environmental concerns were sidelined, making the environmentalists withdraw from the process several times.

In 1997, the cabinet decided to promote port expansion through spatial planning instruments – the zoning process (see Chap. 8). The Rotterdam Municipality was now part of the project organization and received a formal role in the process. Formally, participation was organized in invited spaces: consultation of non-public actors such as the private sector and public interest organizations, and public consultation involving public actors from different administrative levels. The project organization integrated the discussions in these two different arenas. Environmental interest groups and the Rotterdam

(continued)

Box 7.1: (continued)
municipality initiated an additional space to discuss environmental compensation measures. The environmental interest groups again withdrew from the process because they felt environmental issues were insufficiently taken into account. Interventions by high-level mediators with direct access to ministers resulted in the creation of a High Council, which formally linked the public actors with other stakeholders. This Council had to conduct joint fact finding on both economic and environmental issues.

Non-state actors were not satisfied with the results of the first open consultation round where some of their views were not taken seriously. The second round, when actors were forced to combine economic and environmental interests, resulted in three interrelated projects: land reclamation for harbour extension under the responsibility of the port authority (privatized in 2004); the creation of new nature and recreation areas (responsibility: the Province); and regeneration of the existing harbour (responsibility: the municipality of Rotterdam).

The resulting zoning decision was unexpectedly challenged by actors who had not been invited to participate in the second round, namely farmers and fishermen. The Council of State rejected the first zoning decision in 2005, and only approved an adapted version in 2009. In 2013 the first container ship was welcomed at the Maasvlakte 2.

7.2.2 Defining Participation and Participants

Participation in urban governance can involve multiple actors, ranging from citizens to stakeholders in relation to any specific issue. While the term stakeholder may be seen as limited to only those with a stake or interest, it is used more comprehensively and also emphasizes their agency. Participation is "to have a part or a share in something", which can range from informing, obtaining the views of different actors or citizens, to empowering citizens to exercise their democratic rights (Kanji and Greenwood 2001: 7). Participation has so many prefixes (public, popular, community, civic, political) (Brodie et al. 2009: 204) that "it is rarely clear what counts as participation, and how the many practices loosely bundled under the label should be understood" (Bishop and Davis 2002: 14). We define participation as including citizens' voices, either as members of the public or as stakeholders in any stage of policy and decision-making including implementation and budget allocation (adapted from Wesselink et al. 2011: 2688). This encompasses many modes of participation, from consultation to contestation (see 7.2.3), illustrated by Arnstein's (1969) ladder of participation (Section 7.2.5). Stakeholders have a stake or interest in the issue at hand, which may be amplified by the direct impacts on certain groups

or through the power and influence of the stakeholders to impact the problem definition or decision (Anokye 2013). Among participatory instruments of urban governance, participatory budgeting (PB) has gained considerable popularity in particular in Latin America (see Box 7.2).

Box 7.2: Participatory Budgeting in Porto Alegre

In 1989, the Worker's Party gained power in the Brazilian city of Porto Alegre. The well-organized civil society, and the union of dweller federations of Porto Alegre (UAMPA) in particular, insisted that the newly elected local government keeps its electoral promises of a 'popular administration', especially with respect to municipal budget decisions. This resulted in Porto Alegre's model of participatory budgeting (PB). This model involved trial and error and intense dialogue between the public administration and citizens in budgetary decision-making (Chavez 2004; Hordijk 2009, 2012). It is "a process by which citizens, either as individuals or through civic associations, can voluntarily and regularly contribute to decision-making over at least part of a public budget through an annual series of scheduled meetings with government authorities" (Goldfrank 2007: 92).

The principles of PB in Porto Alegre are:

- The government decides which share of the municipal budget will be decided upon through PB;
- The city is divided into geographical zones, to which a share of the participatory budget is assigned based on predefined criteria;
- In each zone, popular assemblies are convened, open to all citizens: deliberation on a 'one person one vote' basis, results in decisions about investment priorities and representatives are chosen for the PB Council;
- Projects are presented, discussed and prioritized in the PB council;
- The PB council is responsible, and receives special training, for formulating the budget, presenting it to the municipal council, monitoring implementation and exerting quality control;
- Each annual cycle starts with giving account of the implementation of last year's budget.

Substantial reforms of Porto Alegre's administration were needed to make the model work; this included changing the administration's mentality into an organization serving popular decisions. First, a planning and finance department was created in addition to existing municipal departments to monitor impartial implementation of the decisions. Second, the administrative apparatus was decentralized to make it more accessible to the citizens. Finally, over 600 Workers Party militants were contracted as 'liaison officers' between the

(continued)

Box 7.2: (continued)
citizens and the administration to smoothen communication and implementation of the PB process.

Fifteen years of PB in Porto Alegre (1989–2004) have led to investments becoming significantly more pro-poor: more basic needs were met and the score of the Human Development Index increased. Non-material benefits included curbing clientelism and corruption by increasing transparency and accountability, and creating one clear and public channel of communication between citizens and the state. PB is also considered 'a citizen's school', creating better informed and empowered citizens.

PB is a mix of direct and representative democracy, continuous dialogue and yet a radical political project "to facilitate critical consciousness […] and opening the way for public appropriation of the State" (Dutra and Benavides 2002: 4). The participatory experiment has two pillars: empowering citizens and reconfiguring the state (Franklin et al. 2013).

7.2.3 Schools of Thought on Participatory Governance

Two schools of thought on participation are the instrumental school, focusing on improving the existing system, and the transformative school, addressing power structures. The latter includes both the deliberative democracy and the empowerment school of thought. Transformative participation aims to shift existing power structures, by making decision-making more democratic and inclusive (deliberative democracy), or by strengthening participants' capabilities (empowerment) (Fung and Wright 2003; Hickey and Mohan 2005; Melo and Baiocchi 2006).

Instrumental participatory governance is considered to increase the accountability, transparency and responsiveness of local government within the context of the decentralization of responsibilities to local governments and the transformation of the state from a provider of public services to an enabler and coordinator of stakeholders that could provide those services (Helmsing 2002). Participation of non-state actors in service provision and some citizen involvement aim to remedy problems of elite capture, clientelism and prevent social exclusion from public services (Ackerman 2004; Speer 2012). Here governance tends to be primarily technocratic, a dialogue with citizens or stakeholders is hardly sought, and citizens are primarily seen as clients or consumers (Hordijk 2012). The idea of the lean state and private sector participation is aligned with the neoliberal project (see Chaps. 1 and 2), and participation has become an indispensable legitimising component of the neoliberal good governance agenda promoted by the International Financial Institutions and the United Nations Development Programme (UNDP). In this approach, outcomes in terms of improved service delivery or increased accountability, equity, transparency, effectiveness and responsiveness are more important than

the process that characterizes participation. Governments can also abuse participatory governance mechanisms by offloading responsibilities, reducing conflicts, co-opting opponents and mobilizing communities behind a neoliberal agenda to ratify decisions that favour capital (Silver et al. 2010: 455).

The transformative school emphasizes the degree of participation as well as the level of agreement reached. In the deliberative democracy approach, the quality of the dialogue is critical. It argues in favour of building an informed dialogue in the public sphere between all citizens in order to facilitate renegotiation and even transformation of interests; this eventually leads to a consensus regarding the issue at stake. The transformative school differs from the instrumental school by the equal consideration of all actors. In principle, the state is an actor just like all other actors, though controlling or facilitating the process. In practice, this ideal may work out differently, since participatory processes are never power neutral.

The empowerment school calls for deliberative institutions to enable citizens to exercise choice (Evans 2004). Here participation and deliberation are ends in themselves, because they foster social learning, raise citizens' awareness of their rights and obligations and increase human capabilities which, in turn, are empowering. "Processes of participation have to be understood as constitutive parts of the *ends* of development in themselves" (Sen 1999: 291), strengthening citizens' agency (especially of the underprivileged), improving decision-making processes and leading to more equitable outcomes. This can happen only when participation is part of a wider political goal to include the excluded and address underlying power structures (Hicky and Mohan 2005).

The distinction between the schools of thought is not that clear-cut as approaches can co-exist or follow onto each other (Anokye 2013). Different approaches can appear at different moments in the political process or be used in relation to different problems. For instance, in the policy initiation phase, politics and conflicts may dominate, and less powerful actors may mobilize to make their demands heard. At this point, participatory processes are constantly driven by pressures, conflicts, negotiation and conflict resolution. In later phases conflicts may be resolved through deliberation, and actors can agree on a certain course of action. Hence, participatory governance "in the same context with the same actors may look different in different moments" (Silver et al. 2010: 454). Table 7.1 summarizes the various approaches discussed.

7.2.4 Who Participates, How and Why?

Participants can be individuals or organized in civil society organizations (CSOs). CSOs are "the totality of social institutions and associations, both formal and informal, that are not strictly production related nor governmental or familial in character" (Huber and Stephens 2001: 6). These include labour unions, neighbourhood councils and even parents' associations. Moreover, participants can be other

Table 7.1 The main characteristics of three strands of literature on participatory governance

Characteristics	Instrumental: democratic decentralization	Transformative – A: deliberative democracy	Transformative – B: empowerment
Envisioned potential	increases state legitimacy	aggregates preferences and reaches a common ground	allows the powerless to influence decisions
Objective	improve public service provision	make decision-making more democratic, transparent and equitable	address structural power inequalities and exclusion, more equitable outcomes
Evaluation criteria	accountability, transparency, responsiveness	deliberation and contestation	empowerment and capabilities

Adapted from Speer (2012: 2381)

non-state actors such as business, academics and religious congregations. Questions of who is invited or not, who participates, how often, when, how decisions in participatory processes are taken and who is held accountable for the ultimate decision, are crucial in understanding the value of participatory processes.

Overall, there is a trade-off between time, money and effort spent in participating and in organizing participation, the material benefits such as improved service delivery or fair allocation of the budget, and non-material advantages such as enhanced capabilities, access to information and recognition. Who participates is not only determined by who is invited or not, but also by who feels invited and who can afford to and wants to participate. If the government invites participants, it determines who participates, and may cherry pick participants that suit its interests or are willing to be co-opted. The politics of participation is such that those organizing the participation may have specific interests in the outcomes they want and this may affect who is invited and why. This is further complicated by the practicalities of participation, how much of the budget can be allocated to the participatory process, at which of the stages of decision-making there should be participation, what should be the rules of decision-making (majority, consensus, unanimity) and who is held accountable at the end of the process (if the decision taken is ultimately inappropriate). Politics and practicalities may merge into a cocktail that promotes certain ends. Where a participatory process is fair and balanced, stronger actors (those who are more communicative and better informed or more dominant) may be able to assert their own interests at the cost of others, also referred to as ‘elite capture’. However, even where participatory processes are all inclusive and meetings are open to all citizens, several exclusionary mechanisms may be at work. For instance, the invitation may be distributed in a manner that it reaches only certain representatives but not all citizens, may be distributed in a language that is not understood by the target group, or the meeting may be organized in a location that is perceived as being unsafe or difficult to reach. An important mechanism can be self-exclusion, specifically if people do not feel invited, do not feel at ease, fear not to be taken seriously or lose a day’s income as a consequence. The problem in many of these

processes is that decisions are continuously made in small steps and actors need to have staying power to continuously influence the process.

Participation can take place in different ways and through various channels. Before the rise of ICT, participation was mainly organized face-to-face, especially in support of the higher rungs of Arnstein's ladder. At the same time, informing and educating was conducted through flyers or radio campaigns. With the rise of ICT, participation can now potentially also take place online. Several municipalities in Peru, for example, use online discussions and voting in their PB processes and have developed 'apps' to facilitate citizen reporting of what is happening on their streets. Municipalities use web pages and blogs to inform and communicate with residents, but also respond publicly to blog posts from residents. These participatory instruments (see 7.3) can be used in both the instrumental (technocratic) approach and the transformative approach. The use of social media in social mobilization for greater participation in decision-making is evident in, for example, the Arab Spring and the social uprisings in Brazil in 2013 (Khondker 2011; D'Andrea 2014).

7.2.5 Modes of Participation: Arnstein's Ladder and Participatory Spaces

A crucial question in assessing participatory governance is to what extent decision-making power is actually delegated to ordinary citizens or participating actors? Arnstein's iconic ladder of participation (Arnstein 1969: 223) distinguished three categories, further subdivided into eight rungs of the ladder ranging from non-participation to citizens becoming active agents. It has inspired many ladders thereafter, mostly based on the degree of power sharing, involvement and the direction of information flows (one-way, two-way, or co-construction) (see Collins and Ison 2009; Anokye 2013).

In addition to the various degrees of participation, participation processes can also be characterized by the type of space in which they take place. "Thinking about participation as a spatial practice highlights the relations of power and constructions of citizenship that permeate any site for public engagement" (Cornwall 2004: 1). This space for participation is defined by who invites and is an "arena where people gather" [...], which "can be empty or filled, permeable or sealed, inviting to speak or act or clamped shut. […] "Thinking about participation as a spatial practice highlights the relations of power and constructions of citizenship that permeate any site for public engagement" (Cornwall 2004: 1). Spaces for participation differ in the extent to which residents have access to decision-making, and can be closed, invited or claimed (see Table 7.2). Participatory urban governance requires a citizenry, organized civil society or other actors capable of meaningful engagement. It also requires a responsive state, committed to implement agreements reached. This interaction is contingent on local, historically rooted cultures of local state-society interaction (Mohanty et al. 2011). Civic norms on participation influence citizens

conduct (Mouffe 1992 cited in Nederveen Pieterse 2001: 408) and how these are embedded in a wider culture of (non) participation. In unequal societies, decentralization of power may empower local elites, who may or may not be responsive to the needs of their people. In countries with polarized religious or ethnic politics, participatory local democracy cannot address the root causes of social unrest (Nederveen Pieterse 2001: 417). Also in countries with progressive constitutions, such as Brazil, Bolivia, Ecuador and South Africa, political parties can remain centralized and autocratic (Nederveen Pieterse 2001: 417). Genuine participatory governance intentions thus might become trapped in legacies of inequality, or undermined by mistrust in the authorities. The assumption that participatory experiments work best in stronger democracies does not hold; there is evidence that it often yields better results in weaker democracies (Gaventa and Barrett 2012).

Table 7.2 Classifying participatory spaces

Closed spaces	Invited spaces	Claimed spaces
Decisions are taken behind closed doors, by elected representatives, bureaucrats or experts (Gaventa 2005)	Governments invite the citizens (see Box 7.3) or stakeholders	Spaces created through social mobilization or contestation also called popular spaces, because they result from popular initiative (Cornwall 2004)
		Called invented spaces when confronting the status quo and aiming to transform (Miraftab 2004), either resulting from social movements or community action, or as "natural places where people gather to debate and resist" (Gaventa 2005)
	Negotiated spaces: spaces that start as invited spaces, but expand beyond the initial mandate and interface through pressure from the participants (Baud and Nainan 2008)	

Adapted from Anokye (2013: 86)

Box 7.3: Service Centres and User Groups: Invited Spaces for Service Delivery in Durban

The strong civic movements and the legacy of well-equipped local governments from the apartheid era in South Africa has led to the incorporation of grassroots organizations in the negotiations for a democratic transition in the early 1990s. The Reconstruction and Development Programme (RDP) aimed at participatory democracy and mobilizing civil society for local development (Heller 2013: 53). According to the post-apartheid legal framework, municipalities are legally obliged to involve citizens in formulating budgets and defining development priorities, for instance, in the Integrated Development Plans. Beyond these broader local government processes, different sectors within the municipality have developed processes to engage with their citizens.

(continued)

Box 7.3: (continued)

eThekwini's Water and Sanitation Unit (EWS) engages with Durban's citizens through:

- 'One-stop' service centres located all over the city for citizen complaints (through visits, telephone hotlines and a toll free number, sending SMSs or emailing) for redressal by EWS staff;
- User Platforms for the 17 city planning zones, comprising elected representatives who meet triennially to discuss service delivery. The user platforms train relevant partners (ward councillors, ward committees, CSO members and ordinary citizens) and educate, empower and build partnerships to hold EWS accountable. Yet because ward-councillors refuse to be trained together along with civil society activists, and because residents feel they cannot speak freely in the presence of their councillors, the User Platforms have not been as successful as expected;
- Focus Groups have emerged from a research partnership between the University of KwaZulu-Natal and EWS. The research included customer perceptions surveys, the results of which were communicated back to communities. Through this process, interested individuals were invited to join focus groups as part of a process of ongoing engagement with EWS. These focus groups, which meet regularly, test ideas, gauge public perceptions and provide input in decision-making processes.

Although not perfectly implemented, EWS officials claim that these interactions have influenced policymaking and implementation. For example, the redesign of certain technologies in service provision and the increase of free basic water (FBW) supply from 6,000 to 9,000 l per month is attributed to the focus groups. However, public pressure and the threat of legal action have also contributed to the increase in FBW.

Participatory processes in Durban are constrained by the dominance of party politics in decision-making at the municipal level (Heller 2013: 52, Sutherland et al. 2014). Deliberative participation with citizen control is increasingly being substituted with technocratic, instrumental participation, which reflects the municipality's managerial approach to governance. Yet, when participation is used as a tool to improve local governments' responsiveness, it has proven that it can to some extent be a tool that contributes to the improvement of water provision in Durban.

7.3 Participatory Instruments

Each participation mode has its own instruments (Table 7.3). At the very minimum educational or awareness raising campaigns, using radio, television, flyers and websites are obvious instruments of educating or even manipulating citizens.

Table 7.3 Integrated ladder of participation: gradation, approaches and methods

Category	Gradation of power sharing (Arnstein's ladder)	Approach	Common participation methods
Citizen/ stakeholder power	Citizen/stakeholder control	Transformative	Round tables (*mesas de concertación*), citizen juries, participatory budgeting, Municipal Policy Councils (MPCs)
	Delegated power		
	Partnership		
Tokenism	Placation	Mix instrumental/ transformative	Two-way information flows: opinion polls, interactive web pages, public hearings, meetings, focus groups
	Consultation		
	Informing		
Non-participation	Therapy	Instrumental	One-way communication flow: print media, radio and television campaigns, flyers, websites
	Manipulation		

Adapted from Anokye (2013: 86)

When these instruments are employed, communication flows from governments to citizens or other actors. Interactive websites, where citizens can vote in opinion polls, and report their opinions or grievances, are a first step towards two-way communication.[1] These instruments are directed at all citizens and are thus non-exclusive, provided that citizens have Internet and are actively informed about this possibility (Lowndes et al. 2006).

When the organizer, usually the government, selects participants (stakeholders) we speak of invited spaces. A typical instrument in stakeholder participation (more than in citizen participation) is the 'consultation document' sent to selected stakeholders for their 'expert opinions' to improve its quality. Focus groups are used to solicit preferences and views of residents, or facilitate the exchange of diverging views between different stakeholders. Focus groups have the potential to provide space for dialogue and deliberation, and thereby for learning, and thus can empower participants. Yet they can also be just window dressing. Since the number of participants in a focus group is limited, the empowering effect is also limited to a small number of people (Anokye 2013).

Citizen juries use a larger group representing a sample of the population, who are briefed in advance, to discuss a certain issue, potentially in an open and constructive dialogue aimed at reaching consensus (Anokye 2013: 77–78). Public hearings or meetings do not pre-select participants, but participants may also self-select and be affected by implicit exclusionary mechanisms. They are a relatively inexpensive, incidental way of interacting with the public; however, it is not clear how decisions are eventually taken and whether the authorities provide feedback.

[1] For example, in the high-income district Miraflores in Lima the annual voting on priorities for the PB takes place online, whereas in poorer districts people have to come to meetings.

Recent forms of citizen participation include PB (see Box 7.2) and municipal policy councils (MPCs). MPCs are stakeholder councils, with 50 % of the representatives coming from CSOs and 50 % from other actor groups, including government actors. They design, discuss and supervise policies, and sometimes carry out administrative tasks (Gurza Lavalle et al. 2011). The Peruvian 'Round Tables' (or *mesas deconcertación*) allow a similar dialogue, though with less strict rules on the representation of state and non-state actors (Gurza Lavalle et al. 2011). In the Peruvian Participation Rights and Citizens' Control Law of 18 April, 1994, citizens' rights to participation are related to the reform of the Constitution, formulation of laws, referenda and the development of regional and municipal tools and mechanisms. Citizens can revoke[2] authorities and demand the presentation of municipal financial balances. In Peru, PB processes are mandatory for municipal and regional governments. The Prior Consultation Law (2010) requires that indigenous people and peasants are consulted prior to investments made or other decisions taken that affect their livelihoods. It is quite a remarkable example in the participatory legally binding instruments in Peru, that more than ten consultation processes have been held since approval of the law in 2010. A fully fledged participatory process can use many instruments either simultaneously or sequentially. A PB process in a low-income district in Lima, for example, invited citizens to a forum to discuss the strategic priorities for their district. The strategic priorities selected were presented to the population in a door-to-door opinion poll, the results of which were discussed in thematic groups with representations of citizens and relevant actors. Citizens decided on projects for their districts and working groups elaborated project proposals. The authorities presented PB as a tool to empower their citizens to achieve co-governance (Hordijk 2005).

These instruments are linked to invited spaces. However, citizens deploy other instruments when they claim their space through contestation using complaints, demonstrations and marches, advocacy with administrators, lobbying with legislators and litigation in courts to radical 'sit-ins' and hunger strikes. These actions seek visibility and attention (Walton 1998) and can foster change in the contested spaces (Gaventa and Barrett 2012). Citizens also increasingly turn to judicial action to claim their rights and hold their authorities to account. In South Africa, citizens have challenged the introduction of pre-paid water meters in court.[3] In Rio de Janeiro, *favela* residents facing evictions in preparation for the World Cup (2014) and the Olympic Games (2016) combined resistance campaigns through social media and blogging with the filing of court cases to block the relocation process (Romero 2012). In India, NGOs and civil society organizations have increasingly used the judicial instrument of Public Interest Litigation very effectively on social and environmental issues (Mawdsley 2004, see Box 7.4).

[2] It is the right of the citizens to revoke mayors and councilors. Regional authorities are elected by popular vote; magistrates by popular vote.

[3] The High Court ruled that pre-paid water meters were infringing the constitutional right to water. The Constitutional Court overruled this decision, considering it a policy and not a judicial issue (Bond 2015, pers. comm.).

Box 7.4: From Token Participation to Court: The Example of Kathputli Colony Slum Redevelopment Project in Delhi

In 2008, Kathputli Colony, a 40-year old squatter settlement with 15,000 people in central Delhi was selected by the Delhi Development Authority (DDA) to implement its first slum redevelopment project under a public-private partnership. The contracted private firm was to build *in situ* multi-storey flats with mandatory amenities for the slum dwellers. These dwellers would be transferred to a transit camp of pre-fabricated one-room tenements, with shared bathing and toilet facilities, to be built by the developer, before construction work could start. The camp was completed in March 2013, on a site located about 3 km from the present settlement. However, at that time, major issues were not yet clarified, despite meetings with the DDA and recurrent residents' requests, including formal 'Right to Information' applications. In particular, although the DDA conducted a household survey in 2010 to establish the list of households eligible for flats in the new housing complex, it did not disclose the results.

On 22 February 2014, the DDA issued an order for residents to begin registration and move to the transit camp. At the same time, a list of eligible households (subject to final verification) was released on the DDA website, after more than 2 years of pleas to do so. A website (http://www.kathputlicolonydda.com/index.asp) dedicated solely to the project was also launched including official notices and plans of the rehousing complex.

The threat of the impending transfer to the transit camp, the contested household survey and the questionable redevelopment project prompted one of the community based organizations and a group of residents including several leaders to file a writ petition in the Delhi High Court. The petition pleaded for the project to be stalled and their alternative plan to be considered. A prominent NGO working in the area of housing rights, which had become involved shortly before the petition, supported the CBO. The Court dismissed the case on 20 March 2014. Nevertheless, it directed that a committee of residents be allowed to visit the transit camp and report any problem to the DDA and the developer; and that the latter considers the residents' suggestions regarding facilities required to be provided and deficiencies pointed out. The DDA assured the Court that genuine households omitted from the survey might submit the requisite documents to DDA for consideration. Eventually, the DDA initiated a new identification survey in July–August 2014 for such households.

