

CITIES AND THE GLOBAL
POLITICS OF THE ENVIRONMENT

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Sofie Bouteligier

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WATER, STATE AND THE CITY

Antonio A. R. Ioris

CITY
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Water, State and the City

Cities and the Global Politics of the Environment

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More than half of humanity lives in cities, and by 2050 this might extend to three quarters of the world's population. Cities now have an undeniable impact on world affairs: they constitute the hinges of the global economy, global information flows, and worldwide mobility of goods and people. Yet they also represent a formidable challenge for the 21st Century. Cities are core drivers not only of this momentous urbanisation, but also have a key impact on the environment, human security and the economy. Building on the Palgrave Pivot initiative, this series aims at capturing these pivotal implications with a particular attention to the impact of cities on global environmental politics, and with a distinctive cross-disciplinary appeal that seeks to bridge urban studies, international relations, and global governance. In particular, the series explores three themes: 1) What is the impact of cities on the global politics of the environment? 2) To what extent can there be talk of an emerging 'global urban' as a set of shared characteristics that link up cities worldwide? 3) How do new modes of thinking through the global environmental influence of cities help us to open up traditional frames for urban and international research?

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Water, State and the City

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Softcover reprint of the hardcover 1st edition 2015 978-1-137-46866-6

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First published 2015 by
PALGRAVE MACMILLAN

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Palgrave Macmillan in the US is a division of St Martin's Press LLC, 175 Fifth Avenue, New York, NY 10010.

Palgrave Macmillan is the global academic imprint of the above companies and has companies and representatives throughout the world.

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ISBN: 978-1-137-46867-3 PDF

ISBN: 978-1-349-50029-1

A catalogue record for this book is available from the British Library.

A catalog record for this book is available from the Library of Congress.

www.palgrave.com/pivot

DOI: 10.1057/9781137468673



This work is dedicated to my grandmother Irma Rohenkohl Ioris, a remarkable person who had an impact on everyone she met and passed away in 2014 during the preparation of this book.

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Series Editors' Preface

This series aims at capturing the pivotal implications of impact of cities on world affairs. What happens in cities not only has local relevance and importance, but constitutes a global reality. Not only because more than half of the world's population now lives in cities, but because cities connect. They connect people, goods, information, resources and much more, acting as hubs of global mobility. The interconnectedness and impact of cities on the global politics of things is at the core of this series, with a focus on global environmental politics.

Antonio Ioris' *State, Water and the City* is an apt beginning for the globally oriented, de-centralising and forward-looking journey this series seeks to inspire. The book is a clear statement on the visceral centrality of water, as matter, fluid boundary and strategic site for the encounter of state formation and neoliberalisation in Latin America, with a keen eye on Mexico, Peru and Brazil. As such, the book embodies the open 'international' and comparative spirit we as editors envisaged as so critical to rejuvenate urban studies and to push for a greater integration of political, urban and environmental research.

In Ioris' case, water serves a critical purpose, not just as matter of fact but as matter of concern for both the political and the urban scholar. As he puts it, water emphasises the politicised and constantly evolving organisation and functioning of the state apparatus, making evident the urban ramifications of developmentalist agendas and of geopolitical subordination underpinning the emergence of Latin America on the world stage. Yet, these international and

political considerations have a deep imprint, and are in turn fuelled and shaped by the dynamics of metropolitan development and the centrality of the 'city' as key ground where new and old global orders play out.

In confronting the chronic limits of water infrastructure, management and provision in Lima, Mexico City and Rio de Janeiro, Ioris offers us a bottom-up, Global South view of the cross-disciplinary nature of this series. Critical is Ioris' conclusion that truly genuine alternatives to the long-lived plague of urban inequalities requires not only a 'critical understanding of the connections between past and present' that testifies to the *longue duree* of both urbanisation and world politics, but also 'between personal and interpersonal attitudes with national and international scales of interaction'. The connection between global political-economic processes, state politics and the urban dweller, whether in relation to water or many other environmental concerns, is ultimately the centre of the complex challenges we need to confront in the age of the city.

*Michele Acuto
and
Sofie Bouteligier*

Acknowledgements

Parts of some chapters were modified from articles previously published by the author and reproduced here under permission: ‘The Geography of Multiple Scarcities: Urban Development and Water Problems in Lima, Peru’, in *Geoforum*, 43(3), 612–622, 2012 (Chapter 3); ‘The Persistent Water Problems of Lima, Peru: Neoliberalism, Institutional Failures and Social Inequalities’, in *Singapore Journal of Tropical Geography*, 33(3), 335–350, 2012 (Chapter 4); and ‘Values, Meanings and Positionalities: The Controversial Valuation of Water in Rio de Janeiro’, in *Environment and Planning C*, 29, 872–888, 2011 (Chapter 5).

The list of those to be thanked is too long to be included here, but certainly it should be mentioned that the initial idea of this book emerged from discussions held during an inter-departmental debate on the Latin American city coordinated by the author when he was a visiting scholar at the University of Denver in the spring of 2011. Further interaction with colleagues took place during repeated fieldworks and visits to various parts of the Latin American continent and in a number of international conferences.

Perhaps it is even more relevant to acknowledge the friendly collaboration and generous contribution of the poor residents in the periphery of the studied megacities, hard-working people who deserve his most *sincere gratitude and our profound respect*.

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State, Water and the Production of the Latin American City

Abstract: *The introductory chapter situates the debate on the Latin American city in the wider historical and geographical perspective of colonisation, nation building, economic development and neoliberal reforms. Because Latin America is a diversified and dynamic region, a critical assessment of large-scale urbanisation offers a helpful entry point into its socioeconomic and environmental complexity. Particularly the achievements and failures of public water services reveal a great deal about the organisation, functioning and politicisation of metropolitan areas, as well as about the commitments and limitations of the state. The chapter finally explains the structure and innovation of the book, especially regarding the nexus between Latin American megacities and the evolving apparatus of the state using the dilemmas of the water sector as a critical category of analysis.*

Ioris, Antonio A. R. *Water, State and the City*.

Basingstoke: Palgrave Macmillan, 2015.

DOI: 10.1057/9781137468673.0005.

It borders a cliché to proclaim that the five centuries of Latin America's existence have been an intriguing mixture of feelings like ambition, obsession and violence blended together with elements of hope, excitement and creativity. At first sight, Latin America appears as a continent rich in wealth and opportunities, and yet wrought with excesses and contradictions. The region's territorial resources – silver, gold, timber, etc. – were the engine of the colonial economy, as much as the export to primary commodities – guano, copper, oil, etc. – and import substitution industries have sustained the post-colonial countries. Yet, vast terrains, containing opulent ecosystems and exotic species, turn up to be also the perfect stage for heroic tragedies enacted by almost implausible characters (from caudillos and generals to left-wing leaders and religious fanatics). The uniqueness of the Latin American peoples and the vitality of their national identities look as the necessary outcome of unparalleled economic exploitation and capricious social encounters. From this perspective, its epic and colourful history seems to saturate every part of the region and is always better interpreted with the help of the extravagant narratives of authors such as García Marquez, Alejo Carpentier or Guimarães Rosa.

However, the elements included in the previous paragraph represent nothing else than an easy and distasteful stereotype. There is no reason to ditch Latin America in a mist of mythology and incomprehension. Simple generalisations can be quite misleading, but it is evident that the Latin American continent is the result of multiple processes of interaction, work and conflict that took place in specific circumstances and in response to local and international pressures. To understand them, it is necessary to engage in context-contingent and comparative analyses that connect scales and encompass both the human and material dimensions with the more-than-human and symbolic or rhetorical components of a highly politicised reality. As any other part of the world, Latin America is a lived space with a long history and dynamic geography. In the extreme, it could even be argued that Latin America doesn't even exist as an area with fixed boundaries and well-defined characteristics. There are certainly numerous countries, catchments and biomes extending from the southern to the northern hemisphere in this westernmost continent, but Latin America lacks clear-cut boundaries, has no precise end or beginning. The space, time and scale of Latin America are blurred in complex constructions that transgress linear explanations. Its history incorporated the pre-American past of European civilisations and of

(so-called) Amerindian nations. Likewise, there is no simple border dividing North and Latin America, given that the latter extends, at least, to the south of the United States or spreads to higher northern latitudes (even to Canada).

There are some elements typical of Latin America that help to shape its individuality and make evident its historical and geographical phenomena. One of the most crucial ontological features of the region is its geopolitical role as an adjunct of the growth and renovation of different phases of global capitalism. The Latin American space has taken shape, for more than 500 years, through the brutal occupation of land (by Europeans of different classes and by different groups of forced Africans forced into labour), the appropriation of resources and wealth, and the selective exclusion or displacement of the locals. The continent, with its intricate dynamics, was inaugurated during the mercantilist expansion put in place by Portugal and Spain, and soon followed by other European powers. It was the main test ground for the affirmation of capitalism as the curtains of the Middle Ages were coming down, as much as it served the neo-colonial interests of industrial capitalism as a source of raw materials and agriculture goods. In the second half of the 20th century, with the apparent crisis of Keynesian economic policies (which was caused by a combination of local and global processes), Latin America became the privileged region for the implementation, since the 1970s, of some of the most radical neoliberal experiments. The present-day mechanics of transnational capitalism means that the exploitation of the workforce can now happen in the core Western nations and in Japan, as more and more areas are now occupied by Latin American migrants.

Therefore, the resulting Latin America's landscape is the long, and still intensively unfolding, dialectics of expansion and constraints, military conquest and political subordination, increasing production and controlled consumption, hegemonies happening at different scales and surprising ingenuities in a singular (but not totally different) convergence of achievements, frustrations and unfulfilled hopes. Latin America is all those things together which meet to form rich cultures, give room for political disputes and the forging of multiple social identities. The past and the present of the continent have been determined by an idiosyncratic amalgamation of global demands and regional drivers of change. Evidently, national developmentalism, neoliberalism and the transition to something vaguely defined as post-neoliberal economy need to be considered by taking into account the local specificities of the

Latin American region and of each country or city. Neoliberalisation is a variegated process of regulatory restructuring that evolves in successive waves without a predetermined direction and with uneven effects (Brenner et al., 2010). The movement towards neoliberalism since the 1970s was not a wholesale brake with developmentalism, as much as the partial and incomplete progress towards post-neoliberalism maintains many of the key features of the two previous regimes of capitalist accumulation. It is important, therefore, to avoid any binary analytical approach, but consider the local contingencies and multiple forms of domination and reaction (Yates and Bakker, 2014).

For sure, neoliberalism has been a very traumatic experience in Latin America (not least in terms of rising prices of residential properties and the privatisation of water utilities) and there is an increasing grassroots attempt to regain control of the markets, pay more attention to social concerns and revitalise citizenship through participation and cross-sector alliances. This emerging agenda of post-neoliberalism combines ideological claims with on-the-ground processes and a range of hybrid mobilisation practices. It is possible to verify adjustments and new policy experiences in Brazil since 2003, in Peru since 2011 and in Mexico since 2000. Both the neoliberal and the post-neoliberal phases are fraught with contradictions, continuities and confusion. Pro-market advocacy and anti-market radicalism were never fully implemented, despite colourful discourses and policy shifts. The compensatory policies of the post-neoliberal governments, including higher minimum wage and conditional cash transfers (as the celebrated *Bolsa Família* in Brazil) have coexisted with the blackmail imposed by neo-extractivism industries and agribusiness (as in Argentina, Brazil and Peru). Also popular reactions have reflected the political vacuum created by the election of left-wing parties put in charge of the administration of perverse legacies and novel mechanisms of capital circulation and asymmetric distribution of opportunities.

The uneven and variegated process of neoliberalisation has become deeply ingrained in the reality of each nation around the world and gradually subverted any easy separation between national policies and international interdependencies. As put by Robinson (2008: 42) the “class relations of global capitalism are now so deeply internalised within every nation-state that the classic image of imperialism as a relation of external domination is outdated.” One of the most perverse consequences of the reformulation and regeneration of neoliberal globalisation in the

last quarter of the century has been the worldwide escalation of income inequality. Market globalisation, regulatory adjustments and liberalisation are key contributing factors to mounting global inequality. The richest 8% of the world's population now earn half of the total income whereas the remaining 92% are left with the other half (UNDP, 2013). The world economy has never been so rich, but still more than 1.2 billion people live in extreme poverty, which is the case not only in southern countries but also in many areas of core capitalist nations. There are economic and non-economic aspects of global unfairness (such as unequal access to health, education, employment and opportunities for political participation) that are both caused and serve to exacerbate poverty. Inequality and poverty lead to tension, spatial marginalisation, violence and social disintegration, especially because these are not only ethically and politically unacceptable, but have also detrimental impacts on economic growth and poverty reduction.

When considering the regional experience, it is interesting to notice that, in a matter of a few years, the neoliberal project had to be adjusted in many Latin American countries, due to a combination of weak performance and grassroots protests, with the introduction of policies and programmes aimed at the mitigation of social misfortunes (e.g. cash transfer schemes, higher minimal wage and better coverage of health services). The result was a transitory decline in the level of income inequality in Latin America between the early 1990s and the early 2000s (e.g. regional Gini index reduced 5% in the period, cf. UNDP, 2013). The countries that attempted to distance more from orthodox radical policies achieved better results, as Brazil produced significant increases in the real value of minimal wages, whereas Peru secured marginal improvement and real wages in Mexico declined. The main question left unanswered by statistics such as these is the viability of such assistentialist policies and the long-term prospects of the existing political and economic situation in those countries (for instance, in 2014 it was possible to see the fast deterioration of the macroeconomic performance of many countries, such as Argentina, and the disturbing weakening of democracy in Brazil, Peru and Paraguay).

The large metropolitan areas in Latin America are key entry points into this overarching complexity. As in other parts of the world under fast politico-economic and sociological transformation (as the currently unfolding events in northern Africa, Middle East and Eastern Europe) those interactions are particularly evident in the urban context. Land

inequality has always been an important driver of conflict, but in recent years clashes related to the gross asymmetries taking place in urban areas have also become common and have had major impacts on national political games. In conceptual terms, the urban questions are right at the centre of the contemporary debate about society, nature and the economy. The 'urban' has become the main sphere of social activity and capital accumulation, but at the expense of an increased division between the different segments of the population and the workforce (Scott, 2008). The urban, as a central analytical category, can be described as an arena of disputes, creativity and confrontation (vide the revolts in the Muslim world in the early months of 2011 and in many other countries in the following years). Especially in Latin America, there are pockets of urban wealth and ostensible affluence amid vast areas of deprivation, overcrowding, pollution and multiple forms of violence (Jones, 2006). This uneven pattern of urbanisation is, ultimately, the result of several decades of national development subordinated to the narrow interests of the middle classes and the small governing elites (Swyngedouw, 1995). Most of all, its large cities encapsulate the key challenges of social cohesion, national politics and the insertion of Latin American countries in the globalised economy. The problems of the vast metropolitan areas have their origin in the long trend of exploitation and negligence perpetrated against society and the rest of nature since colonial times. Current urban inequalities also echo the historical disparities between the rural inland and the fast growing cities. At the same time, the everyday life in the large cities contains manifold types of reaction and strategies to cope with the lack of spatial and social opportunities.

The uniqueness and politicisation of the urban phenomena in Latin America can be further demonstrated by the failures, accomplishments and promises related to public water services. That is recognised even by agencies such as the World Bank (2013), which have invested significant sums of money and sponsored numerous projects and initiatives in the region with limited results. One of the Millennium Development Goals aimed at halving the proportion of the global population without sustainable access to safe water and sanitation. Since 1990, 2.1 billion people have gained access to improved drinking water (which exceeded the official target) and 1.9 billion to basic sanitation, but localised problems and asymmetries across the world remain high (United Nations, 2013). Similarly, the proportion of slum dwellers is declining in the developing world – from 29% to 24% between 2000 and 2012 in Latin

America and the Caribbean – but number of slum dwellers continues to grow (in absolute terms), due in part to the fast pace of urbanisation and the failure of urban planning. The problems of urban water management condense past legacies, present demands and future expectations created by government authorities, particularly through the introduction of new legislation and the facilitated involvement of private companies since the early 1990s (Jouravlev, 2004).

Water management in a Latin American city is one of the best translations of pending domestic needs, questionable management of public funds and the ideological mystification of technologies, projects and strategies. Water circulates and changes through the city, and such movement serves to transgress boundaries between urban locations and to bring more closely together groups and agendas happening in different scales. The distressing and controversial situation of water scarcity in São Paulo in 2014, when the main reservoir ran out of water due to a combination of low rainfall, bad management and lack of planning, is a good example of the politicisation of urban water and the contested formulation of alternatives. Dealing with such major urban problem in the middle of the campaign for re-election meant that São Paulo's Governor Geraldo Alckmin had to square the circle of promoting water savings by the population without attracting additional criticism for the bad handling of water supply services by the state utility (SABESP).

The various concepts and statements included earlier will be extensively analysed in the next chapters. What is being called here the 'urban question' – manifested in multiple forms of inequality related to the distribution of land, economic opportunities and public services, as vividly in the case of water – cannot be properly understood only in terms of insufficient resources or bad planning and administration. There are certainly more disturbing factors behind the apparent lack of public money and insufficient investments. The urban problems persist in time and intensify in space in Latin America because of the perverse, highly contingent synergies between the pattern of development (i.e. the overall socioeconomic structure) and the violent, alienated interpersonal relations and mechanisms of political exclusion (i.e. personal and group agency). As argued by critical social science authors, agency and structure are mutually determined and are both conditioned by, and have an impact on, interdependent factors. Urban evolution and the transformation of water services are both a cause and a consequence of class-based

conflicts, but their primary motivations take place at the local level and reflect politico-economic disputes.

The decisive intervention of the state in the field of water management and conservation happens at the intersection between those different scales of interaction (macro and micro). The state is neither detached from the daily, localised lives nor operates independent of the pressure of hegemonic groups and classes. The state is an integral player in urban processes, an interpreter and translator of new formulas and theorisations, and also a receiver of the impacts of conflicts and interactions. One of the main claims of this book, therefore, is that the urban question, including many water-related issues, is not just a problem *of* the state but it is a problem *because of* the state.

The problems of urbanisation are obviously well known by human geographers, economists and regional planners, among other scholars, but most research has so far focused on tackling urban exclusion and malfunctioning through a largely technocratic, apolitical and superficial investigation. So, what is new and what can be done in relation to such challenging, almost overwhelming, questions? The answer is that this book is an attempt to re-discuss the nexus between Latin American megacities and the evolving apparatus of the state using the dilemmas of the water sector as a critical category of analysis. The intention here is not to be geographically or thematically comprehensive, but simply contribute to the wider debate on the prospects and the politics of urbanisation in the region. That will be done through a combination of a theoretical elaboration and empirical evidences from an increasingly urbanised continent. The main academic affiliation of the study is with the political economy of national and urban development, as well as with urban political ecology and environmental justice. The objective is to offer a reinterpretation of various increasingly important issues, including not only several aspects of the political economy of urban water management, but also an indirect reference to other problematic areas such as housing, labour market, violence, gender issues, waste and pollution.

In order to achieve that goal, the various chapters of the book are internally connected and approach the same questions from different angles. After these introductory pages, Chapter 2 provides a reassessment of mainstream literature on urbanisation, statehood, corruption and urban water management in Latin America. Chapter 3 will show that the dynamics of the Mexican State have been particularly relevant

to understanding the complexity of the connections between past and present and the tensions between local and national demands. That is distinctly evident in the case of the mismatch between fast growth of the national capital and lagging water services, despite important institutional changes and public investments. Chapter 4 will examine the geopolitical role and internal changes of Lima since colonial times and particularly during the period of nationalistic economic policies and the resulting neoliberal reaction to mounting deficiencies. The neoliberalisation of the water sector will be specifically analysed with emphasis on successive government plans and increasingly evident cases of corruption. Chapter 5 will then consider the urban problematic of Rio de Janeiro, a megacity that is highly dependent on massive water transfers. The water problems of the metropolitan region are unevenly distributed across space and society, which is examined in relation to the controversial and contrasting valuation of water. The last chapter briefly summarises the main findings and the academic and non-academic repercussions.

References

- Brenner, N., Peck, J. and Theodore, N. 2010. Variegated Neoliberalization: Geographies, Modalities, Pathways. *Global Networks*, 10(2), 182–222.
- Jones, G.A. 2006. Culture and Politics in the ‘Latin American’ City. *Latin American Research Review*, 41(1), 241–260.
- Jouravlev, A. 2004. *Los Servicios de Agua Potable y Saneamiento en el Umbral del Siglo XXI*. Series Recursos Naturales e Infraestructura No. 74. CEPAL: Santiago.
- Robinson, W.I. 2008. *Latin America and Global Capitalism: A Critical Globalization Perspective*. John Hopkins University Press: Baltimore.
- Scott, A.J. 2008. Inside the City: On Urbanisation, Public Policy and Planning. *Urban Studies*, 45(4), 755–772.
- Swyngedouw, E.A. 1995. The Contradictions of Urban Water Provision: A Study of Guayaquil, Ecuador. *Third World Planning Review*, 17(4), 387–405.
- UNDP. 2013. *Humanity Divided: Confronting Inequality in Developing Countries*. United Nations Development Programme: New York.
- United Nations. 2013. *The Millennium Development Goals Report*. UN: New York.

- World Bank. 2013. World Water Day: Latin America Leads in Water Management but Inequalities in Access Remain. Available at: <http://www.worldbank.org/en/news/feature/2013/03/22/world-water-day-latin-america-achievements-challenges> (published on 22 March 2013).
- Yates, J.S. and Bakker, K. 2014. Debating the 'Post-neoliberal Turn' in Latin America. *Progress in Human Geography*, 38(1), 62–90.

2

The Exclusionary City, Political Statehood and a Thirsty Population

► **Abstract:** *Urban dilemmas represent today some of the most challenging questions for Latin American governments and society. The region is one of the most urbanised in the world and has a significant proportion of its population living in large, chaotic metropolitan areas, including a growing number of megacities. A proper examination of large-scale urbanisation requires a coherent framework of analysis, as discussed in the chapter, able to address metropolitan changes, sociospatial inequalities and multiple forms of interaction and reaction. The key player behind urban transformations has been the state apparatus, which must be understood as a constantly evolving entity, fraught with contradictions and conflicting interests. Water policy-making demonstrates the territorialisation of sociospatial disputes, the diversity of interventions and multiscale agency and identity.*

Ioris, Antonio A. R. *Water, State and the City*.
Basingstoke: Palgrave Macmillan, 2015.
DOI: 10.1057/9781137468673.0006.

Urban Latin America: Questioning a mirror?

Since the middle of the last century, most urban areas throughout Latin America underwent an accelerated process of spatial and demographic expansion fuelled by internal migration, high birth rates and economic intensification, as well as industrialisation and diversification in the larger countries (CEPAL, 2000). The result of sustained rates of urban growth is that Latin America has today the second highest level of urbanisation in the world: 80% against 82% of North America, although both regions have lower rates of large-scale urbanisation than Africa, Asia and Europe (United Nations, 2014). As an important part of the (so-called) Global South, Latin America is now the continent (or region, or even sub-continent) with the largest proportion of the population residing in metropolitan conurbations of over 1 million: 32% of the Latin American population, compared with 15% for Asia and 13% for Africa (Cohen, 2004). And more than 14% of the regional population are found in the growing number of Latin American megacities (ESA, 2009), that is, metropolitan areas with more than 8 million residents (Davis, 2006). Table 2.1 provides an overview of urbanisation and the emergence of megacities in Latin America since the 1950s. The expanding metropolises of Latin America are areas characterised by serious levels of inequality and widespread poverty, which are ultimately the outcome of a long and turbulent process of foreign conquest, elitist national building and violent social differentiation (Székely and Montes, 2006). In 2005, there were 134 million people in Latin America and the Caribbean living in irregular, deprived settlements, which between 1990 and 2005 had an increase of more than 23 million people (UN-HABITAT, 2006). It is estimated that this type of marginalised settlements occupy between 30% and 40% of the regional urban population and are responsible for a significant proportion of the expansion of megacities.