These recent developments indicate increased residents' participation as well as efforts towards transparency on the part of the DDA and greater consultation between the three parties involved following the Court's directives. However, it may be too little too late to overcome the residents' mistrust of the DDA and the developer, and to ensure a smooth rehabilitation process. Thus, eight months after the court's judgement (at the time of writing), the large majority of residents in Kathputli Colony continued to resist the move to the transit camp.

Véronique Dupont (based on Dupont et al. 2014)

7.4 The Critiques of Participation

While empowering, participation can also be 'the new Tyranny' (Cooke and Kothari 2001). Instrumentalists question the efficiency of participation considering its time, resource and energy demands.

Time and resources are spent in preparing and implementing the process, ranging from the need to invite, consult, bring participants together, negotiate, to build consensus, resolve conflicts and deal with the trade-offs. In practice, 'real' participation is a slow and uncertain process (Anokye 2013: 73). The question is whether people really want to participate fully, or just want to be given the choice to do so? It is often assumed that people have nothing better to do than to participate (Nederveen Pieterse 2001: 410).

Furthermore, issues of representation are at stake. The views of well-organized interest groups may be over-represented at the cost of the views of others (Anokye 2013). Many CSOs do not represent, but 'assume representation' of the people they claim to represent (Houtzager and Gurza Lavalle 2009). They lack the historically legitimized mechanisms by which they can acquire legitimacy (Houtzager and Gurza Lavalle 2009: 7). The CSOs, like the private businesses, that participate to increase governance responsiveness, may themselves be internally undemocratic and unresponsive.

Participation is thus an expensive, time consuming instrument and needs to be used with care. Hurlbert and Gupta (2015) argue that where problems are structured (and there is agreement on the science and values), policy approaches to deal with these problems can be simple and technocratic and do not need to be addressed through participatory instruments. Where the problem to be addressed is completely unstructured and there is no agreement on science or values, there are often situations of mutual distrust where dialogue is needed but may not quickly lead to results. In situations of mutual trust, stakeholder participation can be empowering and lead to the development of solutions to moderately structured problems.

Participatory processes may reinforce existing power structures (Mosse 1994; Cooke and Kothari 2001; Hickey and Mohan 2005) and may sharpen conflicts of interest (Anokye 2013). Local level participatory processes are not, by their very nature, more fair than other forms of governance and decision-making. The associational capacities are often unevenly distributed across social categories, with some groups having more resources than others (Heller 2013: 47). Elites can easily capture the process and tweak it to their interests, and the assumption that participatory processes are inherently progressive is faulty (Silver et al. 2010).

To become effective, participation needs to be sustained, and possibly institutionalized and thereby become a recurring process, as in the PB processes in Brazil and Peru. Yet, such recurring processes run the risk of constantly changing attendance, with new participants showing up, with previously reached agreements being called into question, and the reopening of negotiations. Furthermore, participation in decision-making does not imply implementation of decisions. A common reason

for disillusionment with participatory governance is that agreements are not upheld (Goldfrank 2007; Wampler 2007).

Expectations of what local participatory urban governance can achieve should not be overstretched. An important constraint is the lack of financial and human resources: the poorer the cities, the less that can be achieved (Boulding and Wampler 2010). More importantly, cities are embedded in larger political economic structures that constrain local government actions, and local participatory processes cannot confront the locally felt consequences of the global political economy. Yet there are also contexts in which actors can engage in multilevel processes of participatory governance. Varying scales of action thus offer differentiated room to manoeuvre, and this room to manoeuvre varies for different types of actors (Silver et al. 2010).

Last but not least, there is very little systematic measurement of the outcomes of participation (Mansbridge 1999; Gaventa and Barrett 2012; Speer 2012). Many argue that there is little empirical evidence of its results (Cooke and Kothari 2001; Hickey and Mohan 2005; Baiocchi and Ganuza 2014), not least because it is very difficult to establish causal links between the input (participation) and the result, and systematic comparative review studies are few and report mixed results (Brinkerhoff and Azfar 2006; Boulding and Wampler 2010; Gaventa and Barrett 2012; Wampler 2012).

7.5 Geographical Reflections

Cornwall (2004) characterized participation as a spatial practice (see 7.2.5) because 'space' offers a literal descriptor of the arenas where people gather, which are bounded in time as well as dimension (Cornwall 2004: 1). This refers to the material dimensions of the spaces where people gather (the room where they meet, the online platform used), but space is also socially constructed. Participatory practices are deeply embedded in the historical, socio-political and cultural pathways of the societies in which they take place. In the Netherlands, the first democratic institutions – the *waterschappen* (water authorities) – developed in the Middle Ages. Given the shared interest of farmers and local residents in keeping the water out of the low-lying polders, meetings were setup in which the water problems were discussed, decisions were made as much as possible based on consensus and managers were elected to carry them out. This forms the socio-spatial background of the Dutch tradition of consensual politics (Besamusca and Verheul 2014). This so-called polder model (see Chap. 6) has also influenced the foundation of the participatory spaces in the Maasvlakte 2 case (see Box 7.1). This institutional deliberative structure stands in stark contrast to the hierarchical societal structures in India, where class barriers are reinforced by caste prejudices (Dupont 2011: 95), which poses a barrier to inclusive urban governance. Poor people can vote, hence most participants in municipal elections are poor, while most participants in participatory practices are middle class (Lama-Rewal 2011: 29). What should be 'open' spaces, become spaces open for some, and closed for others. In Peru, the

socio-spatial roots of the *concertación* processes can be traced back to the communal meetings in the Andean communities, where decisions over communal land use were taken in community meetings. The technocratic turn in the South African case is of very recent nature. The current conflation of the ruling party (African National Congress – ANC) and the state has reduced space for transformative participation, because too many invited spaces have become politically dominated and controlled. In response, municipal managers try to create apolitical spaces for participation (Sutherland 2014).

Not only local participatory cultures matter, so does city size. There is no ideal city size for participatory experiments (where people know each other personally, as Aristotle suggested). Also ICT technologies have made participation of society easier in technical terms, extending physical public space to virtual public space. Yet experiments to scale up PB to the state level in Rio Grande do Sul, of which Porto Alegre is the capital, have failed (Goldfrank and Schneider 2006). Issues relevant at state level might be too complex (or unstructured) to lend themselves for participatory decision-making in the transformative sense. People feel distanced from these issues. Nowadays, urban governance is inherently multi-scalar. This poses challenges to participatory experiments: which issues can be adequately deliberated and decided upon at which level of which scale?

7.6 Conclusion

Participatory governance is a value-laden concept, and participation in urban governance has been mobilized on behalf of a variety of different ideological and institutional perspectives (Hickey and Mohan 2005; Baiocchi and Ganuza 2014). The instrumental approach to participation often goes hand in hand with a liberal perception of a reduced role for the state, reducing the public sphere and framing citizens as clients or consumers (Hordijk 2012). The transformative approach to participation builds on the quality of a deliberative dialogue, where in the empowerment approach it is even posited that participatory mechanisms can transform existing power structures. A first important question when assessing participatory practices is thus on what premises they are based, and what is their objective. Do they support the neoliberal agenda, or do they aim for inclusive and sustainable development? The Durban example has shown that participatory processes can contribute to the improvement of service delivery and state responsiveness (see Box 7.2), hence instrumental participation can have positive effects. Many PB processes are reported to have had a positive effect on the democratic processes and citizen empowerment, and even result in a redistribution of resources, but a clear correlation with improved quality of life could not (yet) be established, with some notable exceptions such as Porto Alegre.

A second crucial question, even the litmus test of any form of participation, is to what extent actual decision-making is delegated to the participants in the process. This distinguishes non-participation and tokenism from degrees of participant

control. Although both the classification of schools of thought on participation and the different gradations of control are helpful in analysing participatory practices, it is very important to keep in mind that in reality they are often intertwined. Although the underlying ideological positions are mutually exclusive, practices based on a certain school of thought can deploy methods related to another school or can sequence different methods. This chapter has shown that citizens and other actors can turn to mobilizing actions or judicial action when they feel their voices are not heard.

Participation takes place in particular socio-political and cultural contexts. Real people participate in real places, with very distinctive histories, contexts, legal and policy frameworks (Silver et al. 2010: 462). Genuine participatory processes might have stronger effects in weaker democracies. Terms of engagement can be very different in situations where there has been a history of civic action challenging the authorities. This even implies that we have to assess the outcomes in relative terms. What might be a small achievement in one locality, can be a great step forward in another. Most importantly, participatory practices tend to function best in localities with a history of participation. They thus have to be practised over and over again to make them work, and will only work where there is true political will to stick to the outcomes of the process.

Acknowledgements The authors wish to thank Bert Helmsing, Adrian Gurza Lavalle and Matthijs Hisschemöller for their constructive criticism and valuable suggestions.

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Chapter 8
Geo-Technologies for Spatial Knowledge: Challenges for Inclusive and Sustainable Urban Development

Karin Pfeffer, Javier Martinez, David O'Sullivan, and Dianne Scott

Abstract Critical to governance for sustainable and inclusive urban development is access to, and management of, relevant contextual spatial knowledge. Digital geo-technologies such as geographical information systems, online applications and spatial simulation models are increasingly becoming embedded in urban governance processes to produce, utilize, exchange, and monitor contextual knowledge and create scenarios for the future. This chapter provides a comprehensive state-of-the-art review of geo-technologies for spatial knowledge production and management for urban governance focusing on (1) the kinds of geo-technologies that feature in the urban governance area; (2) the discourses with respect to geo-technologies in urban governance processes; (3) the kinds of knowledge produced, used, exchanged, and contested in relation to quality of life, economic development and the ecosystem; and (4) the transformative potential of geo-technologies in urban governance processes. Through this review it draws out the capacities and challenges of geo-technologies for inclusive and sustainable urban development.

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J. Gupta et al. (eds.), *Geographies of Urban Governance*,
DOI 10.1007/978-3-319-21272-2_8

Keywords Geo-technologies • Urban governance • Participatory • GIS • Remote sensing

8.1 Introduction

Cities are dynamic, complex spaces, composed of multiple intertwined layers of resources and flows, each having their own properties, scales, dynamics, relationships, and governance demands (Allen et al. 1998). Governing urban spaces increasingly draws on geo-technologies to produce, manage, use, monitor, circulate, and contest spatial knowledge (Baud et al. 2014a, b). Potentially, they support routine processes and information flows of line-departments within local government and between government and citizens and develop long-term visions for sustainable city development (Roche 2014). This chapter analyses the capacities of geo-technologies to produce and manage spatial knowledge related to urban conditions, resources, amenities and needs to improve the quality of life, promote economic development and consider the ecosystem. Spatial knowledge is seen either as a social construction of relational facts and interdependencies in the lived space, or as geocoded data in the material space, generally presented as a map (Hernández 1994; Massey 2005). Of critical importance for producing and managing spatial knowledge through geo-technologies is the availability of, and access to, base data on urban characteristics (see Sect. 8.4), which also influences whether and how relevant spatial knowledge contributes to inclusive and sustainable development.

Quality of life (QoL) is related to the social, cultural, political, economic, and material assets of individuals and communities and their environment. QoL dimensions include objective measures on residential urban spaces, green space, access to urban infrastructure, services and amenities, exposure to environmental hazards, violence and harassments, and subjective perceptions. Due to their geographical properties, geo-technologies have potential to characterize urban spaces and their residents.

City governments aim at financial viability, increasing economic benefits and becoming competitive, by increasing revenue collections, following growth strategies, developing mega-projects or attracting mega-events (Baud et al. 2014b; Kennedy et al. 2011). Geo-technologies offer a means to acquire and update land and property-related information for tax collection (Baud et al. 2014a), or to redistribute financial resources in a participatory manner (Bugs et al. 2010; Naseer et al. 2015). They can be used for urban visioning, designing spatial plans, and synthesizing knowledge on existing conditions and future scenarios (Sim et al. 2015).

Cities enhance their environmental governance through managing land and natural resources, protecting vulnerable areas, managing environmental risks, and providing green energy. They also need to examine the dynamic and complex peri-urban interface which provides many environmental services (see Chap. 5). The explicit geographical, relational, and territorial character of environmental

dimensions can be spatially analysed and monitored by geo-technologies, including big data, which enable real-time measurements and monitoring (see Chap. 9).

Given the geographical nature of urban sustainability, this chapter demonstrates the capacity of geo-technologies to produce spatial knowledge for inclusive, sustainable development (see Chap. 1). Spatial knowledge involves processes and methodologies to produce knowledge; the framing of dominant discourses; knowledge use, exchange and contestation; and understanding the actors participating in these processes and their data, platforms, and technologies. Hence it can "capture the important combination of elements that contribute to [sustainable and inclusive] urban development, decision-making and outcomes in the social, economic and environmental domains […] with specific reference to the knowledges produced, exchanged and used in these processes" (Baud et al. 2014b: 25).

The chapter first introduces geo-technologies, their roles and functions in spatial knowledge, and their evolution over time (see Sect. 8.2). It then critically discusses the potential of geo-technologies to support urban governance (see Sect. 8.3) and elaborates some related methodologies with examples (see Sect. 8.4) before discussing the transformative potential of geo-technologies (see Sect. 8.5) and reflecting on their capacity (see Sect. 8.6).

8.2 Geo-Technologies and Urban Governance

Geo-technologies, defined here to include technologies and computer tools used in spatial knowledge production and management, capture and analyse features, patterns and relationships on the ground in space and time. They encompass an array of technical and social elements that process geo-spatial data into specific combinations. Such data situate places and spaces through their geographical coordinates and associated attributes (Goodchild 2011). The geo-technological configuration of cities describes and produces urban spaces, resources, and processes; and provides a means for interactive adaptive urban governance.

The main geo-technical genres include geographical information systems (GIS), remote sensing (RS) technology, spatial simulation models, planning and decision support systems, and location- and network-based technologies including the internet and smart city systems.

A GIS generates information about the Earth's geographical features. It collects, produces, organizes, transforms, analyses, displays, and communicates information about geographical phenomena by applying functions and decisions to a geo-spatial database for various purposes (Burrough and McDonnell 1998). Maps, a key GIS element and produced by geo-technologies or on a drawing table, can be an input to, mediator in, or product of a knowledge-building process. They are conventionally viewed as objective, neutral representations of accurate scientific knowledge (Kitchin and Dodge 2007) based on numbers and precise demarcations of objects in physical space. However, data collection and mapping choices endow them with a political character (see Sect. 8.5), as maps may be used for informing policy, moni-

toring, benchmarking, and visioning (see Sect. 8.3 and critical cartography and geography literature – Harley 1989; Crampton 2004; Pickles 2004; Kitchin and Dodge 2007; Wood et al. 2010).

With the increasing availability of geo-spatial data, easier to use desktop GIS programmes, and online (mobile) applications, GIS is widely used for mapping, e.g. creating base layers of physical characteristics, and in participatory and community mapping processes. The spatial modelling capabilities of GIS are more often utilized in academia or by GIS experts/consultants.

RS technology captures geographical information from a distance via a sensor (Lillesand and Kiefer 2000). The resulting images, from multiple sensors, vary in spatio-temporal resolution and spectral characteristics, each with different analytical capacity for capturing urban features and hence the type and utility of information that can be derived from them (Blaschke et al. 2011; Patino and Duque 2013). These images produce valuable GIS input and offer interesting analytical possibilities (see Sect. 8.4).

Spatial simulation models describe spatio-temporal behaviours of systems and processes, based on input parameters, initial conditions, and a set of rules (cf. O'Sullivan and Perry 2013). They help explore urban dynamics to understand the relation between urban factors and processes and their adaptive capacities. Widely used versions are agent-based models, cellular automata models (e.g. urban mobility and land-use change models), or spatio-temporal environmental models.

Planning and decision support systems consist of related theories and concepts, as well as "data, information, knowledge, methods, and instruments" (Geertman and Stillwell 2009: 3) to assist planning and decision-making processes, not necessarily spatial, but often supported by one or more geo-technologies (Geertman et al. 2013). They are problem-specific, explore the current situation, identify planning problems, and/or offer and evaluate alternative solutions.

Location-based technologies such as GPS-enabled devices or mobile phones produce geocoded data including a time stamp, enabling the extraction of space-time trajectories such as commuter flows. Location-based measurements include sensing specific issues at certain locations and moments in time, such as air pollution or noise levels, and produce relevant input for further spatial applications.

Internet technology facilitates networked services and sharing of geo-spatial data (usable within GIS for further analysis and visualization), across multiple nodes via internal information systems or over the Internet. Network-based technologies differ in purpose, institutional embeddedness, functionality, reach and 'openness'. They include management information systems (MIS) for local government, composed of components for collecting, storing, processing, and retrieving (geo-spatial) information to support managerial processes and to facilitate government-citizen interactions. Similarly, local spatial data infrastructures (SDI) support the "coordinated collection, dissemination, and use of spatial data" within government or with other urban actors (Nedovic-Budic et al. 2004: 329). Repositories (geoportals) of geo-spatial data may just be a website where geo-spatial data can be downloaded and do not require standardization and interoperability as is desirable for SDIs.

GIS-based web applications integrate GIS functionality and internet technology to make geo-information widely accessible and to enable information and knowledge flows between and among government and citizens in collaborative processes. Applications differ in functionalities and interactivity, ranging from viewing, querying and producing geographical information, or uploading contextual qualitative material like photographs and quotes. They include the geoweb (which combines geographical information, internet technology, and social networking to produce, use, and exchange geo-spatial information; Scharl and Tochterman 2007), volunteered geographical information (VGI; people collect, create, and share geo-spatial data for common use; Goodchild 2007) or new spatial media (integration of social media features and geographical dimensions to interact with and create new geographical information; Elwood and Leszczynski 2013; see Sect. 8.4).

Smart city systems integrate and co-ordinate ICT, data, distributed infrastructures, sensor technology, and human sensors capable of receiving, managing, analysing, and producing new (location-based) information about the city (Batty et al. 2012; see Chap. 9).

Overall, computer technologies, including geo-technologies, are seen to "synchronize urban processes and infrastructures to improve resource efficiency, distribution of services, and urban participation" and to support strategic processes for sustainable urbanism (Gabrys 2014: 31).

With growing spatialization, digitalization, and informatization in urban governance, research, and practice, geo-technologies are increasingly producing and managing spatial knowledge, influenced by locally embedded geo-technologies. Spatial knowledge-building processes can be scientific-technical or social constructions combining tacit, contextual-embedded, and codified knowledges of different actors (Pfeffer et al. 2013, Chap. 4). The processes differ in terms of framing, actors, processes, methodologies, knowledge sources, and tools employed. They range from linear knowledge-building processes that focus on experts, facts, methods, and scientific techniques, to nonlinear processes which recognize experiential and socio-cultural knowledge, and critique positivist knowledge building (Harley 1989; Pfeffer et al. 2013). Table 8.1 illustrates the knowledge taxonomy enriched with urban knowledge examples produced by geo-technologies.

Different periods are associated with different geo-technologies in urban governance. The rise of the network society (Castells 1996) and the shift from government to governance (see Chap. 2) moved the focus from producing geographical information and expert knowledge to sharing and co-producing geo-spatial data and information. Both shifts enhanced information flows within local authorities; influenced how a government interacts with citizens, businesses, and the environment; and created opportunities for citizen-centric knowledge production. Globally, it led to the emergence of SDIs, geo-portals, and GIS-based web applications across multi-scalar nodes and networks. Locally, we see a shift from using geo-technologies for managerial and operational purposes (Baud et al. 2014a) towards wider governance processes (Lin 2013). GIS practices have expanded towards web mapping, participatory GIS (PGIS), VGI, crowdsourcing, and online services (McCall and Dunn 2012; Mukherjee and Ghose 2012; Elwood and Leszczynski 2013; Haklay

Table 8.1 Knowledge types

Knowledge types	Tacit knowledge	Contextual-embedded knowledge			Codified knowledge
		Community-based, social	Technical, economic	Political and network levels	
Main actors	Individuals with experience	Knowledge spread by social networks	Knowledge of sector professionals	Knowledge within political and social networks	Academically /professionally taught and diffused
Urban knowledge examples					
Quality of life	Unsafe places in the city – 'no-go' areas	Perceived community amenities landscape (hand-drawn, perhaps also digitized)	Sectoral knowledge on people's needs in different urban spaces	Area profiles, used for socio-economic targeting	Cartographic representation of quality of life indicators
Economic development	Strategic investment nodes	Informal information flows on job opportunities	Potential spatial development strategies	Area profiles, used for allocation of financial resources	Spatial projections of urban expansion
Ecosystem governance	Known city spaces vulnerable to environmental risk	Spaces of perceived environmental vulnerability	Spatial knowledge on environment	Political values in environmental impact assessment	Interpolation of air pollution measurements

Adapted from Pfeffer et al. (2013)

2013). Local government's geo-technology practices are also influenced by policies of the national government and other national and international actors, including the industry and private sector.

New data sources produced through location-enabled mobile devices, online activities, or real-time sensor measurements are supplementing or even replacing conventional geo-spatial data collections, paving the way for smart city development (Kitchin 2014). This is accompanied by shifting power relations as interests are converging to shape the city by means of geocoded social media (Caquard 2013), and because outsourcing of certain tasks to consultants leads to greater dependence on their expertise and increases their influence in knowledge production (Rose-Redwood 2006; Baud et al. 2014a, b).

8.3 Envisioned Potential and Challenges of Geo-technologies

In the 1980s and 1990s, geo-technologies were adopted by local governments because of their envisioned potential to manage urban information (Nedovic-Budic 1999), given the availability of accurate data and reliable information, skill-sets, and resources (Dangermond 1982). They were seen as effective tools to help local authorities in improving city governance (e.g. Campbell 1992; Masser and Ottens 1999; Odendaal 2003; Rakodi 2003), to support urban planners to analyse, plan, and visually represent multiple aspects of the landscape (Batty 1997), but also to raise awareness of spatial issues (e.g. Odendaal 2003), inform social policy (Söderström 1996), and foster community participation in policy making (see cases Ghose 2003; Scott and Barnett 2009). Through the years, different geo-technologies have emerged, each claiming to improve certain urban governance aspects. A recent private-sector and planning-driven trend is geo-spatial design, which promises sophisticated geo-visualizations to accommodate place, space and time, and urban design requirements in an integrated, visual manner (Steinitz 2012). Currently, big data (see Chap. 9) and the smart city discourse dominate geo-technological developments.

GIS-based web applications and the new spatial media, in particular, are seen to enable the availability of and accessibility to information and to provide opportunities for people "to leverage those in their efforts to effect social change" (Elwood and Leszczynski 2013: 544), since policy processes favour quantified data and cartographic representations (Baud et al. 2014a, b). Such technologies enable popular participation in urban processes, such as monitoring and reporting on public service provision or viewing zoning plans online (Pfeffer et al. 2012; Elwood and Leszczynski 2013; Atzmanstorfer et al. 2014).

The shift from governance to technocratic governance is occurring globally, creating tensions between system and knowledge producers and actual use in practice. Information based on geo-technology is considered a "pre-requisite for good governance" (Aydinoglu and Yomralioglu 2010: 65) and rational decision-making, leading to new forms of inclusion of citizens, more effectiveness, efficiency, and

accountability (Roche 2014). Critical GIS scholars, however, have critiqued these technocratic and positivist views (e.g. Sheppard 2005; O'Sullivan 2006; Wilson 2014). First, there are ethical issues, such as the inability to depict multiple perspectives, particularly those of minority and vulnerable groups, leading to adverse inclusion and exclusion. Second, the dominant Cartesian vision of space has implicit positivist epistemological and ontological assumptions (Pickels 1995; Schuurman 2009) ignoring the situated context. Third, geo-technologies are said to lack transformative power because the tools cannot actually influence planning and government decisions, and may not bring about the envisioned social, economic, and environmental effects (e.g. Vonk et al. 2007; Geertman and Stillwell 2009; Richter 2014; Roche 2014). Fourth, the implementation of geo-technologies in urban governance is associated with "costs, technological and managerial demands" (Rakodi 2003) and is difficult to upscale and embed (Baud et al. 2014a, b). Fifth, even more optimistic or modernist views recognize the negative impacts and challenges of the smart city concept because the technologies "have a tendency to polarise" (Batty et al. 2012: 485) and may open up new divides while claiming to end the digital divide. Watson (2013) critiques the (geo-) technology-driven smart city concept, used to disguise urban developments and plans that, despite being presented as desirable futures and claiming to be sustainable, are nightmares and follow neoliberal ideas, ignoring human, social, and ecosystem-related dimensions. The tension between introducing a technology with its promise on the one hand, and the actual delivery and use on the other hand, is not unique for a particular tool, but repeatedly occurs with the introduction of new technologies.

Some recurrent concerns relate to privacy and exclusionary effects. Privacy concerns are usually associated with the surveillance and panopticon powers of geo-technologies. Curry (1997) raised concern on the challenges of the "virtual individual" and the privacy issues that might arise with the expansion of geo-technologies (i.e. geodemographic profiling). This has been exacerbated with the emergence of Web 2.0, VGI, and mobile devices with GPS and cameras, which expose us to unprecedented levels of surveillance and governing control (Elwood 2009; Haklay 2013; McCall et al. 2015). The concern now is not only that characteristics of individuals are revealed, but that their virtual self is "disclosed, identifiable, and monitorable *in space*" (Elwood and Leszczynski 2011: 12; Taylor 2014).

The exclusionary effects of geo-technology challenging inclusive development can be illustrated with selected e-governance, VGI and geoweb applications, but also through ordinary (base) maps. For instance, despite being open, public e-grievance complaints systems might exclude certain population groups and be unbalanced in terms of empowerment and legitimacy favouring better-off areas and groups. This is the case in several Indian cities (Martínez et al. 2011; van Teeffelen and Baud 2011; Miscione et al. 2013) and also in Kenya (Koti 2010).

Producing and sharing location-based information through social media and VGI reflect power relations and exclusionary practices as well. This relates to the debate on the digital/data divide (Graham 2011; Cinnamon and Schuurman 2013) where technology bypasses some groups. Posting spatial information online implies having access to GPS and internet-enabled mobile devices. The resulting maps therefore

reflect the reality of the wealthiest and technologically savvy individuals (Caquard 2013). Maps produced collectively using web applications not only reflect power relationships among citizens but also between the state, its citizens, and the private sector (Caquard 2013). Critical geographers (e.g. Elwood and Leszczynski 2013; Haklay 2013; McCall et al. 2015) therefore debate fundamental issues such as whether new spatial media and VGI have a bias in favour of certain groups or what approaches are used to account for the reliability and credibility of crowdsourcing activities.

Maps are commonly used to inform urban policy, planning, and decision-making processes. Thus, policies, plans, and decisions will only affect those included in the spatial representation and thematic classification. An illustrative example is the slum-listing process in many Indian cities where slum communities are only included in the governmental processes and official registrations if they have been recognized by the city (Patel and Baptist 2012). Not being part of the map means not being entitled to any public service. Nevertheless, invisibility may have positive effects if the purpose of the mapping would be detrimental such as in the case of slum eviction (Richter 2014).

New geo-technologies are intertwined with evolving discourses. For example, different frames, purposes, and technologies influence slum-mapping processes. Grassroots organizations (sometimes with scholars; e.g. Sutherland et al. 2015; see Sect. 8.4) co-produce spatial, often not-to-scale, accounts of their place to be integrated into city development plans (see Fig. 8.1 upper part), while the state may only identify their place using satellite images or scientific mapping techniques to create slum free cities or upgrade *in-situ* (e.g. Joshi et al. 2002; Richter and Georgiadou 2014; see Fig. 8.1 lower part). The different frames interrogate whether maps can lead to inclusive and sustainable development.

Regardless of the kind of geo-technology used, it is very much the context that explains why some challenges and envisioned potentials are only realized in particular localities. The embedding of geo-technologies in urban governance is specifically challenged by the context, prevailing values, the people and organizations involved, the current political agenda, and available skill sets (Richter 2014).

8.4 Geo-Technology Applications in Urban Governance

Having discussed claims, potentials, and challenges of geo-technologies, this section analyses their governance potential using examples from several cities.

Overall, geo-technologies produce geo-spatial data (a set of base layers) on urban elements. GIS helps to (1) digitize features, geographical boundaries or locate utilities, (2) digitize perceptions and lay knowledge from sketch maps, (3) modify digitized data, and (4) create, import, and modify attribute information to characterize geo-spatial data. RS provides background images of different resolutions of roads or buildings and general land-use categories at different moments in time. GPS devices or mobile phones collect location-based data and can produce sequen-

Fig. 8.1 Ocean drive-in community near the airport area, Durban, South Africa. *Top*: community representation (Sutherland et al. 2015 and Ocean drive-in community); *bottom*: satellite view showing decrease in settlement density due to resettlement to Hammonds Farm (Google Earth, October 20, 2014)

tial data streams for deriving time series and trajectories. GIS can also geo-locate place-based information such as address lists from crime or health reports, given the availability of matching geo-spatial data. These high-tech processes of creating geo-spatial data require public or private experts making many choices and assumptions on how to codify and digitize contextual information about a changing environment, which subsequently influence these processes.

There are also collaborative efforts such as openstreetmap (OSM; www.openstreetmap.org), which are used to map informal residential areas (Hagen 2011). OSM data are even sourced by public bodies, as background layers in their web-based applications, or enriched with their own information and offered as open data on their websites. Geo-spatial information is exposed to contestation, as data may not be accurate, too general, incomplete or out of date, and therefore unreliable or irrelevant. For example, the Rajiv Awas Yojana (RAY) housing programme in India asked the larger cities to create a comprehensive geocoded account of sub-standard settlements, but this has not yet been realized due to capacity and political issues (Baud et al. 2014b).

GIS, RS, and spatial simulation models can generate specific geographical information on urban issues. They can help create thematic maps of urban indicators, composite indices, and conditions, matched with political, administrative, or census boundaries, GIS overlays, or multi-criteria assessments. This is done with a view to identifying spatial relationships and integrating multiple knowledge sources in producing urban visions or integrated development plans. Examples of spatial knowledge aiming for inclusive and sustainable development are indicator maps depicting spatial and temporal unemployment rates or access to urban amenities and housing to inform urban policy (e.g. Martínez 2009). The processing of crime reports into hotspot maps (Chainey and Ratcliffe 2005) or mapping multiple deprivations (Baud et al. 2008) produces spatial knowledge for area-based interventions on urban security and QoL (see Fig. 8.2).

Multi-criteria overlays combine information sets that are relevant for identifying strategic investment locations or demarcating urban development boundaries (Baud et al. 2014b). Figure 8.3 visualizes the Amsterdam metropolitan vision 2040 and Fig. 8.4 the revised spatial development framework (SDF) Durban 2008. Note that considerable knowledge on strategic locational assets and spatial strategies is produced outside the government, with the private sector acquiring a powerful position in locational strategies (Baud et al. 2014a).

GIS enables us to map the production and consumption of ecosystem services and highlights areas vulnerable to environmental stresses such as air pollution or urban flooding (Cinderby et al. 2008; Sliuzas et al. 2013). While governments produce mainly maps, complex spatial analysis and modelling are mostly undertaken in collaboration with researchers and consultants. Figure 8.5 presents a risk map, outsourced by the Lima municipality, who received the result only as a report. We contrast this with the online air pollution tool developed by the London municipality which monitors air pollution levels at different spatial scales in near real-time for individual pollutants or a combined index (Fig. 8.6).

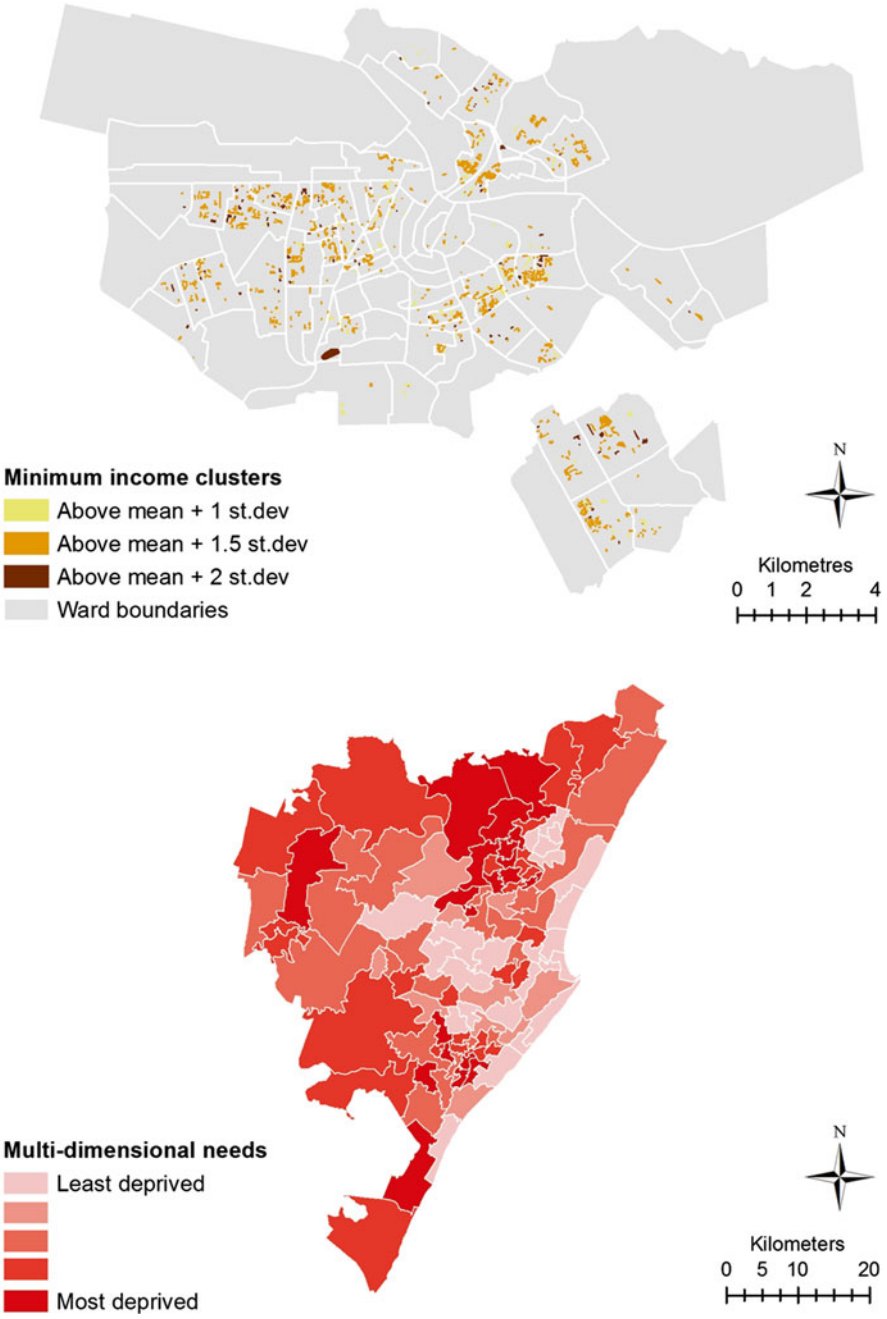

Fig. 8.2 Cartographic framings of poverty. *Top*: income-based clusters at the postcode level in Amsterdam, the Netherlands (O&S Amsterdam 2012); *bottom*: multi-dimensional needs index in Durban, South Africa (eThekwini municipality 2012)

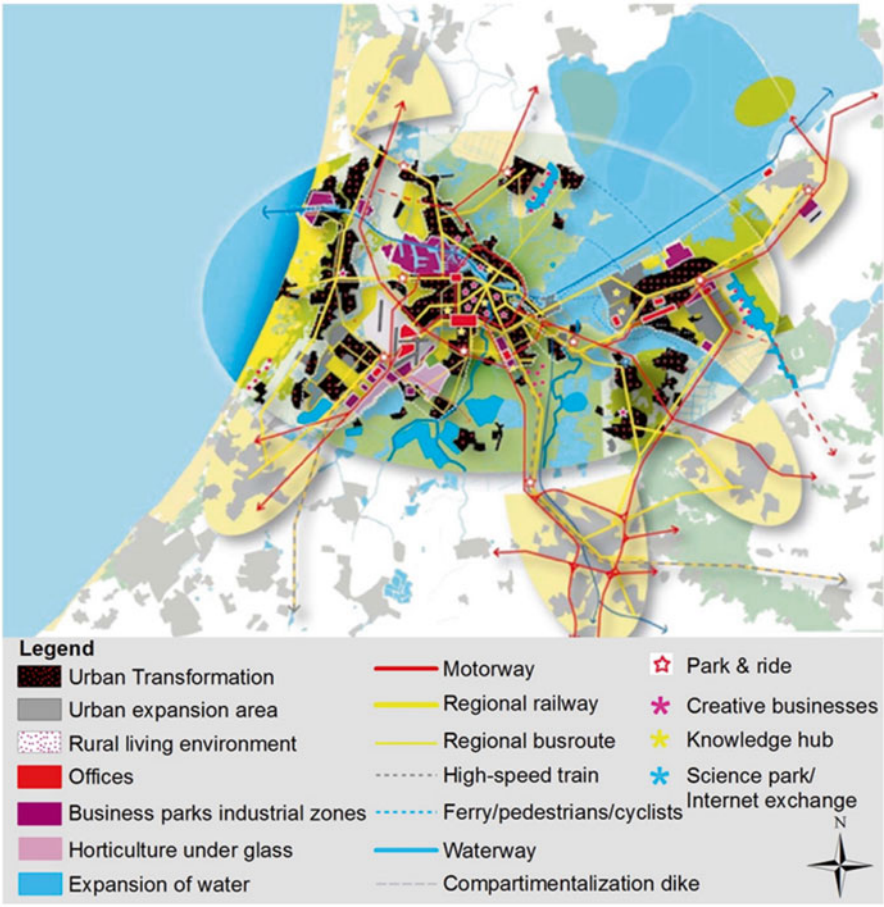

Fig. 8.3 Amsterdam Metropolitan Area Development Scenario for 2040 (Regiegroep Noordvleugel 2040 2008; legend adjusted by chapter authors)

RS images are popular for their ability to realistically represent the city seen from above for orientation or exploration. They can also be combined with other information, examples being urban applications of high resolution images, captured by Quickbird or Ikonos or the DLR's Synthetic Aperture Radar satellites (Patino and Duque 2013). Applications include land-use classifications, interpretations of urban textures and structures, time-series analysis for monitoring urban growth, and land-use changes or urban heat stress assessments (Bhatta 2009; Bhaskaran et al. 2010; van der Hoeven and Wandl 2015). The need for inclusive development has led to mapping and monitoring high-density sub-standard settlements (see e.g. Baud et al. 2010; Blaschke et al. 2011; Taubenböck and Kraff 2014) at local and global level (http://ghslsys.jrc.ec.europa.eu) (see Box 8.1). As RS is high-tech, public and private experts are the main users, providing urban decision makers with high-

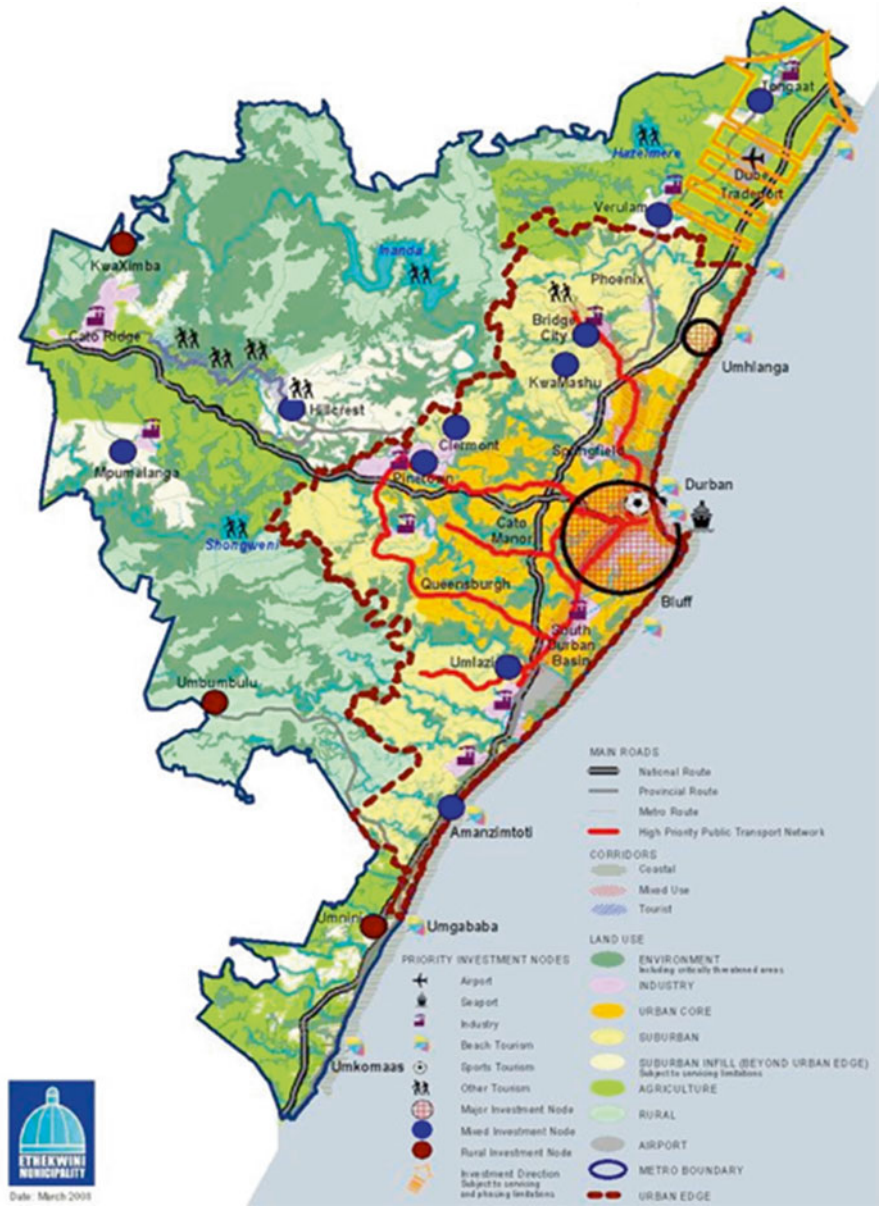

Fig. 8.4 Revised spatial development framework Durban 2008 (eThekwini municipality)

resolution relevant information (Blaschke et al. 2011). Since 2005, Google Earth provides widespread access to detailed imagery, complementing traditional aerial photography and democratizing access to viewing imagery (Goodchild 2007).

Spatial simulation models produce space-time knowledge for exploring the behaviour of urban phenomena such as residential segregation or gentrification

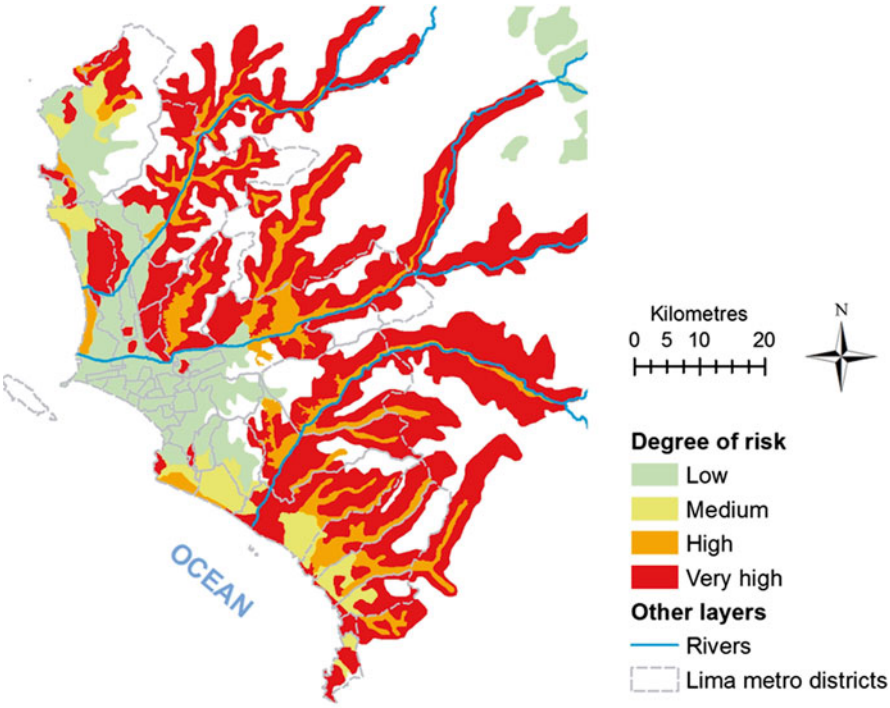

Fig. 8.5 Lima risk map; outsourced to consultant (IMP/MML Lima 2010)

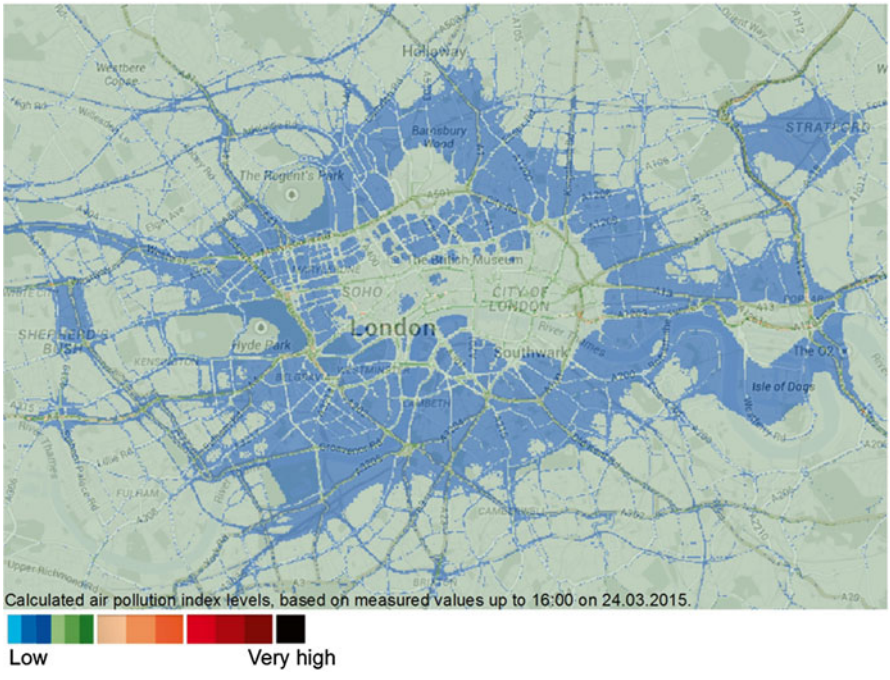

Fig. 8.6 London's real time monitoring (http://www.londonair.org.uk)

Box 8.1: The Global Human Settlement Layer (GHSL)

Satellites produce images of the Earth at different spatial resolutions. However, until today there is no system that is able to globally and consistently map human settlements with these images. At the same time, actors and decision makers from global to local levels need accurate and consistent data for evidence-based reasoning and policy making: testing of hypothesis, development of concepts, monitoring and understanding of trends, and exploration of alternative scenarios, policy development and implementation.

Understanding the physical characteristics of human settlements is absolutely critical for issues including housing and urban development, poverty reduction, sustainable development, climate change adaptation, crisis management and disaster risk reduction, to name a few. But despite their importance and long research history, many basic questions about global human settlements still remain unanswered.

The Global Human Settlement (GLOB-HS) project of the European Commission's Joint Research Centre focuses on innovative automatic image information extraction processes, using metric and decametric scale satellite data input to produce a Global Human Settlement Layer (GHSL). The target information collected by the GLOB-HS project is the built-up structure or 'building', aggregated in built-up areas and then settlements according to explicit spatial composition laws. From a methodological perspective, automatic information-gathering processes are the fundamental condition for sustainable global detailed surveys, but also for the reproducibility and public control of the information, thus contributing to an objective evidence-base that supports decision-making processes. The GLOB-HS project is producing the first global multi-temporal mapping of human settlements in 2015, using satellite Landsat data of the years 1975, 1990, 2000, and 2014 with an input spatial resolution ranging from 75 to 15 m (Fig. 8.8). Initial investigations show that it is a valuable source of information on urban growth across the globe (see sample images of Delhi (India), Kampala (Uganda) and Shanghai (China) in Fig. 8.8. Many rapidly developing cities often lack the resources and knowledge to effectively monitor urban development. In those cases, the GHSL data can become a valuable resource for local and national urbanization and development policies.