It is beyond doubt the relevance of the urban context as a main domain of production, interaction and conflict in the Latin American continent today. Growing urbanisation has not only created many new opportunities, but also generated more demands and potential conflicts around the management of increasingly large cities. However, considering the existing academic literature, it is not difficult to verify that most references to the problematic, often chaotic, urbanisation of Latin America have been quite superficial and failed to discuss the deep roots of urban inequalities. Passing references to highly complex issues have become so

TABLE 2.1 Demographic Profile of Latin American and the Caribbean (1950–2010)

Indicator	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010
Rural population (thousands)	98,080	104,806	111,311	117,829	123,013	126,929	129,497	131,074	131,267	129,998	127,807	123,866	119,892
Urban population (thousands)	69,227	86,790	108,341	134,375	163,459	196,394	233,158	271,029	311,042	352,267	393,420	432,646	468,757
Percentage urban (%)	41.4	45.3	49.3	53.3	57.1	60.7	64.3	67.4	70.3	73	75.5	77.7	79.6
Population in megacities (thousands)	0	0	0	0	0	10,690	25,099	27,504	40,601	54,087	57,771	61,300	64,747
Megacities as part of the urban population (%)	0	0	0	0	0	5	11	10	13	15	15	14	14
Indicator	1950–55	1955–60	1960–65	1965–70	1970–75	1975–80	1980–85	1985–90	1990–95	1995–00	2000–05	2005–10	2010–15
Rural annual growth rate (%)	1.33	1.2	1.14	0.86	0.63	0.4	0.24	0.03	-0.19	-0.34	-0.63	-0.65	-0.64
Urban annual growth rate (%)	4.52	4.44	4.31	3.92	3.67	3.43	3.01	2.75	2.49	2.21	1.9	1.6	1.38

Source: ESA (2009).

common that it is almost tautological to mention the trend of inequality and polarisation in the Latin American megacities. For instance, urban communities are often described as a unified, idealised category, while in effect the city is an embodiment of difference and politics (Young, 2010). It is not unusual also to find graphic images of wealthy neighbourhoods side by side with miserable dwellings and irregular houses in shanty towns as in the case of the Brazilian *favelas*. These are part of the prevailing 'middle-class attitude' towards the poor that dominate the public debate through the depiction of a nostalgic, apathetic low-income population (Lloyd, 1980). Likewise, allusion to escalating levels of waste and water pollution, poor public transport and pervasive violence are all well known, but little is said about the connections among local disputes, metropolitan malfunctioning and national development. As a result, the banalisation of urban dilemmas makes the identification of the main causes and the formulation of concrete, inclusionary alternatives more difficult. Furthermore, the most perverse consequence of the now commonplace interpretations of Latin American urban questions is that it has been easier for politicians and policy-makers to maintain the debate and the responses within the narrow boundaries of technocracy and conventional development.

The mainstream responses to mounting urban challenges, as articulated by the political elite, have concentrated on the supposed reconciliation of the economic function of the city with its social and administrative purposes. The emphasis, especially during the Keynesian-informed development policies of the post-World War II years, was on additional investments needed to improve the efficiency of services and public utilities. With the declining appeal of nationalistic and developmentalist strategies since the monetary crisis of the 1980s, the Latin American states were expected to amend their procedures in order to both address past legacies and create more space for market-based alternatives (Ioris and Ioris, 2013). Programmes advanced by multilateral agencies, such as the World Bank or the Inter-American Development Bank, incorporated the language of social inclusion and public participation, as long as it is achieved through the guarantee of business liberties and the connection of the local urban context with globalised markets. Those types of initiatives, directly influenced by the neoliberalising paradigm, typically called for technocratic solutions along the line of public-private partnerships (usually financed by public funds and with many safeguards offered by the state), integration with global economic centres, lower transaction

costs and the pursuit of smaller state apparatus. The best translation of the combination of (abstract) social inclusion and (concrete) market exclusion under neoliberal pressures has been the discourse of governance and integrated planning (see later).

From a social sciences perspective, when considering the above-mentioned evolution of urban issues, it is possible to identify many phenomena that are characteristic to the contemporary city and require specific theoretical and methodological treatment beyond the realm of conventional economic and urban planning (Saunders, 1981). The first main task is to connect the scholarly work done in Latin America with the rich debate on urban trends and prospects taking place in other parts of the world. A lot has been said and published about the crucial importance of the urban for contemporary society and about the complexity and the repercussions of urbanisation. On one side of the scholarly spectrum, mainstream urban planning concentrates on operational and morphological aspects (e.g. housing, transport, demography, etc.) in an attempt to maintain the city apt to sustain economic activities and interpersonal relations. Henderson (2010), for example, observes that a high level of urbanisation leads to an increased income per capita, as well as the agglomeration of industrial activity in large cities can be responsible for important economies of scale. Such rigid, conventional approaches have underpinned the formulation of planning initiatives and related urban legislation. Suffice to note here that technocratic interpretations have persistently maintained a fragmented understanding of the city's complexity and have been unable to devise effective solutions to problems, ultimately, of its own making.

The shortcomings of the conservative theorisation and policy-making have encouraged alternative readings of city evolution and the urban experience. On the other side of the spectrum, authors have argued that the city should be interpreted as an integral whole that is predicated upon other totalities, such as national development and the operation of globalised markets, at the same time that is reshaped by everyday and household life. Critical authors have examined the causes and outcomes of city problems in relation to the capitalist logic of production and the realisation of social and cultural values. The disapproval of the authoritarian handling of urban issues can be traced back to the ideas of Karl Marx, Frederick Engels, Georg Simmel, Walter Benjamin and Raymond Williams, to name just a few critical theorists (see the interesting review in Merrifield, 2002).¹ According to this group of thinkers, to understand

the politics of the city (rather than simply city politics or the politicised aspects of urban interactions) it is necessary to dialectise its geography, starting not from the micro and fragmented, but tackling the entirety of processes that unfold from local to higher scales of political-economic interaction. Brenner (2009) defines critical urban theory as a reaction to technocratic, market-driven and market-oriented forms of urban knowledge. Critical theory is, first and foremost, an exploration of the contradictory basis of the capitalist city, the contested superposition of flows, dealings and opposites. It is an investigation that emphasises the politically and ideologically mediated evolution of urban space and the exercise of power, as well as the links between environmental justice and urbanisation (Schweitzer and Stephenson Jr, 2007).

Most of the contemporary critical studies of the city have been inspired by the foundational work of left-wing authors such as Henry Lefebvre, Manuel Castells or David Harvey. For Lefebvre, capitalism and the accumulation of capital in the city is an anti-urban project, something that essentially undermines the city as the space of human integration. In 'The Urban Revolution', Lefebvre (2003) places urbanisation at the centre of the Marxist critique of the world and observes that, instead of the industry, the city has become the main driver of capitalism in the Western countries. Lefebvre launched his own platform under the expression 'the right to the city', as an intellectual manifesto for reclaiming the city for the majority of its inhabitants (Lefebvre, 1996). Publishing in the same decade, Castells (1977) begged to diverge from Lefebvre's apparently excessive intellectual liberties and offered an Althusserian elaboration for the critique of space and capitalist urbanisation. Castells tried to reinsert the city in more rigorous political economy terms, highlighting the importance of the control of the form and structure of urbanisation as key mechanisms of commodity consumption, labour exploitation and class struggle. By his turn, Harvey (2006) developed the idea of a 'spatial-fix', that is, the geographical expansion and spatial reorganisation provide a main strategy to absorb capital surpluses and (partially) avoid the systemic crisis of accumulation. Departing from Lefebvre, Harvey (2008: 23) further claims that the 'right to the city is far more than the individual liberty to access urban resources: it is a right to change ourselves by changing the city'.

Influenced by the above writers, detailed elaboration on the spatialisation and on the urbanisation of class struggle, as well as on the distinctiveness of capitalist accumulation and the exercise of political

hegemony through the production of urban space has been put forward by many critical scholars. However, to a large extent the attention has been excessively focused on the Western processes of urbanisation, such as in the contribution of Mitchell (2003), Sassen (1991) and Smith (1996), or the collection recently organised by Lévy (2008). Unfortunately, notwithstanding cursory references to cities in the Global South, a more dedicated appreciation of their specificities and commonalities remains largely unmet by Western scholars (Hanson, 2003). If critical authors do well in emphasising the intricacy of the northern capitalist city, there is still a limited understanding, despite numerous references, of the specificities of urbanisation and metropolitan growth in the ‘peripheries’ of capitalism. A subsidiary question is how to deal with large-scale, structural issues (as in the case of the subordinate economic and political position of Latin America) and the individuality of each city and country. Despite the obvious differences across countries and cultures, it is reasonable to talk, as argued by Gilbert (1998), about equivalent forms, functions and problems that are shared by most Latin American cities and similarly affect large parts of the population (e.g. low salaries, sub-employment and unemployment, targeted exploitation of women and children, precarious standards of living, etc.).

The perpetual process of creation and recreation of the Latin American city echoes the long feeling of perplexity and uneasiness that has marked the continent since its early days, which is captured by the Brazilian author Drummond de Andrade in the poem ‘America’:

*Many cities on the map ... None, however, has a thousand years
And the new cities, what a shame; not always something pretty
How to make a city? What to weave with? How many fires would it have?
We never know, the cities grow
submerge in the field, come to reappear²*

What has been systematically left out in the treatment of urban problems in the region is the recognition, and adequate theorisation, of the need for profound changes in political and social trends according to the local cultural, sociopolitical and ecological circumstances. A real transformation depends on the inclusion, in a meaningful and autonomous way, of those who have historically been, and continue to be, excluded from the opportunities available only to higher-income groups (including the opportunity to govern the city). Improvements in urban services and infrastructure are often demanded by middle classes outside the

slums and those relatively better off than the majority of the population, which means a sanitisation of the city (including better water services, security and transport) that leads to new rounds of exclusion. By acknowledging the wider complexity of the evolution of the city and the difficulty to generalise overarching trends, it is possible to conclude that the neoliberalised city, as much as in the past, remains a hectic space of interaction and spontaneous encounters but largely subordinate to national economic priorities and transnational hegemonies. More important than the quantitative paradigm that dominates the discussion and informs contemporary policy-making, it is more appropriate to employ a qualitative approach to urban poverty, without descending into excessive structuralism and without minimising the politicised basis of urban problems (Ramírez, 2003). That means the identification of urban poverty and inequalities is a hugely complex issue that has multiple manifestations, which cannot be adequately captured by a narrow focus on income thresholds. The mainstream discourse on poverty, inclusion and integration represents a conservative approach to social harmony that at once depoliticises public claims for democracy and spatial equality, while is dominated by the new role played by the middle class in terms of production, consumption and ideology (Galvis, 2014).

If profound changes are needed, how could we organise our ideas to properly interpret urban trends and assist with the production of substantive results? Maybe the starting point is the understanding that the attention paid to Latin American urbanisation among northern scholars has been over-schematic and damaged by the use of concepts not directly related to urban processes (Williams Montoya, 2009). Whereas there is solid work on the role of urbanisation in the shaping of capitalist relations and in the control of the workforce, the particular circumstances of cities in Africa, Asia and Latin America are still only superficially explored (Legg and McFarlane, 2008). To make matters worse, the modest, but often creative work of Latin American scholars has been largely undervalued or simply ignored among northern academic circles (Valladares and Coelho, 2003). That is partly, but not only, because of the language barrier for those outside the Anglo-American academic realm (similar problems have prevented the proper analysis of Japanese, Indian, African and Middle Eastern urbanisation, even in English-speaking countries). It should be mentioned that the work done in the region in the 1960s comprised publications on demography, migration, poverty and the expansion of irregular settlements. In the 1970s, with the proliferation

of military dictatorships and armed confrontations, the focus shifted to techno-economic issues, such as urban planning, the labour market and the informality of jobs. In the 1980s, with the re-emergence of formal democracy, and the widespread monetary crisis, scholars turned their attention to government reforms, social movements, urban management, environmental questions, infrastructure and social inequality. Finally, since the 1990s, under neoliberal pressures and post-neoliberal experiments, the research agenda became more diversified and included new topics such as violence and crime, culture, race and gender, policy-making, public participation and new forms of governmentality.

Taking into account the achievements and the deficiencies in the current scholarly understanding of the Latin American city, there is a demand for conceptual and methodological approaches able to reconcile local urban experiences with the pressures of national and regional development. The specialised literature still lacks a framework that accounts for the dynamic interplay between structure and agency in a way that avoids rigid classifications of the urban phenomena. We submit here that the evolution of large metropolitan areas, particularly in Latin America, can be explained in relation to three interlinked driving forces, namely:

- 1 The consolidation of large urban conurbations represents the most recent chapter in the long trajectory of nation building and economic production, which has been orchestrated by the state apparatus on behalf of the stronger social interests;
- 2 Because of the elitist and subordinate pattern of national development, the large cities have become the main arena for the crystallisation of inequalities and the persistent reinforcement of injustices; and
- 3 The mega Latin American cities are today the main locus of mobilisation, creativity and political action, as well as for the experimentation of both top-down and bottom-up responses to collective problems.

Those three interrelated processes can be considered the main drivers in the production of the landscape in vast metropolitan areas of Latin America. National development policies depend on the large-scale cities to accommodate industries, the labour force, the techno-bureaucratic administration and a myriad of technological and financial services. In that process, significant contingents of the poor population were attracted

to the megacity but only a small proportion of them were absorbed in the formal urban economy (i.e. mainly through the selling of the labour power). Still the intermingling of peoples and cultures resulted in unpredictable opportunities for interaction and political contestation.

Starting with the first term of the proposed analytical approach (i.e. the large city as a central vector of national development), the format and organisation of the main urban centres in the sub-continent initially had to comply with exogenous, European demands. Colonial powers needed to have strategic points of connection between the northern economies and the areas with exploitable resources. The early Latin American conurbations around ports and mines were, in effect, a 'moment' in the project of colonial and post-colonial hegemony. If the initial pattern of large urbanisation followed such external priorities, after independence in the 19th century the large cities allowed only a superficial inclusion of the majority of the population in successive historico-economic cycles (Fernandes, 2005). The city, as the administrative, military and economic hub, was then the privileged instrument in the overall process of socio-natural exploitation and wealth concentration, particularly when the cities replaced the mines and larger farms as the main economic centres.³ It could even be argued that the two most important mechanisms for the perpetuation of the power of national elites was the twin control of the city and the state. That is, the territorial control of the nation exerted by the state depended also on the strategic organisation of the capital and other large cities as physical centres of power and alleviation of the negative effects of economic development. The state, as the main representation of the interests of the ruling classes, paved the road for the emergence of large or mid-size cities through a combination of meticulous strategies and deliberate omissions. The result was a dichotomic city with a regularised central area serving private entrepreneurs and a separate area, three times greater than the first, sprawling to precarious peripheries self-produced by the poor (Rolnik, 2001). Particularly in the last half a century, the large Latin American city has been not only the main catalyst for capital accumulation, but also one of the first areas to suffer the consequences of economic crises, such as unemployment, loss of public services, household eviction, etc. (Portes, 1989).

The most profound consequence of this hegemonic trend of urbanisation has been the consolidation and constant reinforcement of socio-spatial inequalities (i.e. the second term of the conceptual framework). The 'illegal' side of the contemporary large cities (i.e. the non-regularised

areas where most low-income population live) has expanded as a terrain where irregularity and precariousness has become the norm. The chaotic and violent life in the large urban centres is vividly portrayed in movies such as *City of God*, *Amores Perros*, *The Milk of Sorrow* and *Express Kidnapping*, in which the tense interplay between the legal and the illegal sectors of the city are associated with increasing elements of fear and militarisation. The historico-geographical inequalities that define metropolitan areas of Latin America have their genesis in the slavery system, the brutal conquest of territorial resources and the unequal offering of social opportunities (Luco and Vignoli, 2003). In order to maintain the situation and contain potential grassroots revolts, most government policies have combined the cooptation and domestication of urban low-income groups via initiatives that formally aim to alleviate social exclusion (de Souza, 2009). Nonetheless, even these strategies, which prioritise the use of socially targeted funds, microcredit and public participation, have been contained and assimilated by the powerful forces that determine urban dynamics (Goldfrank and Schrank, 2009). Moreover, Roberts (2005) shows that the promises of globalisation (i.e. free flows of capital and people) have not really happened in the Latin American metropolises, which never became truly 'global cities'. On the contrary, under the pressures of globalisation, the Latin American megacity has been involved in new processes of foreign dependency, demonstrated by the growing prominence of the tourism industry and the remittances from economic migrants working in northern countries (Córdoba Ordóñez and Gago García, 2010). At the same time, urban trends since the 1980s, which are characterised by lower rates of urbanisation and urban growth, have eroded social cohesion in terms of the impoverishment of interpersonal relationships and impact on feelings of trust and identity with others (Roberts, 2011).

Finally, the 'negation' by the megacity, through the persistence of structural inequalities, is then dialectically negated by those that live in the political and spatial periphery, who need to resort to alternative strategies to cope with deficient public services, widespread violence and institutionalised forms of mistreatment. The creativity and energy of the urban poor (i.e. the third term of the conceptual framework) do not eliminate their exploitation, but are the fundamental element of their fight for political rights and better living conditions. In effect, the Latin American metropolis has been unique not only in terms of its problems and particular relation with the rest of the world, but it

has also formulated some of the most creative alternatives to old and new questions. The large cities are not only the main arena today for the reaction against direct capitalist exploitation, but are also a privileged locus of resistance to the contradictions of capitalism (i.e. the network of social support and survival assistance created by marginalised social groups, beyond the logic of public services and economic exploitation). It is in that context in the poorest settlements in the large cities that it is common to find a more explicit openness to the 'other' that is needed in order to construct a home for oneself in a highly exclusionary city (Datta, 2012). As claimed by Žižek (2008), the negation of the negation becomes a new affirmation (in the Hegelian sense), or at least the utopic possibility, to overcome the failures produced through established forms of urban expansion. Different from artificial conceptualisations, marginalised groups have developed multiple forms of mobilisation through various action strategies and channels of communication (including church services and other forms of popular manifestation), in a persistent struggle to overcome co-optation and clientelism (Gilbert, 1998).

Overall, the above schematic framework should facilitate the understanding of the historical and geographical connections among scales, dimensions and narratives (particularly in relation to urban water problems). It must be acknowledged that this conceptual approach is rather crude, as it is trying to embrace the wide complexity of the city, but the intention is to provide an analytical synthesis that will facilitate the analysis of the specific case studies in later chapters. This analytical framework, although very simple, can contribute to the examination of the forms, functions and politics that ultimately characterise the Latin American city. It can also assist the description of the 'fluidity' of urbanisation from a dialectical perspective, which relates the context at the periphery of the capitalist with unique, idiosyncratic local dynamics. As pointed out by Lefebvre (1996), the dialectisation of the city should be open and flexible, something that brings together the conflictual and the contradictory, and connects theory and practice. Instead of pre-established scales of interaction, the 'local' and the 'global' are constantly being reworked and are part of dynamic, hybrid networks that combine people, devices and ecosystems. Consequently, a more inclusive city cannot be pursued only through abstract concepts and moral statements about what is right or wrong. On the contrary, justice depends both on structural changes and on how people in their

daily lives perceive discrimination and suffer from concrete experiences of exclusion and neglect.

The three drivers of urbanisation could be extrapolated to other regions in the Global South; however, because of the proportion of urban dwellers and the particular trajectory of national development (from national developmentalism in the middle of the 20th century to the neoliberalising influences since 1980s and 1990s), it is arguable that the suggested analytical framework has even more relevance in Latin America. The suggested analytical framework is especially relevant taking into account that the Latin American city followed an exclusionary pattern during the period of developmentalist policies (particularly characterised by public investments in the regular areas of the city) and was again inserted in the processes of exclusion effected by the emphasis on neoliberal solutions and the associated domestication of public opinion. This was the first region to adopt neoliberalism as its public administration model, but was also the earliest to develop and implement explicit alternatives, as the struggles against water privatisation – seen as highly attractive by international corporations because of the regional rate of urbanisation with relatively wealthy populations – played a key role in delegitimising neoliberalism. Urban exclusion in this region is deeply ingrained in class-based inequalities that are the result of hegemonic economic activity and an exclusionary political game. In the centre of those disputes and with, at best, partial mechanisms of compensation, is located the state apparatus, as examined next.

State's fluid boundaries, multiple commitments and the metabolism of corruption

In order to fully understand the complexity of urban questions in Latin America and the dialectical interaction between the three vectors of metropolitan expansion mentioned earlier – national development, spatialised inequalities and potential reactions shaping the city – it is important to consider also the central role and the multiple commitments of the state apparatus. The state apparatus should, therefore, be considered as an active and crucial political and politico-ecological player (Ioris, 2014). Instead of a simple and necessarily coherent entity, the state is organised and operates according to a range of pressures, opportunities and influences happening at different geographical scales.

It means that the state is a mediator of multiscale interactions and, in that process, its structure and operation become profoundly entangled in urban and mega-urban issues. Along those lines, it is possible to define urban management and policy-making as fundamentally about the prioritisation by the state of some of the politico-institutional demands and the exclusion of others. If the mobilisation of people, technology and capital for the management of urban spaces and the mediation of conflicts are some of the most strategic responsibilities of the state, those very initiatives can provoke multiple reactions from affected stakeholder groups that also contribute to reshape the state itself. Statehood is a dynamic process constantly reformulated according to homogenisation and particularisation pressures (Brenner, 2004). The configuration and functioning of the state are also intensely affected by the sociopolitical and socioecological repercussions of those same interventions. In that process, state action inscribes the balance of power in the production and transformation of the urban space.

The politicised geography of the state is even more relevant taking into consideration that in recent decades the social and environmental problems of Latin American cities have been increasingly addressed by attempts at privatisation and public–private partnerships, obviously under the influence of the hegemonic neoliberal ideology. Market friendly policies were at the top of institutional reforms promoted in the region, as discussed in the following chapters, and have transformed the Latin America continent into a laboratory of wild economic experimentation and one of the most relevant experiences of the meandering history of neoliberalism. An emblematic example has been the institutional reforms that have recast water as an economic asset rather than a public good and a substance that is essential for life (further analysed in Chapters 3 to 5). Nonetheless, most scholarly work on urban modernisation and urban dilemmas has fallen short of establishing the connections between historico-geographical issues and the changing patterns of the state apparatus. A large proportion of the specialised academic literature has rather focused on the formulation and implementation of public policies (including concepts such as governance and sustainable urban development) but paid less attention to the ontological changes on the fabric of the state produced by manifold demands and related disputes. Although urban issues have meant a great deal for the reorganisation of the state under the overall pressures to stabilise the contradictions of socioeconomic production and reproduction, there is still a need to

investigate the synergies between the responses to old and new problems and the underlying politico-ideological factors that constrain the effectiveness of those same initiatives. In other words, the apparatus of the state needs to be recognised as more than simply a collection of agencies and legal instruments, given that it also comprises structures and strategies that reflect the balance of political power and social antagonisms (Lefebvre, 2008).

The state apparatus actually contains the contested association between political society and civil society, as well as the politicised interactions between society and the rest of socionature. The state must be conceived of as a continuous process of “formation and superseding of unstable equilibria [...] between the interests of the fundamental group and those of the subordinate groups” (Gramsci, 1971: 182). The Gramscian analysis of the political ontology of the state can be expanded to include urban and metropolitan questions as similarly ‘subordinate’ to wider hegemonic interests. It is therefore impossible and unnecessary to dissociate the politicisation of state action from the politicised conceptualisation of urban problems. The state is not simply an external, distant controller or regulator of relationships taking place in urban centres, but those relations are a crucial driver behind the organisation and functioning of the state (Ioris, 2012a). A discussion of state should start with the concreteness of the relations of production and reproduction in specific historico-geographical formations and inquire into the specificities of urban-based interactions. The failures and successes of the state’s reactions to urban problems cannot be properly understood without realising that, since its inception, urban policies have been both reactive and secondary to *other* priorities and commitments of the modern-day state. The promotion of urban policies reflects some of the tensions and disputes associated with the role of the state and its biased, partial responses to socioeconomic demands and sociopolitical disputes.

In the last hundred years, the apparatus of the state has evolved from its liberal to a nationalistic and finally neoliberal configuration. A multilevel administrative structure, with many agencies and departments, was introduced in the industrialised countries in the middle of the 20th century and later expanded, through various mechanisms, to most of the world for dealing with urban policies and urban management. Such process was associated with the introduction of welfare and social protection strategies, but was not able to face up to the growing challenges and persistent controversies associated with mounting urban

challenges. Since the 1970s, however, there was growing recognition that the promotion of economic recovery and public services by the welfare-developmental state were too expensive and ineffective. The changing temper of the times was recognised in the erosion of the capacity of the Keynesian state to deal with growing challenges and past legacies. The blame was that the existing regulation was founded on an ambiguous legislation, which was both heavy-handed and bureaucratic. As mentioned already, changes in the reasoning and justification of urban policies in recent decades have both benefited and reinforced the various politico-economic strategies commonly described as 'neoliberalism' or, more exactly, multiple 'neoliberalisation' procedures. That has meant a (partial) replacement of the (supposedly) rigid interventions of the welfare-developmental state with ingenious articulations aimed at reducing urban tensions and fostering new capital accumulation opportunities. For example, neoliberal water reforms in Latin America included combined adjustments aimed at separating policy-making from operational activities, the introduction of economic, health and performance regulation, decentralisation and the inclusion of private companies in the provision of public services, and repeated calls for cost recovery and higher tariffs (Jouravlev, 2004).

The evolution from Keynesianism to neoliberalism has been neither linear nor internally consistent, but always hybrid, variegated and contested. The actually existing neoliberal policies have entailed destruction and reconstruction of previous arrangements and, instead of a single, uniform configuration, the diversity of neoliberal state has varied greatly between countries and politico-economic circumstances (Picciotto, 2011). The complex association between neoliberal strategies and urban management issues is reflected in the multiform reconfiguration of state apparatus, which has not resolved the large majority of the problems left from the Keynesian-informed period (Ioris, 2012b: 267). The inadequacies of the neoliberal state configuration are related to a spatial disjuncture between the national territories and the space of urban problems, together with the persistence of political inequalities, the pervasive disempowerment of citizenship, socioenvironmental degradation and resource scarcity (Paterson et al., 2006). In addition, despite the evident differences, there are more similarities than discrepancies between the conventional (centralised and statist) policies of the welfare-developmental state and the more flexible (integrated and market-driven) neoliberalising policies. That has allowed the emergence

of multifaceted states around the world, which combine elements of traditional statism with some level of neoliberalism (this combination is increasingly described as ‘post-neoliberalism,’ but this typology is still not properly developed). In practical terms, the resulting policies and regulation have evolved into market-friendly schemes and many stimuli to self-control (such as incremental charges and allowances to induce technological improvements), but in the end it remains a partial and insufficient answer to the trend of urban problems. For instance, the degradation of socio-natural resources and production of mounting levels of waste continues to expand and increasingly disrupt ecological features. But probably the most emblematic example of pending ecological controversies is the widespread use of fossil fuels and the resilience of carbon-based lifestyles, in particular the subordination of the production of space to the use of private cars. The consequence is the impending scenarios of disruption due to climatic change, while the state remains powerless and unable to move away from inertial, but suicidal, trends (vis-à-vis the collapse of the negotiations on climate change mitigation in international forums).

As the early legislation concerned with urban planning and land-use control at the turn of the 20th century, the regulatory functions of the state have had a highly contradictory character, that is to say, the difficulty in reconciling, in the same regulatory instruments (such as laws, norms and programmes) highly antagonistic demands coming from different sectors and social groups. The state has been an integral part of the urban water problem, as it is necessarily a key player in the pursuit of solutions. The political complexity and contradictions of statehood is even more evident considering the recurrent situations of corruption and their impact on urban management and on the reinforcement of the exclusionary city. It is nothing new to say that cases of corruption and political favouritism are disturbingly common in the media in all Latin American countries. As Lazar (2005: 2012) puts it, corruption is everywhere and nowhere, ‘it is always somewhere else perpetrated by someone else’.

The apparent resilience of corruption practices in the region justifies a critical reflection of the meaning and consequences of the metabolism of corruption. Many notorious cases have attracted international attention in recent years, such as the *mensalão* in Brazil and the strange relation between the Kirchner presidential couple and construction companies in Argentina. This prompted some high-level reactions, as the grand

plan against corruption drew up by the leaders in the first Summit of the Americas in 1994, leading to the Inter-American Convention against Corruption (approved in 1996). However, instead of containing it, the main consequence of extensive media attention is rather the trivialisation of corruption as a problem deeply consolidated in political traditions and the presence of corrupted circles as an inevitable landmark of most regional governments. The existing literature on corruption – advanced by the mainstream academics and agencies such as the World Bank, Transparency International and the OECD – is normally unable to explain the more integral and multidimensional basis of corruption. Any examination of the sociology of corruption needs to comprehensively address political manipulation and caudillismo as prominent features of statecraft since independence in the 19th century. Corruption remains an active driving force and represents a robust, intergenerational social institution that is effectively non-negotiable.

For many centuries, political thinkers have grappled with the problem of corruption, from Aristotle, Polybius and Machiavelli to British, French and American authors. There is a long tradition of discussing the basis and repercussions of corruption habits. Nonetheless, although this is a word with more than 600 years in the English language (incorporated from the French in 1340, according to the Oxford English Dictionary), it was only in the last 20 years, under the globalisation of the markets, that the international development community started to consider corruption a major threat to economic stability and business transactions. Since the early 1990s, with the end of the Cold War and the expansion of global trade – without the previous need to sponsor corrupt leaders in the effort to hold back communism – the World Bank, OECD and the USA government, among other key international players, have introduced detailed mechanisms to identify and contain corruption. In earlier decades, corruption was even seen as a positive factor (or at least a necessary evil) that could speed up economic growth in a situation of uncertain rule of law and major institutional barriers (e.g. Huntington, 1968). This tolerant attitude changed significantly as international organisations gradually converged around an ‘anti-corruption consensus’ that closely follows the liberal–rationalist approach and public choice theory (Gephart, 2009). Klitgaard (1988) goes as far as to introduce an algebraic formula that synthesises the rationalist thinking around the issue: ‘corruption equals monopoly plus discretion minus accountability’.

The result is that corruption is now seen by many organisations and hegemonic governments as evidence of macroeconomic malfunctioning and excessive protectionism. The state is typically defined as a managerial organisation whose main weakness is its responsiveness to political pressures, as if it were possible to have a complete separation between public and private categories (Bratsis, 2003). Instead of a localised distortion that derives from dishonesty and authoritarianism, the contemporary anti-corruption discourse became increasingly associated with the supposed failure of conventional governance, that is, too much power concentrated in the hands of unscrupulous officers together with a lack of transparency and the concealment of rent-seeking behaviours. For the World Bank (2007), a key financier of projects and infrastructure in Latin America, the reduction of corruption has a disciplinary function, informed by moralist rationale aimed at promoting accountability and fiscal discipline. More than a criminal or ethical question, graft and bribery are condemned because they represent an obstacle to development and, in particular, to the exploitation of natural resources (Kolstad and Wiig, 2009). The crux of the matter is, therefore, the negative impact on investments and on the interests of transnational corporations and business sectors (among others, this seems to be the argument of Mauro, 1995, and Rose-Ackerman, 2000). It was not coincidence that in 2003 the United Nations formalised its Convention against Corruption (known as the Mérida Convention), as one of the most recent efforts to contain the alleged far-reaching impacts of corruption on democracy, economic development and the rule of law.

Probably the most active player of this narrow anti-corruption crusade has been the NGO Transparency International (with operational and ideological associations with the World Bank), which has campaigned for institutional reforms by Southern countries able to curb corruption practices and facilitate business transactions. Such organisations have deliberately ignored that the recent dismantling of previous developmental structures and the endorsement of the minimal state model can actually stimulate corrupted behaviours (Murphy, 2011). Corruption indicators, such as the annual corruption perceptions index (CPI) produced by Transparency International, have been very influential in attracting attention to the problem. However, these technocratic measurements typically relegate the countries perceived as being most corrupt to a situation of discrimination and force them to adopt drastic reforms that are

in practice untenable (Andersson and Heywood, 2009). This rationalist and neo-colonialist treatment of corruption has been criticised as an accessory of the expansion of neoliberal platforms and the promotion of market globalisation. The conventional discourse normally conceals the promiscuous association between neoliberalism and neopopulism that happens through, often contradictory, forces that guide individuals to misuse their power (Weyland, 1998). Brown and Cloke (2011) denounce the simplistic accusation of the public sector as the source of corruption, which constitutes an ideological distortion of the nature and role of the state apparatus. In this case, the blame is systematically placed on unscrupulous politicians (the bribe-takers), without much attention to the interference of national and international enterprises (the bribe-givers). Furthermore, Brown and Cloke (2004) observe that such interpretations of corruption serve as a very convenient explanation of the failure of recent pro-market economic reforms and the connivance of Northern governments.

Critical authors also reproach the depoliticisation and decontextualisation of corruption through simplistic calls for efficiency, business accountability and technocratic improvements. Instead of recognising corruption as a social construct, a value-ridden concept that has cultural, historical and geographical specificities, it has been repeatedly described as a problem with the same characteristics anywhere in the developing world, 'from Nigeria to Bulgaria' (Ivanov, 2007). Northern countries, such as the Scandinavian nations, are also too-easily portrayed as role models of honesty and good governance (Bukovansky, 2006), whereas the presence of corruption in the Global South is allegedly the most serious factor for the erosion of democracy and justice. This moralist anti-corruption campaign launched by policy-makers and conservative academics hijacks the meaning of corruption and, as a result, occludes the related demands for citizenship, social inclusion and fair public policies. Their main goal is to remove commercial excesses and safeguard business profitability, instead of considering that corruption emanates from processes of gains and privileges located in wider social relations (Bracking, 2007). Rather than narrow interpretations that primarily serve business interests, corruption should be treated as a deeply politicised and intrinsically sociological phenomenon that happens in specific circumstances and that aggravates existing patterns of inequalities and exclusion (Andres and Ramlogan-Dobson, 2011). More important than static definitions of corruption is to try to understand what it means

in practice, what it does to disadvantaged and marginalised people (Bracking, 2007).

The spreading of corruption and its recent prioritisation in international development agendas around the world are equally embedded in specific historical, material and politico-cultural circumstances, as in the case of the Latin American megacities. Corruption needs to be considered as a historico-geographical phenomenon that has contemporary manifestations, but has multiple causes located in the configuration of society and politics. Although local specificities and uneven responsibilities certainly exist at the national or local scales in the Global South, corruption in developing countries is also boosted and reproduced by the continuation of illegitimate wealth and hegemonic power in other parts of the world. As much as markets and information flows are globalised, so is corruption. Corruption is less about the format of the state apparatus (i.e. size of the public sector, regulatory quality, lack of law enforcement, policies that fail to stimulate completion, etc.) and more about its political commitments and ideological reasoning. As pointed out by Hardt and Negri (2000: 389) about political control in the post-Cold War world, corruption is everywhere” because it is a general process of decomposition and mutation that ‘is the cornerstone and keystone of domination.’ The presumed low levels of corruption in Scandinavia or in the United Kingdom can only be sustained – even at the rhetorical level – by persistent high levels of corruption in Africa, Asia and Latin America. Corruption nurtures primarily from class differences and the intrinsic processes of socionatural exploitation that define capitalist societies, including both social exploitation and the expropriating of nature and territorial resources. Murphy (2011: 127) emphasises the organic relationship between corruption and capitalism, insofar as ‘capitalism itself is the pathogen for corruption.’

Therefore, there is a case for a more comprehensive epistemology able to embrace the multiple sources and perennial reinforcement of corruption as an active process that plays a crucial role in the urban phenomenon. That means a radically different conceptualisation of corruption, not as a mere deformation of public services and policies, but as an integral feature of the organisation and operation of contemporary mechanisms of social exclusion and (problematic) political legitimisation. It should be recognised that fraud and corruption incidents are always firmly grounded on concrete historico-geographical settings and incorporate the long trajectory of politico-economic processes and

the politicisation of statehood. Corruption is especially relevant in the context of mega-urbanisation due to its role in the reinforcement (or passive acceptance) of processes of capital accumulation and sociopolitical exclusion. The phenomenon of corruption is both a consequence of structural social inequalities and contributes to the reproduction of legal or illegal privileges associated with class hegemony. Corruption is underpinned by alienation and the erosion of the political protagonism of marginalised groups, particularly in the large urban areas of the Global South. More importantly, the metabolism of corruption evolves through various stages that combine permanence and renovation, as much as the already mentioned spatial and scalar interconnections. Corruption persists in the social tissue of highly unequal societies only to resurface in an intense fashion when the politico-institutional circumstances are more favourable. In Latin America, for instance, today's manifestations of corruption are also nurtured in the long evolution of the capitalist economy since the colonial times. In other words, corruption is a wicked legacy from colonialism that has been reconfigured and incorporated in Latin American modernity (particularly in recent neoliberal experiences).

In conceptual terms, therefore, the persistence and the new impacts of corruption derive from the dynamic interface between synchronic and diachronic pressures. Corruption, as a social relation that reflects group and class inequalities, remains alive in those same inequalities during long periods of time (which corresponds to its diachronic dimension) but proliferate synergically across different sectors and activities whenever the mechanisms of control are relaxed (its synchronic dimension). The synchronicity of corruption contains the convergence of the appropriation of public resources, sociopolitical asymmetries, weak control systems and the absence of a genuine democratic, transparent political regime. Diachronic corruption, in its turn, is located in the (also historico-geographical) relations of production, allocation and reproduction. Moreover, whereas synchronic production is localised in certain places, sectors or moments, diachronic corruption incorporates the legacy of past injustices and replicates it on present and coming socio-natural formations. Synchronic corruption is the manifestation of the more persistent and even more perverse course of diachronic corruption. The synchronic manifestation of the historico-geographical phenomenon of corruption is an element of the lived, but profoundly unequal, space of nations, regions and urban or rural areas. In the case of the fast growing

megacities of Latin America, the metabolism of corruption plays a very important role in the formation of uneven and harsh urban landscapes. The unequal megacity is a locus of condensed corruption, demonstrated by the scarcity of housing, water and services in some areas next to pockets of wealth (i.e. urban corruption is another expression of the widespread crisis of capitalist overaccumulation, as capitalism evolved from abundance of scarcity to scarcity and abundance).

Both the synchronic and diachronic directions of corruption correspond to the totality of corruption and have been dynamic factors in the transformation from simple to complex capitalist societies. For instance, rather than the more isolated cases of corruption in economies that rely on the exploitation of a small number of activities (normally associated with a particular resource and key positions in the government), in a situation of multiscale, globalised connections (as in the case of neoliberalised economies) corruption becomes even more widespread and begins to define not only relations between society and state but, more importantly, between social classes mediated by the state. The pulse between synchronic and diachronic corruption provides a better explanatory tool than the more common, but static, argument about 'systematic corruption' (e.g. Johnston, 1998). The explanation around systematic corruption typically fails to consider the also important roots of corruption in national development and social inequalities. In contrast, it is the mutual reinforcement between diachronic and synchronic axes that makes corruption such a resilient and challenging problem. Because of synchronic and diachronic tendencies, corruption is a highly contextual but also a generalisable phenomenon that tells a great deal about the uniqueness and commonalities of local and national development experiences in different parts of the planet. More significant than trying to assess whether corruption is increasing or decreasing is the careful consideration of the diachronic and synchronic manifestations of corruption and what these mean for the legitimisation or transformation of socioeconomic relations. As a consequence, it can be argued that the mounting water management problems in the Latin American megacities are directly and indirectly related to the persistence of corrupt practices and their synchronic and diachronic manifestation. Water scarcity, the degradation of water bodies and the failure to address those issues are, ultimately, all expressions of corruption. The urban water question will be introduced in the following section and then explored in detail in later chapters.

The dirty and scarce waters of Latin American cities

After considering in the previous pages the intricacies of urbanisation, the politicised basis of statehood and the metabolism of state corruption, the rest of this book will employ this initial elaboration in the analysis of the dilemmas of three representative Latin American megacities. The focus will be on one of its most controversial public services, namely water supply and sanitation. The main justification here is that metropolitan water industries offer an accurate, but also intriguing, translation of the urban question of Latin America. Although the region has 31% of the world's freshwater resources and a range of initiatives and policies were implemented in recent decades, environmental degradation, mismanagement of resources, spatial inequalities and growing demand continue to represent major problems for both society and the state apparatus. In particular, the policy-making approaches used by the Latin American states – which are themselves intricate institutional ensembles of neoliberal, pre-neoliberal and post-neoliberal rationales and strategies – continue unable, unprepared and unwilling to contradict hegemonic politico-economic priorities based on global markets and mass consumption that have major repercussions for the organisation and functioning of the city.

Putting together the above points about urban development and political statehood, it can be argued that water scarcity is not a single process caused by the shortage of resources, but it is the outcome of the present and past decisions and interventions that produced perverse consequences that affect some groups and locations more than others. More importantly, urban water scarcity is not the mechanical result of unequal urban development, but it is an integral driving force of an exclusionary ontology that is manifested both in large-scale injustices and in systematic political control and interpersonal discrimination. On the one hand, service coverage has improved (with the exception of sewage treatment, which still causes serious impact on the environment and on public health) since the 1961 high-level meeting in Punta del Este, when the regional governments agreed that major efforts were necessary to improve water and sanitation. On the other hand, a sizeable proportion of the population, typically low-income groups and areas, lack the most basic services and have to resort to private water vendors and discharge sewage in the streets. It is also common in all countries to make a reference to the serious levels of leakage and persistent risks to

public health. Inequalities in terms of tariffs and services remain almost unchanged, aggravated by the weak political voice of those who suffer more. The high-income areas of Latin American cities enjoy easy and ample access to enough water at low price (because of the investments made by the government), whereas poor households and shantytowns in the urban periphery have a much lower availability of water (sometimes lower than the minimum of 20 litres per capita per day).

The Human Development Report 2006 specifically states that overcoming the crisis in water and sanitation is one of the greatest challenges of the early 21st century (UNDP, 2006). Positive trends have been detected in Latin America and the Caribbean since 1990 – e.g. 22% of the population gained access to better drinking water sources in the region – but there is still a structural inequality between urban and rural communities, as well as between regular and marginalised areas (UNICEF and WHO, 2012), as demonstrated in Table 2.2.

In addition, Table 2.3 makes clear that sanitation improvements have also observed a similar trajectory, but with less impressive results and the same contrast between urban and rural areas.

Thinking more broadly, we come to realise that water is definitely not a simple substance and its allocation, use and conservation have attracted increasing controversy, particularly in the context of the Latin American megacities. In that regard, the 2010 book by Linton opens with this provocative question: ‘what is water?’ The answer is also given in the first pages: ‘water is what we make of it’; in other words, it is a relational substance that is constituted by myriad relationships. It is therefore not possible to contemplate about water in abstract, but its properties and characteristics bear the traces of sociopolitical ‘relations, conditions and potentials.’ Linton argues that the conventional thinking about water, which permeates hydrology, engineering, economics and planning, replicates the artificial separation between society and nature advanced by Western positivistic sciences. Consequently, the alternative to the established ‘water cycle’ is a formulation of the ‘hydrosocial cycle’ as a truly socionatural process by which water and society make and remake each other over space, scale and time. The hydrosocial cycle can help as an analytical tool for investigating water problems, as in the case of scarcity, and revealing its profoundly politicised and ecological basis. It means a politico ecological perspective to urban issues. Urban political ecology has emerged from a vast body of critical interdisciplinary work that demonstrated the continuity between human and non-human

TABLE 2.2 Use of drinking water sources in Latin America and the Caribbean

Year	Population (10 ⁷)	Urban (%)			Rural (%)			National (%)			
		Population (%)	improved	unimproved	surface water	improved	unimproved	surface water	improved	unimproved	surface water
1990	443,032	70	95	4	1	64	15	21	85	8	7
2000	521,429	75	96	3	1	73	14	13	91	5	4
2010	590,082	80	98	2	1	81	13	3	94	5	1

Note: Adapted from UNICEF & WHO (2012).

TABLE 2.3 Use of sanitation in Latin America and the Caribbean (%)

Year	Urban					Rural					National				
	improved	shared	unimproved	other	open	improved	shared	unimproved	other	open	improved	shared	unimproved	other	open
1990	80	6	7	7	7	38	3	14	14	45	68	5	9	9	18
2000	83	6	7	4	4	49	5	16	16	30	75	6	9	9	10
2010	84	7	8	1	1	60	6	17	17	17	80	7	9	9	4

Note: Adapted from UNICEF & WHO (2012).

nature. Along the same lines, the urban context links together complex global ecologies and political economies with localised problems and inequalities. A more recent wave of urban political ecology has attempted a wider engagement with urban systems through diverse methodologies and analyses. The political ecology of urban water issues takes place at the intersection between the structural problems of development and of state regulation with interpersonal relations at the scale of household and neighbourhoods (Zug and Graefe, 2014). What is needed is a more comprehensive interpretation that is able to combine critical theoretical engagements with the practical experience of new movements and civil society organisations. Instead of only being evident in situations of organised protest, the politics of urban ecology is also manifested, in material and symbolic terms, in daily life of the people and in the subtle forms of marginalisation and ecological degradation (Ioris, 2014).

Work on urban political ecology, including the investigation of hydrosocial politics and water-related conflicts, has demonstrated that environmental and social change co-determine each other and also that these 'metabolic' processes offer insights into creative pathways towards more democratic urban environmental politics (Heynen, 2014). Instead of fixity in time or in space, the hydrosocial circulation of water is accompanied by an endless movement of matter and organisms in tandem with evolving social demands, practices and discourses (Ioris, 2008). Politico-ecological dilemmas related to the allocation, use and conservation of water are part and contributor to changes in the configuration of territories. Water management is incorporated in processes happening at different geographical dimensions, from local demands to national development strategies. Water territories, such as catchments, are spatial networks of socio-natural phenomena that receive different interpretations and attract contrasting reactions depending on the academic discipline or group interest (Zwarteveen and Boelens, 2014). The treatment of water scarcity is also an inherently 'positioned' process that describes both territorialised interactions and forms of dispute or collaboration (Ioris, 2013). As analysed elsewhere in this book, the positionality of water scarcity condenses the importance and value of water for a given community, group of interest or section of the state apparatus. The positioned understandings of water issues correspond to the multiplicity of values forged out of collective experiences of cooperation and competition that are inserted in the hierarchical organisation of

water uses. Different epistemologies of water scarcity are translated into discursive constructions and practical attitudes, which vividly encapsulate the convergence and divergence of interests and values cherished by the different social groups.

The territorialisation of water scarcity is particularly evident in the context of the Latin American megacities. The insufficiencies of the public services in the region not only remain a largely unresolved problem, but water scarcity is in itself a highly kaleidoscopic concept: in the context of urban development, references to scarcity work like kaleidoscope mirrors reflecting back unstable, intricate social connections. The scarcity of water is not a phenomenon that happens in isolation, but is reinforced or mitigated by actions across space and time. What exists, therefore, is a complex geography of multiple scarcities (Ioris, 2012c). Without ignoring the relevance of the physical variability of resources and the material reality of water problems, the main factor of scarcity is the way water is actually managed. Water is never scarce in absolute terms, but only under specific allocative and institutional conditions that connect hydrological processes with the preparedness to respond to multiple, and often conflicting, water management objectives. Situations of scarce resources are not external to social and socionatural relations, but are directly and indirectly caused by deliberate attitudes towards society and the rest of nature. Water scarcity is a state of relative deprivation that is created out of accumulated interventions and various forms of negligence. More importantly, the responses to water scarcity vividly replicate power asymmetries and social inequalities. By limiting the analysis of water management problems to the balance between supply and demand, mainstream public policies neglect the social and political construction of water scarcity.

Overall, the water industry of the large Latin American cities provides a helpful and heuristic entry point into the wider complexity of urban change, which is partly managed and largely aggravated by the interventions and the corruption of the state. Water is a unique substance that has a fundamental role in the production of the socionatural configuration of the world and, at the same time, its properties are profoundly affected by the circulation through socionature. This perpetual interaction between nature and society mediated by water does not happen in abstract but is intensely related to concrete historical and geographical circumstances. The social attitudes around water depend on the specific socionatural conditions, but also encapsulate personal and collective reactions to

urban problems. Meaningful solutions to the mounting water problems of Latin American cities call for a more sophisticated and deeply politicised interpretation of the causes and consequences of multiple scarcities and some selective abundance. The question goes beyond simplistic dichotomies between public and private, national and local, social and individual dimensions of shared problems. There is increasing awareness in Latin America of the limitations of public water authorities, both under nationalistic and neoliberal governments, given the systematic failure to respond to the needs of the poor and the pending need for social rather than simply public forms of management (Spronk et al., 2012). The crucial change that is urgently needed is to reclaim the 'urban commons' from private business and non-democratic state agencies as an element of the transformation of the exclusionary Latin American city. The 'right to the Latin American city' – paraphrasing Lefebvre (1996) – only makes sense in relation to the right to a democratic and more inclusive national society. In practice, it means reclaiming the city (and water services) from the existing trend of exclusionary urbanisation or, in other words, reclaiming the (current) city from itself.

Notes

- 1 The geography of the urban has been a matter of great interest already at the consolidation of an urban-industrial society in Europe in the 19th century. Marx (1976: 637) observed that '[c]apitalist production collects the population together in great centres, and causes the urban population to achieve an ever-growing preponderance. This has two results. On the one hand it concentrates the historical motive power of society; on the other hand, it disturbs the metabolic interaction between man and the earth'.
- 2 Translated by A. A. R. Ioris.
- 3 Socionature is a term used by political ecologists to draw attention to the hybrid ontology of the world, simultaneously and dialectically 'social' and 'natural' (see Ioris, 2014).

References

- Andersson, S. and Heywood, P.M. 2009. The Politics of Perception: Use and Abuse of Transparency International's Approach to Measuring Corruption. *Political Studies*, 57(4), 746–767.