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(Portugali 2000; O'Sullivan 2002), quantifying future environmental conditions and risks (Sliuzas et al. 2013, Fig. 8.7), and assisting in modelling likely urban situations using rule-based or probabilistic approaches (Batty 2005; Borning et al. 2008). While usually developed by modelling experts (academic, public, and private), they can feed collaborative (scenario-building) processes for exploring visions,

likely futures and adaptive capacities (Dammers and Evers 2008; Sliuzas et al. 2013; Miranda Sara and Baud 2014) and are often embedded in planning and decision support systems. Their technical complexity and high data demands make them very technocratic. However, there is a shift towards integrating contextual knowledge through interactive processes (e.g. te Brömmelstroet 2013; Pelzer et al. 2014).

Urban governments employ GIS-based MIS or knowledge platforms to manage urban resources, for instance to assess, collect, and monitor property taxes or water-use payments or to address household needs (Baud et al. 2014a; Sisfoh 2015). Distributed computer networks share such information with citizen facilitation centres or ward offices, improving the efficiency and effectiveness of service provision. However, integrated implementations of geo-technologies have yet to materialize in cities in the global South (e.g. see Richter 2014 for India). Furthermore, sharing data is problematic given its heterogeneous nature distributed across multiple organizations having different capacities and knowledge demands (Klein and Müller 2012), and related organizational, legal, functional, and technical issues (Tulloch and Harvey 2007). The Netherlands has, for example, a comprehensive geo-spatial property information system (Kadaster Nederland, http://pdokviewer.pdok.nl), while less-resourced municipalities often struggle with the synchronization of different information sources as in the case of Lima, Peru (Baud et al. 2014a).

Geo-technologies can mediate in interactive knowledge-building processes, for example, through (1) participatory urban planning workshops (Hoetjes et al. 2006) or participatory budgeting (see Chap. 7) using cartographic representations (Naseer et al. 2015); (2) GIS-enabled knowledge building processes (Pelzer et al. 2014); (3) community mapping and PGIS[1] experiments, often focused on marginalized groups (Ghose 2007; Cinderby 2010); (4) Internet applications with GIS functionality to inform and seek feedback from residents (Martínez et al. 2011; Kyttä et al. 2013); and (5) volunteer knowledge-building processes by means of the geoweb/VGI and new spatial media (Zook et al. 2010; Elwood and Leszczynski 2013).

Network-based technologies have different participatory functionalities, ranging from web viewers to interactive systems of bi-directional information flows. Examples are the Durban map viewer (eThekwini Municipality 2015) offering actual GIS files and the Amsterdam regional monitor (Regiomonitor Working Group 2015) to inform citizens about their city in a variety of respects; the e-grievance redressal system of Mysore in India, which allows residents to complain about blocked drains (Mysore Municipal Corporation 2015); and bottom-up initiatives on environmental monitoring and producing base information (McGill University 2015) via OSM (see above).

Finally, advances in sensor technology, location-based services and GPS-enabled mobile devices have pushed real-time monitoring of objects, situations, resources, flows, and people in urban governance (Batty et al. 2012; Kitchin 2014). The municipality of London monitors online commuter flows by a smart or Oyster card

[1] PGIS entails data collection, analysis and visualization of knowledge co-produced with the participating community (i.e. Ghose 2003) and may constitute counter maps that contest official knowledge.

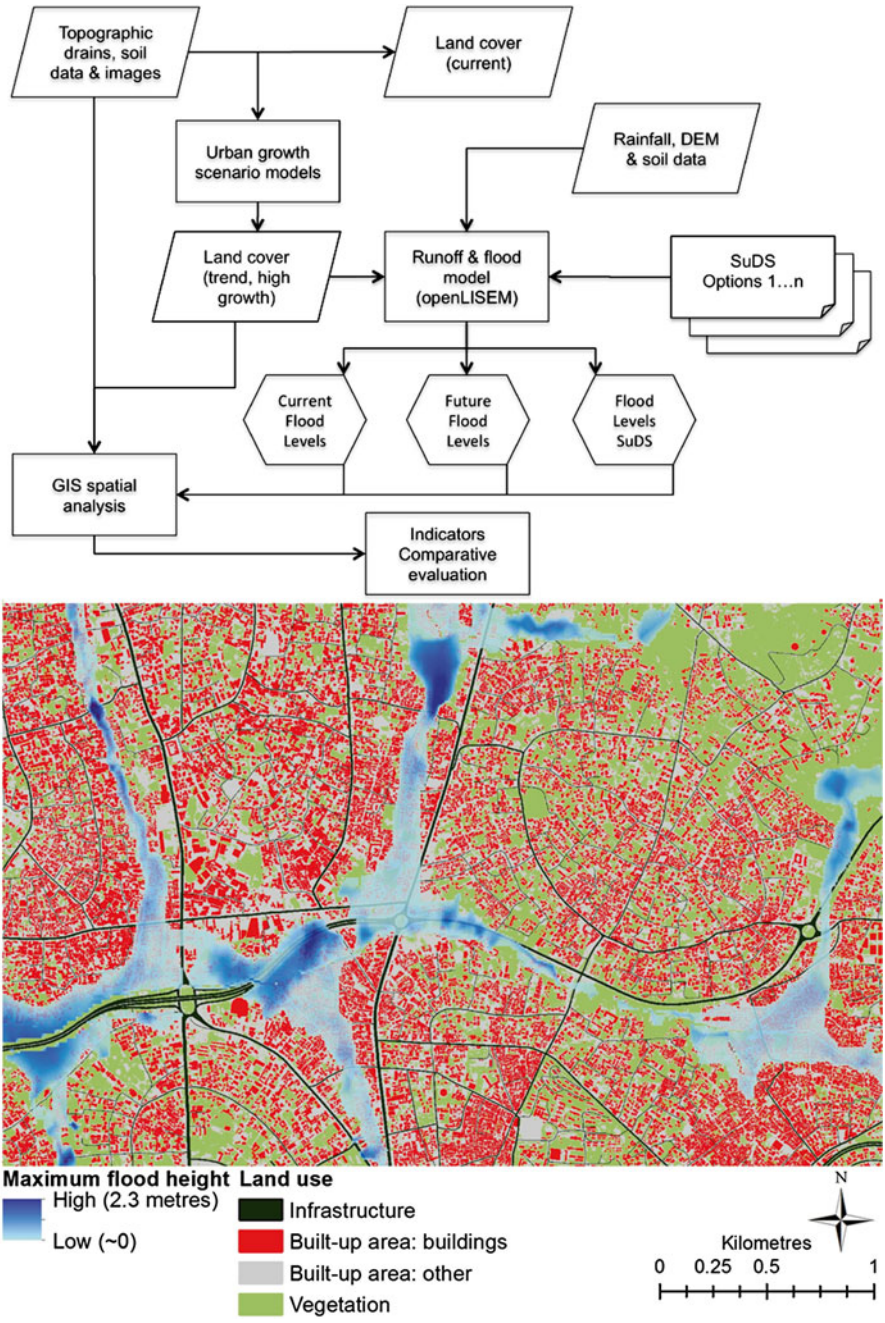

Fig. 8.7 Flood risk assessment in Kampala, Uganda (Sliuzas et al. 2013)

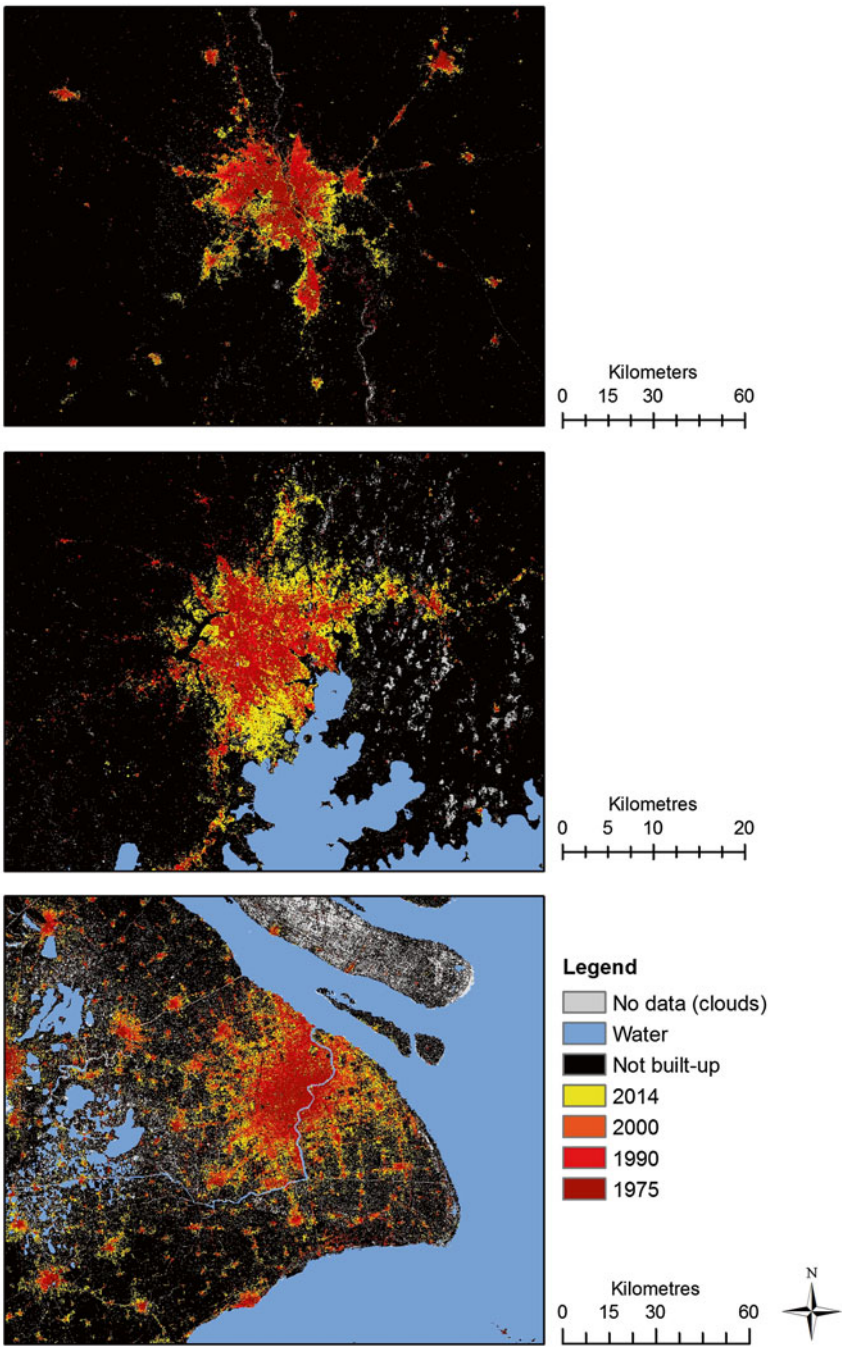

Fig. 8.8 Global human settlement layer; Delhi, Kampala and Shanghai (based on Box 8.1)

(Badger 2013) and Dublin sources urban indicators via the dashboard (Maynooth University 2015).

Thus, geo-technologies, their combinations and maps can potentially support urban governance, but the question is whether they support transformative urban governance towards inclusive and sustainable development (e.g. McCall and Dunn 2012; Elwood and Leszczynski 2013; Haklay 2013) (see Sect. 8.5).

8.5 The Transformative Potential of Geo-Technologies: The Power of Maps and Participatory Processes

While maps have been conventionally considered scientific, objective, and neutral representations of reality (Kitchin and Dodge 2007), they are not value-free, but socially constructed (Harley 1989; Wood et al. 2010). The context and dominant discourses influence how experts produce, represent, and use spatial information (Crampton 2004) and who and what is included (Harris and Longley 2004; Martin 2009). Different actor coalitions, frames, conceptualizations, and collection criteria result in multiple classifications for the same phenomenon such as slums (Richter 2014). Although maps create spatial awareness, empower marginalized people, promote economic visions, and inform urban policy, it is critical to assess the implicit conceptual frames underlying maps (Monmonier 1996; Martin 2009) and choices represented. For example, in South African cities, spatial representations influence city development; the urban development edge in Durban determines every-day service provision (see Fig. 8.4). The orange arrow in the upper right part of Fig. 8.4 is the city's response to private sector development in the North, showing that planning followed corporate development (Sim et al. 2015). The transformative impacts of maps may stigmatize, profile (Aalbers 2005) or prioritize issues (Baud et al. 2014a, b).

Geo-technology concepts, specifically PGIS and the geoweb, are promoted to empower marginalized communities and enable more inclusive development (Cinderby 2010; Elwood and Leszczynski 2013). Bottom-up slum mapping initiatives collect locational information on basic service infrastructure, housing, and physical layout, to be recognized in official planning documents, depending on political will (Joshi et al. 2002; Hagen 2011; Sutherland et al. 2015). These processes can initiate a dialogue and relationship between slum dwellers and municipalities regarding upgrading initiatives and distribution of city funds (Livengood and Kunte 2012; Makau et al. 2012). They can be commenced by NGOs (e.g. Slum Dwellers International – http://www.SDInet.org) or youth organizations (see e.g. Google 2015) and these can be successful in depicting the disproportionate negative impacts that environmental stressors and burdens have on minorities, and particularly where citizens have experiential knowledge (Cinderby et al. 2008; Scott and Barnett 2009).

Counter-mapping produces alternative spatial knowledge challenging official records and advocating change (Cadora 2006; Scott and Barnett 2009). Especially

when it complies with official mapping standards, it aims to make qualitative knowledge of places and spatial perceptions visible, for inclusion in or contestation of policy processes, thus supporting social mobilization (Scott and Barnett 2009; SDI 2015). Where GIS technology engages with civic participation, this becomes a part of civic science (Elwood and Leszczynski 2013: 548) and has traction in countering state and corporate power. Civic science may differ in the degree of participation, individualism, critical engagement in certain processes, and sophistication of geo-technology. Nevertheless, counter-mapping may also promote unsustainable and exclusionary practices when carried out by powerful non-state actors pursuing interests and values opposed to the common good (Elwood 2006; Dunn 2007).

8.6 Critical Reflection

This chapter analysed whether geo-technologies enable inclusive and sustainable urban governance. While the modernist view promotes geo-technologies and their positivist assumptions, critical perspectives question the ability of geo-technologies to represent a complex reality, and emphasize its exclusionary effects and controversial impacts on empowerment, privacy, and surveillance.

Early urban applications of geo-technologies were used for creating evidence for strategic and efficient policy, planning, and management. Recent applications are moving towards opening up public geo-spatial data that enables new knowledge-building processes: combining social, economic, and ecosystem aspects into city development plans, scenario analysis, interactive governance processes, or a more integrated view as in geo-spatial design, big data, and smart city concepts (see Chap. 9).

Adopting geo-technologies in urban governance changes or creates new governance structures and processes (Bannister and Connolly 2012; Baud et al. 2014b). It influences the type of knowledge produced, how it is produced, and by whom. Potentially, geo-technologies can enhance the efficiency, effectiveness, and transparency of certain knowledge processes and spatial awareness of citizens. However, there are a number of limitations.

First, geo-technologies require specific skills; the quality of geo-spatial information depends on how it has been made. Second, geo-technologies are costly. Timely data updates are resource intensive and require the necessary institutional capacity and political will. Government employees often lack the time, commitment, and expertise for setting up, maintaining, and operating geo-technologies, or simply managing the necessary base layers, leading to failures or dependency on private consultants who increase their power in the spatial knowledge landscape (Richter 2014; Baud et al. 2014a). This holds particularly true for cities in the global South and smaller cities, even after 20 years of geo-technology experience in local authorities.

Third, despite the diffusion of (participatory) geo-technologies they have not been evenly effective (Tulloch and Harvey 2007; Richter 2014). They are less used

in cities in the global South or resource-poor organizations. Successful bottom-up initiatives are often discontinued for financial reasons (Pfeffer et al. 2013).

Fourth, geo-technologies are under-used and often limited to mapping, because of a lack of resources and incompatibility with urban professionals' needs (Nedovic-Budic 2000; Vonk et al. 2007). Tensions between official and alternative knowledge may challenge their use for inclusive and sustainable development. If a tool or system does not bring the anticipated effects, it will not become embedded (Chap. 6). Furthermore, while standardization of the tools enables interoperability, it may limit flexibility, potentially excluding urban spaces or communities that do not meet the standards. Geo-spatial data are only a representation, and not a copy of the real world, and visual representations are the result of many subjective decisions.

A future research challenge is the question whether the practices of geo-technologies enable, constrain, or disrupt inclusive and sustainable development, as they are influenced by the locally embedded geo-technological configuration. The challenge is to continually critically examine the underlying assumptions of the modernist technical discourse and its implications for more progressive urban agendas.

Acknowledgements We would like to thank Richard Sliuzas and Stan Geertman for their constructive comments, and Thomas Kemper, Martino Paresi and Richard Sliuzas for their contributions to Box 8.1 and Fig. 8.8.

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Chapter 9
Big Data and Urban Governance

Linnet Taylor and Christine Richter

Abstract This chapter examines the ways in which big data is involved in the rise of smart cities. Mobile phones, sensors and online applications produce streams of data which are used to regulate and plan the city, often in real time, but which presents challenges as to how the city's functions are seen and interpreted. Using a socio-technical approach, we offer a critical evaluation of the types of data being used in urban governance and their advantages and drawbacks in comparison to previous information systems. Using examples from New York and Abidjan, Côte d'Ivoire, we demonstrate how big data can both illuminate and obscure our understanding of urban development. We outline methodological considerations for the use of such data, offering conclusions towards the development of a critical urban data science.

Keywords Big data • Governance • Critical data studies • Urban planning • Socio-technical systems

9.1 Introduction: Big Data in the Urban Context

The rise of the smart cities and smart citizens concepts (see Sect. 1.2 and Chap. 8) is often linked to the rise of big data. The smart city is an ideal but is also already occurring, given that transport systems, urban government and planning and the communication and network structures within which urban citizens live and operate already function as much online as offline. The smart city as an ideal concerns a vision of what the future of our cities should, could or might look like. In vision and actuality, the smart city is a 'datafied' city (Mayer-Schönberger and Cukier 2013) in that it simultaneously produces and consumes streams of digital data, often of unprecedented complexity and size (Townsend 2013). For example, records of telephone calls can help create maps of who is phoning whom, when and where and

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J. Gupta et al. (eds.), *Geographies of Urban Governance*,
DOI 10.1007/978-3-319-21272-2_9

using which company and can make a private act of telephoning part of public data systems. The production of huge quantities of digital data, largely captured as a by-product of people's technology use, is frequently included in the differing definitions of the smart city. In response, a new collaborative science of urban big data is evolving, driven by contributions from urban planners (Batty et al. 2012; Townsend 2013), social physicists specialized in complex systems (Bettencourt 2014) and computer scientists (Pentland 2011).

Big data allows for new forms of urban data analytics using data from a variety of sources such as sensor networks, electronic feedback systems or social media platforms. Its potentials for urban design, administration, planning, business and environmental management are manifold. Applications include the 'pervasive sensing' that characterizes the 'Internet of things' – objects equipped with sensors that emit data, from mobile phones to smart meters and radio-frequency identification (RFID) tags – which allows analysis of resource and energy use within the city and how people and traffic are moving around the urban space (Pentland 2011). These data sources in turn can feed into planning for more efficient and sustainable energy use, traffic management and transportation. Then, there are flows of data which reflect the use of space, often produced and used by city service providers. These, if merged or linked, can provide a dynamic spatial image of how various city functions such as law enforcement and service provision are working. This data can be used for crime prediction and prevention and service and emergency planning. Finally, crowdsourced data from social media or online communication applications such as feedback applications (apps) for identifying gaps in service provision can provide authorities with a real-time picture of how the city and its residents are interacting, and where needs and gaps are signalled.

However, there is no single definition of big data. Computer scientists use as shorthand the terminology of the three v's: volume, velocity and variety (Laney 2001). A qualitative definition is that it is generated by processes of datafication (Mayer-Schönberger and Cukier 2013) where the use of new information and communication technologies (ICT), along with the signals emitted by the 'Internet of things', is generating digital data that is machine readable and computationally manipulable, particularly for new, large-scale analytics. Sociologists define it as data which represents a step change in scope and scale in relation to a particular phenomenon (Schroeder 2014) such as urban governance. Commonly, big data is understood as being *born digital* (Borgman 2014), meaning generated by the use of digital technologies; it comprises data which is distributed and therefore demands distributed analytical techniques (Taylor et al. 2014). Moreover, it often comprises data that is remotely collected and therefore either *observed*, namely, as a product of people's use of technology even where the production of data is not the aim of using a given technology, or *inferred*, that is to say, information that is brought together from existing data sources through big data analytics (Hildebrandt 2013). Due to its distributed nature, big data presents a complex analytical challenge if dealt with in its initial state, and requires new configurations of computing power and human collaboration (see Sect. 9.3). The main characteristics of big data, in summary, are that:

- It is observed or inferred (traditional digital data sources) but may also be volunteered (new sources, e.g. social media, crowdsourcing feedback);
- It is born digital: created in digital form;
- It is datafied: machine readable, with the potential to link, merge and analyze across sources;
- It has the potential to uncover new issues/questions through merging/linking/distributed analysis;
- In its original form, it presents significant storage and management challenges; in urban contexts, it requires collaboration between city authorities and data scientists (Hildebrandt 2013 and Taylor et al. 2014).

The concept of big data is controversial: first, its collection, use, dissemination, related research and societal, ecological and scientific implications are relatively new. Second, they involve rapidly changing socio-technical arrangements which challenge established modes of thought and practice for scientists, citizens and policymakers. Snowden's revelations in 2013 about surveillance practices by the United States National Security Agency (NSA), for example, raised widespread public awareness of the technical, political and organizational complexities involved in big data, and its far-reaching, difficult-to-predict implications for human society (Bauman et al. 2014). But this new scale of data has also suggested that the very idea of governance may require rethinking. According to Bauman et al. (2014: 126), digitalization in the public sector is sparking new constellations of professionals and "hybridizing private and public actors". Hence, while big data use and analytics can support improvement of urban planning and management, the forms of governance *by*, *through* and *of* big data emerging within and beyond the urban context require that future research moves beyond a techno-solutionist discourse, putting empirical, analytical and theoretical emphasis onto a critical socio-technical understanding of the nature of new social and technical actor constellations and their related power dynamics (Boyd and Crawford 2012).

This chapter sketches three concrete directions that such a critical socio-technical approach may take to study the emergence, nature and impacts of big data in cities (see Sect. 9.2) illustrated through two case studies in New York and Abidjan (see Sect. 9.3). Finally, we discuss the unique methodological challenges inherent in critical research on big data, in comparison to other closely related e-governance and digitalization efforts of the past and present (see Sect. 9.4).

9.2 Directions for a Critical Research Approach

The use of big data in smart city projects demands a broad critical perspective that questions how the use of new data sources and technologies may affect the power dynamics of urban governance. Questions that arise from such a critical approach include which fora and framings are appropriate to discuss and debate these potential evolutions of city governance (Boyd and Crawford 2012; Dalton and Thatcher 2014);

the role of technological solutionism (Morozov 2013; see also Sect. 3.3.2), i.e. the development of technological fixes which may fail to solve existing problems or even cause new ones; and how new data and applications may be prevented from generating disjunctures and inequalities among cities and regions. Exploring these questions is a long-term endeavour, and what we provide below is an initial road map for a critical socio-technical approach to the governance *of*, *through* and *by* big data in cities.