- Andres, A.R. and Ramlogan-Dobson, C. 2011. Is Corruption Really Bad for Inequality? Evidence from Latin America. *Journal of Development Studies*, 47(7), 959–976.
- Bracking, S. (ed.), 2007. *Corruption and Development: The Anti-Corruption Campaigns*. Palgrave Macmillan: Houndmills.
- Bratsis, P. 2003. The Construction of Corruption, or Rules of Separation and Illusions of Purity in Bourgeois Societies. *Social Text*, 77, 21(4), 9–33.
- Brenner, N. 2004. *New State Spaces: Urban Governance and the Rescaling of Statehood*. Oxford University Press: Oxford.
- Brenner, N. 2009. What is Critical Urban Theory? *City*, 13(2–3), 198–207.
- Brown, E. and Cloke, J. 2004. Neoliberal Reform, Governance and Corruption in the South: Assessing the International Anti-Corruption Crusade. *Antipode*, 36(2), 272–294.
- Brown, E. and Cloke, J. 2011. Critical Perspectives on Corruption: An Overview. *Critical Perspectives on International Business*, 7(2), 116–124.
- Bukovansky, M. 2006. The Hollowness of Anti-Corruption Discourse. *Review of International Political Economy*, 13(2), 181–209.
- Castells, M. 1977. *The Urban Question: A Marxist Approach*. Trans. A. Sheridan. Edward Arnold: London.
- CEPAL. 2000. *De la Urbanización Acelerada a la Consolidación de los Asentamientos Humanos en América Latina y el Caribe: El Espacio Regional*. CEPAL: Santiago.
- Cohen, B. 2004. Urban Growth in Developing Countries: A Review of Current Trends and a Caution Regarding Existing Forecasts. *World Development*, 32(1), 23–51.
- Córdoba Ordóñez, J.A. and Gago García, C. 2010. Latin American Cities and Globalisation: Change and Permanency in the Context of Development Expectations. *Urban Studies*, 47(9), 2003–2021.
- Datta, A. 2012. ‘Mongrel City’: Cosmopolitan Neighbourliness in a Delhi Squatter Settlement. *Antipode*, 44(3), 745–763.
- Davis, M. 2006. *Planet of Slums*. Verso: London and New York.
- de Souza, M.L. 2009. Cities for People, not for Profit: From a Radical-Libertarian and Latin American Perspective. *City*, 13(4), 483–492.
- Drummond de Andrade, C. 1945. *A Rosa do Povo*. José Olympio: Rio de Janeiro.
- ESA. 2009. *World Population Prospects: The 2008 Revision and World Urbanization Prospects: The 2009 Revision*. Department of Economic and Social Affairs of the United Nations Secretariat. Available at: <http://esa.un.org/wup2009/unup> (accessed on 23 April 2011).

- Fernandes, F. 2005. *A Revolução Burguesa no Brasil: Ensaio de Interpretação Sociológica*. 5th edition. Globo: São Paulo.
- Galvis, J.P. 2014. Remaking Equality: Community Governance and the Politics of Exclusion in Bogota's Public Spaces. *International Journal of Urban and Regional Research*, 38(4), 1458–1475.
- Gephart, M. 2009. *Contextualizing Conceptions of Corruption: Challenges for the International Anti-Corruption Campaign*. GIGA Working Papers No. 115. German Institute of Global and Area Studies: Hamburg.
- Gilbert, A. 1998. *The Latin American City*. 2nd edition. Latin American Bureau: London.
- Goldfrank, B. and Schrank, A. 2009. Municipal Neoliberalism and Municipal Socialism: Urban Political Economy in Latin America. *International Journal of Urban and Regional Research*, 33(2), 443–462.
- Gramsci, A. 1971. *Selections from the Prison Notebooks*. Laurence and Wishart: London.
- Hanson, S. 2003. The Weight of Tradition, the Springboard of Tradition: Let's Move Beyond the 1990s. *Urban Geography*, 24(6), 465–478.
- Hardt, M. and Negri, A. 2000. *Empire*. Harvard University Press: Cambridge, MS.
- Harvey, D. 2006 [1982]. *The Limits to Capital*. Verso: London and New York.
- Harvey, D. 2008. The Right to the City. *New Left Review*, 53, 23–40.
- Henderson, J.V. 2010. Cities and Development. *Journal of Regional Science*, 50(1), 515–540.
- Heynen, N. 2014. Urban Political Ecology I: The Urban Century. *Progress in Human Geography*, 38(4), 598–604.
- Huntington, S.P. 1968. *Political Order in Changing Societies*. Yale University Press: New Haven, CT.
- Ioris, A.A.R. 2008. Regional Development, Nature Production and the Techno-Bureaucratic Shortcut: The Douro River Catchment in Portugal. *European Environment*, 18(6), 345–358.
- Ioris, A.A.R. 2012a. Applying the Strategic-Relational Approach to Urban Political Ecology: The Water Management Problems of the Baixada Fluminense, Rio de Janeiro, Brazil. *Antipode*, 44(1), 122–150.
- Ioris, A.A.R. 2012b. The Neoliberalization of Water in Lima, Peru. *Political Geography*, 31(5), 266–278.
- Ioris, A.A.R. 2012c. The Geography of Multiple Scarcities: Urban Development and Water Problems in Lima, Peru. *Geoforum*, 43(3), 612–622.

- Ioris, A.A.R. 2013. The Value of Water Values: Departing from Geography towards an Interdisciplinary Debate. *Geografiska Annaler: Series B, Human Geography*, 95(4), 323–337.
- Ioris, A.A.R. 2014. *The Political Ecology of the State: The Basis and the Evolution of Environmental Statehood*. Routledge: London.
- Ioris, R.R. and Ioris, A.A.R. 2013. Assessing Development and the Idea of Development in the 1950s in Brazil. *Brazilian Journal of Political Economy*, 33(3), 411–416.
- Ivanov, K. 2007. The Limits of a Global Campaign against Corruption. In: Bracking, S. (ed.), *Corruption and Development: The Anti-Corruption Campaigns*. Palgrave Macmillan: Basingstoke. pp. 28–45.
- Johnston, M. 1998. Fighting Systemic Corruption: Social Foundations for Institutional Reform. *European Journal of Development Research*, 10(1), 85–104.
- Jouravlev, A. 2004. *Los Servicios de Agua Potable y Saneamiento en el Umbral del Siglo XXI*. CEPAL: Santiago.
- Klitgaard, R. 1988. *Controlling Corruption*. University of California Press: Berkeley and Los Angeles.
- Kolstad, I. and Wiig, A. 2009. Is Transparency the Key to Reducing Corruption in Resource-Rich Countries? *World Development*, 37(3), 521–532.
- Lazar, S. 2005. Citizens Despite the State: Everyday Corruption and Local Politics in El Alto, Bolivia. In: Haller, D. and Shore, C. (eds), *Corruption: Anthropological Perspectives*. Pluto Press: London. pp. 212–228.
- Lefebvre, H. 1996. *Writing on Cities*. Trans. and edit. E. Kofman and E. Lebas. Blackwell: Oxford.
- Lefebvre, H. 2003 [1970]. *The Urban Revolution*. Trans. R. Bononno. University of Minnesota Press: Minneapolis.
- Lefebvre, H. 2008. *Space, Difference, Everyday Life*. Routledge: New York.
- Legg, S. and McFarlane, C. 2008. Ordinary Urban Spaces: Postcolonialism and Development. *Environment and Planning A*, 40, 6–14.
- Lévy, J. (ed). 2008. *The City: Critical Essays in Human Geography*. Ashgate: Aldershot.
- Linton, J. 2010. *What Is Water? The History of a Modern Abstraction*. UBC Press: Vancouver.
- Lloyd, P. 1980. *The 'Young Towns' of Lima: Aspects of Urbanization in Peru*. Cambridge University Press: Cambridge.

- Luco, C.A. and Vignoli, J.R. 2003. *Segregación Residencial en Áreas Metropolitanas de América Latina: Magnitud, Características, Evolución e Implicaciones de Política*. Serie Población y Desarrollo No. 47. CEPAL: Santiago.
- Marx, K. 1976. *Capital: A Critique of Political Economy*. Vol. I. Penguin: London.
- Mauro, P. 1995. Corruption and Growth. *Quarterly Journal of Economics*, 110(3), 681–712.
- Merrifield, A. 2002. *Metromarxism: A Marxist Tale of the City*. Routledge: New York and London.
- Mitchell, D. 2003. *The Right to the City: Social Justice and the Fight for Public Space*. Guilford: New York and London.
- Murphy, J. 2011. Capitalism and Transparency. *Critical Perspectives on International Business*, 7(2), 125–141.
- Paterson, M., Doran, P. and Barry, J. 2006. Green Theory. In: Hay, C., Lister, M. and Marsh, D. (eds), *The State: Theories and Issues*. Palgrave Macmillan: New York. pp. 135–154.
- Picciotto, S. 2011. International Transformations of the Capitalist State. *Antipode*, 43, 87–107.
- Portes, A. 1989. Latin American Urbanization during the Years of the Crisis. *Latin American Research Review*, 24(3), 7–44.
- Ramírez, R. 2003. El Paradigma Cualitativo de la Pobreza Urbana. In: Balbo, M., Jordán, R. and Simioni, D. (eds), *La Ciudad Inclusiva*. CEPAL: Santiago. pp. 29–58.
- Roberts, B.R. 2005. Globalization and Latin American Cities. *International Journal of Urban and Regional Research*, 29(1), 110–123.
- Roberts, B.R. 2011. The Consolidation of the Latin American City and the Undermining of Social Cohesion. *City and Community*, 10(4), 414–423.
- Rolnik, R. 2001. Territorial Exclusion and Violence: The Case of São Paulo, Brazil. *Geoforum*, 32(4), 471–482.
- Rose-Ackerman, S. 2000. Is Leaner Government Necessarily Cleaner Government? In: Tulchin, J.S. and Espach, R.H. (eds), *Combating Corruption in Latin America*. Woodrow Wilson Center Press: Washington D.C. pp. 87–104.
- Sassen, S. 1991. *The Global City: New York, London and Tokyo*. Princeton University Press: Princeton, NJ.
- Saunders, P. 1981. *Social Theory and the Urban Question*. Hutchinson: London.

- Schweitzer, L. and Stephenson, M. Jr. 2007. Right Answers, Wrong Questions: Environmental Justice as Urban Research. *Urban Studies*, 44(2), 319–337.
- Smith, N. 1996. *The New Urban Frontier: Gentrification and the Revanchist City*. Routledge: London and New York.
- Spronk, S., Crespo, C. and Olivera, M. 2012. Struggles for Water Justice in Latin America: Public and ‘Social-Public’ Alternatives to Commercial Models of Water Delivery. In: McDonald, D. and Ruiters, G. (eds), *Alternatives to Privatization in the Global South*. Routledge: London. pp. 421–452.
- Székely, M. and Montes, A. 2006. Poverty and Inequality. In: Bulmer-Thomas, Coastworth, J.H. and Conde, R.C. (eds), *The Cambridge Economic History of Latin America*. Vol. II. Cambridge University Press: Cambridge. pp. 585–645.
- UNDP. 2006. *Beyond Scarcity: Power, Poverty and the Global Water Crisis*. Human Development Report. UNDP: New York.
- UN-HABITAT. 2006. *The State of the World’s Cities Report 2006/2007. The Millennium Development Goals and Urban Sustainability: 30 Years of Shaping the Habitat Agenda*. United Nations Human Settlements Program and Earthscan: London.
- UNICEF and WHO. 2012. *Progress on Drinking Water and Sanitation: 2012 Update*. UNICEF/World Health Organization: New York.
- United Nations. 2014. *World Urbanization Prospects: The 2014 Revision, Highlights (ST/ESA/SER.A/352)*. United Nations, Department of Economic and Social Affairs, Population Division: New York.
- Valladares, L. and Coelho, M.P. 2003. *Urban Research in Latin America: Towards a Research Agenda*. MOST Discussion Paper No. 4. Available at: <http://www.unesco.org/most/valleng.htm> (accessed on 17 January 2010).
- Weyland, K. 1998. The Politics of Corruption in Latin America. *Journal of Democracy*, 9(2), 108–121.
- Williams Montoya, J. 2009. Globalización, Dependencia y Urbanización: La Transformación Reciente de la Red de Ciudades de América Latina. *Revista de Geografía Norte Grande*, 44, 5–27.
- World Bank. 2007. *Strengthening World Bank Group Engagement on Governance and Anticorruption*. World Bank: Washington D.C.
- Young, I.M. 2010. The Ideal of Community and the Politics of Difference. In: Bridge, G. and Watson, S. (eds), *The Blackwell City Reader*. Wiley-Blackwell: Chichester. pp. 229–236.

- Žižek, S. 2008. *In Defense of Lost Causes*. Verso: London and New York.
- Zug, S. and Graefe, O. 2014. The Gift of Water: Social Redistribution of Water among Neighbours in Khartoum. *Water Alternatives*, 7, 140–159.
- Zwarteveen, M.Z. and Boelens, R. 2014. Defining, Researching and Struggling for Water Justice: Some Conceptual Building Blocks for Research and Action. *Water International*, 39, 143–158.

3

National Development and Urban Water Demands through the Mexican Capital City

► **Abstract:** *The Mexican state apparatus has been the object of sustained, often violent, disputes between different elite groups and the wider national society. With the political settlement achieved in the early 20th century, the state was able to promote a reasonably successful agenda of national development, which nonetheless increasingly exhausted its results and was partially replaced by controversial liberalising reforms since the 1980s. The national capital city encapsulates, in dramatic ways, the process of national building, economic growth and political clashes. It is now one of the largest megacities in the planet, spreading to many states and municipalities, but has to rely on distant water reserves and large engineering infrastructure, which has caused renewed forms of controversy, antagonism and uncertainty.*

Ioris, Antonio A.R. *Water, State and the City.*

Basingstoke: Palgrave Macmillan, 2015.

DOI: 10.1057/9781137468673.0007.

Contesting the Mexican state

The recent history of Mexico, as in many other countries in the Latin American continent, has been marked by institutional changes and policy adjustments that, in the end, have largely reinforced long-established patterns of social differentiation and political inequality. Especially in the last three decades, state reforms have been implemented with the promise of modernisation and better socioeconomic prospects, but very little was actually delivered for the wider population in terms of substantive and meaningful sociopolitical improvements. In such context, the urban question constitutes one of the most unresolved and challenging issues, particularly in the national capital city. This is a key element of the unfinished agenda of nation building that Mexico shares with practically all the rest of Latin America. As discussed in the previous chapter, the examination of urban dilemmas depends on the dialectical interrogation of local and national trends. In the case of Mexico, the nexus between urbanisation and other scales of interaction should be appreciated on account of its turbulent history and complex geography: most political and economic processes in Mexico have always been seriously affected by its proximity to the United States and the resulting geopolitical subordination and socioeconomic exploitation. More than a century ago, Porfirio Díaz famously warned the world about the precarious geographical position of the country: 'Poor Mexico, so far from God, so close to the United States.'

After independence, in the 19th century, Mexican history was characterised by a series of bloody rebellions, ephemeral governments and political instability, which were largely associated with the loss of vast territories to the American expansionism. The grave situation of internal and external inequalities was not sustainable and gave rise to a long and violent insurgency in the early new century. The turbulent period between 1910 and 1920 is described as the 'Mexican Revolution' and it was a long decade of successive coup d'états and grassroots revolts that, in the end, produced a comparatively stable political regime in the hands of an autocratic elite. The main organisation in charge of the renewed Mexican State was the Institutional Revolutionary Party [*Partido Revolucionario Institucional*, PRI], which was formed in 1929 in the middle of re-emerging political volatility and the perceived need to consolidate post-revolutionary politics. The national state run by the PRI was for many decades portrayed by political leaders as the ultimate achievement

of Mexican society, although in effect it was appropriated and manipulated to serve the particular agendas of the politico-economic elite. For instance, in his inaugural address as president in 1934, Cárdenas affirmed that the 'state alone embodies the general interest, and for this reason only the state has a vision of the whole' (quoted in Schneider, 1999: 283). A crucial demonstration of the reigning ideology was the nationalisation of the oil industry in 1938 and the fact that, after Cárdenas, national public spending never fell until the 1980s. The national state under the control of PRI took the strategic role of promoter and leader of development and industrialisation.

The political stability achieved by continuous rule of PRI meant that the state was both the advocate and the main beneficiary of developmentalist agendas adopted in the post-World War II period (the so-called Mexican miracle). As previously discussed, the state is a complex entity with multiple political allegiances and different, sometimes contradictory, commitments. In the present case, the Mexican state commanded by PRI articulated the interests of domestic groups and the demands of foreign capital while promoting fast-paced industrialisation that improved the life standards of part of the urban population. Government bureaucracy under the presidency of Alemán (1946–1952) was increasingly concerned with the protection of national industries through restriction on trade and foreign capital; at the same time there was a firm control of labour unions and of political participation. Civilian presidents and public administrators, who were then mostly lawyers, progressively replaced the military in the command of the country. Among other consequences, this resulted in additional centralisation of political power in the capital city (Camp, 2011).¹ Yet, the evolution of national developmentalism in the country during the 'Mexican miracle' was not without problems. After a phase with relative tranquillity between 1956 and 1971, there was an acceleration in government spending together with growing economic volatility, currency devaluation and rising public debt (Balassa, 1983). The image of a strong, centralised corporatist state, led by the PRI, concealed what was actually a prolonged, messy process of debate and negotiation among the post-revolutionary state, the working classes and the regionally based industrial elites.

The mounting problems of the Mexican developmentalist state were temporarily mitigated with the discovery in 1976 of huge oil reserves (one of the largest in the world) in the Bay of Campeche in the southernmost end of the Gulf of Mexico. The exploitative attitude towards nature

inherited from colonial and early independence times was once again reproduced in relation to the newfound energy resources, but with serious environmental and economic impacts. Mexico devalued the national currency [peso] in an attempt to relaunch its economy, stimulate oil export and borrow on the international capital market. The problem was that in a few years the USA economy itself entered a recession and the prices of oil dropped, at the same time that the international interest rates rose. In order to explore the oilfield the government had borrowed huge sums of money at high interest rates (leaving the country with the world's largest foreign debt), only to find out that the oil in the Campeche area was largely of low grade. The developmentalist agenda started to erode in the 1980s with the impact of the international financial crisis, aggravated by the mishandling of the situation by the national government.

The fall in oil prices and rising interest rates triggered a default on Mexico's external debt in August 1982, which had a major impact upon the national economy and society. There was then a growing perception that the nationalist state had entered a terminal crisis and was directly blamed for being the main cause of the inflationary and debt disasters. In a relatively short period of time, Mexico moved from being a closed and highly oil-dependent economy to one that promoted deregulation, decentralisation and privatisation of state utilities. President de la Madrid (1982–1988) tried to ameliorate the external debt problem through a reduction of public spending and a large currency devaluation of the peso, but unfortunately, the recessionary impact of this strategy was more severe than originally anticipated. The process initiated by de la Madrid was decisively accelerated by President Carlos Salinas de Gortari and then largely maintained by his successors since then.²

Salinas was the winner of the controversial 1988 election (i.e. the controversy was around major suspicions of ballot box fraud) and soon after his inauguration, the president introduced a radical stabilisation plan that included aggressive privatisation of state-owned utilities and banks, as well as the liberalisation of domestic prices, foreign trade and investment. Similar to other national experiences of the time, starting with Pinochet's Chile in the 1970s, the Salinas' administration was dominated by a new generation of economists, many with graduate degrees obtained in the USA who brought the neoliberal ideology back home. Interestingly, while the rest of Latin America was moving towards (formal, but not effective) democratic regimes, the administration pursued neoliberal economic reforms and macroeconomic adjustments

while resisting political liberalisation (Camp, 2011). The introduction of neoliberalism, as a political doctrine and policy inspiration, did not reduce the role of nationalism in the administration and state building in Mexico either. On the contrary, there was a clear attempt by Salinas to reconcile the nationalistic ideology with liberalism through the partial reformulation of ideas about the role of the individual and society (O'Toole, 2012).

President Salinas signed an agreement with the USA and Canada in 1992, which launched the operations of NAFTA from 1994 (basically the reduction of trade barriers with the maintenance of restrictions on the movement of people). Like the BRICS or MERCOSUL in the case of Brazil, NAFTA has both a commercial and financial importance, but it is also of tremendous symbolic value for the national politicians wanting to justify liberalising policies and the maintenance of old political structures. In practice, the signing of the NAFTA agreement was only another major milestone in the expansion of neoliberalising strategies in Mexico, which had started with the establishment of free trade zones and *maquiladoras* in 1965 (i.e. factories that produce for export and rely on cheap labour and low technologies) and the structural adjustment programmes imposed by the International Monetary Fund in the 1980s. The country became increasingly integrated into globalised markets but mainly as subordinate producer of tradable goods: almost a third of the GDP is generated by industrial exports, of which 37.5% are manufactured goods and 43.8% is bonded industrial production (Connolly, 2003).

Despite the material and symbolic relevance of NAFTA, the end of the Salinas government was dominated by growing economic instability and mounting evidences of corruption, and the ex-president was eventually forced into exile in 1995. Ernesto Zedillo was then elected president amid a grave bank crisis and had to request a US\$ 20 billion loan from the USA to stability the currency. There were no firm signs that the pro-market strategy was delivering on its original socioeconomic goals, as the economic growth rates remained erratic with a dwindling trade surplus and growing foreign debt. The domestic distribution of income deteriorated and the country's labour markets contracted. Between 1984 and 1994, the wealthiest 10% of Mexicans saw their share of national income rise from around 34% to more than 41%, whereas every other income group suffered a decline (Pastor and Wise, 1997). Not unexpectedly, a major indigenous uprising erupted in 1994 in the State of Chiapas, led by Zapatista Army of National Liberation [*Ejército Zapatista de Liberación*

Nacional, EZLN] in protest against social injustices aggravated by economic trends. Zedillo was compelled to initiate a process of modest political relaxation that triggered the advance of multiparty politics at local and national levels, as well as the decline of Mexico City's political hegemony in favour of other regional centres.

Corruption and clientelism continued to be perceived as endemic among PRI politicians and the party suffered the historic loss of the mayoralty of Mexico City in 1995. Finally, in 2000, Vicente Fox of the National Action Party (PAN, a political party founded in 1939) won the presidential election and ended 71 years of uninterrupted PRI rule. Fox maintained the neoliberalising reforms initiated by Salinas and tried to enhance the geopolitical relations with NAFTA partners. His successor from 2006, Felipe Calderón, came from the same conservative party PAN, but became Mexico's president only after the closest election in the country's history. Calderón attempted to reduce the more exacerbated pro-business rhetoric, but without any significant change in macroeconomic policies, and to adopt an anti-drug trafficking agenda and an anti-poverty discourse (the latter was certainly a clever political move for dealing with the repercussions of the 2008 global financial crisis). In 2012, PRI returned to power with Enrique Peña Nieto, a relatively young politician, as an effort to renew the party and regain its political relevance. His first years in power were used as an opportunity to implement further liberalising reforms, including sectors like education, telecommunications and taxation. A constitutional amendment was passed in December 2013 and opened the way for more private sector participation in the crisis-ridden state-owned energy sector. Despite those adjustments, the economy remained highly dependent on the USA consumer and affected by the negative influence of drug dealing. The long process of disputes and attempts to control the state apparatus has taken place especially in the national capital, which is the focus of the next section.

The Mexican megacity at the crossroads

When the Spanish invaders reached the city in 1521, then called Tenochtitlan by the Aztecs, what is now the capital of Mexico had 300,000 inhabitants and was already one of the largest settlements in the planet. The city suffered a rapid population decline because of the violence and the serious diseases that came with colonialism. In the years

after independence from Spain in 1810, Mexico City regained increased political and economic importance, especially during the long period dominated by the politics of the abovementioned President Porfirio Díaz between 1876 and 1910. The colonial pattern of urban segregation was nonetheless maintained and most of the low-income population had their dwellings in the flood-prone sector in the eastern zones. The city only recovered to the same population of the Aztecs at the end of the 19th century and in 1900 it reached 347,000 inhabitants. The long revolutionary movement in the 1910s reorganised the national state and paved the road for the massive expansion of the capital and its reestablishment as one of the largest urban centres in the world. It was in the aftermath of the Revolution and during the industrialisation phase that the metropolitan population began its critical upsurge. Because of the developmentalism agenda pursued in Mexico by the PRI-led governments in the second half of the 20th century, the capital city reached a population of 2,982,199 in 1950, 13,734,654 in 1980 and, eventually, 17,919,158 in 2000 (UN-Habitat, 2003).