9.2.1 Unearthing Socio-Technical Systems

So far, the trajectory of the smart city's development has involved big data in five areas: parameter-setting information for agent-based models for city planning, including transport, emergency response systems and economic development; related to this, as a remote sensing approach to monitor and predict mobility flows and for spatial planning applications; as a feedback instrument between city and citizens for monitoring and evaluating urban service provision; as a predictive tool for traffic, economic trends and crime; and as a supplement or complement to current survey-based information on population and health issues (Taylor and Schroeder 2014).

New possibilities for urban planners and managers stemming from big data include real-time data collection and processing with relation to individuals, predictive uses of linked and merged data sets and the deeper linking of urban digital systems (Batty et al. 2012; Roche 2014). These have yet to become part of urban governance and/or urban planning practices and strategies. In some cases, feedback stemming from those online operations is being collected and datafied – turned into data sets that can be analyzed, linked and merged to provide new information about functions within the city. Despite the illusion of completeness presented by such data sets, they may present problems with regard to representational validity and ground truth (Pickles 1995) due to isolation from qualitative information that can help clarify their meaning. Big data also gives rise to conflicting understandings of the city as place versus space (Pickles 1995) given its dual character as input for geographical information systems and other digital forms of knowledge processing (the city as place) and as a constantly updating 'feed' of information on the complexity of social activities and behaviour (the city as constructed space).

"[T]he God's eye view" (Pentland 2000: 36) offered by big data can also, through its richness and detail, disrupt established ways of seeing and evaluating, causing both taxonomic and ontological problems in established systems. For instance, we do not know enough about how data flows reflect social differences and inequality (Koonin and Holland 2014), and while big data capture and analysis are essential to the smart city project, such data "are seen as providing objective, neutral measures that are free of political ideology as to what is occurring in a city, with the weight of data speaking an inherent truth about social and economic relations and thus providing robust empirical evidence for policy and practice" (Kitchin 2013: 3).

These asymmetries between data's increased availability and our understanding of it are harder to resolve because of the sheer size of the systems involved and the data they can produce. Both information infrastructures and their inherent politics are hard to analyze because "Good usable systems disappear almost by definition. The easier they are to use, the harder they are to see. As well, most of the time, the bigger they are, the harder they are to see" (Bowker and Star 2000: 33). Smart cities aim to be usable systems; the decisions made in their formation 'disappear' from view as they are used – and the depth and detail of big data analytics within these systems can be seen as amplifying this process, enabling real-time decision-making, identification and feedback. Thus, the smarter the city (and the bigger the data), the more obscure and unreadable the power dynamics codified into its new infrastructures and data flows – and the more important a critical perspective on these power dynamics becomes.

Flows of data within smart city projects remain largely unexamined (Kitchin 2013) in terms of more qualitative analytical practices such as database ethnographies (Schuurman 2008) or other critical sociologies of data. 'iGovernment', the digitized informational model of governance, is imposed more for convenience than strategy, and there is little awareness or appetite for debate amongst policymakers regarding the civic implications of contemporary data merging and interoperability (Prins et al. 2012). Critical ethnography is particularly important in the context of low- and middle-income countries: despite strong positive discourses about new technologies, for example, with reference to spatial information systems, in reality, due to resource and knowledge constraints, the use of such systems in governance practices may be limited (Richter 2014; see Chap. 8). An interrogation of the logic embedded in both digital and non-digital systems of bureaucratic record keeping not only partially explains the design–reality gap (Heeks 2002) but also provokes a more critical perspective on the presumed merits of digitalization in urban governance and highlights some of the positive aspects of governing the city by means of paper (cf. Hull 2012).

A critical research approach entails the discovery and exploration of socio-technical systems, where data, code, material and social world are closely – yet often invisibly – interwoven, to better understand the embedded politics and power dynamics of data analytics. Hence, we highlight digital divides and information asymmetries within and between cities, providing a counterpoint to the discourse about how big data will flatten information flows, governance practices and social inequalities by making everything and everyone equally visible (Pentland 2011).

9.2.2 Interrogating (New) Actor and Power Arrangements

Big data continues the historical trend towards the increasing quantification and digitalization of government and governance. It evolves from earlier forms of 'digital legibility making', including geographical information systems (GIS) or spatial data infrastructure (SDI) (Richter and Georgiadou 2014, see Chap. 8). GIS and SDI implementation projects have emphasized coordination, data sharing and the

integration of digital data within government. However, recent trends on producing and using big data coincide with, and are perhaps indicative of, an increasingly complex governance regime where boundaries between the governors and the governed, and between private and state actors, are increasingly blurred. A programmed environment codifies the way citizens engage with governance processes. The increasing influence of corporations over the creation of the smart city environment potentially places corporations at the centre of democratic urban processes (Gabrys 2014). Smart city technologies such as sensors place citizens in a continual feedback loop with urban governance institutions and are mediated by the corporations who set and programme the system (Gabrys 2014).

Open data may potentially address inequalities in access and representation through data; however, where scholars use digital data generated by state or city authorities, they are "creating the state's geography" and determining "what is included and what is not" (Taylor and Johnston 1995: 58). The city's geography may be determined, in the age of big data, largely by what data the city authorities decide to make available. Where open data policies exist, it is not necessarily transparent because authorities must decide which data sets to release or restrict, and how to manage releases. All of these shape the access to available data and the ability of researchers, analysts and policymakers to gain a picture of the city through data.

Further, big data is mostly owned, analyzed and shared by the private sector, adding to its embedded power dynamics. Data used freely by government authorities may still have a commercial origin and may have been organized and made readable by private-sector actors. Big data mostly originates with people's use of technology such as mobile phones and online applications. Urban data may be supplemented by sensor networks such as traffic cameras, as well as commercial GPS data relating to travel and transport gathered from phones and navigation devices. Even the maps that this data interacts with are predominantly commercially generated (Crampton et al. 2014). Data also moves largely via privately owned networks and infrastructures – communications networks, undersea cables, satellites and other elements – making the private sector a central, but currently invisible, player in the use of data for governance.

9.2.3 Continued Attention to Locality and Geographies

Despite big data's tendency to dissolve established analytical categories by connecting places and localities across administrative, national and geographical boundaries, the specificity of individual localities and context remain important considerations. For instance, the relevance of time and place is apparent in the role of data centres cities and corporations close to these centres, especially those pertaining to the stock market, may have competitive advantages over those located further away. Furthermore, the environmental implications and footprints of data centres, as well as their economic and social ties to their geographical surroundings, are in need of further research.

The extent of data becoming available also presents serious ethical and political challenges: the data subject now exists in a constantly updating digital panopticon where the surveillor is more invisible to those who are being surveilled than in GIS or even analogue forms of mapping or knowing the city. Furthermore, big data may not reflect every relevant aspect of the city but may reflect particular geographies and power structures (Taylor and Johnston 1995). A 1960s case illustrates how data does not resolve, but obscures power asymmetries (Flood 2010). RAND (Research ANd Development) corporation was contracted by New York City in 1968 to optimize its fire response teams. The consultants created a model using data on response times without looking critically at the way different socio-economic groups reported fires. The result was that the city, guided by the model, effectively withdrew fire response from the poorest areas. Over the next decade, the poorest parts of the city saw a massive increase in fire damage and loss of life due to a series of unchecked fires. Had RAND incorporated qualitative knowledge in its model, this could have been prevented.

The question of whether smart cities may lead to more open or closed governance types is still unresolved. Big data-driven 'smart urbanism' (Reshwan 2006) is dependent on opening data flows as much as possible amongst the concerned players (Koonin and Holland 2014), without necessarily making the data public. However, this process profits from centralized governance configurations working under municipal authorities. This model is emerging in New York (see Sect. 9.3) and is promoted by IBM's Smarter Cities project, which puts consultants in selected cities to formulate urban data systems in collaboration with municipal authorities. An alternate model where data holders gain from opening data to as many stakeholders as possible is suggested by IBM's Project Lucy (IBM 2014), in which IBM's lab aims to gather vast quantities of African socio-economic trend data in order to consult on planning and development. Another example of this model is Orange's Data for Development challenge (Orange 2012), which offered researchers data on Côte d'Ivoire's citizens' mobile phone usage to research social and economic questions. These projects are evolving in places where government authorities are not the ones with primary access to the data. Where last-mile services are provided by contractors as in many Indian cities, a more likely configuration is multiple collaborations between corporations (including startups and small-scale entrepreneurs), academic researchers and NGOs, and thus a more decentralized structure for data governance.

These models are partly compatible, since the centralized version may work best in locations or sectors where city governments have strong technological capacity and are better resourced, and the corporate–collaborative version may gain most traction in less-resourced regions or sectors. These two models seem to divide largely along the lines of national wealth. For example, IBM in Nigeria is looking towards an entirely corporate collaborative structure for implementing data-driven changes in its transport sector (Venture Africa 2014). Even where applications are being developed which might lend themselves to more informal governance structures – for example, the online taxi application Uber (Uber 2014) – it can be seen that adoption so far has occurred in places with more resources and a substantial

well-off population with access to smartphones. Orange's Data for Development project illustrates the potential insights to be gained and importance of the three directions for a critical research approach (see Sect. 9.3).

9.3 Empirical Illustrations

This section draws on two examples of data science as a (potential) urban governance tool, one from each extreme of the income scale – New York City, USA, and Abidjan, Côte d'Ivoire. These examples illustrate how different governance structures and resource bases can lead to different power dynamics with respect to data and institutional architectures and how big data in the urban governance context may evolve very differently in different places.

9.3.1 Empirical Case Descriptions: New York and Côte d'Ivoire

The Mayor's Office of Data Analytics (MODA) of New York City's data analytics team, was set up by Mayor Michael Bloomberg in 2013. Although MODA's work is mostly creating SDIs, it also models urban strategies which are not primarily spatial. It develops sophisticated data infrastructures to share data between city departments and to conduct analysis to support urban operations and planning. Most projects are based around spatial data, including mapping fire risk, conducting the city's first business census and creating models to identify and control high-risk illegal housing conversions. MODA also works on economic development, open data channels and disaster response. One of MODA's successes during its initial period has involved the same fire risk problem that RAND failed at in the 1970s (Flood 2010): the data analytics team created a new model which turned out to over-predict fire risk in certain neighbourhoods and under-predict it elsewhere. But this time, the analysts worked with the city's fire inspectors to validate the model, and the verification strategy has paid off (NYC Analytics 2013).

MODA employs a small team of data scientists and has a centralized institutional structure. Created by executive order, it is accountable directly to the mayor and collaborates with city departments, passing on its models and findings to them to implement. This decentralization of implementation combined with centralized analytical capacity has allowed city departments to apply their own verification and ground truth processes to MODA's models – as did the fire department when it received the fire-risk model (NYC Analytics 2013) – which tends to improve the models by embedding them in domain expertise.

There are two political challenges to MODA's approach. Part of the office's brief is to work on opening city data and making it available for citizen use and feedback. A 2012 law (Local Law 11) sets out a plan to make each agency's public data sets

available through a single portal by 2018. However, the release is highlighting how data that is formally defined as public may become subject to privacy concerns and perceptions of power asymmetries when channelled into a 'big' data architecture rather than through its traditional departmental one. One example is the (now removed) aggregate list of visitors to the city's Department of Corrections, which was formerly available through that department but which raised privacy concerns in the context of big data analytics. Instead, the data set is being merged with others to reduce identifiability concerns (TechPresident 2014).

Second, institutional configurations involved in MODA imply that there are few potential contractors/providers for the level of data analytics necessary to manage data from a city as large and digitally enabled as New York. The contractor which has developed the analytical packages used by MODA is Palantir (NYC Analytics 2013); the company exposed in 2013 as developing the US National Security Agency's PRISM software, which raised a political storm over privacy and surveillance concerns. New York's data scientists do not have a single code of data ethics and are developing their framework in an ad hoc fashion, reacting to privacy concerns as they are raised.

The second case concerns data analysis on mobile data from Abidjan, Côte d'Ivoire. In 2012, the mobile network provider Orange organized a 'Data for Development' (D4D) challenge (http://www.d4d.orange.com), repeated in 2015. It involved data science experiments with anonymized call detail records (CDRs) from Orange's five million subscribers in Côte d'Ivoire. The results illustrate both the potential of data science as an input to urban planning in low- and middle-income countries (LMICs) and the risks of misinterpretation and data protection involved in remote data science. The experiments raise the question of what locally relevant and sustainable data science looks like in an LMIC context and how the local context can be taken into account when analysis is conducted remotely.

This was the first major release to researchers of this type of big data stemming from a LMIC, labelled as a development project. However, most research teams who worked on the data lacked a sense of how to bring their research together with local data in order to illuminate and ground the research. The winning paper in the 'development' category highlights such a problem. Berlingerio et al. (2013), based at IBM Research in Dublin, developed a public transport optimization model for Abidjan. The team used the call records available to determine hotspots for delays around the city, along with the trajectory of subscribers in aggregate to determine transport routes and needs. They then compared these needs and the current delays with the existing transport network. Here, however, the analysis becomes less convincing due to the researchers' lack of local data on the transport network.

The team confined their research to transport company data that was available online – which restricted the analysis to only the most formal and expensive (SOTRA, the Société des Transports Abidjanais). SOTRA comprises between 10 and 30 % of Abidjan's transport capacity (Lombard 2006), though this share may have decreased as the transport sector has become more informal over the last decade. The city is also served by *Gbakas* (private minibuses), *taxis collectifs* (shared taxis),

véhicules banalisés (informal taxis) and *Ndiaga Ndiaye* (intercity buses). The researchers were unable to gather data on these informal forms of transport. They were aware that even the SOTRA data was unreliable and partial:

> …accurate SOTRA transit route and schedule information was not available. We then decided to leverage all available Web information to extract reasonable bus stop location as well as route shape information. Unfortunately we were not able to fully validate the extracted transit network information. We hope this could be achieved in the near future with the help of the local authorities, and potentially with citizen engagement (Berlingerio et al. 2013: 410).

The team thus based a large part of their model parameters on subjective decisions, and their limited access to representative data about a highly diverse public transport system arguably made their ultimate optimization model invalid for anything up to 90 % of Abidjan's transport users.

The research demonstrates some of the chief problems of trying to make cities smart at a distance as identified by Morozov (2013), where the problem is invented in order to fit with a solution that is already under development. In this case, the transport model had its basis in the data scientists' assumption of vertical, monopolistic governance ('an existing transit network'… 'a fleet' … 'a public transport operator') (Berlingerio et al. 2013), while local reality was one of layered and distributed governance. In Abidjan, as elsewhere in Africa, the state, the city, firms, unions, informal associations and private actors come together to provide a functioning transport system which is often illegible to outsiders. The researchers were trying to solve the problem of inefficiency and not informality. An alternate description of the city's transport system might take into account types of 'smartness' and efficiency that were invisible to big data analytics: a flexible, responsive transport system with a 'just in time' model of provision, which has great infrastructural and resource inefficiencies but nonetheless functions with the maximum efficiency achievable under those constraints.

The project also raised the question of whether big data as a planning and modelling tool can work where data science is conducted remotely. Whereas the residents or civil society organizations of New York City can complain if they notice that potentially sensitive data sets are emerging online as open data, it was not possible for those in Abidjan to do so since the data were anonymized and blurred and subscribers were not asked for their consent to the research. Yet despite its anonymization, researchers were still able to derive communication networks and mobility patterns which in turn identified potentially sensitive ethnic and spatial characteristics and ties (Netmob 2013). Nor were national authorities invited to outline development aims which might be relevant to this development research. Only one of the 250 research teams who received the data visited Côte d'Ivoire, and the project was governed by no national or international regulations or ethical framework with regard to the privacy of the individuals involved, or the subsequent use or sharing of the data – because such regulations and frameworks do not exist.

9.3.2 *Illustrating Insights from a Critical Approach to the Two Cases*

Both the above projects map things that have not been mapped before, such as the creation of the city's first business census and actual fire response configurations in the MODA case, and both focus on questions which are not explicitly related to controlling or monitoring citizens. A critical approach seeks to understand the power dynamics and different forms of control entailed in development aims, such as public health, poverty and migration and the potential privacy concerns that may arise over time. Both cases call for new ethical frameworks at the point where data is merged, linked and shared. For instance, data from MODA is soon to go into the cloud, and Orange had to invent new systems to the privacy questions regarding the D4D challenge (Taylor and Broeders 2015). Perhaps the most important ethical concerns, however, still lie in the future, with regard to the code and algorithms used to draw inferences from data, and which necessarily involve profiling and categorizing people in ways which may easily be misused or misinterpreted. The Côte d'Ivoire example shows how big data collected from mobile phones, regardless of its detail and depth, still presents a challenge of unknown bias, since it derives from a segment of the population whose characteristics are not visible to the researcher. The examples also illustrate how the richness and detail of born-digital data also uncovers fuzziness and liminality in what are often used as binary concepts for the purposes of governance – urban/rural, high/low income, formal/informal – forcing users either to reconceptualize their categorizations in ways which may be disruptive or to fit new data into old taxonomies and in doing so lose valuable information.

The two projects differ in terms of research structure. MODA's structure is more centralized with problems defined in a more top-down fashion. Orange's structure is more distributed with problems identified by researchers more ad hoc. MODA has a small core of data analysts working with many collaborators who are all data collectors and processors and has a central data-processing architecture which links the data flows of line departments. In contrast, Orange distributed a single large data set to researchers which they were then invited to link to other data such as censuses and health surveys, but had no contact with the collectors of the data or opportunity to understand the metadata in context.

Closely related to this are differences in the types of legibility (Scott 1998) each project aims at and achieves, and thus the kind of governance it facilitates. In the case of New York City (NYC), the data is made legible to its own departments, as well as other departments and citizens provided through the open data element. Orange made Abidjan legible to researchers, but not to local or national government, citizens or other local organizations through feedback. In other words, Abidjan was made legible to remote actors – albeit only partially and on the basis of questionable inferences drawn from mobile data, whereas in the NYC case transparency was a more two-directional endeavour within government departments, and between

government and citizens. Furthermore, there are important differences between data produced under corporate auspices and data produced by city departments. Whereas NYC's data scientists could contest the data, but were also working with pre-checked and processed data flows, corporate data is not verifiable or replicable for reasons of privacy, and often can only be accessed by the highest or most powerful bidder. In MODA's case, data science is locally embedded, whereas in Orange's case data science was conducted remotely. What the 'remote data scientists' missed are important aspects of the local environment, which do not lend themselves to 'smartness', including informality, distributed forms of governance and limited Internet penetration – regardless of mobile phone penetration, which itself creates the illusion of 'complete' data.

This institutional architecture also raises the third issue addressed in a critical approach (see Sect. 9.3), namely, the importance of local context specificity (place) in the evolution of big data projects and related merits or risks. Although the broader goal of increased transparency and efficiency in the NYC case is relatively fuzzy, MODA started with the identification of a distinct and locally relevant problem drawing on extensive local knowledge. The broad development aims in the Orange project remained fuzzy during the implementation of the research. In the Côte d'Ivoire case, research conducted at a distance sought to find solutions to problems that were not checked against local knowledge and realities of the local context. Context also differs with respect to the broader legal framework in which the two projects are situated. MODA works within the legal framework of a nation state and is a government-led endeavour (e.g. data scientists employed by the Mayor's office). Orange operates across national boundaries in a more distributed institutional structure, and thus works within international and inter-organizational legal space or – especially in the case of big data – extra-legal space. This provides for different starting points in terms of legal context (see Table 9.1).

Beyond interrogating the politics embedded in database development and analytics, and the constellation of emerging institutional architectures, the two examples illustrate that big data as a tool for urban governance may behave very differently in different places and contexts. Types of systems and decision-making it can facilitate therefore also differ. This suggests two different evolutionary paths in terms of urban governance using digital data flows: one is centrally planned and envisioned, with its own narrative about the kind of governance the city wishes to enable – and possibly greater input by citizens. This type of big data urban governance looks more like the model of environmentality, where citizens and city co-evolve through the shaping of code which is at least to some extent centrally guided, although it has strong corporate input (Gabrys 2014). Alternatively, there is a 'lumpier' evolutionary trajectory possible where individual projects are enacted according to private sector interest or capacity, ranging from large-scale corporate vision to individual app developers, but where central planning is made difficult by a lack of in-house technological capacity. Although city government is necessarily a player in both, its role in the latter scenario is vastly reduced by the need for outside funding, technological expertise and planning. In low-income countries such as Côte d'Ivoire, it is even possible to see a variant on this model where big data research occurs entirely

Table 9.1 Contrasting the New York and Abidjan data projects

Issue	New York	Abidjan
Politics of control (potentially) embedded in database development and analytics – power dynamics	Future merging of data sets despite current tight problem definitions	Future merging of data sets in realm of imported development goals, such as public health, poverty, and migration problems to be tackled
	Use of contextual reference points increases reliability and comprehension of knowledge	Bias due to disentanglement from locally relevant knowledge
	Implications of new and old classifying practices to solidify or redefine purposes of urban governance	Implications of new and old classifying practices to solidify or redefine purposes of urban governance
Institutional architecture	Government-driven with core team of data scientists employed by municipality and citizen involvement	Driven by remote data scientists with little or no involvement of national and municipal government or citizens
	Centralized	Decentralized
Place and project specificity	Local context closeness in defining problem and knowledge drawn upon	Fuzzy definition of problems driven by remote solutions
	National legal context as starting frame	International legal context as a starting frame

outside the auspices of city managers and planners and, if it gains traction at all, does so via processes of data mining and discovery rather than collaboration and contracting.

9.3.3 Conclusion: Methodological Considerations for a Critical Approach to Big Data

Context needs to be problematized in at least two ways. First, the cases illustrate how big data's usefulness in solving the challenges of urban governance is place- and case-specific and that its utility is dependent on local knowledge about the city by its citizens, government and other organizations. If data science can be made locally relevant and sustainable (i.e. using local capacity to answer local questions), there is potential for urban processes to be streamlined and made more efficient, but possibly reinvented, and with them urban actors and their roles. Second, although the label 'smart city' may evoke the impression of a neatly circumscribed local context, this cannot always be defined based on a city's administrative or geographical boundaries alone. In comparison with the New York project, the Orange project extends far beyond Abidjan's and even national boundaries in terms of the actors, aims and knowledge involved.

The concrete directions proposed and illustrated are similar to arguments made in the past that we should understand the evolution of socio-technical systems in the making and in different legal, political and cultural contexts under the labels of e-government, e-governance, ICT for development, information system implementation and so forth. This allows for finding methodological answers in existing literature on large-scale information systems, as well as from critical GIS and radical statistics (Kitchin 2014). Understanding and critically evaluating the evolution of big data-driven governance requires socio-technical and interdisciplinary research capacity, because of the deep and far-ranging entanglements and co-dependencies between code, algorithm, hardware and software and the organizational, financial, political and socio-spatial aspects of urban governance and lives in smart (or soon-to-be-smart) cities. Furthermore, the scope, partial invisibility and dispersion of activities and actors allow for the conceptualization of big data's evolution as large-scale information infrastructures, and methodological approaches may therefore be sought also in the literature on information systems and e-infrastructure (Star 1999; Ribes and Finholt 2009; Ribes 2014).

What is new in big data compared to past digitalization efforts, however, is the extent to which governance systems which employ big data may disappear (Bowker and Star 2000) and how difficult it may be for individuals to know how they are being identified, profiled and represented to city authorities – or indeed for those authorities to understand how the algorithms used in big data analytics are profiling and representing their citizens. This raises questions about how big data may facilitate the democratic, and not just efficiency, aspect of governance.

The methodological problems particular to big data that urban authorities may face – in contrast to earlier uses of digital data – are threefold. First, the combination of unbounded scales as urban data may overlap with national data, which may be based on corporate territorial boundaries rather than traditional governmental ones, and thus transcend the purview of the national government. Second, the data may be generated within corporations, and the definitions attached may not match with government's needs or perceptions. Changing definitions and ontologies are usual in marketing and business – ways of labelling and profiling people will change with advertisers' or marketers' priorities, and also with the evolution of data analytics and privacy policies amongst those first in line as data processors. And third, the data present new ethical challenges: the 'God's eye view' implies that someone must play god. The ability to 'see' people's movements, activities and social networks – and to merge information to produce a 360-degree view of people's lives – brings a new level of responsibility that government authorities are often ill prepared to address (Prins et al. 2012).

An explicitly ethical approach to big data is needed because its panoptic potential almost inevitably leads to function creep (a technology being used for purposes other than those for which it was originally developed – e.g. the use of mobile phones for tracking people's movement and in turn to surveillance, where it is used for monitoring individuals, their activities and their environment) (Lyon 2014). Thus, the question is not only how data may be useful as a mode of urban governance but how it should be governed within that process. These two questions,

according to Lyon, inevitably shape and influence each other and are part of a single process. Where research in other areas of information system development, transfer and evaluation has had a longer history of interrogating societal benefits and citizen involvement (as users, viewers or voluntary/aware providers of data), big data appears to have initiated a new era, where people become data providers and data subjects unknowingly and everything is datafied. For a critical urban data science, it is necessary to understand not only how data is created and flows, but importantly also how the 'datasphere' interacts with and influences the aims and modes of governance. From an ethical point of view and in looking towards future forms of governance, we need to ask how far we want to allow data to govern people.

Acknowledgements The authors thank Yola Georgiadou, Zef Hemel and Dorien Zandbergen for their feedback and advice on this chapter.

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Chapter 10
Scenario Building as a Process and Tool in Urban Governance

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Abstract Scenario building and related analysis is useful in several fields, ranging from military and business planning to its more recent applications in addressing global challenges such as climate change or economic crises. This chapter provides an overview of scenario building in urban governance. It introduces a corporate case (Shell) and then uses case studies on water and climate governance from the global South, specifically Lima (Peru), Guarulhos (Brazil), Durban (South Africa) and Dwarka (India) to illustrate the process of scenario building in practice. These case studies highlight the potential and challenges of scenario building as a process and tool in urban governance in fast-growing cities in emerging economies. The analysis reveals that the scenario-building process can be as important as its outcome,

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J. Gupta et al. (eds.), *Geographies of Urban Governance*,
DOI 10.1007/978-3-319-21272-2_10

because the different perspectives of the participating actors, their understanding of the local context and mutual learning gained on the topic may influence their future plans and course of action. The socio-economic and political contexts of the cities under study play a significant role in shaping water governance issues, now and in the future.

Keywords Scenario building • Water-related hazards • Vulnerability • Urban governance • Climate change

10.1 Introduction

Over the last four decades, scenario building has been used as a tool to anticipate and plan for the near and distant future. It produces plausible, and often simplified, descriptions of how the future may develop, based on a coherent and internally consistent set of assumptions about key driving forces and relationships (Rounsevell and Metzger 2010: 606). Scenarios are an important tool to equip actors with the knowledge and skills needed to prepare for increasingly uncertain futures (Amer et al. 2013). Early applications can be found in the military sector in the aftermath of World War II and expanded to social forecasting and public policy (IPIECA 1996) through the work of Kahn and Wiener (1967) and business planning (Neilson and Stouffer 2005; Varum and Melo 2010). Later, it was also applied in environmental, urban and regional management and planning (e.g. Leite et al. 2000; Carter 2007; Chakraborty 2010; Reed et al. 2013).

The use of scenarios in a variety of fields not only substantiates their generic applicability but also reflects their flexibility in terms of application, approach, process, data and methods, level of aggregation, time scale, interest of knowledge and purpose (see Sect. 10.2). Amer et al. (2013: 25) conclude that the "main benefits of using scenarios are improvement of decision making process and identification of new issues and problems which may arise in the future". The scenario-building process often leads to a single product (the scenarios) which is the result of the coming together of diverse worldviews and information from many different perspectives (Bennett and Zurek 2006: 276). It can offer an interdisciplinary framework of analysis for complex problems, provide tools to communicate information in an accessible manner (scenarios as a communicative device) (Salewski 2012) and raise awareness of emerging or intensifying problems (Alcamo 2008). It can help stakeholders to think creatively, strategically and 'think big' about certain problems, challenging the prevailing mindset and the status quo. It can also offer stakeholders the opportunity to learn (social learning), by being involved in policy development and agreeing on a course of action (Alcamo 2008: 3–4; Amer et al. 2013). Learning, however, mostly takes place in the process of scenario development rather than in the engagement with its results (Dammers 2000: 83). It is also seen as an effective tool for public engagement in issues of concern, which can vary across scales and contexts

(Lebel et al. 2007). Scenarios can envision alternative ways of urbanization and may have potential for transformative planning for complex socio-economic issues (Kahane 2012). Whether this potential is fulfilled, however, strongly depends on whose initiative, how, and for what purpose the scenario-building exercise is undertaken, and how and to whom the results are communicated.

This chapter discusses the role of scenarios in urban governance as a process in Lima, Dwarka, Guarulhos and Durban and as a tool as applied in Shell's Future Cities scenarios (Shell 2014a, b). First, it defines scenarios and describes their characteristics (see Sect. 10.2). Then, it introduces a recent global scenario study on Future Cities carried out by Shell's scenario division in cooperation with Singapore's Centre for Liveable Cities (see Sect. 10.3). Based on these sections, four scenario-building processes are analyzed (see Sect. 10.4). The final sections present reflections (see Sect. 10.5) and conclusions (see Sect. 10.6) on the role scenarios can play in urban governance.

10.2 A General Overview of Scenarios

10.2.1 Definition

Originating from the theatre, the word 'scenario' means plot outline (Glenn and Gordon 2003). In strategic planning and research, scenarios – also referred to as visions, futures and foresight studies – are seen as plausible descriptions or stories of future developments (Kahn and Wiener 1967; Heugens and van Oosterhout 2001). They are "a systematic method for thinking creatively about dynamic, complex and uncertain futures, and identifying strategies to prepare for a range of possible outcomes" (Reed et al. 2013: 346). Scenarios present "an internally consistent view of what the future might turn out to be – not a forecast, but one possible future outcome" (Porter 1985: 63). Scenarios study the present reality in relation to the future (Mannermaa 1986: 659) and describe:

- The current state of a system;
- A series of different plausible, desirable or probable future states;
- The pathways from the current to the future states (Dammers 2000: 7).

Hence, scenarios provide insights, but no knowledge about the future, because knowing the future based on empirical research is, by definition, impossible. All statements about the future are conditional. Scenario planning differs from traditional forecasting (e.g. extrapolation of trends) in its ability to incorporate discontinuities, innovations and new phenomena in these trends (Mannermaa 1986; Dammers 2000; Bradfield et al. 2005). Over time, a multiplicity of composites have been attached to the word 'scenario', such as thinking, techniques, analysis, building and planning, where scenario building most often refers to envisaging different plausible futures, and scenario planning to a more comprehensive foresight study (Martelli 2001; Bradfield et al. 2005; Varum and Melo 2010).

10.2.2 Types

Scenarios can be classified in terms of approach, process, nature of the data (methods), time scale, level of aggregation or purpose (see Fig. 10.1). Most scenario studies do not fit clearly into one classification or the other but show a certain hybridity (Dammers 2000; Alcamo 2008; Rounsevell and Metzger 2010; see also Bradfield et al. 2005; Börjeson et al. 2006; Bishop et al. 2007; Wilkinson and Eidinow 2008; Amer et al. 2013).

All scenarios build on the values and interpretations of their developers (van Notten et al. 2003). In terms of approach, a distinction is made between normative and exploratory (or descriptive) scenarios. Normative scenarios describe desirable or probable futures, while exploratory (or descriptive) scenarios describe plausible futures. Normative scenarios are often based on backcasting, taking the preferred future state as a starting point and developing backwards the path to be taken to arrive at that state. Accordingly, they are often goal directed, as they backcast the necessary steps to achieve certain goals. Examples include unfolding the required measures to achieve the policy target of reducing transport emissions by 30 % in 15 years or sketching alternative ways of urbanization. Exploratory scenarios take the present and past trends as a starting point and imagine plausible futures. In that sense, they forecast a range of likely future alternative events without a pretension of certainty of what will happen (Dammers 2000; van Notten et al. 2003).

In terms of process, scenarios can be conducted with or without participation of relevant actors. A scenario study can be desk-based, developed with a small group

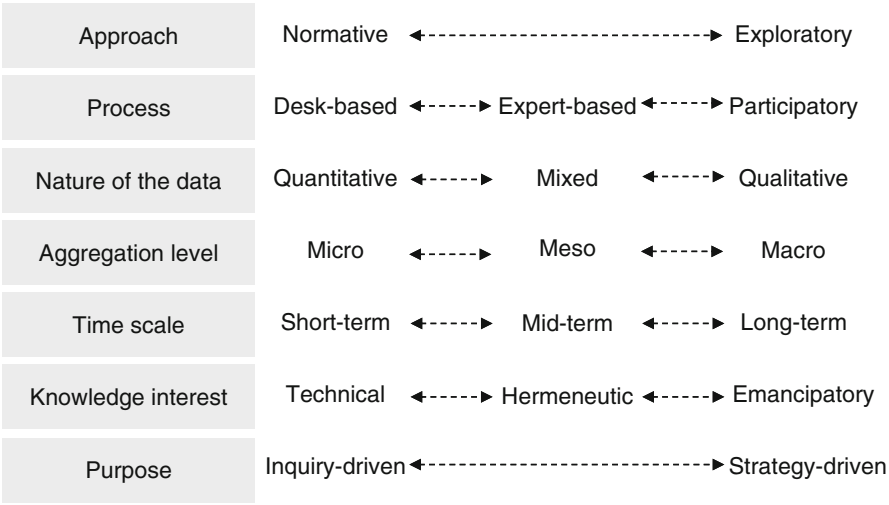

Fig. 10.1 Classification characteristics of scenario types (Adapted from Mannnerma 1986; Dammers 2000; Alcamo 2008; Rounsevell and Metzger 2010)

of experts or conducted in a participatory manner to accommodate viewpoints of various actors. Desk-based scenarios often rely on mathematical models, extrapolating influences of current realities and drivers (the underlying causes of change). In 1972, the Club of Rome's scenario 'The Limits to Growth' was the first global environmental scenario that mathematically modelled what would happen if resource depletion would continue unabated. Expert-led scenario development occurs when a multi-disciplinary team develops scenarios for a client such as the municipality. Participatory scenario development facilitates the exchange of individual knowledge and interdisciplinary viewpoints of actors with diverse interests for a common goal with respect to a collective good (Neilson and Stouffer 2005). Such scenarios are legitimate by virtue of the participation of relevant actors and the inclusion of their knowledge (Rounsevell and Metzger 2010). Inclusive scenario building (as a sub-type of participatory scenario development) is used for social knowledge construction when actors from different (public and private) institutions, diverse disciplines and local organizations and communities are involved. This requires an iterative process to facilitate spaces for meetings, exchange of knowledge and views and consensus building across various social, economic, environmental and governmental actors.

In terms of the nature of the data and related methods, scenarios can be based on quantitative data, qualitative data or both. Quantitative, probabilistic scenarios rely on modelling methods and are better suited for developing scenarios, for instance, on energy, water and climate change (EEA 2011). These include the climate modelling and emission scenarios of the Intergovernmental Panel on Climate Change (IPCC 2001: 18). A clear example in urban governance are scenarios on urban air pollution modelled on a certain set of assumptions about emissions, transport fleet and vehicle use. Quantitative modelling is often desk-based and expert-led.

Qualitative scenario building is a team exercise involving limited experts as in think tanks (Börjeson et al. 2006: 732). It can also be done in broader groups of experts and key stakeholders, or be open to all stakeholders, sequencing input from different groups. Qualitative scenarios develop a narrative or storyline. Storylines describe the qualitative assumptions about the drivers as, for instance, in IPCC emission scenarios (IPCC 2001). They can be written narratives or communicative images and animation, film-making and model simulations or conceptual trend making (Rounsevell and Metzger 2010). Qualitative scenarios can bring clarity where the quantification of causal relations is difficult. Their flexibility and ability to incorporate a wider set of key issues, non-linearities, feedbacks and surprises help to understand complexities prevalent in urban systems and their governance (Kok et al. 2007). Qualitative scenarios are relatively more successful as they communicate a complex reality in an easy way in comparison to quantitative scenarios (EEA 2011). However, given that participants' knowledge is the main source of data, their legitimacy depends on their knowledge and expertise.

The issue of scale in scenario building can refer to the level of data aggregation, i.e. micro, meso and macro level, or to its implications in a spatial-temporal context. The scenario can be developed for an individual organization or for global-level issues, for the short-term future to long-term trends (Dammers 2000). In terms of

knowledge interests, scenarios can be technical, hermeneutic or emancipatory. If the purpose of knowledge generation is technical, the aim is to present forecasts on the basis of objective knowledge and quantitative modelling techniques, which are as accurate as possible, to improve long-term control through planning. In the hermeneutic interest of knowledge production, scenario studies aim to increase a common understanding of social reality to make joint activities possible. Studies with an emancipatory interest aim at widening the perceived scope of options, and make the impossible possible by strengthening creative thinking and opening up alternatives. They aim to influence the course of action into the future; the most probable future only serves as a reference, whereas the desired future is aimed for. In this strand, the quantitative probabilistic and qualitative hermeneutic techniques are often combined (Mannermaa 1986: 660–661; Börjeson et al. 2006: 724).

In terms of purpose of the knowledge produced, scenarios can be inquiry- or strategy-driven. Inquiry-driven scenarios are developed to enhance scientific knowledge for its own sake, or as an input in policy processes. The product is often a set of quantitative scenarios, for instance, the aforementioned relationship between transport fleet, emissions and urban air pollution. Strategy-driven scenarios aim to underpin planning processes and help to achieve policy goals. Shell's scenarios aim to improve corporate performance. Whereas inquiry-driven scenarios are most often developed in scientific isolation and are scarcely communicated to the policy community, strategy-driven (or interventionist scenarios in Dammer's (2000) terms) are more often developed in interaction with the end users of the scenarios (Alcamo 2008: 5–8).

This description of scenario characteristics and typologies is neither exhaustive nor definitive. There is a boom in scenario development resulting in a plethora of models and techniques and methodological chaos (Martelli 2001; Bradfield et al. 2005: 796; Varum and Melo 2010). The hybridity in the typology will be illustrated by the scenario processes analyzed in the following sections, for which Fig. 10.1 is used as the heuristic framework.

10.3 Shell's 'New Lenses on Future Cities'

In 2013, Shell celebrated 40 years of corporate scenario planning with the launch of its 'New Lens Scenarios: A Shift in Perspective for a World in Transition', in which it explores developments in economy, politics and energy for the coming five decades. Given that "urbanization will be one of the most significant dynamics affecting the future, presenting both opportunities and risks" and that "urban design [is] at the heart of efforts to encourage and engineer greater resilience" (Shell 2014a: 2), the first supplement to this study focuses on 'Future Cities' (Shell 2014b).

The 'Future Cities' scenario-building process was expert based, drawing on mixed sources of data and focusing on energy use. It targets global developments at the macro level combining a normative and descriptive orientation. Shell is clear about the norm: energy-efficient compact cities, to be achieved through strong leadership,

strong (urban) planning and adequate use of alternative technologies. It takes past and present trends as the starting point and extrapolates future trends with respect to the key drivers of energy use in cities to arrive at two exploratory scenarios for future cities.

Based on existing, mostly quantitative, data sets at city level on population size, growth and density, housing, mobility, current energy use, characteristics of the economy, city layout and global location, Shell developed six illustrative city archetypes (see Table 10.1). It classified 500 cities with over 750,000 inhabitants and 21 megacities with over 10 million inhabitants accordingly.

Since over 90 % of population growth will be urban, and the majority of this growth will be concentrated in Asia and Africa, the vast majority of future urbanization is expected to take place in cities of either the 'Developing mega-hubs' or the 'Underprivileged cities' archetype (see Table 10.3). The manner in which these cities develop is therefore a major factor determining future energy use. Based on population growth and consumption per capita growth data, the study outlines six plausible pathways for the identified archetypes (see Table 10.1) of which they expect that 'controlled urbanization' and 'late stage development' will occur most often. In underdeveloped urban centres, both population and GDP per capita grow quickly, and depending on the nature of urban governance, under the controlled urbanization scenario these centres then transform into either 'Urban powerhouses' or 'Sprawling metropolises'. Although the drivers are the same in the late stage growth scenario, both population and GDP per capita growth take place at a later stage, with large infrastructure already in place. From the energy efficiency perspective, this poses challenges because retrofitting existing infrastructure is costly, complex, and requires effective municipal governance, capable of implementing policies and enforcing laws.

The scenario study concludes by outlining two plausible visions of future cities, in Shell's general 'New Lenses' study labelled 'Mountains' and 'Oceans'. In 'Mountains', urban governance is centralized and top down, aiming at maintaining the status quo and major power brokers in the city controlling data and managing the city directly. This results in system rigidity which slows down economic dynamism but also counterbalances immediate market forces. The strong bond between the power holders (public and private) can also facilitate large infrastructural projects and radical change. In 'Oceans', power is devolved and competing interests are accommodated. Economic development prospers in response to a wave of reforms; however, the resulting social mobility can undermine social cohesion. Policy implementation and enforcement are more difficult, which gives immediate market forces more prominence.

In either case, cities can create room to manoeuvre, determined by, first, the development of a clear vision that creates support for, or acceptance of, sometimes unpopular policies; second, collaboration between connected organizations/networks that share resources, knowledge, skills and people and enhance inclusiveness; and third, the capacity to implement. City actors must also have a willingness to invest in the future and build trust both between individuals and with city officials that provide a stable environment for business and citizens, ensuring fairness and consistency in rules and regulations.

Table 10.1 Shell's city archetypes and their characteristics (adapted from Shell 2014b)

	Underdeveloped urban centre	Underpriveleged crowded cities	Developing mega-hubs	Sprawling metropolises	Urban powerhouses	Prosperous communities
Global location	Developing economies	Majority in Asia and Africa	Developing economies	Developed economies	Island locations	Developed economies
Population	Low	High	High	High	High	Low
Capita/GDP	Low	Low	Low	High	High	High
Population density	Medium/low	High	Low	Low	High	Medium/low
City layout	Low density suburbs	Patchy, with sometimes privatized pockets of infrastructure	Dense low income housing near centre; affluent housing at fringe	Pockets of density downtown; extensive low-density suburbs	Densely populated core with suburbs	Pockets of density downtown; extensive low density suburbs
Housing	Small living spaces, limited electricity use	Slum development	Medium-sized living spaces	Large homes	Dense, efficient housing	Large, spacious homes
Mobility	Dominated by walking, biking and scooters	Poor transport infrastructure	Underdeveloped public transport, road travel	Extensive road networks that incentivizes cars	Well-developed public transport; congested roads	Extensive road network that incentivizes cars
Energy use	Industry main user, low household use	Often constrained by electricity brown outs	Moderate use/capita, evenly split over housing, transport, industry	High energy use driven by housing and transport	A lot for heating and cooling	Mainly for housing and transport
Economy	Few large companies	Non-industrialized economies, focus on trade, farming, or low-energy manufacturing	Mixed economies across service, manufacturing, agriculture and/or tourism	High-value service-based economies	Service sector in centre; some specialized highly skilled industry bordering city	Specialized industries employ majority of residents
Examples	Nanchong, Kathmandu, Algiers	Bangalore, Manila, Kinshasa	Chongqing, Nairobi, Hyderabad	Houston, Rio de Janeiro, Tokyo	Stockholm, Calgary, Dubai	Hong Kong, Singapore, New York

The exercise of formulating plausible development pathways (futures) for certain archetypes of cities is an interesting one. Although strategy driven, Shell's Future Cities scenarios have been developed without much interaction with key actors. We will now turn to the four city case studies where the interaction with key actors was the essence.

10.4 Case Studies

This section presents four case studies from the global South – part of the EU-financed chance2sustain project (http://www.chance2sustain.eu/7.0.html) – using the analytical lens of Fig. 10.1 and Table 10.1. Although starting from a common conceptual framework and methodological guide based on the premise of inclusive, participatory scenario building, each process worked out very differently in terms of approach, theme, nature of the data, knowledge interest, and purpose (see Table 10.2).

The four scenario processes focused on water governance, were at a meso-level of aggregation and adopted a long-term perspective. They were initiated and facilitated by a scenario team, but each had a different positionality. Whereas in Lima the team had a long history of action research undertaken with, and for, the municipality, the team in Durban could build on a history of engagement with the municipality, and the teams in Guarulhos and Dwarka had functioned more as independent think tanks in the past. These different compositions and positionalities of the scenario teams influenced the purpose of the scenario process (strategy- or inquiry-driven) and the

Table 10.2 Characteristics of the scenario building process in Lima, Dwarka, Guarulhos and Durban

	Lima	Dwarka	Guarulhos	Durban
City archetype	Developing mega hub	No fit with types listed in Table 10.1	Sprawling metropolis	Sprawling metropolis
Approach	Exploratory	Exploratory	Exploratory	Normative
Theme	Water governance, climate change and the metropolitan city	Vulnerability to water scarcity	Urban water governance	Urban development line influencing water governance
Process	Participatory, inclusive	Participatory, inclusive	Participatory	Participatory, expert-led 'think tank model'
No of workshops	>50	4	3	1
Nature of the data	Mixed	Qualitative	Qualitative	Mixed
Knowledge interest	Technical, hermeneutic and emancipatory	Hermeneutic, and to a limited extent emancipatory	Hermeneutic	Technical, and to a limited extent emancipatory
Purpose	Strategy	Inquiry	Inquiry	Strategy

knowledge interest. The intensity, duration and diversity of participation also differed considerably per process. In Lima, the process evolved over more than two years and incorporated hundreds of participants in different forums; in Guarulhos, the process was interrupted after the first workshop and was completed in three months after being initiated; in Dwarka, it took four months; and in Durban, the scenario-building exercise was held on one day but built on relationships and knowledge that had developed over three years of research.

10.4.1 Inclusive Scenario Building in a Developing Mega-hub: Lima, Peru

Lima, the capital and largest city of Peru with 8.6 million inhabitants (INEI 2013), a medium population density, and medium GDP per capita, is a developing mega-hub with some elements of the 'Sprawling metropolis'. Homes and plots are relatively spacious, yet public transport is underdeveloped and road dependent. The city accommodates nearly a third of the country's population and is located in a desert resulting in water scarcity. Peru is also vulnerable to the impacts of climate change. While Peru's governance structure is highly centralized, its water governance structure is fragmented creating barriers for efficient water governance (Miranda Sara and Baud 2014).

The scenario-building approach in Lima was exploratory, as it contemplated alternative assumptions brought in by various actors. Foro Ciudades para la Vida (www.ciudad.org.pe), an inter-institutional network, acted as facilitator for three parallel scenario-building processes that interacted with each other (Miranda Sara and Baud 2014). Over 50 workshops, Cities for Life Forums (*foros*) and other types of events were held to develop the scenarios involving various actors at different levels such as the metropolitan city government, civil society, communities, academia and the private sector. Participating actors were not only provided knowledge during the meetings but were also tasked to gather secondary data on driving forces identified during the workshops. The process drew on a wide variety of methods, including qualitative, quantitative and mixed methods research. This initiative brought forth a diversity of approaches, perspectives and discourses that shape urban water governance (see Table 10.3 for drivers identified; not all factors identified as drivers are 'drivers' causing change).

The scenario-building process was inclusive and participatory, enhanced through the culture of *concertación* in Peru (see Chap. 7) that has made participation of a variety of actors legally mandatory at several levels of decision-making processes. The *concertación* process is based on the practice of learning by doing, which involves knowledge construction by using various social networks. This implies validation (or contestation) of a variety of knowledge and discourses by participating actors and a sensitive and complex process of dialogues, negotiations, conflict management and consensus building to reach different types of agreements (Miranda Sara and Baud 2014). Such iterative processes are cycles in which knowledge and decisions made are constantly evolving and being shaped through workshops

Table 10.3 Types of drivers identified in Lima, Peru (LiWa project) (Miranda Sara and Fernandez 2015)

Category	Drivers
Ecological	Climate change, water treatment and reuse
Governance	Form of government, water management, legal status of the water company (public, private, public/private)
Economic	Urban poverty
Planning	Population growth, water infrastructure, water treatment and reuse, water consumption
Education	Water tariffs (efficiency of resource use), consumption

and events on collecting, confirming and modifying the scenarios by building consensus and reaching concrete agreements. The workshops and events sequenced expert meetings, meetings with the key actors, and with society at large. The overall interest of knowledge was clearly emancipatory, but throughout the process there was also a clear interest in technical knowledge (constantly improving existing data on the drivers, for instance), and a hermeneutic interest (developing a joint understanding of reality). It also resulted in a gradual broadening of the perspective from a narrow, sectoral focus on water to a more holistic and systemic approach of the water cycle, including the ecosystem services of water and the wider and long-term implications (Miranda Sara and Baud 2014). The institutional culture of *concertación* not only helped in building consensus on the issues relating to water, risks, climate change and urban development but also laid the foundation for concrete policy agreements. Specific results of the scenario-building process included three plausible scenarios: a pessimistic, a business-as-usual and an optimistic scenario (see Table 10.4).