The capital of Mexico is today a metropolis with huge social inequalities and geographical contrasts, which to a large extent epitomise wider national disparities and economic tensions. It is located at the juncture between the richer, urban and agriculture 'North' (on the border with the United States) and the poor, rural and outmoded 'South'. The capital concentrates around 20% of the country's population and 32% of its GDP, but it also paradoxically combines the lowest level of relative poverty with the highest concentrations of urban poor in the country (Connolly, 2003). About 67% of the population in the capital city can be considered to be at the medium to low socioeconomic level, about 15% are in high and medium to high, and 18% in the very low (PNUMA, 2003). Peripherally located settlements, comprising self-built and mainly owner occupied dwellings, emerged as the leading housing option. More than 60% of the metropolitan population live in slums that are normally called 'irregular settlements' or 'popular colonies' – which are the equivalent of the Brazilian *favelas* or the Peruvian *barriadas* – the majority formed between the 1950s and 1980s when these settlements represented the fast 'solution' to the house deficit. Land in irregular settlements is acquired by the new residents in various ways, but always without the regular credit mechanism.

Because of the non-conventional form of urbanisation, irregular settlements have a non-linear, but constant incremental expansion

and lengthy, many times turbulent, consolidation. The result is a vast mosaic of consolidated and still precarious dwellings without regular public services, as in the case of water supply and drainage. In addition, informal settlements are often located in areas prone to flooding and landslides – especially the slums located in the steep slopes surrounding extinct lakes – which are plain evidence of the serious environmental injustices shaping the metropolitan landscape. The wider metropolitan region also expands through the incorporation of surrounding towns and rural areas, as well as the population densification of older, more central neighbourhoods. The process of demographic and spatial growth has been, nonetheless, characterised by serious imbalances and asymmetries between the wealthy, regular areas and vast zones with poverty and improvised urbanisation. A related problem is the threat to conservation areas, which are particularly under pressure because of the construction of the new houses and the formation of more and more settlements.

Interestingly, as in the case of the other Latin American megacities experiencing unstoppable growth and precarious regulatory control, it is not a simple task to define the boundaries of the Mexican capital. On the contrary, there have been different attempts to establish the limits of the conurbation and different definitions have been adopted. Initially, Mexico City was the urbanised area in the Federal District, but from the mid-1940s, because of the prohibition of new housing construction in the Federal District, industrial and urban growth spilled over into the neighbouring municipalities in the State of Mexico. The Federal District had then a population of 1.75 million people, of which 1.6 million in Mexico City properly speaking. Since the 1970s, the terminology changed to Mexico City Metropolitan Area [*Zona Metropolitana de la Ciudad de México*, ZMCM] to include the Federal District and 35 surrounding municipalities. There was some residual confusion because of the interchangeable use of terms such as ‘Mexico valley’ and the ‘Mexico catchment’, which in effect referred to different geographical areas. In 2003–2004, after an inter-departmental debate that tried to redefine the metropolitan region, a more comprehensive terminology was put in place. The solution was to use the expression Mexico Valley Metropolitan Zone [*Zona Metropolitana del Valle de México*, ZMVM] that comprises the 16 internal delegations (i.e. subdivisions) of the Federal District, 59 municipalities in the State of Mexico and one in the State of Hidalgo (INEGI, 2013). The total population in the ZMWV totalled

20,116,842 in the year 2010 (according to the National Population Council, CONAPO).

In more recent decades, demographic expansion continued unabated but with increasingly lower rates: the annual growth was 5% between 1950s and 1970s, declining to 1.75% in the 1990s (Izazola, 2001) and 0.9% between 2000 and 2010 (cf. CONAPO). Nonetheless, the trend of uneven urban development, which has privileged higher-income residents and industrial areas, while producing a sprawling and fragmented city with segregated settlements and a mounting need for adequate housing, remains practically the same. If economic development, under Keynesian influences in the post-war decades, had major repercussions for the Mexican capital, the same was true in relation to the transition to the neoliberalised economy. With the stronger insertion of Mexico into globalised markets, there was a huge expansion of buildings for low- and medium-income families, as well as a growing number of unplanned settlements spreading over common or communal land (often encroaching upon aquifer recharge zones, one of the main sources of water for the city). The number of houses almost tripled in 40 years, with more than 1.7 million in 1990 compared to approximately 600,000 in 1950. The wealthier areas have typically better living conditions and opportunity to have access to services (e.g. access to water supply and sewerage, collection of solid wastes, schools, hospitals, road infrastructure, etc.) than low-income areas. There are also inequalities within the wider ZMVM, considering that more people in the Federal District have access to public services compared to the municipalities in the States of Mexico and Hidalgo.³

The continuous expansion of informal settlements can be attributed to the lack of access of the low-income population to affordable, regularised housing or to land with adequate tenure security, which is related to their social and political situation. A key issue is that informal settlements have multiplied in the metropolitan region, but government's land-use policies have, by and large, failed to resolve the problem of informal human settlements occupied by the poorest inhabitants and also the more general urban problems. The prevailing policy-making has been highly reactive, internally inconsistent and unable to take informal settlements into account (Aguilar and Santos, 2011). The effects of most government initiatives have been uneven as these systematically neglect the demands of the most vulnerable and needy social groups (UN-Habitat, 2003). It means that policy strategies and administrative approaches have responded to real estate and other economic pressures

rather than grassroots demands and environmental considerations. For instance, in the 1990s and as part of the broader neoliberalising reforms, a massive process of property regularisation was adopted primarily through the provision of individual land titles that can be traded, inherited and mortgaged. Likewise, a new programme was introduced in the 2000s, which offers credits for home improvement and extension, still with uncertain results and, at best, only partial removal of the old clientelist practices.

On the other hand, it is also important to acknowledge – using the analytical framework described in the first section of Chapter 2 – that social and spatial inequalities have different meanings to different groups and sectors in the ZMVM. Whereas the poor have a daily negative experience of discrimination and exclusion, national and international agencies carry on promoting technocratic, top-down solutions to urban inequalities (often presented in a mystified language of justice and integration). A large proportion of the population, who is unable both to afford rising prices in the centre and to find housing in the rest of the Federal District, has been expelled to the neighbouring State of Mexico, where commercial builders are developing massive subdivisions of low-quality affordable housing (these extensive developments are part of President Fox's quantitative success story as regards housing at the national level). Another example was *Bando Dos*, a highly contested and fought over set of policy guidelines introduced in 2001 by the mayor of the Federal District and directed at the re-densification of the inner city and control of peripheral sprawl. The aim was to promote the construction of housing and commercial developments in the four central boroughs while putting a ceiling on the construction of new housing in the remaining 12 boroughs of the district. Between 2005 and 2006, more than 224,000 new residents were expected to come to live in these four boroughs in what has been the fastest development of housing in the urban core. Moreover, a significant amount of the new houses have been developed through the demolition of old single-family housing and their replacement with medium- and high-rise apartment buildings. This move has met fierce opposition as local residents reacted strongly against the re-densification process arguing that their neighbourhoods could not cope with the rising demand for sewage, electricity, water and transport infrastructure. This negative experience suggests that accessibility to reliable and satisfactory water services is one of the main problems faced by the marginalised population of the capital, what is analysed later.

The politics of water scarcity in the Mexico Valley Metropolitan Zone

The combination of a nationalistic ideology of economic development during most of the 20th century – largely based on import substitution industrialisation and conservative agriculture modernisation in some parts of the country – and a process of urbanisation that systematically privileged only a percentage of the metropolitan population produced a highly uneven urban landscape. The evolution and persistent failures of the water supply and sanitation services clearly indicate the conversion of water management into an adjunct of economic and political agendas at the expense of other important water-related demands (i.e. health, environmental, cultural aspects of water allocation, use and conservation). As in the rest of the country, prevailing economic and political policies have prioritised certain outcomes that are not equally shared across society. An emblematic example of the politicised socio-natural reality of Mexico City is the fact that, according to the 2000 census, about 1.8 million people (or around 10% of the city's total population) live in areas where over 75% of the dwellings lacked inside water and are normally served by private water tankers. According to the water utility of the Federal District (SACMEX), 18% of its population do not receive water on regular basis (which is one of the main justifications of a new investment programme labelled CDMX). To make matters worse, the metropolis is using water two to three times faster than the natural recharge rate, and less than 8% of wastewater is treated.

Water problems are, nonetheless, more complicated than simply the accumulation of bad management and privileges. Development and economic growth have depended on changes in the physical and social landscape of Mexico City, at the same time that these have impacts on the allocation and use of resources, energy and socioeconomic opportunities. The socio-environmental problems of Mexico City are common to most global megacities – not only water and sanitation issues, but also air pollution, rubbish mountains, chaotic transport system, etc. – but the situation is worse given its unique geography. The Spanish settlement replaced the previous large Aztec city but also neglected the clever water management system then in place.⁴ Mexico has an altitude of 2,240 m above sea level and an average precipitation of 700 mm concentrated between May and September. It is located in a closed basin on the flat bed of what was once a series of lakes (Texcoco, Xaltocan, Zumpango,

Xochimilco and Chalco) and, because of that, it has no drainage outlet and suffers from both problematic water supply and flooding. In addition, the metropolis is situated along a geological fault that is large enough to create an earthquake and is in the vicinities of an active volcano. Those biophysical circumstances are not simply the background of social and economic relations, but are intensely incorporated and metabolised through socionatural interactions. Crucially, the interaction between social groups, economic sectors and the more-than-human dimensions of Mexico City are permeated by the deep imbalance of power between locations and social groups.

In any event, the water management approach that prevailed during most of the 20th century was the so-called hydraulic paradigm, especially through the prioritisation of large hydraulic investments to allow the interconnection of four main river basins (Cutzamala, Lerma, Tula and Valle de México). The main rationale was the expulsion of unwanted water and the import of water from the surrounding catchments through the construction of more than 120 dams and 600 km of aqueduct (Perló Cohen and González Reynoso, 2005). Since the 17th century drainage works were constructed to remove excess water to the Tula catchment (in the State of Hidalgo), but the first major work was the *Gran Canal de Desagüe*, inaugurated by General Porfirio Díaz in 1900, when he declared it the 'most important achievement of his government' (quoted in Perló Cohen and González Reynoso, 2005: 24). Additional infrastructure was introduced in the following decades, but some of the most important drainage works were constructed between 1962 and 1975 during the developmentalist phase. Nonetheless, regular flooding continued to affect large areas of the city and due to the disordered expansion of the metropolis there was a gradual deterioration of the drainage system from 280m³/s in 1975 to 195m³/s in 2008 against a need to remove a total flow of 315m³/s (CONAGUA, 2012). In recent years, though, the 'hydraulic paradigm' has been partially replaced by new approaches informed by the wider neoliberalisation of the national state, what has produced mixed results.

Because of the 'Mexican miracle' of the post-World War II decades, which was mostly based on import substitution industrialisation and migration from the countryside to urban areas, after 1960 there was a decline in the public investment in agriculture irrigation and prioritisation of hydropower and urban water supply schemes (Jiménez et al., 2010). The focus was on the appropriation of increasingly distant water

reserves (in particular, interbasin transfers from the Lerma and Cutzamala catchments) and on the extraction of large amounts of groundwater, which produced serious hydrological impacts and widespread pollution (including the presence of toxic and non-toxic organic matter, nitrates, metals and fluorides, as well as a wide variety of microorganisms). For many decades, the demand for water continued to grow, which is likely to be maintained in the near future, at around 1.0 to 1.5 m³/s every year, according to several projections. Water management issues have been exacerbated by severe ground subsidence in the central areas of the capital that causes pipeline leakage and the contamination of mains water supply (losses and leakage represent around 40% of the water supplied). The overexploitation of groundwater (i.e. abstraction minus recharge) has resulted in a lowering of the water table by about 1 m per year and subsidence of 40 cm/year. In broad figures, the supply of water to ZMVM now requires 63 m³/s (with additional 13m³/s used for irrigation), which come from the following aggregate sources (CONAGUA, 2012):

- 1 Overexploited aquifers = 17.4 m³/s;
- 2 No overexploited aquifers = 25.2 m³/s;
- 3 Cutzamala system = 14.9 m³/s, and
- 4 Lerma system = 5.6 m³/s.

The main challenge now is that those existing sources are increasingly under pressure and there are limited prospects for additional provision. Such acute water problems in the Mexican capital have remote and recent causes, which have coalesced to shape the attitude and the reactions of public and private organisations and individuals. The mounting water scarcity and the systematic failure of the responses are vividly captured in the 1984 unconventional novel by Vicente Leñero, where the book incorporates non-literary material from documents and campaign publications to reveal the political ecology of urban water happening in numerous management mistakes, the ineffectual bureaucracy, the mystification of technological solutions and the irrational behaviour of those in charge.

Without denying the important climatic, geological and hydrological factors, the primary cause determining scarcity is how water is allocated, used and managed. Water scarcity is a relational condition that arises out of socionatural interactions in time, space and scale. The scarcity of water in semi-arid Sicily, for example, does not derive from low rainfall alone, but it is mainly the outcome of disjointed, incomplete and often

malfunctioning techno-natural networks (Giglioli and Swyngedouw, 2008). Likewise in Syria water scarcity has been produced and naturalised through economic development policies and the political agenda of the ruling Ba'ath party (Barnes, 2009). Even so, a large number of official documents and technical assessments still tend to neglect the relational and politicised basis of resource scarcity and limit the analysis to the (largely utilitarian) balance between supply and demand (e.g. Baumgärtner et al., 2006; Homer-Dixon, 1994). According to the mainstream policy-making, the scarcity of water is the result of a combination of physical insufficiencies, environmental determinism and imperfect, costly market transactions. For instance, the unavailability of water has been interpreted by the theorists of ecological modernisation as the failure to capture its monetary value and to realise its full economic potential. The array of regulatory toolkits included in the new water legislation – such as water licences, user fees, payment for ecosystem services and utility privatisation – are all rationalised in relation to rising levels of scarcity. Because it is defined as scarce, water is reontologised by the hegemonic groups as an economic resource and becomes susceptible to the same rationality (i.e. production for the market) that was paradoxically responsible for the sources of scarcity in the first place.

Mainstream interpretations tend to operate within a narrow techno-bureaucratic episteme in which scarcity emerges as a narrative that justifies simplistic solutions to conflicts and disputes. The ordinary symbolism of scarcity ultimately represents a political rallying point around which administrative networks emerge and are perpetuated (Alatout, 2009). This reductionist focus on physical scarcity and on the purely economic responses obfuscates, rather than illuminates, the understanding of the natural resource scarcity. As pointed out by Harvey (1974: 272), the scarcity of resources presupposes certain social ends and 'it is these that define scarcity just as much as the lack of natural means to accomplish these ends'. The consequence is that water scarcity should be understood from a non-essentialist perspective. It means that scarcity cannot be described in absolute and aprioristic terms, but it is the result of intricate relations between human groups and their socational circumstances. Such non-essentialist interpretation rejects scarcity as a purely physical and economic phenomenon, but emphasises the contingency of sociospatial relations that affect the allocation and use of resources. A non-essentialist understanding of the allocation and use of natural resources is associated with what Panayotakis (2003: 90)

describes as the dialectics of scarcity, something that is inherent in the contradictory basis of capitalist societies: 'the capitalist economic process that reproduces scarcity artificially also enriches human needs and creates the preconditions for overcoming scarcity'.

Classical political economists already identified an intrinsic association between the structure of market institutions and environmental degradation, in the sense that scarcity derives from the way capitalism relates to nature (Perelman, 1996). Marx examined the balance of power involved in the private appropriation of the 'forces of nature', such as water features, that are marshalled for rent-seeking and for the overarching accumulation of surplus value. Marx further observed that those who own a waterfall are in a position to 'exclude those who do not from using this natural force, because land, and particularly land endowed with water power is scarce' (quoted in Harvey, 2006: 336). By acknowledging the non-essentialist origins of scarcity, it is possible to go beyond simplistic descriptions of resource shortage and open up the possibility of creatively addressing the causes and consequences of water scarcity. In particular, it should be noted that the persistence of scarcity in capitalist societies is in effect closely related to the expansion of a specific model of economic growth and national development according to the Western 'project' of modernity (Habermas, 1981), which has spread and assumed particular configuration in areas of the Global South such as in Mexico (where the expansion of the modernist project has never been completed, but conflicting views of modernisation co-existed with pre- and post-modernist environmental sensitivities). A condition of resource scarcity is contingent upon specific socionatural interactions and the broader, historical relations of production and reproduction more broadly. Scarcity, as much as modernity, is a contested concept that needs to be critically reinterpreted in order to understand the failures and the prospects of allocating and using water more fairly.

A non-essentialist conceptualisation of water scarcity is even more unmistakably demonstrated in the context of chaotic urban development, as in the case of the Mexican capital. The city is a mosaic of places and locations where water is unevenly stored, processed, conveyed, used, wasted and recollected according to a range of socioeconomic relations and political interactions. The contemporary city is a locale that presupposes renewed forms of scarcity, which nurture novel opportunities for the circulation of capital (through investments, management and tariffs) and the endorsement of political power (through the promise and the

administration of scarcity-relief schemes). In the words of Swyngedouw (2004: 30), 'the mechanisms of exclusion from and access to water manifest the power relationships through which the geography of cities is shaped and transformed'. Furthermore, when considering the dilemmas of contemporary urban development, Lefebvre (2003: 161) observed that 'urbanism provides a presentiment of new scarcities' and it raises the prospects of exploring them according to the balance of power. For Lefebvre, the city is the realm of manifold scarcities, such as scarce space, time, desire and elements (not only water, but also air, earth, the sun), whose management encapsulates inequalities and is instrumental in the perpetuation of exploitation. As a result, there exist a number of concurrent forms of scarcity associated with water, which are also the outcome of sustained forms of inequality and discrimination. It is the combination of converging manifestations of scarcity that ultimately serves to reinforce policy failures and the precariousness of public water services.

Particularly in the megacities of Latin America, the cartography of water scarcity closely follows the legacy of colonial rule and the troubles of post-colonial development. The main cause of water mismanagement is the perverse combination of socioeconomic, political and spatial inequalities that determine the segregation of large sectors of the population from the access to decent services. Water distribution problems are often more severe in zones occupied by deprived population and in areas where the communities are weak and unable to exert political influence. That condition calls for a conceptualisation that adequately connects the pattern of water services with the concrete suffering of marginalised sectors of urban society. Such a framework should be able to address the complexity of the city and situate water scarcity in relation to the synergistic effects of other important forms of economic, political and social shortcomings. In that regard, the concept of multiple scarcities provides a helpful analytical device to understand the persistence of water problems in the city in a broader context of cumulative problems. Water scarcity is not a single, monothematic phenomenon but it must be decoded as the locus of various intervening scarcities.

The synergistic character of multiple scarcities related to water is typically the result of, and also a key factor in, the persistent segregation of disadvantaged groups. Recurrent scarcities emerge out of fabricated needs and demands, as much as the satisfaction of some demands happens at the expense of novel scarcities elsewhere (for example, the

construction of expensive households with high rates of water use in cities already suffering from the lack of water services in low-income areas). Consequently, the scarcity of water should be treated as a plural, compounded phenomenon, something that is also an integral factor in the formation and replication of highly asymmetric social landscapes. The synergy between multiple forms of scarcity associated with water scarcity problems has main repercussions for the social production of space (from a Lefebvrian perspective). Especially in large cities, there are spaces where the convergence of manifold forms of scarcity becomes the prevailing pattern of the lived space (in frontal contradiction with the conceived space, as described by Lefebvre, 2003).

It should also be observed that many previous studies dedicated to the examination of multiple scarcities have provided only a superficial discussion of the same phenomenon. For instance, Homer-Dixon (1994) presents a neo-Malthusian argument to describe the interactive and feedback effects of simultaneous shortages of resources and environmental degradation. According to this interpretation, unsustainable practices, population growth and structural failures are cumulative factors that interact in ways that create or exacerbate multiple scarcities. Similarly, Buxton et al. (2003) affirm that multiple scarcities are a problem when they prevent the advance of market-based solutions for the development of the region and the resolution of pending socioenvironmental degradation.

Departing from such teleological conceptualisations of multiple scarcities that fall short of addressing the underlying synergies among physical, social and political processes – which are vividly present in many current descriptions of water problems in Mexico and tend to reduce the lasting water problems to their narrow technical dimensions (Tortajada, 2006, for example, blames above all the local population for not having developed a sense of responsibility or interest in participating in the conservation, protection and management of water resources) – we contend here that the explanation of water scarcity requires both a non-essentialist perspective and the identification of multiple, synergistic mechanisms of inclusion and exclusion. Those two concepts – i.e. non-essentialist and multiple water scarcities – have important implications for urban political ecology investigations and indicate the importance of considering the totality of scarcity. By taking into account the non-essentialist interpretation of water scarcity and the intersection of multiple scarcities that helps to produce the urban space, it is possible

to realise that situations of water scarcity are experienced together with the violation of socioeconomic rights and the unavailability of other important resources and services.

The production of urban water scarcity arises fundamentally from mechanisms of political differentiation and spatial inequality that intervene in the allocation and use of resources and opportunities. In that context, the presence of one form of scarcity (for example, limited housing rights or restricted political representation) directly and indirectly compromises the mitigation of other forms of scarcity (such as water). In other words, the scarcity of water is constantly recreated and reaffirmed by the existence of simultaneous and synergistic expressions of scarcity. The specific level of suffering depends on the status and position of individuals and communities, but the scarcity of water is always part of the totality of the experience of scarcity. For instance, the distress caused by the insufficiency of water is often experienced with environmental degradation and social exclusion, which together generate an integral sensuous–emotional experience in the everyday lives of urban dwellers. In the words of Lukács (1971: 10), the concrete totality is the category that actually governs reality. The category of totality helps to determine not only the object of knowledge, but also the subjects and how they are posited in the totality. The consequence is that ‘the destruction of a totalising point of view disrupts the unity of theory and practice’ (Lukács, 1971: 39). This last statement has important practical implications for the examination and response to urban problems, such as the sociospatial production of water scarcity in Mexico City, particularly taking into account the interconnection among the local, national and international scales of economic activity and social interaction (which converge to form a ‘totality’).

Persistent water scarcity and the evolving apparatus of the state

The production of water scarcity in the ZMVM is directly connected with the cycles of prosperity and economic crisis that characterised national development in the last hundred years. The localised water dilemmas faced by the low-income population in the periphery areas are both the result of circumstantial, sectoral decisions and also reflect the politico-economic priorities and overall economic disparities. At the centre of

those controversies there is the state apparatus – comprising the federal administration, state and municipal authorities, parliaments, judiciary and other branches of the public sector – whose initiatives encapsulate the wider balance of political power. The Mexican State that emerged from the Revolution was for many decades controlled by a political elite that promoted one particular direction of national and regional economic activity, only to be partially replaced by a liberalising model of state that was again in charge of promoting social and economic agendas according to the main nucleuses of power. The evolution of constitutional and sectoral legislation demonstrates the negotiation and the clashes between economic sectors and social groups. Not just that, but the struggles over the access to water and for investments in water utilities have been a critical component of cross-scale politics.

The 1888 law marked the beginning of federal government's involvement in water management by determining the public property of water resources. The constitution adopted in 1917, at the time of the Revolution, designated water services as a municipal responsibility (as specified in Article 115, which gave water services the character of a public good and formally granted municipalities a leading role); however Mexican federalism has been historically controlled by the top national administration, which included the centralisation of decisions about water services. In 1917, it established the Department of Water, Land and Colonisation [*Dirección de Agua, Tierras y Colonización*] as the main body in charge of water regulation and investments (Lee, 1988). The name and configuration of the water agencies changed several times during the following decades. The creation of the National Water Ministry [*Secretaría de Recursos Hidráulicos, SRH*] in 1946 served to centralise most of the existing water systems and the network expansion advanced by the national government followed the political demands of the ruling PRI party.

The prevailing 'hydraulic paradigm' meant that the developmentalist state should fund, build and operate an increasingly larger and more complicated water infrastructure. The first phase of the Lerma system was constructed between 1942 and 1951 (surface water) and the second phase between 1965 and 1970 (from a well field). In 1974, the Immediate Action Plan [*Plan de Acción Inmediata*] started to bring water from the northern part of the Cuenca de Mexico. And in 1982 and 1985 the first and second stages of the Cutzamala System were implemented, which includes seven dams, a water treatment work and many miles of aqueduct. During the 1980s there were many cases of conflicts when public

authorities tried to take over water systems controlled (often without formal permission) by local communities, which boosted many cases of protest, unrest and even civil disobedience. Such clashes continued in the following decades, despite all the rhetoric of public participation and sustainability.

The Mexican experience has many important parallels with the Brazilian centralisation of resources and expertise in the hands of the national government during the equivalent national-developmental period. As with the electricity sector, water supply and wastewater treatment providers had to expand in order to cope with rapid industrialisation and demographic growth in the 20th century in Brazil. In the 1970s, there was a major boost with the launching of the National Sanitation Plan (PLANASA) and, between 1970 and 1990, the percentage of urban households served by water supply went from 60.5% to 86.3%, and the percentage served by sewage collection rose from 22.2% to 47.9%. Moreover, during this same phase, growing political and administrative problems together with evidence of corruption and mismanagement led to declining rates of investment. After PLANASA was formally terminated in 1992, the sector began to shift towards a more decentralised and flexible provision of services based on increasing competition between public and private companies. Under the conservative administration of President Cardoso (1995–2002), new legislation, Law 8979/1995, was passed to specifically stimulate the involvement of private companies (Ioris, 2007).

The decentralisation of water services in Mexico has accelerated since the 1980s, but mainly following the wider liberalising reform of the national state. In 1983, a constitutional reform amended the (now famous) Article 115 with the purpose of facilitating the transfer of water services from the federal government to provincial administrations, which often passed them on to municipalities. Nonetheless, there was no correspondent transfer of funds and know-how, which has since then led to institutional conflicts and, more important, prompted the privatisation through the concession to private operators. At the same time, service and environmental regulation were significantly enhanced as part of the implementation of neoliberal governance (Ioris, 2014). In 1989, the National Water Commission (CONAGUA) was established and put in charge of all public water management functions. CONAGUA became the main advocate of (controlled) decentralisation, focus on economic results and market-based solutions as it was the first step in the

establishment of water markets and for involvement of private companies in public water services (for example, the creation of autonomous municipal utilities in partnership with private firms).

As in many other parts of the world, the privatisation of water services, either directly or by a range of backdoor schemes (i.e. concessions and tertiarisation contracts), has been resisted by the population and wider society, which are social phenomena related to the sensitivities and complex values of water. In 1992, Article 27 of the Mexican constitution was reformed, fundamentally changing the rules governing the ownership of land and water in the country and enhancing the formation of land and water markets. Article 115 was again revised in 1999 in order to allow further amendments of the regulation and facilitate the functioning of water markets. A new water law was passed in 1992 (with a very long text and more than 120 articles) and provided the legal mechanisms for the involvement of private companies in water services. The water services of the capital signed contracts with four private groups in 1993 (which were renewed in 2004 and 2009), which included large national companies and the large French corporations Suez and Veolia involved in most water privatisation around the world.

Similar to legal texts and policies introduced at the time (as in Brazil and South Africa), CONAGUA and other government agencies adopted the ideology and the language of integrated water resources management (IWRM) advocated by multilateral organisations and academics from the Global North (e.g. Wade, 2012). One example is the creation in 1999 of the Water Citizen Movement [*Movimiento Ciudadano por el Agua*], which are citizen groups organised to promote the efficient use of water, a new 'water culture' and the recognition of the social and economic value of water. IWRM has certainly an appealing discourse of collaboration and joint learning, but it is also characterised by an internal contradiction between public participation and the recognition of the economic value of water (Ioris, 2009). The international experience has shown that IWRM suffers from serious limitations, in particular epistemological uncertainty given that most of the literature presents integration as a vague combination of aspirational (i.e. something needs to be done to solve current water problems) and exhortative measures (i.e. all sectors and groups should be involved in shared problems), without indicating how the communication between geographical areas and water user sectors can be achieved. There are also operational limitations (because of its fluid conceptualisation, there has been a constant

hesitation among water managers to adopt the IWRM methodology) and political limitations (the persistent reluctance among decision-makers to recognise the mechanisms of exclusion from access to water or to admit that the differences between social groups can have a major influence on water allocation and on the distribution of negative impacts).

More important is to realise that concepts such as IWRM, ecological modernisation and environmental governance, which were introduced in the 1980s with reference to sustainable management and public participation – typically appropriated in a highly non-political and instrumentalised fashion – have a contingent relationship with the liberalising reform of the state. In that regard, Mexico has been a classic example of the politicised combination of decentralisation and neoliberalism in the water sector. For instance, in the early 1990s, an initiative called APAZU (National Programme of Potable Water and Sanitation in Urban Zones) was launched by the federal government, directly influenced by World Bank guidelines, aiming to stimulate investments in municipal water services. The funds transferred from the federal government in the form of loans came with attached conditions that in practice facilitated the process of water commercialisation through the direct involvement of private companies (a form of privatisation). In order to become eligible for the loans, local authorities were required to bring matching funds through cost recovery. In order to achieve the aims of APAZU, legal adjustments were required in terms of devolving responsibilities to municipal administrations, which was exactly what the 1992 water legislation did. The main problem is that such market-friendly approaches did not increase the performance or the public image of water utilities. On the contrary, the implementation of new laws and programmes suffered from the constant disagreement between agencies at different scales of the administration, such as the national government, the government of the Federal District and of the State of Mexico (especially when they are run by competing political parties). More significantly, the commercialisation promoted through APAZU aggravated social conflicts surrounding urban service provision, which together with local institutional constraints even undermined the ability of municipal administrators to adopt the water reforms expected by national and international advocates of private engagement (Herrera, 2014).

From the above, it can be seen that the expansion of the hydraulic infrastructure and the management of water scarcity and flooding in

the Mexican capital has been a matter of serious controversy for many decades. The management of a vast, interconnected water system is certainly a major challenge for any government administrator, but the main issue is the difficulty to incorporate the needs of the rural minorities. The rural population and the residents in the periphery of the capital city have been largely discriminated in favour of the demands of the core areas in the metropolitan region, as demonstrated by the style of the decision-making and the measures adopted by public authorities. In 1972, the government unitarily decided to cut water to small farmer communities [*campesinos*] in the Upper Lerma region in order to maintain the supply to Mexico during a drought year. This decision breached a previous agreement about the operation of an important aqueduct. Once it was clear that their concerns and protests were being ignored, the reaction by the farmers took a violent turn with the 'illegal' appropriation of water from the aqueduct and the control of some boreholes. Similar clashes happened in the 1970s and 1980s between central authorities and the communities in areas around the capital, especially when water restrictions were perceived as the consequence of their subordinate condition. That was aggravated by the limited space for contestation in the formal political channels then existing, which often led to direct action by affected communities.

At the same time, the general urban public increasingly expressed sympathy for the rural poor struggling to secure water rights. With the advance of neoliberal agendas in the 1990s, water conflicts emerged again and, in many cases, attracted significant visibility due to the connection with networks of social and environmental organisations. For instance, the construction of the 120-metres high Temascaltepec Dam, initiated in 1999, was fiercely resisted by the locals, who even arrested a group of engineers as part of their protest. Marches and demonstrations against scarcity and contaminated water became quite common in the mass media and received the strategic support of the Zapatista Front of National Liberation (associated with the EZLN, but with a more urban focus). Likewise, in 2004, the Los Berros WTW was invaded by protesters because of delays in the indenisation of an accident in the year before in the Villa Victoria dam.

This strained relationship among the state apparatus, a range of private organisations and companies and the low-income population (particularly those living in marginalised areas in the periphery) has persisted for many decades, from the developmentalist period to the recent and

ongoing liberalising phase. The reaction of the population without water or with serious constraints to have access to public services has produced many lessons that have not been learned. Quite the opposite: the direction of recent plans, although less explicitly neoliberal than in the Salinas period, continue to pursue a market-friendly and alienating paradigm, often mystified with ideas about integration and social inclusion. For example, in 2007 President Calderón announced the *Programa de Sustentabilidad Hídrica de la Cuenca Valle de México* (Water Sustainability Programme of the Mexico Valley Catchment), in partnership with the administrations of the Federal District and States of Mexico and Hidalgo. Despite its pompous name, in practice the programme is really about the construction of large water engineering works (CONAGUA, 2012).

The current federal administration, under President Peña Nieto, launched the National Infrastructure Programme 2014–2018 with several projects for the Mexico Valley region, including the sewage treatment plant Atotonilco to be constructed through a public–private partnership (in this case, a Design–Build–Operate–Transfer contract, or DBOT). Atotonilco has a total budget of US\$ 10.13 billion, of which 4.79 billion will come from the private partners. Projects such as these end replicating the heavy-engineering approach and the conventional addition of new sources in remote areas that have historically served to spread the contradictions and distortions of water use in the capital.

Lessons learned

Water services have travelled a long way in the capital of Mexico since the middle of the last century and it is not difficult to detect a series of changes and significant improvements intermingled with repeated failures and persistent distortions. In order to understand this perverse combination of partial enhancement and rising problems it is necessary to consider the totality of socionatural relations around water allocation and use, that is, take into account the materiality of water and its symbolic dimension, as well as the mediation between the human and more-than-human realms. If water policies and technologies have changed in the last 70 years, the political hegemony behind its management has been largely maintained. An example of that was the proposed new water law, proposed by CONAGUA and under discussion in the national parliament, which is intended to remove the expression ‘human

rights' from the existing legislation and facilitate mining activities, such as the extraction of shale gas (La Jornada, 2014). Likewise, elements of the 'hydraulic paradigm' became apparent again when Peña Nieto announced nationwide investments of US\$ 31.9 billion in water projects needed to 'guarantee water for all the Mexicans' (Diario Financiero, 2014). The main difference is that contemporary legislation and policies are now promoted with the help of controlled processes of public engagement and a mystified discourse of sustainability and integration. Both during national developmentalist and neoliberalised periods the water issues of the capital city have remained centralised in the hands of the federal government and it is through the federalisation of water that conservative political agendas are repeatedly pursued.⁵

As a result, the water problems of the Mexican capital are still open-ended questions that call for radical and effective changes, which must be necessarily associated with wider transformations in local and national sociopolitical practices. In that regard, it will be required to go beyond intermediary, accommodating positions, such as the reformist and largely innocuous recommendations put forward by Jiménez et al. (2010) and other authors. More important is to recognise that the condition of water scarcity in the ZMVM reflects the long-term development of the city and the established patterns of social discrimination inserted in space. Rather than a physical or circumstantial phenomenon, the constant reinforcement of scarcity – due to a combination of neglect and political manipulation – has been the fundamental feature of the local water services. The allocation and use of water have been defined by the spectre of scarcity and the recurrent, quasi-millennarian promise of abundance (as again reaffirmed by Peña Nieto). Despite the announcements of public investments and the involvement of private operators, it is the material and symbolic affirmation of scarcity that continues to define the formulation of water policies. The administration of the interplay between scarcity and abundance became more than simply a public service, but has been used as a political device to manage expectations in the impoverished areas of both the capital city and the provinces.

The answer to urban water scarcity needs to go beyond end-of-the-pipe engineering and managerial efforts to address the twin logic of scarcity and exclusion. At the same time, questioning the now hegemonic neoliberal policies requires a combination of structural reforms from above and local resistance from below, which must be radically different from superficial and ideological calls for 'collaboration' introduced

merely to maintain hegemonic power relations (Purcell, 2009). Under conditions of uneven development and structural inequality, the scarcity of water is not simply the outcome of ill-conceived interventions, but it permeates both policy-making and daily decision-making. The scarcity in the water sector is, thus, synergistically increased by the lack of housing, employment and democratic rights, creating an overall condition of risk and uncertainty that nourishes political manipulation. The dialectic between scarcity and abundance of water evolves within the broader dimensions of scarcity (i.e. related to politics, economics and social justice). When contemplating the controversies related to the expansion of infrastructure, the hierarchical distribution of water access and the overwhelming vulnerability of the water supply in Mexico City, one could certainly paraphrase Nietzsche and say ‘water, all too water’.

Notes

- 1 The historic centralisation of power in the Mexican capital was not shared by the local population, given that it is only in 1998, after 70 years, that there was election for the government of the Federal District (the main area of the Mexico Valley Metropolitan Zone or ZMVM).
- 2 As it will be discussed in the following chapters, the Mexican experience has close parallels with Peru, which since the election of Fujimori in 1990 has followed an orthodox neoliberal trajectory, only to be slightly disturbed with the election of Humala in 2011. It can also be compared with Brazil, where the election of Lula in 2003 shifted the course of neoliberalism into a peculiar form of post-neoliberalism that maintained the foundations of the liberalising reforms introduced by Cardoso (1995–2002).
- 3 It should be noted that many high-income houses are not connected to the public sewer either and have to make use of septic tanks (as in the southern part of the metropolis) because they have been constructed on volcanic rocks where it is difficult and expensive to build such an infrastructure.
- 4 In 1325, the Aztecs arrived in the areas and adapted their city to the lacustrine environment with a series of integrated hydraulic works and an efficient irrigation system called *chinampas* (a succession of production fields within a network of canals).
- 5 It should be briefly pointed out that the Mexican state can be described not only by its capitalist and political features – both in developmentalist and neoliberal moments – but it also reveals profound gendered and patriarchal relations.

References

- Aguilar, A.G. and Santos, C. 2011. Informal Settlements' Needs and Environmental Conservation in Mexico City: An Unsolved Challenge for Land-use Policy. *Land Use Policy*, 28, 649–662.
- Alatout, S. 2009. Bringing Abundance into Environmental Politics: Constructing a Zionist Network of Water Abundance, Immigration, and Colonization. *Social Studies of Science*, 39(3), 363–394.
- Balassa, B. 1983. Trade Policy in Mexico. *World Development*, 11(9), 795–811.
- Barnes, J. 2009. Managing the Waters of Ba'th Country: The Politics of Water Scarcity in Syria. *Geopolitics*, 14(3), 510–530.
- Baumgärtner, S., Becker, C., Faber, M. and Manstetten, R. 2006. Relative and Absolute Scarcity of Nature: Assessing the Roles of Economics and Ecology for Biodiversity Conservation. *Ecological Economics*, 59(4), 487–498.
- Buxton, M., Kelly, M. and Martin, J. 2003. *Environmental Conflicts in the Mekong River Basin: Prevention and Resolution*. RMIT University: Melbourne.
- Camp, R.A. 2011. The Revolution's Second Generation: The Miracle, 1946–1982 and Collapse of the PRI, 1982–2000. In: Beezley, W.H. (ed.), *A Companion to Mexican History and Culture*. Wiley-Blackwell: Oxford. pp. 468–479.
- CONAGUA. 2012. *Acciones de Infraestructura de Drenaje y Abastecimiento de Agua en el Valle de México 2007–2012*. Comisión Nacional del Agua: México.
- Connolly, P. 2003. Urban Slums Reports: The Case of Mexico City, Mexico. *The Challenge of Slums: Global Report on Human Settlements 2003*. UN-Habitat: Nairobi. pp. 195–228.
- Diario Financiero. 2014. México Invertirá Casi US\$ 32.000 millones en Infraestructura Hídrica para Garantizar Abastecimiento de Agua. Available at: <https://www.df.cl/noticias/internacional/actualidad-internacional/mexico-invertira-casi-us-32-000-millones-en-infraestructura-hidrica-para-garantizar-abastecimiento-de-agua/2014-06-26/180106.html> (published on 26 June 2014).
- Giglioli, I. and Swyngedouw, E. 2008. Let's Drink to the Great Thirst! Water and the Politics of Fractured Techno-Natures in Sicily. *International Journal of Urban and Regional Research*, 32(2), 392–414.

- Habermas, J. 1981. Modernity versus Postmodernity. *New German Critique*, 22, 3–14.
- Harvey, D. 1974. Population, Resources, and the Ideology of Science. *Economic Geography*, 50(3), 256–277.
- Harvey, D. 2006 [1982]. *The Limits to Capital*. Verso: London and New York.
- Herrera, V. 2014. Does Commercialization Undermine the Benefits of Decentralization for Local Services Provision? Evidence from Mexico's Urban Water and Sanitation Sector. *World Development*, 56, 16–31.
- Homer-Dixon, T.F. 1994. Environmental Scarcities and Violent Conflict: Evidence from Cases. *International Security*, 19(1), 5–40.
- INEGI (Instituto Nacional de Estadística y Geografía). 2013. *Cuaderno Estadístico y Geográfico de la Zona Metropolitana del Valle de México*. INEGI: México.
- Ioris A.A.R. 2007. The Troubled Waters of Brazil: Nature Commodification and Social Exclusion. *Capitalism Nature Socialism*, 18(1), 28–50.
- Ioris, A.A.R. 2009. Water Reforms in Brazil: Opportunities and Constraints. *Journal of Environmental Planning and Management*, 52(6), 813–832.
- Ioris, A.A.R. 2014. The Urban Political Ecology of Post-Industrial Scottish Towns: Examining Greengairs and Ravenscraig. *Urban Studies*, 51(8), 1576–1592.
- Izazola, H. 2001. Agua y Sustentabilidad en la Ciudad de México. *Estudios Demográficos y Urbanos* 47. Colegio de México: México.
- Jiménez C., B., Torregrasa y Armentia, M.L. and Aboites A., L. 2010. *El Agua en México: Cauces y Encauces*. Academia Mexicana de Ciencias & Comisión Nacional del Agua: México.
- La Jornada. 2014. Buscan Favorecer Explotación de Gas *Shale* con Cambios a la Legislación sobre el Agua. Available at: <http://www.jornada.unam.mx/2014/03/10/politica/015n1pol> (published on 10 March 2014).
- Lee, T. 1988. The Evolution of Water Management in Latin America. *International Journal of Water Resources Development*, 4(3), 160–168.
- Lefebvre, H. 2003 [1970]. *The Urban Revolution*. University of Minnesota Press: Minneapolis.
- Leñero, V. 1984. *La Gota de Agua*. Plaza & Janes: México.

- Lukács, G. 1971. *History and Class Consciousness: Studies in Marxist Dialectics*. Marlin Press: London.
- O'Toole, G. 2012. *The Reinvention of Mexico: National Ideology in a Neoliberal Era*. Liverpool University Press: Liverpool.
- Panayotakis, C. 2003. Capitalism's 'Dialectic of Scarcity' and the Emancipatory Project. *Capitalism Nature Socialism*, 14(1), 88–107.
- Pastor, M. and Wise, C. 1997. State Policy, Distribution and Neoliberal Reform in Mexico. *Journal of Latin American Studies*, 29(2), 419–456.
- Perelman, M. 1996. Marx and Resource Scarcity. In: Benton, T. (ed.), *The Greening of Marxism*. Guilford Press: New York. pp. 64–80.
- Perló Cohen, M. and González Reynoso, A. E. 2005. *¿Guerra por el agua en el valle de México? Estudio sobre las relaciones hidráulicas entre el Distrito Federal y el Estado de México*. Coordinación de Humanidades, PUEC, UNAM & Fundación Friedrich Ebert: México.
- PNUMA (Programa de Naciones Unidas para el Medio Ambiente). 2003. *Una Visión del Sistema Urbano Ambiental*. Gobierno del Distrito Federal & Centro de Investigaciones en Geografía y Geomática: México.
- Purcell, M. 2009. Resisting Neoliberalization: Communicative Planning or Counter-Hegemonic Movements. *Planning Theory*, 8(2), 140–165.
- Schneider, B.R. 1999. The *Desarrollista* State in Brazil and Mexico. In: Woo-Cumings, M. (ed.), *The Developmental State*. Cornell University Press: Ithaca. pp. 276–305.
- Swyngedouw, E. 2004. *Social Power and the Urbanization of Water: Flows of Power*. Oxford University Press: Oxford.
- Tortajada, C. 2006. Water Management in Mexico City Metropolitan Area. *International Journal of Water Resources Development*, 22(2), 353–376.
- UN-Habitat. 2003. *The Challenge of Slums: Global Report on Human Settlements 2003*. UN-Habitat/Earthscan Publications: London.
- Wade, J.S. 2012. The Future of Urban Water Services in Latin America. *Bulletin of Latin American Research*, 31(2), 207–221.

4

The Urbanisation of Lima, Neoliberal Reforms and Water-Related Tensions

► **Abstract:** *Lima is an emerging Latin American megacity and the most critical case of a large metropolis located in a coastal desert. Urban development, in particular since the middle of the last century, consolidated a dualist city in which the large majority of the population has to live in marginalised, precarious settlements. Macroeconomic and political reforms adopted since 1990 have tried to enhance and regulate the housing market and, crucially, incorporate water infrastructure projects as a key element of business-friendly programmes. The Water for All initiative, closely examined in the chapter, constitutes one of the most emblematic examples of the ongoing process of water commodification, of the political appropriation of the metropolitan water utility (SEDAPAL) and of the mounting manifestations of corruption.*

Ioris, Antonio A.R. *Water, State and the City*.
Basingstoke: Palgrave Macmillan, 2015.
DOI: 10.1057/9781137468673.0008.

The elaboration on urbanisation and the state apparatus introduced in Chapter 2 will again inform the analysis of the politico-ecological complexity and interscale connections of the water services of Lima, the capital of Peru. This is relevant, for nothing else, because national political leaders and administrators have tried to present Lima as an aspiring-to-become globalised metropolis, although the same authorities have not made much progress in resolving its complex sociospatial tensions and contradictions. On the contrary, Lima is an emerging megacity increasingly inserted in a trajectory of mass consumption and conservative modernisation, at the same time that inequality and under-employment proliferate (Grampone, 1999). Recent estimates suggest that around 65% of the economic active population of Lima are employed or self-employed in the information economy and lack basic labour and human rights (Kruijt and Degregori, 2007). In that context, the next pages will demonstrate that many urban problems of Lima, water supply and sanitation services in particular, have been reinforced in time and space through political disputes, at the same time that the willingness of the marginalised population to resist and react has become more challenging, and less prominent, than before. First it is necessary to briefly review the historico-geographical evolution of the metropolitan region.

Lima as an arena of disputes

The history of the colonisation of Peru started with the subjugation of the Incan society by the Spaniards for the exploitation of its vast territorial resources (see Garcilaso de la Vega, 2005). The founding of Lima in 1535, under the name of 'City of the Kings', was not only a milestone in the organisation of the new colony, but it also became the main instrument for the expression of Spanish power over people and nature. Different from the Incas and previous Peruvian societies, which developed their urban centres in the mountains where water reserves were more abundant, Lima was established in an area with very limited rainfall and small watercourses. The main reason was the need to exercise power from the coast in order to facilitate communication with Europe and protect the authorities from the threats of the dominated peoples. For centuries, Lima remained the main urban centre of the Spanish territories in South America and had a critical role in the control of both transatlantic and transpacific trade routes. The new capital occupied the left bank of the

River Rímac and incorporated existing Indian settlements and local irrigation plots into the organisation of the city (Leonard, 2000). Because of its military and economic importance, Lima soon became an urban model for the expanding empire, with its geometrical city centre organised around the main square [*plaza mayor*], the cathedral, the vicerooyal palace and an early system of water supply that was inaugurated in 1578 (SEDAPAL, 2003).

The capital city experienced a steady demographic growth during colonial times, from 14,000 inhabitants in 1600 to more than 50,000 in 1750 (Driant, 1991). Around the middle of the 18th century, the city underwent a period of stagnation and decline because of the combination of a large earthquake, the exhaustion of silver mines and agriculture production, successive rebellions by the Indians and the fragmentation of the viceroyalty due to the creation of a new administrative area in the Plata in 1776 (with Buenos Aires as its capital). As a result, Morse (1974) observes that Peru was significantly more urban in the 1700s than it would be in the first part of the subsequent century. The importance of Lima as the main centre of socio-spatial authority reaffirmed the national independence of Peru in 1821, but the leaders of the newly independent country constantly looked northward for the recognition of Lima as a city with hemispheric importance and capable of influencing regional matters. Such geopolitical ambitions contrasted with the poverty of most of the urban population and the lack of public infrastructure (e.g. until the abolition of slavery in 1854, black slaves were employed as water sellers [*aguateros*] cf. SEDAPAL, 2003). The profitable, but short-lived, export of guano (1850s–1870s) provided funds for the embellishment of the more affluent parts of the capital city (Klarén, 2004). In 1870–1872 the old colonial walls were demolished and the city began to spread through new avenues and neighbourhoods along the seacoast (i.e. Chorillos and Magdalena, and afterwards Miraflores, La Punta and Barranco). The aesthetic fondness of various presidents, who tried to emulate European urbanism and affirm political ambitions through the renovation of the city (Ludeña, 2002), was put in practice through the construction of fountains, parks and clubs for the privileged elite (particularly under the governments of General Ramón Castilla, president in 1845–1851 and 1855–1866).

The successive generals and oligarchs that managed to reach the presidential palace (typically through overthrows and militaristic conspiracies) all had specific plans to modernise the capital city according to

political and economic demands of those in command. Investments and services were carried out through joint ventures and corporate partnerships with private investors for the operation of public utilities and the construction of water pipelines and street drainage (Bromley, 2005). During the Pacific War, Lima was shamefully abandoned by the Peruvian army and then occupied by the Chileans between 1877 and 1884, in probably one of the most embarrassing moments of national history (Bonilla, 1978). With the scars of the tragic campaign semi-healed, the city was gradually restored and continued to expand according to the priorities of the political and economic elites (population growth is presented in Table 4.1). The cosmopolitan façade of Lima in the late 19th century, which housed offices of leading European and North American banks and companies, concealed the situation of the Andean and Amazonian Indians, Afro-Peruvians and Asian migrants who lived in a struggle for their bare survival. Lima was then described as the city of the generals and of the refined elite with limited concessions for the daily life of the vast majority of non-Spanish speaking poor. On the contrary, the booming real estate market created new sources of revenue for the urban aristocracy, both through the rents paid by the tenants of the old manor houses and in investments in new urban properties.