Finally, the scenario process was strategy-driven within a broad framework of action research as it aimed at building scenarios for policy building and even helped in defining management tools, which more recently has informed the Climate Change Strategy of Lima adopted in December 2014 (Municipalidad Metropolitan de Lima 2014).

10.4.2 Participatory Scenario Building in a Sub-city: Dwarka (Delhi), India

Dwarka, with a population of over a million, is the fastest-growing sub-city of the capital city of Delhi (16.8 million inhabitants) (Sridharan et al. 2014). This sub-city was planned and developed by the Delhi Development Authority to accommodate its rapidly rising population and does not fit any of the Future Cities archetypes. Dwarka has high-density housing, middle-income to low-income residents, uneven infrastructure and water scarcity. Water governance in Delhi is complex, fragmented and characterized by overlapping responsibilities, which burdens Dwarka with inadequate, poor-quality and fragmented provision of drinking water requiring local residents to turn to private solutions.

Table 10.4 Three plausible scenarios for Lima, Peru (Kosow et al. (2013))

Drivers and indicators	The optimistic scenario	Business as usual scenario with some improvements	The pessimistic scenario
Population	11 million people	11.5 million people	17 million people
Growth rate	0.3 %	1.3 %	2.0 %
Water management led by	Association of Regional Governments (‘*Mancomunidad*’)	Joint efforts of different actors, including private water company	Sectoral approach; poor ‘*concertación*’ process
Government levels	Mancomunidad supported by technical advice and ministerial policies	Some public control over the territory; informal land invasion (squatting) has slowed down	Weak governance structures; poor implementation and enforcement capacity; a lack of shared vision
Infrastructure	Significant reduction in informal building activities leads to quality improvement	Poor water infrastructure due to water losses; worsening network status due to growing population and poverty	Deficient water infrastructure due to, among other things, low investment and a lack of dams to store water
Climate change	Integration of Rimac, Chillon and Lurin water basins with the Mantaro water basin incorporates risk management for climate change	Less rainfall and flow leads to water restrictions/shortages, drought episodes, food shortages, health and malnutrition problems	Droughts; roads collapsed; no investment in sewage system; thousands of homes affected with heavy economic losses
Water coverage	Full coverage of drinking water for the entire population	Constant drinking water coverage by public service; increasing number of households previously supplied by truck connected to the public network	Decreasing coverage of the public drinking water network
Water treatment	80 % of water recovered from the water sewage system reused for irrigation of parks	Some improvements in water treatment	Some water is treated and reused for irrigation of parks
Green areas per person	10 m^2	5 m^2	Continued growth without control; some fragmented green areas downtown and in some new centres in the South, North and East areas

The scenario-building approach in Dwarka was exploratory and conducted by a local research team from the Delhi School of Planning and Architecture (SPA). The strong relationship of the school with officials, along with a safe space for various actors to come and communicate, contributed to the success of the workshop, especially in the context of the hierarchical governance culture in India (see Chap. 7). Apart from the residents and local welfare societies, participants included representatives of the private sector, NGOs, media, university researchers and relevant public organizations. The community-organized workshops in Dwarka provided a rare forum for residents and authorities to discuss common concerns. The process revealed communication gaps between various actors, and residents expressed their fears, helplessness vis-à-vis the water scarcity, the inability to contact relevant authorities and their expectations and willingness to get involved.

After an initial discussion of water scarcity and causes in Dwarka, the participants identified the key drivers and sub-drivers of water scarcity and prepared the vulnerability scenario for the present, 2030 and 2050. This process was mainly qualitative and rated the present vulnerability as low to medium, which may intensify if measures are not taken. In the last workshop, participants ranked the interdependencies between the key drivers, i.e. the extent to which one driver exerts an influence over another driver (see Fig. 10.2).

Figure 10.2 reveals that governance and political intervention are clearly the drivers that exert most influence. Corruption was openly discussed leading to the progressive development of mutual trust. This community did not see the environment or climate change as significantly influencing water. The process was clearly inquiry driven, and the knowledge interest was mainly hermeneutic. Building initial trust and bridges was a major outcome of the process, where residents expressed their willingness to take up responsibilities for improving water harvesting.

10.4.3 Scenario Building in a Participatory Culture: Guarulhos, Brazil

Guarulhos, with a population of 1.2 million inhabitants, is part of the Sao Paulo Metropolitan Region (39 municipalities and 20 million inhabitants; IBGE 2010) and is a ‘Sprawling metropolis’. Although Guarulhos has a strong economy and has steadily remained among Brazil’s top 10 cities in terms of gross domestic product (GDP), it essentially serves Sao Paulo with its international airport, logistical infrastructure and various industries. Brazil has a strong participatory governance culture (see Chap. 7), which also translates into a progressive participatory water governance system in its water basin councils. However, the public sector is fragmented, inhibiting effective water governance. Due to geological conditions and institutional arrangements, the city has faced both water scarcity and water pollution along with flooding and landslides.

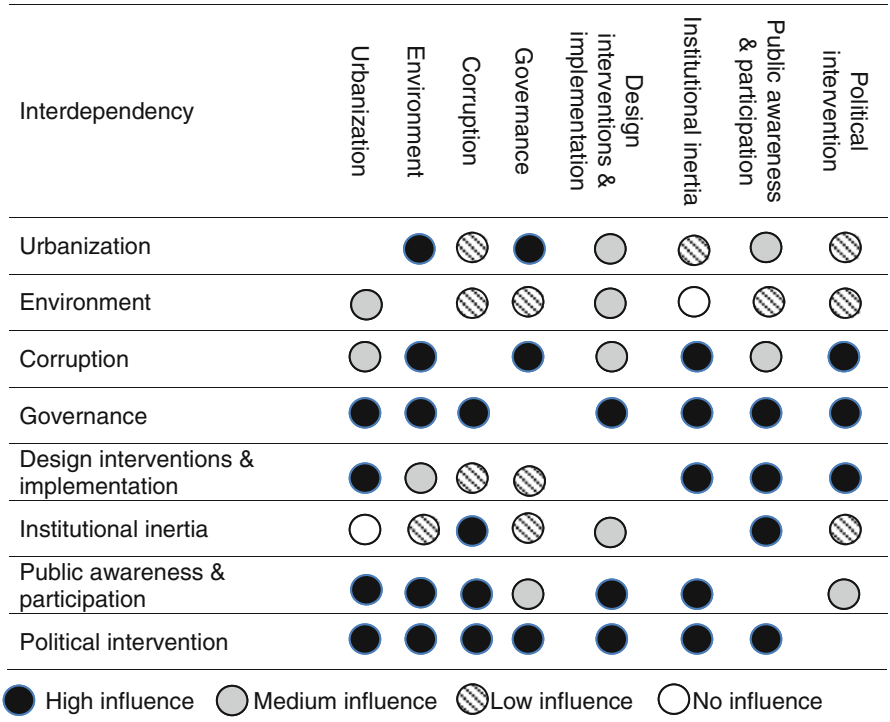

Fig. 10.2 Matrix of key drivers of water scarcity identified in Dwarka, and their interdependencies (Miranda Sara et al. 2014: 63)

The scenario-building process in Guarulhos was exploratory and involved three workshops (2012–2013) conducted by the Brazilian Centre for Analysis and Planning (CEBRAP) based in Sao Paulo. This process involved a multi-scalar perspective with representatives from municipal public sectors, civil society and academia. The first workshop was based in the Tietê-Cabeceiras sub-basin including nine municipalities of which Guarulhos is a part, and the other two workshops focused on the municipality of Guarulhos, with the participation of key actors related to water governance. The scenario process was discontinued because of local elections in 2012, which disrupted the continuity of participation in further workshops by those who were no longer serving in their posts, whereas the newly elected participants lacked understanding of the pending issues. The three scenario-building workshops had participatory processes involving between 10 to 20 participants mainly from the public sector but did not include residents. They used mostly qualitative methods, were hermeneutic and their purpose was inquiry driven.

The three workshops took different directions and produced knowledge on different tendencies of sub-drivers for water governance rather than producing an overall scenario. At the first discussion, the group identified sub-drivers that influenced current and future water governance in Guarulhos, including urban growth, urban form, economic development, environment, sanitation systems and planning/management. The participants, both as a group and individually, then re-evaluated these sub-drivers' likely positive, negative or neutral influences on water governance, reaching consensus. The participants were generally more pessimistic about macro-scale processes (such as urban and economic development) that are largely beyond the control of the municipality's management capacity. Sub-drivers linked to planning and management and dynamics within the municipality were more positively evaluated. All participants were very optimistic about the current instruments and elements in place to facilitate broader participation and inclusion and expected this to remain a very positive tendency. Steps towards better regulation or legislation have also led to progress in land-use regularization and towards initiatives such as the water-charging system. These stem from a growing awareness among the population and decision-makers of the need to preserve water resources. Although there is a growing concern regarding water, there is scarcely any discussion of climate change. Participants considered issues that have a more direct and visible impact (urban growth, large infrastructural works, etc.) much more relevant in water governance. It is somehow surprising that during the workshops ecosystem or biophysical vulnerabilities related to water were not mentioned as very important, while in 2014–2015 Sao Paulo was faced with the worst drought in 80 years and reservoirs were below 10 % of capacity, leading to major water control and restriction in Guarulhos and the metro region as a whole.

10.4.4 Scenario Building in a Metropolitan Municipality: Durban, South Africa

Durban, a regional hub in South Africa with a population of 3.6 million, is a 'Sprawling metropolis' in terms of archetype, though with 41.8 % of the population living in poverty (Sutherland et al. 2014). Durban is considered a leader in both water provision and climate change adaptation strategies, implemented by effective department heads who are part of a strong and relatively autonomous municipality. Driven by both economic and environmental concerns, the eThekwini[1] Water and Sanitation Unit uses alternative forms of basic service provision beyond the Urban Development Line (UDL) – a boundary that differentiates between the urban core and the city's rural periphery. A spatially differentiated service provision model ensures that all inhabitants have access to basic water and sanitation services,

[1] eThekwini Municipality is the official name of the administration that encompasses the city of Durban and a number of smaller settlements and rural areas.

with the poorest people receiving this free. This has remedied the large backlogs in water and sanitation provision as a result of the apartheid legacy but faces critique from civil society organizations and communities who see it as reinforcing inequality.

Unlike the previous three cases that focused on water, the scenario-building process in Durban addressed water governance through the lens of urban development, specifically focusing on the future of the UDL. The approach was normative. Through a single scenario-building workshop, which emerged from ongoing engagement between multiple actors around water governance and the UDL, the aim was to debate the UDL in eThekwini Municipality. The workshop explored the likely effects of good and poor implementation of the UDL concept as a spatial governance/planning tool on achieving economic development, social equality, environmental management and good governance goals. The 25 participants in the scenario-building workshop were selected to ensure representation from local and national government officials (from the water sectors), planning and environmental consultants, and large-scale private-sector developers. A team from the School of Built Environment and Development Studies at the University of KwaZulu-Natal planned, designed and conducted the scenario-building workshop in partnership with a leading environmental consultant, who has a well-established relationship with the municipality and a history of engagement with municipal policymaking. Although participatory in nature, the model was more in the form of a think tank.

Participants had access to quantitative data, but their scenario-building discussions were mostly qualitative. The first set of drivers that underpin the need for a UDL concept was drawn up by the scenario-planning team from secondary data, research reports, policy documents and the Spatial Development Framework prior to the workshop. These included protection of agricultural land and ecological assets/environmental services for supporting rural and peri-urban lifestyles as well as broader city-wide benefits, management of settlement patterns, financial sustainability of infrastructure and servicing based on spatially differentiated service provision and promoting densification to address urban sprawl. The workshop raised new elements which included a resilient, efficient and sustainable city in the long term, urbanization and influx of people, peripheral land-use change driven by declining agricultural returns, values, an increase in economic, social and environmental risks and the importance of topography.

This scenario-building process was ‘strategy-driven’ in nature. The four scenarios associated with different levels of economic growth and the governance of the UDL were assessed in relation to the goals of the Municipality stated in eThekwini’s Integrated Development Plan (eThekwini Municipality 2014). The results indicated that governance (in this case effective management of the UDL) is the deciding factor as to whether the city can achieve its goals, both in a high or low economic growth scenario. Far fewer goals are achieved if the UDL is poorly managed (see Figs. 10.3 and 10.4). The provision of basic services, including water and sanitation, meets consumptive needs and can therefore not deliver economic growth. This reveals the high level of state intervention needed in the provision of basic services.

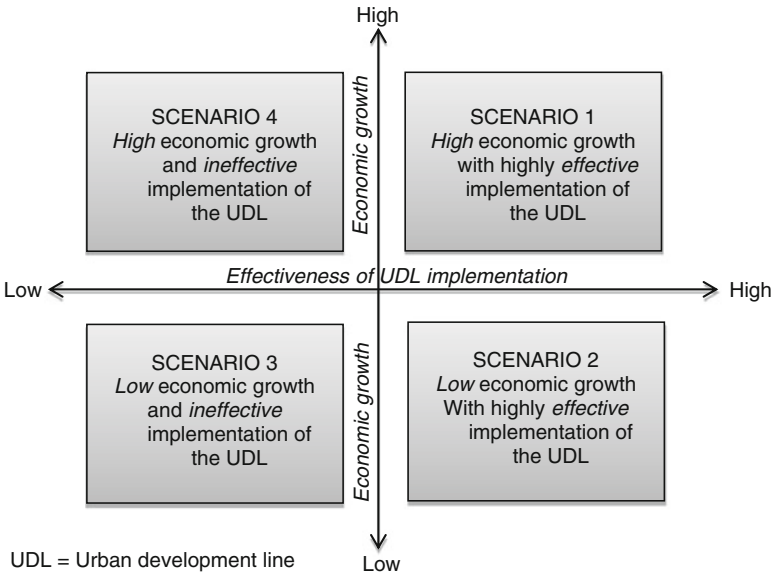

Fig. 10.3 Four scenarios for UDL in Durban

10.5 Reflections on Scenario Building as a Process and Tool in Urban Governance

All four scenario processes offered an interdisciplinary framework of analysis of complex problems, provided tools to communicate information simply and raised awareness on intensifying problems. In Guarulhos and Dwarka, climate change impacts on local water supply were considered extraneous. In 2014–2015, a year after the workshops were completed, the state of Sao Paulo suffered an unprecedented drought. If the scenario process had been held in that period, it would probably have had a greater sense of urgency, and climate change would probably have been considered important. To what extent and which emergent problems are taken up thus may depend upon local settings and contingencies of the process, its participants and their knowledge. All four processes offered participants the opportunity to learn and led to an integration of different knowledges. Although diverging perspectives were present in all processes, only in Lima, where the processes were most intensive and took more than two years, the integration of worldviews and epistemologies took place. The Lima process was strongest in challenging the status quo; the process in Dwarka, where actors were brought together for the first time to discuss the pressing issue of water scarcity, also challenged the status quo. Only in Lima did the participants have a real chance to engage in policy development and to agree on a course of action, culminating in Lima's climate change adaptation strategy,

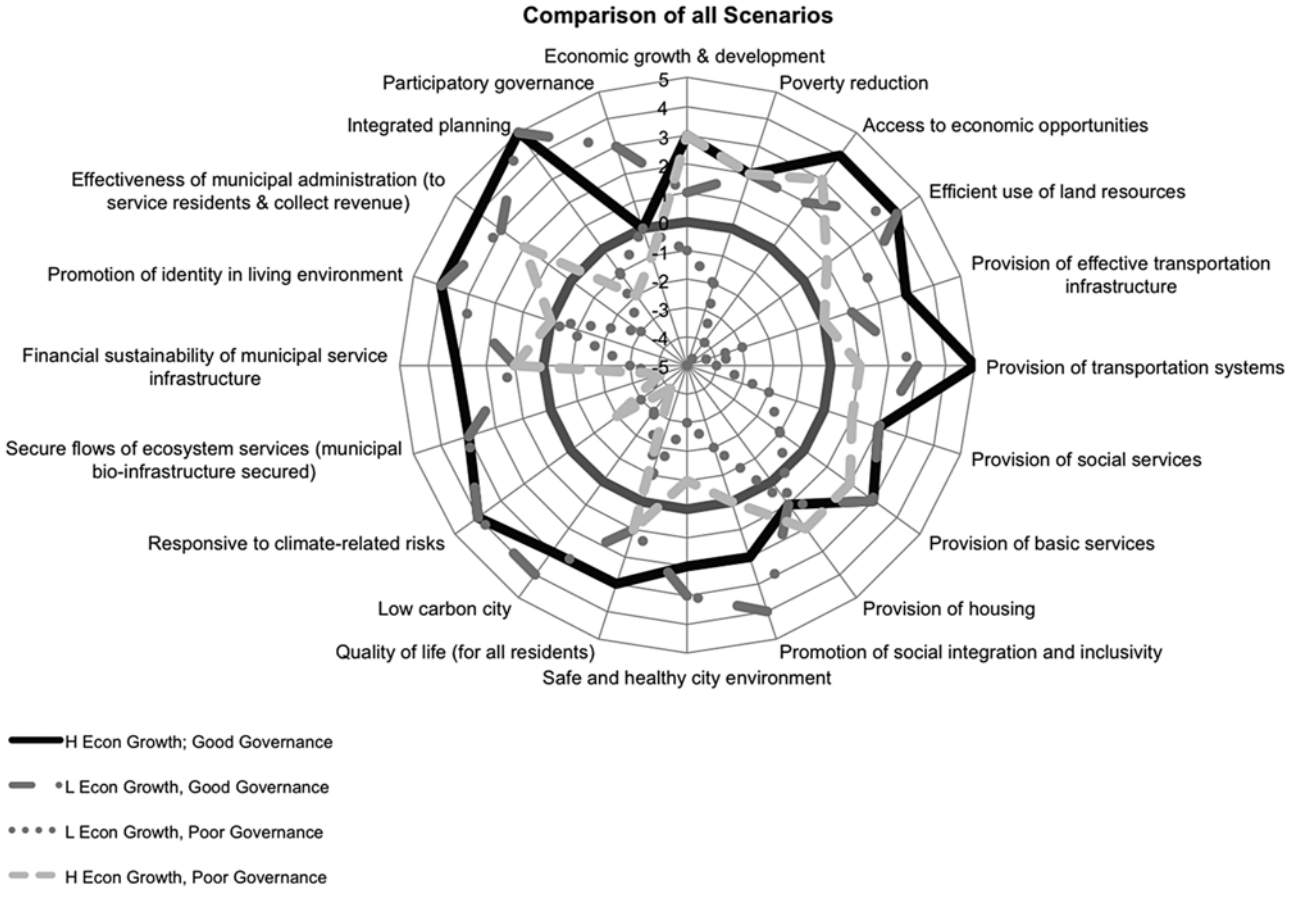

Fig. 10.4 The performance of four scenarios to achieve municipal goals in Durban. Note: Participants rated the influence of a certain factor in a certain scenario on the ability of the municipality to achieve its goals. (+5 high potential, 0=zero potential, −5 high disbenefits). Although scenario 1 scored best (average: 3), scenario 2 scored just a little lower on achieving the municipal goals (average: 2.7), whereas scenario 4 scored only 0.25 on average. This shows that governance really matters

which was approved in December 2014 when the twentieth Conference of Parties (COP20) was held in Lima. Yet even in this case, public engagement (if understood as also incorporating the public at large) was limited when compared with the input of key actors and experts.

In all four cases, the nature of urban governance was a key driver, which aligns with the outcomes of the Shell scenarios. However, it is less easy to characterize the case study cities in terms of centralized (Mountains) or devolved power (Oceans) in urban water governance. The only clear-cut case is Durban, where a small group of experienced leaders in a close-knit network with academia and consultants have shaped water provision and climate change adaptation strategies. Durban is transparent with its data (a great deal of the municipality's information, e.g. on water and sanitation services, environmental planning and climate change protection, can be found online); however, information and knowledge flow readily in this network of experts who adopt a managerial approach in engaging with the public at large (Sutherland et al. 2014). The city is governed top down, in a technical and managerial manner (see Chap. 7). This does not lead to the rigidity foreseen in Shell's Mountain scenarios but to a spirit of experimental learning and innovation (Sutherland et al. 2014) driven by strong leaders in the provision of water and sanitation and the municipality's climate change adaptation strategies. Furthermore, Durban is a powerful municipality, which strengthens its capacity for implementation, within the frameworks imposed by national and provincial government policy and legislation. In this context, testing the relevance and use of the UDL as planning instrument strengthened the implementation capacity of the municipality.

This is different for Dwarka and Guarulhos, which both exist and function under the umbrella of a megacity, namely, New Delhi and Sao Paulo respectively. A disconnect between the affected cities and decision-making bodies for regional resource distribution, such as water, was clearly noted in Guarulhos' participatory governance culture; power is devolved in various degrees to ordinary citizens in many forums such as the participatory budget and municipal councils (urban development, health, education, environment, etc.). However, given Guarulhos' position on the periphery of Sao Paulo and that many decision-making powers related to water are taken at state level, participants experienced many possible policy measures beyond their mandate. This was even stronger in Dwarka, where residents experience negligence of state governmental bodies in their 'sub-city'. Lima, on the other hand, is a capital, where national powers (ministries) and municipal actors are concentrated, and governance is centralized. Yet, water for the metropolis comes from four basins, involving three regional governments, hence the importance of the association of regional governments for Lima's optimistic scenario (see Table 10.4). Geography in terms of relative location vis-à-vis a power centre or a relevant resource, and territory therefore matter.

The two strategy-driven scenarios (Lima and Durban) have had an impact, translating into a policy to which many actors have contributed and are thus committed to in Lima and enabling different sectors within the municipality to rethink the UDL in relation to each other and their mandates in Durban.

The scenario process in Durban had an impact thanks to its focused nature (testing a planning instrument) and its participation being limited to those directly involved. In Lima, the process was, however, long and unusually intense in terms of numbers of meetings and participants. From inquiry-driven processes, no such impact can be expected, because impact requires continuous commitment to the course of action agreed upon by actors involved, also after scenarios have been developed.

10.6 Conclusions

This chapter demonstrated that scenario building is a process and tool that can support urban governance. It has potential but also associated challenges. Scenarios can offer an interdisciplinary framework for analysis of complex problems, inclusion of different types of knowledge and generate insights. Yet the quality of the scenarios depends on the capacity and knowledge of the participants in the process. A highly participatory process does not necessarily guarantee high-quality scenarios. Participants experienced difficulties, for instance, in distinguishing drivers from the factors municipal governance can influence. Participatory processes are also time consuming. The scenario process that lasted longest (Lima) had most impact. Yet it can be challenging to bring all the relevant stakeholders to one platform repetitively to discuss and confront the various socio-economic constraints of the governing system. The Durban case showed that even a single-event scenario-building process can have an impact. This is important in municipal settings where municipal officials, politicians and community actors have limited time to engage in such processes due to the pressing day-to-day challenges they face. But this 'single event' evolved out of ongoing engagement; hence here the time investment was prior to the scenario process. Expert-led and/or normative scenarios that provide municipal officers with concrete policy options can be more useful when the goal is improving policy instead of creating engagement and commitment. This also raises the question if it is possible to have an all-inclusive scenario-building approach to deal with all issues of urban governance for future sustainable cities, particularly in large democracies and complex systems. Scenarios can be an important tool in urban governance, yet the questions at whose initiative, how and for what purpose they are undertaken need to be addressed critically at the beginning of the process, to weigh whether the investment it requires in terms of time, knowledge and money is justified given the impact expected.