Around the turn of the 20th century, Lima was a complex mosaic of rich and poor households intermingled together along the same streets, where large mansions, middle-class houses and crowded working-class buildings used to lie side by side (Calderón Cockburn, 2005). Gradually, however, the wealthier groups started to leave the oldest parts of the city and migrate to the southern areas along the coast, such as in Miraflores. Investments in urban infrastructure favoured the consolidation of

TABLE 4.1 *Population Growth of Lima (1746–1920)*

Year	Population
1746	60,000 (before the earthquake)
1746	54,000 (before the earthquake)
1755	51,750
1792	52,627
1812	63,809
1836	55,627
1862	89,000
1876	100,000
1908	115,000
1920	203,000

Source: Morse (1974).

a discriminatory city with its architecture, sports and social activities inspired in the taste of rich Europeans, at the same time that the demands of the majority of residents were systematically ignored. Whilst the suburbs housed the wealthier middle and upper classes, the working population had to find accommodation in old derelict buildings or under improvised constructions in the colonial centre. Nonetheless, the number of skilled workers expanded from 9,500 in 1876 (9.5% of the population) to 44,000 in 1920 (19.8%), according to Klarén (2004), due to changes in the economy, such as factory labourers and handcrafters (mostly involved in the blooming textile industries). Major strikes of the late 1910s forced some modest concessions to the working classes from President Leguía in the form of improvements in housing and water services. The dictatorship of Leguía was characterised by a form of state liberalism that was increasingly subordinated to the North American capital (which replaced the previous European hegemony) and paved the road for a new phase of national development and a partial, modest process of import substitution industrialisation (Burga and Flores-Galindo, 1979). Following the analytical framework for the analysis of Latin American urbanisation (in Chapter 2), the city of Lima was no longer only the political capital of the country, but also became the main centre of industrial production and commodity consumption. In that process, it generated increasing inequalities and provoked different forms of popular contestation, as seen next.

During most of the 20th century, there was an increasing concentration of the Peruvian population in Lima due to the influx of people from other coastal areas and, later, from the Andean mountains (Bertram, 1991). The capital experienced accelerated rates of growth since the 1920s, but in the 1960s the expansion reached a record annual rate of 5.4% (IMP, 1989). Despite the limited industrialisation taking place in Peru (when compared to other neighbouring countries, especially Argentina, Brazil and Mexico), Lima operated as a magnet that attracted large contingents of people from the provinces: between 1940 and 1961, the Andes lost 1.2 million people of whom around 800,000 ended up in Lima (Graumann, 1966). The steady departure of people from rural areas played a key role in the prevention of upheavals and revolts in the countryside¹ and served to indefinitely postpone the much needed agrarian reform (Slater, 1989). Lima concentrated around 75% of the commercial transactions in the country in the 1960s, which were basically related to the modest process of import substitution that happened in Peru during the last century

(Dollfus, 1964). For the poor incomers arriving from the inland, the capital was the deceptive 'New Jerusalem', a destination that vaguely promised social and personal improvement, but in effect little to offer to most of the new residents. On the top of a serious housing deficit and the struggle to live in an entirely new environment, the main problem was the overexploitation of the low-income population employed as cheap labour force (Sánchez León et al., 1986). Meagre salaries to the workforce were further dilapidated by the high prices of rent paid to the owners of the limited properties available for renting in the central areas of the city. It is clear here that the economic development of the country produced a growing number of poor settlements in the periphery of the national capital.

Poverty and lack of space provided strong incentives for the creation of alternative forms of residence. After taking the old colonial manor houses in the centre of Lima (called *tugurios*), the population began to occupy public and private lands in the periphery of the city and self-construct their homes with any obtainable material (Mangin, 1967). These squatter settlements became known as the *barriadas* of Lima, neighbourhoods where most of the dwellings were built with tin, reed matting [*esteras*] or even cardboards (Driant, 1991). The squatter settlements are areas where poverty, inequality and informality all come together (Dietz and Tanaka, 2002). This process was similar to the experience in other Latin American countries – for example when compared with what happened in much of Venezuela, Central America, Coastal Colombia and Ecuador – but the main difference was that in Lima the new settlements normally occupied desert areas where the land had little or no commercial value. More importantly, the formation of a new *barriada* in Lima was relatively straightforward due to both the leniency of public authorities and competent grassroots mobilisation (Dosh, 2006). Apparently short of options, successive governments passed legislation with provisions for the regularisation of the existing *barriadas* as a *de facto* necessity for the functioning of Lima (starting in 1961 with the Law of Marginal Neighbourhoods [*Ley de Barrios Marginales*]). Notwithstanding the tolerance of the authorities, the living conditions in the *barriadas* were notoriously difficult (Harris Jr, 1971) because of their remote location, the low income of the families and, in particular, the lack of water services (e.g. 58% of the *barriadas* in 1960 had no access to public water services and the residents had to purchase 70% of the water used from private vendors at high price, cf. FNSBS, 1960). Zolezzi and Calderón (1985: 110) further

observe that ‘the *barriada* as a form of urban housing is not foreign to the penetration of capitalism, but – first and foremost – is the outcome of that penetration. That is why their inhabitants are not marginal to the capitalist system but are integrated under conditions of dependency and exploitation.’

The predominant approach of the military government (1968–1980) was to accept the expansion of the *barriadas* (then renamed young towns [*pueblos jóvenes*]) and offer some physical integration into the wider metropolis through the construction of new roads and the supply of electricity supply (*Peruvian Times*, 1970). Grassroots complaints were contained or suppressed by the populist measures of the political system installed by the military (Rivas, 1977). General Velasco, the head of the state capitalist experiment under military command, tried to control popular mobilisation through the creation of SINAMOS (literally translated from Spanish as ‘without masters’), an agency that was put in charge of distributing land deeds between 1971 and 1978 (Ramírez Corzo and Riofrío, 2006). The typical pattern of urban growth in Lima in the 1970s was the occupation of vacant land tolerated by the public authorities, which was followed by a negotiation with SINAMOS to form a new settlement (i.e. *barriada* or *pueblo joven*). At times, it seemed that the state apparatus had become more responsive to grassroots demands, but in effect the *barriada* had become a privileged area for the patronage of the urban poor (Bertram, 1991). In 1980, the national government established a scheme aimed to fund the construction of popular houses (the Bank of Materials [*Banco de Materiales*]). However, the loans made available through the Bank were mostly accessible to the better-off in society who could demonstrate a regular salary and certified title deeds title (required for the credit operation), as observed by Lowder (1986).²

The sustained processes of sociospatial discrimination provoked varied forms of grassroots reaction that emerged according to the political opportunities and the balance of power during dictatorial and democratic periods. The local mobilisation through the neighbourhood associations [*organizaciones de vecinos*] played a fundamental role in the consolidation of the *barriadas* as the ultimate housing alternative for the new low-income residents. Popular mobilisation benefited from the social networks established by those that migrated to the capital (Ballón, 2004) and was instrumental for securing concessions from the government and investments in public services (Cotler, 1991). For instance, one of the concrete results of the 1967 and 1968 protests – called the ‘March

for the *Barriadas*' – was a change in the legislation that allowed for the provision of public services even to areas without the regularisation of property titles, which made it possible to bring water and electricity to many *barriadas* during the process of negotiation with the authorities. Most of the clashes between the low-income public and government agencies in the 1970s and 1980s were actually related to the acquisition of a piece of urban land and the coverage of public water services (Zolezzi and Calderón, 1987). Our interviews with residents that participated in the large invasions, such as the emblematic occupation of Villa El Salvador (in 1971), Canto Grande (in 1976) and Pachacútec (in 1988), respectively in the southern, eastern and northern corners of Lima, demonstrate the multiple directions of the popular movements and the myriad of alliances with organisations such as the Catholic Church and left-wing parties (i.e. the *barriadas* of Lima were crucial areas for the activity of the Popular Revolutionary American Alliance (APRA) and the Socialist and Communist parties).

It should be noted that the three driving forces of the urban phenomena described in Chapter 2 – that is, the consolidation of large conurbations as the most recent chapter in the long trajectory of nation building and economic production, large cities as the main locus where inequalities and injustices are constantly reinforced and large cities as the most important source of mobilisation, creativity and political reaction – synergistically converged to reshape the landscape of the emerging megacity: the economy increasingly concentrated in Lima, which not only consolidated a condition of structural inequalities and exploitation, but also provoked multiple reactions from the marginalised population. Yet, if the social movements and the resurgent civil society helped to bring about the transition to democracy in the early 1980s (Stokes, 1991), the long-term political consequences of the grassroots protests were nonetheless quite limited (Schönwälder, 2004). Popular mobilisation resulted in the election of the leftist politician Alfonso Barrantes as mayor of Lima for the term in office 1983–1985, in direct opposition to the proto-neoliberal administration of the then President Belaúnde (1980–1985). Mayor Barrantes tried, with limited success, to democratise the course of urban development, but after his short mandate, metropolitan policies returned to the traditional mixture of paternalism, coercion and centralisation. The unresponsiveness of the national state and the populist style of President García's government (1985–1990), together with clashes within the popular movement, led to a gradual decline in

the mobilisation capacity of the *barriadas* since the end of the 1980s. In the next decade, the contrast between the core and periphery of Lima was further consolidated under the neoliberal policies subsequently adopted by consecutive governments.

The neoliberalised city and its persistent dualisms

Towards the end of the 1980s, the Peruvian society was tired of the narrow socioeconomic results of the import-substituting period. The decade was marked by economic stagnation, fiscal fragility, policy disorder and hyperinflation, which were problems caused by the ambiguous macroeconomic and political measures adopted by Alan García. The level of poverty and social inequality reached a situation of distributive crisis due to the widespread violence, chaos and corruption (Figueroa, 1998). Informality was (and remains) very high and, according to De Soto (1986), Lima's informal sector was then the largest in world proportion to its population. The negative consequences of economic instability were particularly evident in Lima, where 18% of the homes were without electricity and 36% with no piped water provision, as well as 110,000 derelict dwellings were in danger of collapse due to poor maintenance (Riofrío, 1996). Table 4.2 shows the unrelenting expansion of the metropolitan region, although at lower rates since the 1980s. With the increasing scarcity of land, the new *barriadas* had to be established in distant and hilly

TABLE 4.2 *Population Growth of Metropolitan Lima (1940–2010)*

Year	Population
1940	645,172
1961	1,845,910
1972	3,302,523
1981	4,608,010
1988	6,054,000
1990	6,414,000
1995	6,759,244
2000	7,577,902
2007	8,049,000
2010	8,940,000

Source: IMP (1989), INEI database, UN (Population Division).

areas where public services and civil rights were even more unattainable. President Fujimori (1990–2000), the unexpected winner of the 1990 election, came to office virtually without a coherent plan of action and was led to adopt a draconian programme of state reforms, privatisation and economic adjustments. Fujimori dismantled the existing mutual system (under the administration of the Housing Bank [*Banco de la Vivienda*] which had supported investments in the middle-class areas of the city) and other assistance mechanisms for the low-income neighbourhoods and the *barriadas* (Calderón Cockburn, 2005). The key decisions about urban development were progressively centralised in the hands of the national government at the exclusion of the 49 municipal authorities that form the metropolitan region of Lima.³

A new national agency (called COFOPRI) was established in 1996 (with financial backing from the World Bank) with responsibility for granting land titles and regularising informal settlements. Fujimori systematically manipulated the granting of titles by COFOPRI according to his electoral needs, especially because it was easier for him to secure votes in the crowded periphery of the capital than in the remote provinces. COFOPRI's purpose was directly informed by the ideas of De Soto (1986), who had claimed that the formalisation of land tenure would energise commercial transactions in the city. Following such ideological position, COFOPRI became a concerted attempt to stimulate the circulation of capital through the concession of loans for the acquisition of family properties. In practice, COFOPRI also created an opportunity for siphoning public funds to real estate barons and commercial banks, especially because of home loan foreclosures and the displacement of families (Leonard, 2000). Between 1996 and 2000, around half a million property titles were granted in Lima, but at the same time the number of invasions aimed to establish new *barriadas* was never so high. The total number of *barriadas* had reached 1,980 in the year 1998 and included 2.6 million inhabitants or 38% of the population of Lima (Calderón Cockburn, 2005). By contrast, in the central areas of the city, the neoliberal renovation resembled the experience at the turn of the 20th century, when Lima was remodelled under French and English aesthetic influences to satisfy the demands of the wealthier strata of the population. The most emblematic construction of the neoliberal phase was the shopping centre Larcomar, built in the scarp of Miraflores in 1998 with investments of more than US\$ 40 million (according to the mall administrators). High-income residences and service offices were

increasingly accommodated in multi-story buildings (e.g. international banks and companies in the San Isidro district), while the low-income areas of the city continued to expand horizontally and up the hills.

For those living in the *barriadas* and other peripheral neighbourhoods the access to public services and the lack of minimum life conditions still remained a daily problem at the end of the Fujimori administration (Joseph, 2005). Because of the anti-democratic context, public mobilisation diminished and social movements declined with the imposition and tacit acceptance of neoliberalising policies, which was facilitated by the material success of some infrastructure investments made by Fujimori. Yet, in 2001, only 11% of the settlements regularised by COFOPRI had acceptable standards of public services (considering water, sanitation, telephone, streets and the construction material of the houses), according to SASE (2002). Because of the escalating levels of crime, city enclaves in the form of gated communities have become a common feature both in high- and low-income areas of Lima (Plöger, 2006). One of the significant results of the neoliberalisation of the economy was the deterioration of the levels of income of the workforce in Lima between 1987 and 2002, especially among non-unionised, independent workers (Verdera, 2007).⁴ After the turbulent political transition that followed the resignation of Fujimori (because of the devastating evidences of large-scale corruption; see below on corruption in Peru), the new president, the economist Alejandro Toledo (2001–2006), came to office with the promise to overcome the shortcomings of the previous governments that had left the capital fraught with institutional uncertainties, poor policy coordination and growing environmental impacts. In 2006, the state fund *MiVivienda* started to finance the purchase, improvement and construction of popular households. Other projects and plans were also launched with the purpose of alleviating the housing deficit (e.g. *Techo Propio*, *Bono Familiar Habitacional*, etc.).

However, the most perverse consequence of those initiatives was the over reliance on the private sector for the construction of new housing units, while the state largely withdrew from direct construction interventions. Under free market competition, the builders obviously showed a preference for middle-class residences instead of the less profitable units for the low-income population. The fact that it was increasingly difficult to identify a physical and symbolic centre for Lima (as discussed by Ludeña, 2002) can be interpreted as a metaphor of the barriers to promote coordinated urban policies. Lima has various isolated centres

(e.g. Cercado, La Molina, Miraflores, San Isidro, Callao/international airport), which reverberate the fluid configuration of power and money determining the trajectory of the megacity.

The use of urban planning to assist the interests of private investors followed an even more distinctive trend during the second term in office of President García (2006–2011). García reinforced the pro-market strategies of Toledo, which in practice frustrated the needs of the poorest groups and failed to improve the overall quality of life in the city. The mainstream discourse continued to insist that the housing problem is primarily a question of limited access to financial services (e.g. Gwinner, 2007), rather than a pattern of discrimination and neglect towards the marginalised population. Such overall urban strategies for Lima are considered by Riofrío (2010) as an urban model of ‘housing without the city’, which was transferred from Chile to Peru following the neoliberal pressures. Although the nominal rate of poverty among the population of Lima decreased from 30.9% to 14.1% during the García administration, the level of inequality (i.e. Gini coefficient) remained practically the same between 2004 and 2009 (INEI, 2010). Evidences of the one-sidedness of contemporary urban policies were found in the introduction of investment projects carried out through public–private joint ventures, which are supposed to recover the investments through sustained increases in domestic water tariffs. Yet, the success of the programme is far from certain due to the unreliability of the behaviour of private sector operators and repeated evidences of corruption and political manipulation, as discussed in the next section.

Water, state reforms and the neoliberalisation of urban socationature

It is evident that the water problems of Lima cannot be dissociated from its chaotic pattern of urban growth and spatial inequity described earlier. Despite some localised concessions from the state apparatus, the evolution of water supply and, in a much smaller proportion, sanitation followed the dual-track urbanisation of Lima, in the sense that only the ‘legalised’ part of the city was reasonably served by the public utility, whereas most of the population had to resort to various alternative strategies to guarantee their access to water (Matos Mar and Matos Lagos, 1990). The structure and operation of the water utility maintained

the double standard of services at the same time that it had to respond to broader changes in the economy and in the national state. With the return of democratic rule in the early 1980s, the utility was reorganised and received its current designation, SEDAPAL (Service of Potable Water and Sanitation of Lima). SEDAPAL was the key utility of the national water and sanitation corporation (SENAPA), but that didn't prevent its reputation for poor performance, low rates of investment and inept management. The meagre investments in water infrastructure were systematically directed to the consolidated neighbourhoods and new high-income areas (Zolezzi and Calderón, 1987). Such was the situation that Fujimori encountered, after his election in 1990, a quarter of the metropolitan population without water, as well as a third without sanitation (IMP, 1989). In the first moment, the new administration was forced to adopt an emergency plan to cope with the deteriorating condition of the water services in Lima. Ongoing borehole drilling projects and storage tank construction had to be concluded to guarantee some urgent supply of water. The scale of the problem was tragically confirmed when an outbreak of cholera erupted in 1991 (after a century with no similar incidents) and killed more than 153 persons in Lima alone (Gherzi and Ñaupari, 2005).

As happened in other countries, water sector reforms that had been considered for years were precipitated by an acute crisis situation. The severe water deficit in Lima provided the perfect excuse for the adoption of neoliberalising measures. In the first moment of water neoliberalism, the strategy formulated by the national government, which was consistent with the broad structural adjustment programme, centred on the preparation of SEDAPAL to be privatised. The National Water and Sewerage Programme (PRONAP) and a new regulatory agency (SUNASS) were both created in 1992, at the same time that SENAPA was extinct and services returned to the local and regional administrations (it should be noted that the entire water sector, previously managed centrally by SENAPA, was devolved to 136 municipal or provincial providers, with the important exception of SEDAPAL that, for political reasons, was maintained in the hands of the national government). As part of the same process, the government received a World Bank loan of US\$ 600 million to reorganise the water services of Lima. The level of investment in SEDAPAL increased from US\$ 26 million in 1990 to US\$ 80 million in 1996, at the same time that tariffs rose from US\$ 0.17/m³ in 1990 to US\$ 0.41/m³ in 1995 (Alcázar et al., 2000). Between 1991 and 1992,

the company lost 721 workers or 23% of its staff, a process that continued uninterrupted in the following years. Those various adjustments were underpinned by the introduction of operation benchmarking within and between water utilities, and the adoption of business-like performance indicators.

The improved balance sheets and the restored liquidity of SEDAPAL did not go unnoticed, but three large international consortiums prequalified to bid for the privatisation of the water service in November 1994. Because of the scale of its operation, the transference of SEDAPAL to the private sector attracted great interest and was the object of intense media coverage. Moreover, due to organisational delays and some political hesitation the tender was postponed until after the 1995 election (when Fujimori was obviously re-elected, given the lack of any real democratic competition in Peru at the time), followed by a series of further adjournments. Eventually, the privatisation of SEDAPAL was official cancelled in 1997, which frustrated the international business community and the multilateral agencies involved. Based on our interviews, we can argue that two main concerns undermined the viability of the privatisation at that time: first, the certainty of much higher tariffs (i.e. the concessionary would have to probably make a fourfold increase to cover the contractual requirement to carry out works worth US\$ 30 billion over 30 years) and, second, the fact that the national state would still have to invest in the procurement of new sources of water (i.e. despite privatisation, the production of water would remain in the hands of the government). Because of those two main issues, the political price of privatisation was not affordable to Fujimori, particularly when his popularity was declining nationwide and Lima was one of the main political strongholds of the president. With privatisation losing its momentum, SEDAPAL embarked upon an extensive programme of infrastructure and operational recovery (CENCA, 1998). In 1998, SEDAPAL was transformed into a 'plc' and then incorporated in the portfolio of FONAFE (the government corporation in charge of the entrepreneurial activity of the state). Those measures ended up alleviating the level of problems and, contradictorily reducing the appetite for privatisation within the national government (reinforced by ministerial replacements that removed the more orthodox or naive champions of neoliberalism). It also demonstrates that water neoliberalism is not achieved only through privatisation, higher tariffs and cost-recovery procedures, but investments directly and indirectly funded by the state are also a prime component of water neoliberalisation.

At the turn of the 21st century, the public image of the water utility had improved, but mainly among higher-income residents, although there were widespread complaints about tariffs, mistakes in the water bill and in the water meter (ICOM, 2001). At that point in time, 33, out of the 49 municipalities of metropolitan Lima, had still systematic water rationing and intermittent services affecting around 70% of the population. The water utility was responsible for inadequate system maintenance, a high level of unaccounted-for water, excess staff, low metering rates, low water quality and, more significantly, was fraught with political favouritism (Corton, 2003). There persisted a pattern of inequality with higher levels of water use in the wealthiest areas (330 l/day/inhabitant) than in the lower-income neighbourhoods (103 l/day/inhabitant), according to SEDAPAL (2005). Because of macroeconomic constraints, the level of national investments in the water sector had declined from US\$ 228.9 million/year in the 1990s to US\$ 166.6 million/year in the period immediately after Fujimori's removal. Overall, the first phase of water neoliberalism, under the administration of Fujimori, achieved only modest managerial improvements, at the expense of centralised governmental interventions, and failed to produce a lasting response to the looming risk of higher water scarcity. More was needed to secure concrete results and maintain the political legitimacy of the ongoing process of reforms.

During the Toledo government, in 2006, the National Plan of Sanitation was published and clearly exposed the lingering problems left by the initial years of water neoliberalism in Lima, namely, deficient service coverage, bad quality of services, unskilled staff, institutional weaknesses and low cost recovery. The need to address those pending problems, inherited from the previous decade, was rapidly perceived by Alan García during his presidential campaign in 2006. After the controversial years of Fujimori and the technocratism of Toledo, García seemed to be the best candidate to personify the subtle changes required to move forward the neoliberalisation of water in Lima. The appealing discourse of economic development and social inclusion articulated by García, combined with a solid parliamentarian majority and firm international support, provided the political authority to consolidate water neoliberalism in Peru. As an experienced politician, the solution to the deficit of water Lima became one of the pillars of his electoral manifesto, which adopted the catchphrase 'without water there is no democracy'. The slogan had large resonance and was later incorporated as the symbol of water policies of the new García administration. The

main demonstration of the willingness to embrace water neoliberalism by the new government came in the form of the programme Water for All [*Agua para Todos*, APT] that was launched in 2007 with a portfolio of 1,584 engineering works with a total cost of around US\$ 2.0 billion in Lima alone.

Moving away from the uncertain and complicated privatisation of SEDAPAL, APT created concrete opportunities for foreign companies to participate in the water services of Lima (León Suematsu, 2006). Companies were able to bid for contracts related to mega-engineering projects, which included the construction of the Huachipa water treatment work (claimed to be the largest in Latin America with investments of US\$ 271 million) and the expansion of the system in the North Cone of Lima (US\$ 250 million), both financed with public funds and foreign loans. Similar to the private initiatives in the form of PPP, there are the water transfer from Huascacocha (called project Marca IV, US\$ 71 million), a desalinating plant in the south of Lima (to be constructed by an entire new PPP water utility, *Aguas del Sur de Lima*) and the sewage treatment plants of Taboada (US\$ 342 million) and La Chira (US\$ 155 million). The bulk of the resources continue to come from the national treasury; for instance, between January and March of 2009, SEDAPAL was allocated 126 million soles [US\$ 45 million] or 41.4% of the total level investment by the public sector (excluding financial entities) operated by FONAFE. Additional increases in water tariffs were approved by SUNASS to cover the construction of those infrastructure projects (i.e. 10.37% for Marca II, Huachipa, Ramal Norte and Ramal Sur, and 12.31% for the Taboada sewage treatment plant and the submarine sewage pipeline). At the same time, in order to secure additional funds, SEDAPAL was listed in the stock market of Lima and, under the Decree-Law 1,031 (passed in June 2008), the utility was expected to negotiate at least 20% of its shares (Ioris, 2013).