Acknowledgements The authors wish to thank Ed Dammers and the editors for reviewing this chapter, Isa Baud for her guidance, Nicci Diedrichs for conducting the Durban scenario workshop and all who supported and participated in the workshops. EU funding of the Chance2Sustain project (Project no. 244828) is acknowledged.

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Part III
Epilogue

Chapter 11
An Inclusive Development Perspective on the Geographies of Urban Governance

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Abstract Urban governance in cities is shaped by, and shapes, global discourses. These discourses shape the discussion of how governance should be organized, what forms it takes, what kinds of governance instruments, methods and data are used and what urban governance practices may look like. Much of this is presented in gender- and place/space-neutral, objective language and complex scientific jargon, which obfuscates the highly political nature of the shifts in governance and associated governance theories, instruments, methods and practices. It is assumed that these dimensions can be scaled up and down and transferred to different contexts. Close examination reveals, however, that many of these are being used in the service of the most powerful, while the shift from government to (network) governance creates the illusion of empowering all. In practice, accountability, legitimacy, legality and equity are compromised as the most powerful actors influence the governance process. In the process, public goods and services are being privatized; infrastructure developments relocate the poor and serve the rich; market/economic instruments are replacing regulatory ones; big data and maps can be used manipulatively; and network governance and participatory processes may be more disempowering than empowering. This chapter argues for a deconstruction of discourses, theories, instruments, methods, technologies, practices and outcomes to ensure that these are used in the service of human well being and their ecosystems. This deconstruction should build on an understanding that place specificities are highly relevant and that urban governance is situated in a produced space. Moreover, cities and urban governance do not operate in a vacuum but are related to and intertwined with processes at other scalar levels.

Keywords Inclusive development • Geographies of governance • Governance theory • Governance networks • Smart city

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J. Gupta et al. (eds.), *Geographies of Urban Governance*,
DOI 10.1007/978-3-319-21272-2_11

11.1 Introduction

Given the growing concentrations of people in urban regions and that cities are likely to be the core locus of activity in the twenty-first century, this book set out to reflect on the state-of-the-art knowledge on the geographies of urban governance. It has argued that urban governance has co-evolved with globalization. Globalization has been both shaped by and shapes developments at urban levels. Cities are embedded in networks, spatial relationships and flows of ideas, goods, services, technologies, transport, communication and people. This means that there is a mutually reconstituting process at the level of discourses and how these play out in the theories, instruments, methods, technologies, practices and outcomes of urban governance. We have argued that globalization (ideological, financial, economic, cultural, technological and scientific) and urban scholarship and policies have co-evolved. Globalization has influenced the shift from government to governance, created new urban connectivities, influenced transnational urbanism and facilitated the digitalization of society and the territorialization and deterritorialization of urban governance. This requires relational thinking to address the increasing processes of poverty, inequality and marginalization especially of minorities, women, children and the elderly; the city's growing ecological footprint and its vulnerability to environmental change; and the issues of security and privacy. We see governance as a geographical process, i.e. in relation to place, space, scale and human-environment interactions. We have tried to understand the commonalities and differences in different parts of the world and the different kinds of influences across different types of cities.

Our chapters review the urban governance literature and related fields to communicate key issues and debates. They cover theories on how place-based multiple actors, actor coalitions and networks engage in urban governance and on how cityscapes (the interaction between urban residents, work hubs, recreation and other civic amenities, land- and waterscapes) are changing. Moreover, they address instruments and methods that are utilized in governance practices. Ostensibly, the changes in cities are progressive/transformative and modern and aim at addressing key social, economic and environmental challenges. However, scratching below the surface reveals that while many of these theories, instruments, methods, technologies and practices are framed as being more scientific, legitimate, inclusive and empowering, they are created and used by those in power. Relationships are being created in which powerful actors may take 'public' goals as hostage to a more nebulous process of governance where accountability can scarcely be demanded and which further marginalizes and excludes the poorest and most vulnerable. Furthermore, the control over governance is 'invisible' when big data is collected by multiple sensors, cameras and the recording of telephone/GPS and other related activity, and the process of participating in providing this information is involuntary. Those who control access to this data then have control over how the data is used and interpreted. If they do not have ground truthing in place, this data can lead to inappropriate policy decisions.

11.2 Discourses and Theories

A key storyline in this book is trying to understand the space, place and scalar aspects of governance. Chapter 2 presents the current state of knowledge on theories of governance and contextualizes them for the urban context. It focuses both on what and who are to be governed as well as who governs and examines how urban governance systems are nested in other governance systems.

We argue that governance is both an analytical and a normative tool. In its analytical incarnation, governance helps us understand how society manages itself, who acts, how, why and for what purposes. From a normative perspective, the shift from government to governance was justified by the way in which it would democratize society and make it less top down. However, by removing state monopoly over governance, other actors gain control over the process. This may simply replace one kind of power (state power) with another kind of power (the power of finance, the power to network and so on). While a primary justification of the state was its role in providing public goods ranging from defence and security to streetlights, education and health services, the new governance actors and networks may not be equally motivated or equipped to provide such public or merit goods. Furthermore, to what extent are they motivated to participate in governance to further their own political, private and personal agenda and use money or influence to control governance processes? To what extent do they try to privatize public goods as a way to increase their own profits?

Governance studies can focus on how actors interact to develop strategies, how they network across time and space to develop governance options and how they form hybrid arrangements (Chaps. 2, 3, 4, and 5). These processes of governing can be both constructive and corrosive as responsibilities, functions, rights and processes of formal and informal systems get entangled in ways that make it impossible to plan for the future. Across much of the social sciences, urban studies, media institutions, ICT entrepreneurs and think tanks, one hears repeatedly how the network is now the preferred mechanism of governance from the micro to the global level. Networking is considered the better mode of structuring authority and governance between the economy, the state and civil society, enabling innovation across these spheres (Fuchs 2009; Fisher 2010; Davies 2012). However, the actual functioning of such networks and their benefits for better cities remain understudied (Chap. 4). Furthermore, network governance and its study tends to flatten complex political relationships into two-dimensional diagrams.

Even concepts such as good governance that are seen by some as emancipatory because of their focus on the rule of law, accountability, legitimacy, legality, equity, effectiveness, responsiveness and efficiency are seen as either inapplicable to governance (e.g. who can you hold accountable in governance and to what; what criteria ensure the legitimacy of a nebulous process) or being manipulated to serve specific interests of the most powerful through, for example, an almost exclusive focus on efficiency or reducing the above concepts to universal targets and indicators that do not take space- and place-based issues into account. Good governance is

largely about how the state can steer governance and its networks, i.e. manage relations with existing networks or change the structure of governance networks (participants, relationships and goals) to keep it at arm's length so that they productively interact with (add value to) other governance networks in line with current social, economic and environmental goals (Chhotray and Stoker 2009). Carried to the logical conclusion, this also involves creating networks through the injunction, invitation or nudge to participate, collaborate and network (Chaps. 3 and 4). Contemporary statecraft, in terms of regulation, then is dominated by a mandate to enable and create markets and enable (steer) and create networks where possible (c.f. Fisher 2010). But creating such networks, which originate from ideals of good governance, may in itself lead to situations where they are actually not accountable or legitimate, but transitory and self-serving. Globally, there is a huge rise in urban networks and programmes such as Metropolis, UN-Habitat, the Global Compact Cities Programme and C40 in urban governance (see Chaps. 4 and 5). City networks are an important tool for enhancing collaboration between urban networks globally. In the large descriptive literature on global urban networking, the current tendency is to assume that generalized networking is positive and increased connectivity through web-based interchange is making a significant difference to enhancing political engagement. Globally accessible websites and global newsletters outlining the latest and best practices may be useful, but their effectiveness in practice and their ability to change paradigms is yet to be proven. Chapter 4 inquires into the role of degrees of interaction and relational integration in the efficacy of work in the field of urban sustainability. More specifically, it asks what kind of knowledge is being exchanged, formed and distributed in networks and to what extent these multiple knowledges are being acknowledged. It illustrates the importance of different forms of interaction and knowledge in assessing the benefits of global urban networks for creating sustainable and inclusive cities. Being part of such a network increases the chance of accessing particular forms of knowledge and implementing policies as is the case of city networks working to address the problem of climate change.

Globalization has changed the geographies of urban governance as multiple co-existing relationships now affect urban governance: those with the rural hinterland, provincial to global governance processes, and horizontal and diagonal networks that criss-cross the global landscape. In Chap. 5, we examine the urban-rural landscape more closely and show that urban transformation will have economic, social and ecological impacts on the peri-urban fringe and rural landscape. Meeting the demand for land, food, energy, water and timber means an increasing pressure on biodiversity and other environmental services and competing claims on natural resources. Pollution and the emission of greenhouse gases will affect climate change and climate variability far beyond the city. The challenges ahead call for synergies between policies that seek to enhance food and water security, and the resilience towards climate change. Such a synergy stretches governance across scales and beyond urban boundaries (Bulkeley and Betsill 2005) and takes account of both problems and opportunities of urbanization for the transition to sustainability (Seto et al. 2010). By going beyond issues of urban design, reconciling the brown and green agenda, closing substance cycles, developing peri-urban agriculture and 'greenbelts', and

examining the impacts of urban expansion on natural areas and environmental services, Chap. 5 takes an integrated landscape governance approach to develop an inclusive perspective on the urban–rural interface. In doing so, it contributes to filling a gap in both urban and landscape governance literature. It thereby builds on the landscape approach, understood as a negotiated, learning- and process-driven approach towards reconciling multiple interacting land uses (Sayer et al. 2013).

11.3 Governance Instruments, Methods and Technologies

Emerging instruments, methods and technologies that influence urban governance are the range of policy tools used by formal and informal actors (see Chap. 6), participatory processes (see Chap. 7), geo-technologies for producing and managing spatial knowledge (see Chap. 8), big data (analytics) and the smart city concept (see Chap. 9) and scenario development (see Chap. 10).

The literature shows a range of governance tools that can be used by state and non-state actors to try and create better cities, each with their own pros and cons. Functionalists often present governance instruments and methods as neutral tools to address social and environmental problems, but these instruments are extremely value laden. The choice of the instrument (regulatory, market, persuasive or voluntary) or method (e.g. poverty mapping) already embodies a specific definition and framing of a problem – private or public good – and may have differential impacts on urban residents. It may also disrupt or ignore existing informal relations and governance practices and deliberately or involuntarily further marginalize the poorest. We should therefore be cautious at taking governance instruments and tools (e.g. maps) at face value and examine how these instruments are chosen and why and what their place-specific impacts can be (Chaps. 6, 7, 8, 9, and 10). In fact, many of the best practices with respect to these governance instruments are developed in cities of the global North where populations are stable, a certain average income level has been achieved and governance systems are fairly well developed and stable. Scaling up and transferring these best practices to cities of the global South, which are characterized by growing rural-urban migration, low average income levels that mask the huge differences between the rich and the poor, where governance systems are yet to become stable and vastly different contextual circumstances exist, may not lead to the kinds of theoretically anticipated outcomes. They may instead lead to counter-productive effects in specific contexts.

A key procedural instrument is participation in urban governance. This raises questions such as who invites, who can be a participant, the various ways in which participation is organized and how these ideas are dealt with in the different strands of participatory literature. Chapter 7 focuses on the role of participation as the magic bullet or the new tyranny in urban governance. It covers the literature on participation theory and methods and recalls differences in participation theory and practice in rich and poor countries. It focuses on participatory practices in Peru, Brazil, South Africa and India, using the distinction between closed, invited and

claimed spaces as an analytical lens and discussing the rapidly increasing importance of judicial action as a third form of participatory space.

Here too, the key message that emerges is that while participation and tools like participatory budgeting may be empowering, the question is whether it is possible to use this instrument for deliberative democracy and transformative purposes, and the extent to which these can be scaled up to metropolitan level. Participation can be used instrumentally and symbolically, leading to manipulation of local actors. The design of closed, invited, claimed and negotiated space is critical for ensuring that participation is emancipatory. However, recent work also shows that participation is not always necessary – especially where structured problems are being dealt with which require single-loop learning (fixing errors by improving routines, see Pahl-Wostl and Hare 2004; Armitage et al. 2008). But when triple-loop learning is required (transforming underlying norms, values and governance protocols) to deal with wicked unstructured problems, participation may not always lead to short-term solutions. This does not make it less important; it just emphasizes that discursive approaches towards wicked problems may take a very long time (Hurlbert and Gupta 2015).

Governance instruments including participation should build on scholarly knowledge to be truly effective (see Box 6.1). Amongst the various tools of scholarly knowledge, geo-technologies are becoming increasingly important. Chapter 8 examines the variety and nature of geo-technologies and their role in influencing urban governance processes with respect to economic, social and environmental issues. Examples are the development of GIS-based grievance redressal systems to provide a means for receiving citizen feedback on the quality of urban service provision; facilitating access to the cadastre or other types of urban information by means of online services; the creation of GIS maps to identify and visualize target areas for policy formulation; or the application of simulation models to better understand urban dynamics and human behaviour. In doing so, the chapter critically analyzes the kinds of knowledge produced, used and exchanged in relation to human well being, economic development and environmental sustainability and justice and how the geographical context shapes spatial knowledge production and use in urban governance processes. Geo-technologies are powerful means for developing spatial knowledge for moving towards inclusive urban development (Roche 2014). However, Chap. 8 warns that maps, models and information systems have embedded assumptions (Harley 1989) and can both invade the privacy of individuals as well as may have serious exclusionary effects in society (Elwood and Leszczynski 2011).

Increasingly, the amount of data available may make a city ‘datafied’. Such data is considered as essential to govern the city more progressively. Chapter 9 critically assesses the competing definitions of big data – relative data which is larger in scope and scale (Taylor and Schroeder 2014) and born digital data which is created by digital technology (Borgman 2014). It argues that the relative definition accounts for, and allows comparison of, technological differences between countries. It examines whether such big data can provide better and more useful information for

governance in comparison with predecessor systems such as GIS and spatial data infrastructure. They all face challenges of ground truth (Pickles 1995) being more 'the God's eye view' (Pentland 2011), despite their ability to provide place and time details. While big data is a logical progression towards greater quantification and digitalization of government and governance, the question is whether it can live up to the claims currently being made with respect to reducing inequalities, increasing economic growth or creating smarter cities or whether it replicates existing problems of data collection, analysis, interpretation and representation on a new scale. The sheer volume, velocity and variety (Laney 2001) of data in itself does not guarantee that it is truly representative of what happens within the city, that it has a good contextual feel of the city, that it is a just representation of power reflected through the data that is collected, and that it can really be used without critical scrutiny for achieving goals.

With globalization, we now not only have information about the past, we have vast amounts of information about future trends. Modern cities will have to take the past (e.g. path dependencies), present (e.g. social priorities) and future (e.g. social and ecological trends) into account in policy processes. Scenario making is a tool for planning for the future. It can be based on quantitative, qualitative, participatory or hybrid methods that combine the previous types. Such scenario processes can be useful for visualizing possible, probable and desirable futures and for developing policies to shape the direction towards preferable futures. Chapter 10 examines the application of scenario building as a governance tool which is increasingly being used in thinking about urban futures. It discusses the whys and hows of place-based scenario building as well as the appropriate methods. It critically assesses its potential and limits, drawing on experiences in Lima (Peru), Guarulhos (Brazil), Durban (South Africa) and Dwarka (India). It argues that the differences noted in the process and outcomes of the scenario-building approaches are important indicators of underlying socio-economic and political contexts influencing urban governance at present that are likely to continue in the near future. Although several efforts have been undertaken to standardize methods of scenario building, the four case studies show that the use of scenario development and how to carry it out depends on the local context. Overall, it not only helps to understand the varied forms of water and development issues, but scenario processes are iterative processes to incorporate lessons learned across different nations and encourage the participation of various stakeholders. Based on the case studies, recommendations have been formulated on how to use scenario building in urban governance as well as issues related to other fields. While the cases presented in Chap. 10 focus on the degree to which they can empower, global scenarios such as those of the Intergovernmental Panel on Climate Change (IPCC) have in the past been questioned for the way they shape responsibilities for the future. Parikh (1992: 507–508) was so upset with these scenarios that she protested in the scientific journal *Nature* that "considerable fat is permitted in the reference scenario itself; these cuts mean no sacrifice to the North […] the stabilization scenarios of IPCC stabilize the lifestyles of the rich and adversely affect the development of the poor".

11.4 Inclusive Development and the Geographies of Urban Governance

The various chapters illustrate that neoliberalism and capitalism are the dominant discourses, operating globally and at the urban level. This is both leading to greater inequality between people (Oxfam 2014; Piketty 2014) and contributing to the great acceleration in extracting resources, damaging our ecosystems and reducing our ecospace. This book has shown that whereas governance, network governance, policy and governance instruments, participatory instruments, geo-spatial and big data and scenario exercises may ostensibly aim at being gender, space, place and class neutral, empowering and 'good' governance, in fact this all depends on who is using the instrument, how, for what purpose and in which context.

Hence, we argue that inclusive development is a discursive approach that can counter the dominance of neoliberalism and capitalism. Inclusive development has three dimensions (Gupta et al. 2015). First, it focuses on the poorest and most vulnerable (including women, children, indigenous people and slum dwellers) and addresses persistent power imbalances. In the context of the geographies of urban governance, inclusive development implies that scholarship and related policies focus on local marginal and vulnerable groups and how urban governance shapes and reshapes the spaces within which these groups operate, and the associated scalar dimensions.

Second, inclusive development in the context of the Anthropocene implies building on ecological standards and principles. It tries to understand how these standards can be used to produce a certain ecospace and how this ecospace can then be equitably shared between people at multiple levels of governance. In the context of geographies of urban governance, this requires the sharing of rights, responsibilities and risks across temporal, jurisdictional, spatial and other scales. At a temporal scale, this implies that path dependency and future generations are taken into account and that horizontal and vertical fragmentation should be overcome at the jurisdictional scale (see Sect. 5.4). In terms of spatial scales, this implies:

- At the local level: the sharing of green and open spaces, local water and energy resources and the equitable location of waste landfills and incinerators;
- At the urban-rural level: an understanding of the two-way flows in such a way that the drivers of human environmental degradation are identified and the rights, responsibilities and risks with respect to ecospace are equitably shared by urban and rural communities;
- At the urban-national level: an understanding of the nested ecosystems and how the rights, responsibilities and risks associated with national ecospace are shared equitably;
- At the scale of the urban-transboundary river level: an understanding of how urban locations on transboundary rivers need to equitably share the ecosystem services that the river has to offer with other riparians of the river basin;
- At the urban-global level: that responsibilities for reducing greenhouse gases have to be adopted in a differentiated manner and cities need to also become

resilient as a whole including their peripheries and slums to the possible impacts of climate change.

However, our scenario studies indicate that many local residents in some cities in the global South are less aware of the social-ecological issues than in other places and that there is considerable work required to create broader awareness of these issues and their role in metropolitan governance.

Third, an inclusive development perspective requires a relational understanding of the power politics embedded and often hidden in discourses, networks, instruments, methods and processes. This implies a closer examination of how spaces of urban governance, of possible networks of inclusive development and of relevant communities of practice are being produced, and how they operate in specific cities in the global North and global South.

In this context, we note that the United Nations is aiming to adopt Sustainable Development Goals (SDGs) in 2015. Comprehensive goal setting at UN level is of relatively recent origin with the Millennium Development Goals adopted in 2000/2002 as the precedent. Goal setting at global level serves two purposes: it aims to create a common broad discursive agenda for everyone in a globalized world aiming at inclusive and sustainable societies and, more importantly, it counters the dominance of the neoliberal agenda and its exclusive focus on growth-based economies. The proposed goals have simplified targets, but it is expected that each jurisdictional entity will shape its own targets and indicators based on their contextual circumstances. One of the proposed goals aims to "make cities and human settlements inclusive, safe, resilient and sustainable". The inclusiveness in this goal is translated into 11 broad targets. The SDGs' emphasis on inclusiveness, resilience and sustainability is one that we endorse strongly. The key question with the SDGs, as with the MDGs, is whether once these broad goals and targets are translated into indicators and instruments, they become so 'flat' and meaningless that the substantive emphasis in the goals are *de facto* not met. Our book has shown that there is a range of ideas about governance, good governance, networks, instruments and participation available. However, how these are designed, by whom and for what purpose will actually lead to a determination of whether these broad goals will be implemented and achieved. Overall attention for the specificities of place, for how the space of the SDG implementation is being produced, and understanding the importance and role of scale and levels is crucial. Insights from our book may help identify the ways and means to make these goals a reality.

11.5 Conclusion

This book has deployed a geographical perspective on governance, focusing on the importance of place, space, scale and human-environment interactions. We bring forward the relevance of the situated context of place in relation to governance theory, instruments, methods, technologies, practices and outcomes. Scenario

planning, for example, assuming collaboration among multiple actors, shows that the process through which scenarios are built is shaped by local political systems (see Chap. 10). While bottom-up participation in such processes is self-evident in Peru, known for its *concertación* processes (Miranda Sara and Baud 2014), in areas with more hierarchical governance layers such as in Indian cities, it is more challenging to bring different actors together at the same time and place (Pfeffer et al. 2011). Plans to implement the smart city concept, or its actual implementation, are illustrative of how specificities of place influence the way in which the concept is being rolled out (see Chap. 9). Availability and accessibility of digital information as well as the means to develop financial systems are but two of these specificities. As in New York, in Amsterdam the smart city concept implies the integration of several (digital) processes and tools across the city, whereas less-resourced cities in the global South such as Abidjan or Kampala are more concerned with the creation (and then integration) of the base information for governing the city (see Chaps. 8 and 9). Transferring ideas from one context to another or policy mobility is dependent on local contexts. Concepts such as scenario building, market mechanisms, stakeholder participation and smart cities all take different shapes in different contexts, and their outcomes are therefore also different. The relevance of place in governance theory is made explicit by means of the 'ordinary city' concept (Robinson 2006) in which universal urban transformations are perceived in the light of local and historical political and social-economic pathways (see Chap. 2). We underscore this through our cases in the global North and South.

Spaces of governance such as those of networks (see Chaps. 3 and 4), urban-rural regions and landscapes (see Chap. 5) and those created via governance instruments (see Chap. 6) or participatory processes (see Chap. 7) are constructed and produced through interactions between actors and institutions not necessarily located within the physical city boundaries. Inequalities and differences of power, knowledge and means determine how the urban space is shaped. Interactive governance (see Chap. 2) and governmentality (see Chap. 3) are useful approaches to address this production of space component. The benefits and limits of global urban networks or participatory governance processes are shaped by the space within which these are formed and operate.

Chapter 1 addresses scale by showing the inter-linkages between globalization and urban issues. Chapter 5 addresses the horizontal or territorial dimension of scale. The interaction and interdependence of the urban, the rural and the peri-urban, and the various flows between them, make clear that urban governance does not stop at the city boundaries but goes beyond to influence neighbouring and distant areas. Similarly, urban networks connecting cities to each other and facilitating the exchange of information and knowledge that feed (to a greater or lesser extent) into policies are another expression of this horizontal scalar dimension (see Chap. 4).

Cities are not only shaped by the multiple horizontal layers and linkages but also influenced by the multiple governance layers as governance at city level is connected to that at sub-city, state, provincial, national and international level. At and across these levels, policies, institutions and regulations and judicial elements are being created which need to be implemented locally. An example is the national

housing programme (RAY) in India requesting local bodies to digitize all informal settlements (see Chap. 8). Moreover, local governments are held accountable to national governments, while large metropolises are major sites where global markets and multinationals meet in forums of political decision-making (see Chap. 6) and where global actors (e.g. the World Bank or UN-Habitat) are active actors in launching local programmes or providing funding. Finally, urban governance is also determined by the position cities have within the political landscape. While capital cities may be closer to national governments and therefore more up-to-date, national governments often take over local mandates (Baud et al. 2014). The book examined current governance patterns from the perspective of inclusive development and aimed to build an understanding of how governance can contribute to the development of just and resilient cities. We believe that the many discussions on governance theories, instruments, methods and practices held in this book provide answers to this.

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J. Gupta et al. (eds.), *Geographies of Urban Governance*,
DOI 10.1007/978-3-319-21272-2