The second decade of water neoliberalism was certainly characterised by an increasing complexity and diversification of procedures, in the sense that market-based responses passed to spread to other dimensions of urban water management (Ioris, 2012). The intensification of business transactions involving water has gone much further than large infrastructure projects, but began to permeate most of the public policies on water services. In a city where the overwhelming majority of the population have informal jobs or survive by selling whatever they can, the ideology of entrepreneurialism tends to stifle the deeper inequalities

produced and maintained under the hegemonic economic trends. In that sense, there is growing space for market-like solutions, specifically for the payment for ecosystem services and the formation of 'small sanitation markets' in the poorest settlements of Lima (described as the 'new paradigm' of sanitation by Baskovic, 2008). The 'small sanitation markets' are designed to incorporate the *barriadas* in the sphere of business opportunities, such as in the case of Pachacútec, in the north cone of Lima, where micro-credit schemes try to encourage the local shops to sell sanitation equipment and toilet units to the local residents. In our visits in the area in 2009, it was possible to observe the work of promoters working to persuade the residents about the importance of committing themselves to a three-year loan used to pay for the investment in sanitation. Nonetheless, our fieldwork in Pachacútec identified serious scepticism towards the micro-credit scheme, with residents complaining that the equipment and the technology were not suitable for their wooden houses and, ultimately, only the better off in the community could really benefit from the micro-credit conditions.

The introduction of neoliberal reforms has not only led to higher complexity of public water services, but also incorporated several new stakeholder groups. Exactly because of the neoliberal influence, SEDAPAL has now to respond to regulatory agencies and various branches of the national, regional and local governments. In addition to organised communities, NGOS, academics and think tanks are increasingly involved in the debate about the future of water in Lima. More significantly, though, is the conspicuous presence of national and foreign companies that work towards the implementation of infrastructure projects or in the private provision of potable water or sewage treatment. SEDAPAL's formal mission is to serve the general population, but the public has systematically expressed their frustration with the level of service and with the direction of contemporary policies. As mentioned at our interviews in various parts of Lima, the relation between SEDAPAL and the population remains particularly fraught with tensions and criticism from both sides. It was pointed out by a local sociologist, who used to work for the public utility, 'SEDAPAL can only really communicate with the population via the water bill', an expression that encapsulates the ethos of the present-day treatment of water issues in Lima. If neoliberal policies improved the performance of the water services (e.g., the rate of water meters increased from 6% in 1995 to around 70% in 2005, cf. SEDAPAL, 2005), sectors of the population have

tried to subvert SEDAPAL's attempt to monitor domestic water use, for example, with the escalation in the cases of vandalism and meter thefts (e.g. water meter theft that increased from 32,256 to 85,176 between 2000 and 2007 whilst the rate of metering increased from 62.8% to 70.1% in the same period).

A 2003 survey had already detected that half of the utility clients declared perceived improvements in the quality of the service, whilst the other half either didn't notice any significant change or strongly complained about SEDAPAL's performance (SEDAPAL, 2005). Around 50% of those dissatisfied with SEDAPAL rejected the need to raise water tariffs and mentioned problems such as service restrictions and interruptions in the supply. It is the case that increases in water tariffs improved the cost-recovery capacity and financial health of the utility, but have maintained the pattern of inequality and unfairness. On the one hand, the water tariffs in Lima are lower than other large Latin American cities: on an average, it is US\$ 5.00 for the first 20m³ supplied every month, compared to the average of US\$ 11.00 (ADERASA, 2007). That is, actually, one of the particularities of the neoliberalisation of water in Lima is largely explained by the strong intervention of the national state as the mediator and guarantor of business interests. On the other hand, when the level of income is taken into account, the water bill represents 6% of the monthly earning of the poorer families of Lima, which is one of the highest in the continent (ADERASA, 2007). What is more, the technocratic attitude of the company and the preference for large-scale infrastructure schemes have largely undermined the chance to advance other alternative, low-cost solutions that could be based on the more active involvement of local residents and their forms of political representation.

The growing insertion of water services into the broad neoliberalising agenda has neither been linear, nor simple. On the contrary, the unfolding of water neoliberalisation had observed specific opportunities and constraints. With the incorporation of SEDAPAL into the scope of the neoliberal reforms, intersectoral relations around water have been dominated by technocratic discourse based on technological and commercial targets. Particularly under the García administration, the water industry of Lima became a favourite locus for investments and business transactions in the form of public-private partnerships, which have nurtured safe opportunities for private investors and, due to the propaganda involved, helped to legitimise the direction of institutional changes.

However, if the more than 3 billion dollars of investments in the last 20 years led to a significant expansion of the hydraulic infrastructure, it has also meant a deeper exploitation of wage labour (e.g. from 5.32 to 1.77 workers/1000 connections between 1990 and 2008), higher tariffs and a growing number of complaints. This persistent disconnection between economic growth and social inclusion has been maintained by the succession of strong presidents, which is described as a 'culture of caudillismo' that distinctively defines recent Peruvian politics (Murakami, 2008). The recurrent resort to authoritarianism seems to confirm the disturbing and controversial observation of Slater (1989) that democracy may not be the best political environment for capitalism in peripheral countries such as Peru.

The neoliberalisation of water in Lima has entailed a fluid combination of technical, economic and political interventions that are strategically coordinated to create a more favourable business atmosphere (Ioris, 2012). Notwithstanding the advance of water neoliberalism, urban planners point out that the water reforms have improved the situation at aggregate level, but there is no definitive solution for the dilemma of sustaining network expansion at an affordable cost to the population (Fernández-Maldonado, 2008). The unfair state of affairs has been also criticised by union leaders and NGO activists for the lack of transparency and the repeated evidences of corruption. Interestingly, the actual course of the water reforms has not even pleased those sectors that call for a more orthodox neoliberal approach. Some still regret the fact that, in the end, SEDAPAL was not privatised, which would have represented, in their view, higher gains in efficiency and economic rationality. In our interviews, such opinion was compellingly expressed by the executives of the various international agencies with representation in Peru (including international banks and cooperation schemes), as well as consultants and academics involved in the formulation of recent projects and plans. The fundamental criticism is that, in spite of significant works being now built by the private sector, the source of investments remains in the hands of the national government. It means that the expansion of the water infrastructure in Lima, for example via the APT programme, is still paid by the government instead of those that will benefit from it (i.e. the customers of SEDAPAL). It is also not clear whether the APT programme will have enough money to fulfil all its targets, particularly in a situation of international financial instability.

One main aspect of the local experience was the need to retain the national state as the main player and the ultimate guardian of water neoliberalisation, which was required to minimise the risk for private business (in conditions of chaotic urbanisation) and to guarantee the acceptance of private operators and construction companies by the general population. Exactly because of the role performed by the national state, water tariffs have remained relatively low when compared with similar cities in the continent (although there is a serious possibility that will need to increase significantly in the near future to maintain the level of contract profitability). Despite its formal responsibilities, the regulatory agency (SUNASS) has had only secondary interference in the critical decisions regarding investments and tariffs. When it was formed in the early 1990s, SUNASS was expected to supervise and also support the water utilities, a dual role that was criticised for diluting the focus on regulation (according to our interviews with current and former regulators). The modest improvement of the water services during most of the last two decades indeed demonstrates that SUNASS lacks the instruments for penalising water utilities for their failures (Lin and Berg, 2008) and for avoiding political interferences (ACDI, 2001). The main challenge faced by SUNASS has been the implementation of an objective price setting formula that allows the tariffs to gradually increase in order to reflect the long-term marginal cost of the service. Nevertheless, full cost recovery represents a thorny issue, even in a situation of semi-dictatorship like during the Fujimori government. The political manipulation of water tariffs, despite the discourse on efficiency and profitability, constitutes a major inconsistency of neoliberalising policies and undermines the credibility of their purposes. In the end, SUNASS remains a feeble regulatory agency, increasingly under the influence of party politics and incapable of enforcing the intended level of tariffs (i.e. a core tenet of water neoliberalism).

Another thorny, obscure but certainly decisive component of the state–water–city nexus is the certainty that a lot has been lost due to structural corruption and everyday corrupt practices. Beyond the more explicit and public processes, there is also a large, and little known, metabolism of corruption undermining public policies and compromising government initiatives. Corruption, in its many forms, is an important element of the politicisation of the urban water services and has a direct impact on the production of uneven and unfair territories. Because of the level of investments and the political relevance, the water industry of Lima was

a privileged locus for corruption and populist measures for a long time and particularly during the García administration. It was certainly not a simple coincidence that most of the corruption accusations investigated against President García were related to the projects and investments in water services. On the contrary, the manipulation of water supply of the capital city has been a recurrent expedient employed to assist party politics and enrich corrupted authorities. The fact that around a third of the national population live in the capital means that the announcement of water infrastructure projects for the crowded periphery of the megacity has huge political appeal and easily justifies vast sums of money to be invested in (sometimes questionable) water treatment works (there has been much less interest in sewage collection and treatment).

There were early signs of extensive corruption affecting the water utility SEDAPAL even before the transition to the administration of Ollanta Humala in 2011. For instance, in 2010, the chief executive of SEDAPAL (Guillermo León) had to resign due to serious allegations of corruption in new water treatment plants involving members of his family, politicians and private contractors. Also an investigation for the TV programme Panorama, of the local Channel 5, revealed the recorded voice of a politician of the ruling party (Julio Herrera) negotiating the results of tendering processes related to the improvement of the services in San Pedro de Carabayllo (those scandals were vastly covered by the mass media). The irrefutable evidences of graft and dishonesty during the García government, together with the reduced number of congress members from his party (APRA) after the 2011 election (i.e. there were not enough congressmen to stop the investigation), prompted the formation of an investigative commission, known as the mega commission [*megacomisión*]. Part of its remit was to scrutinise the Water for All (APT) programme in Lima (including the allegation of fraud, incompatible transactions and the abuse of public office). It is widely accepted that APT attracted large construction and consultancy companies to do business with the water utility of Lima, even beyond its supervisory capacity. With massive investments in a short period of time and careless control of targets and payments, APT created favourable conditions for mismanagement and corruption.

Based on the evidence put before the mega commission, it became clear that the invocation of the urgency was very instrumental in facilitating adjustments in original plans and without the need of a careful technical justification or legality of the changes. As repeatedly affirmed by the

then chairman of the mega commission, Congressman Sergio Tejada, on many occasions, the García government issued emergency decrees that facilitated the approval and speeded up the execution of the projects with reduced control and monitoring. APT was so ambitious that it overloaded SEDAPAL with multiple construction works, although the programme only included modest funds for infrastructure maintenance (the obvious explanation was the much easier and quicker deviation of money from large constructions, especially when carried out simultaneously and with very limited supervision). In New Pachacútec, a large settlement in the north of Lima examined earlier, major projects were initiated with only superficial technical plans and without even sorting out the ownership of the terrain. Several of those interviewed during this research mentioned that there is a tacit agreement that at least 10% of the total cost of an engineering project was diverted to politicians and to the administrators of the public utility.

As typically happens in similar circumstances, after leaving office Alan García started to make conferences, at the cost of US\$ 60,000 each, often paid by the same companies that own profitable contracts with his government (El Comercio, 2013a). In that context, the Attorney General's office ordered the lifting of banking secrecy of Alan García's accounts to facilitate the investigation of wrongdoings. García had publicly acknowledged the purchase of a US\$ 830,000 new house but explained, with a great dose of cynicism, that the money was obtained from the selling of books and conferences... While shocking revelations were coming from the mega commission, the ex-president took a surprisingly aggressive approach and constantly tried to underplay the significance and the validity of their work. The mega commission attracted fierce reaction from García and his closest allies, who repeatedly argued that its main purpose was to prevent the next candidacy of the former president in 2016 (El Comercio, 2013b). In May 2013, the mega commission decided to formally accuse García of numerous irregularities, but the ex-president immediately replied that it was a 'Chavist manoeuvring' (a reference to the late Hugo Chavez of Venezuela) and that his efforts to expand the water services of Lima were merely the operationalisation of a decision made by the former president Toledo. As it is widely recognised, García continued to maintain strong personal connections with judges and supreme court members appointed during his two administrations, which helps to explain why the former president acted as if he had some sort of immunity from prosecution.

In June 2014, the National Congress decided to formally charge García and other members of his administration of corruption and mismanagement related to granting of pardon to convicted criminals, but the battle continues in political and juridical circuits. In any case, the controversy around corruption in the water industry of Lima served as justification for reducing public subsidies and even the privatisation of SEDAPAL (which was launched in the 1990s and then dropped due to operational difficulties and political resistance, as examined earlier in this chapter). Utility privatisation never really disappeared from the agenda of multilateral agencies working in Peru (demonstrated in interviews with officers of the World Bank, the European Union and the German cooperation agency), but this argument returned more strongly with the mismanagement of the Water for All programme and misconduct in SEDAPAL. That was clearly the position taken by the most influential newspaper of Peru, *El Comercio*, in its editorial page during the coverage of the mega commission's work. In January 2013, the newspaper editors identified as the main problem of water services in Lima the fact that these remain in the hands of the state. Different from other sectors, SEDAPAL is state-owned, that is, 'has no owner and, therefore, nobody there is interested in doing the right thing in order to make it more profitable'. Instead of focusing on social demands for better services and the criminal activities of utility managers, the newspaper attacked the government itself for the failures. In their view, 'the government forgets that problem of SEDAPAL is not the lack of resources, but the lack of incentives to do its job' (*El Comercio*, 2013c). It is evident here that the employment of the same anti-state discourse – disguised as anti-corruption appeals – was advanced by mainstream organisations with neoliberalising inclinations.

The response of SEDAPAL to the privatisation argument is twofold. First, utility managers accept some share of the blame and have insisted on the importance of partnership with the private sector in the construction and operation of engineering schemes and in the provision of treated water. The utility's chief executive, Rossina Manche, announced projects worth over 2.5 billion soles (almost US\$ 1 billion) to be mobilised through public–private partnerships. At the same time, the Humala government included a new bill (number 1293/2012) that aims at the modernisation of the water sector, but was criticised by the federation of the sanitation workers unions (FENTAP) as another effort in the direction of utility privatisation. Investments in water services are supposed to be partly

paid by increased tariffs (3.32% in April 2013 and 2% more until 2014), at the same time that SEDAPAL managers complain that it is 'difficult to attract the private sector' because the rate of return is only 6% (against 12% in the electric sector). Gonzalo Prialé, head of the Association for the Promotion of the National Infrastructure (AFIN), complained that the profitability of the public company SEDAPAL is 14 times lower than the equivalent profitability of Aguas Andinas, the private company that operates the services of Santiago, Chile.

Second, the administrators of SEDAPAL present a range of technical reasons to explain supply and distribution problems, including the constant urban growth and lack of adequate planning. A clear evidence of the insistence on the same model of water services, highly vulnerable to corruption, was the announcement in 2013 of new investments (8.443 billion soles or around US\$ 3.27 billion) in 148 water projects by the new administration of Ollanta Humala to expand the coverage of potable water and improve the pipeline network. Once again, the promise is to reach 100% of service coverage and benefit 2 million residents in 3,600 human settlements by mid-2016. It is highly significant that such investments were announced without any significant change in the rationale of water management and in the relation between SEDAPAL and its clients. One disturbing indication of how things remain practically unchanged is the career of senior authorities, as in the case of the Minister of Housing and Sanitation (Mr René Cornejo), who has played important roles in all administrations since 2000 and eventually – and quite controversially – became prime minister early in 2014. This also suggests that the personal trajectory of key political players moving from one senior position to another in different governments has in itself an element of corruption.

Making sense of Lima's urban dilemmas and the failure of state promises

The inversion of money and technology in the water sector of Lima, especially in the last two decades, has certainly failed to offer a solution to the long problem of water scarcity and sociospatial urban injustices. That is only one chapter of the wider problems of urban planning and social exclusion. Successive governmental programmes have included a discourse on public participation, environmental sustainability and even social justice, but also incorporated incentives for the circulation

of capital and the maximisation of private profits. Substantial sums of money have been invested in infrastructure and management – which has attracted more international operators than the company can actually handle – although much less attention has been dedicated to creating specific solutions to the concrete reality of water problems in different parts of Lima or to increasing the resilience of the water system. Although the modernisation of water services has been based on fleeting investments and on the business-like management of the public utility and of alternative water systems (e.g. micro-credit schemes), the responses to water problems remain centred on the appropriation of scarcity as a key productive force. Due to the symbolism and political appeal associated with large-scale projects, community-based, low-cost alternatives are largely disregarded as unfeasible. The relation between the water utility and the population continue to be marked by selective channels of communication that ignore the specific demands and the organisation of local communities in the periphery of the metropolis. The material and symbolic production of water scarcity in the Latin American metropolises continues to be predicated upon practices of spatial exclusion and environmental injustice (Durand, 2012).

In that sense, Lima constitutes a relevant example of the complexity of the Latin American megacity as the catalyst of national development and the thermometer of its mounting tensions. It reveals the evolution in time and space of key driving forces that encapsulate the achievements and problems of the urban development in the megacities of Latin America: following our analytical framework, we can conclude that the importance of Lima for the political, economic and social configuration of Peru has been undermined by the persistence of widespread inequalities, which have prompted outbreaks of reaction and grassroots strategies. The Peruvian capital has evolved from an administrative and military location to become the hub of national development and the main edge of the country's insertion into the globalised economy. However, the high rates of economic growth in the last few years have not been enough to alter the overall pattern of discrimination that has defined the city since its early days. In the same way as in the other large conurbations in the sub-continent, the contemporary landscape of Lima is composed of pockets of wealth surrounded by large areas of poverty and precarious housing. Lima, as all the megacities of Latin America, has become the embodiment of material and symbolic forms of social and spatial discrimination, which have only been aggravated under

neoliberal trends of recent decades. The marked contrasts between different urban zones are not the leftover of the city, but represent the central mechanism for the functioning of economy and society according to the priorities of the middle classes and the political elites.

Despite the fact that SEDAPAL was never formally privatised, the water services of Lima have been the object of a sustained process of monetisation through contracts with private companies and considerably higher tariffs. In reality, the increasing circulation of money in recent years became the hallmark of the water services of Lima. Through a combination of public funds, higher water tariffs and PPPs, Lima turned into a priority for international construction and operation companies. The water business increasingly attracts the attention of private investors, which is demonstrated by the selling of shares in the stock market. Moreover, there is a double farce in the growing involvement of private operators in the water services of Lima, which is the fact that the residents are now expected to pay the full cost of water services and future investments without the minimum levels of income to face such financial commitments, and also the evident inadequacy of the regulatory framework introduced in the 1990s to deal with a fluid business context. Furthermore, it is true that SEDAPAL has a system of cross-subsidy in which domestic customers who use less than 25 m³/month (around 89% of the residences) are subsidised by commercial and large domestic clients (e.g. S/. 0.875/m³ for less than 10 m³/month and S/. 3.796 for more than 50 m³/month of water use).⁵ However, in practice, the cross-subsidy system adopted by SEDAPAL seems to operate mainly as a political excuse for the persistent increases in customer tariffs, which are essential to preserve the profitability of the water utility and the interests of its private associates (Ioris, 2013). There is also an indication that, in the long term, subsidies are likely to be reduced due to the declining willingness of neoliberal governments to divert treasury funds towards public utilities.

Taken as a whole, the water reforms in Lima may have improved the situation at the aggregate level – which has been repeatedly praised by the national government and agencies like the World Bank – but there is still no definitive solution for the dilemma of sustaining network expansion and service reliability at an affordable cost to the population. Persistent water problems continue to affect not only the marginal areas of the city (with around 5% of population without public services), but 48% of the population of metropolitan Lima suffer from water of substandard

quality. Particularly during the García administration, the water sector of Lima became a favourite locus for short-term business transactions, which only increased the vulnerability of the water services (already under pressure from melting glaciers in the Andes due to anthropogenic climate change, which are the main source of water to Lima today). The expansion of the urban water infrastructure of Lima has channelled foreign capitals accumulated abroad, but there is no guarantee that investors will maintain the flow of investments in the medium and long term. On the contrary, there are major doubts about the availability of monetary resources to conclude and maintain the new water infrastructure. Institutional reforms and infrastructure investments have been implemented against a background of spatial and sociopolitical inequalities that had previously characterised the urban development of Lima for more than a century. Such pattern of unevenness has been maintained under water neoliberalisation (particularly in terms of the differential quality and reliability of services, and also the high-handed treatment of the community demands in low-income areas), despite misleading claims of universalisation and better regulation. For the majority of the low-income population, water remains scarce and increasingly more expensive, whereas there is virtually no opportunity to influence policy-making.

Overall, the reform of the water services of Lima represents a relevant illustration of the intricate urban policies adopted under the influence of neoliberal pressures. Substantial sums of money have been invested in infrastructure and management – which has attracted more international operators than the company can actually handle – although much less attention has been paid to creating specific solutions to the concrete reality of water problems in different parts of Lima or to increasing the resilience of the water system. Due to the symbolism attached to large-scale projects (under the banner ‘without water there is no democracy’), community-based, low-cost alternatives are largely disregarded as unfeasible. The relation between the water utility and the population continue to be marked by selective channels of communication that ignore the specific demands and the organisation of local communities in the periphery of the metropolis. It is also the case that the more recent initiatives are characterised by high institutional complexity (e.g. metering, micro-credit, concession contracts), but the consequence is that most residents now struggle to grasp the underpinning logic of governmental programmes. This general confusion about the ultimate

goals of the recent water reforms has affected the mobilisation capacity of low-income communities and weakened the leadership of protest groups. Even so, with the insufficiencies and contradictions of the neoliberal initiatives becoming increasingly more evident, the allocation and use of water in Lima remain highly contested and contain the seeds of further confrontation. However, the most common situation is one of disorganisation and political apathy. 'The possibility for collective action, while ever-present, may remain dormant in the face of increased competition for basic necessities' (Brodrecht, 2012: 864). Paraphrasing Freud (2004) in relation to the basis of Western civilisation, most of the people of Lima still have to surrender part of their chances of happiness and political rights in exchange for minimal conditions of survival in one of the most problematic Latin American megacities.

At the same time that the problems of social integration persist, the ability of the deprived groups to survive against the odds of the large city has fostered some original responses to the lingering urban problems. Subaltern communities have been able to coordinate themselves to resist the hegemonic urban 'project' imposed from the above. In various moments during the last century, the poor population managed to exert pressure and achieve concessions from public authorities, particularly in the case of the acceptance of the *barriadas* as the main housing alternative for the poor. The creativity of those living in the margins of the large city has also helped to overcome common dilemmas and to share scarce resources (e.g. the collective construction of houses and community infrastructure with the resources available to the low-income population). Yet, the intricate geography of the *barriadas* of Lima is probably the more illustrative example of the challenges faced by grassroots organisation in their struggle for political recognition. The *barriada* was the ultimate solution to the massive housing deficit during the period of industrial and demographic expansion in the middle of the 20th century. It was not only tolerated, but also promoted by successive governments that agreed to regularise the new settlements. Moreover, notwithstanding the achievements of mobilised communities, the consolidation of the *barriadas* was also instrumental for the reinforcement of the dualistic city established in the previous centuries. The final consequence is that the fringes of the megacity remain one of the most crucial and contested arenas of dispute over the present and the future of Latin America. The modest and fragmented reactions of the poor residents to the inconsistencies of prevailing policies suggest a lack of political leadership and

the difficulty, under the pervasiveness of market-friendly ideologies, to promote alternative responses to the long-lasting problems of metropolitan development. It has been the various kinds of popular mobilisation and the internal contradictions of hegemonic tendencies that helped to mitigate the worst of the chaotic urban development and to favour some degree of (the still very problematic) social inclusion.

Notes

- 1 As it would happen later in the 1980s and 1990s under the activities of the Maoist Shining Path and other left-wing guerrilla groups.
- 2 At the same time that the periphery continued to expand, a number of landmark works were carried out in the 1970s to serve the needs of the middle and upper classes (e.g. the new airport, the Chrysler industry, the Sheraton Hotel, the avenue Paseo de la República, modern office buildings, etc.).
- 3 Similar to the difficulty to define the Mexican capital city, 'Lima' is simultaneously the name of one of the 24 Peruvian departments (i.e. states), the name of one of the provinces within that department (i.e. counties) and also the name of one of the districts of that province. Metropolitan Lima is normally a reference to the area included in the Provinces of Lima and Callao.
- 4 Moreover, despite all its socioeconomic problems, Lima still offered better socioeconomic opportunities for the poorer contingents of the population than the rural and inland parts of the country (Saravia, 2005).
- 5 '\$/.' is the symbol of the Peruvian currency New Sol.

References

- ACDI. 2001. *Los Servicios de Agua y Saneamiento en el Perú: Un Diagnóstico y Estadísticas*. PAS/Banco Mundial and ACDI: Lima.
- ADERASA. 2007. *Ejercicio Anual de Evaluación Comparativa de Desempeño*. Association of Regulatory Entities of Water and Sanitation in the Americas: Buenos Aires.
- Alcázar, L., Xu, L.C. and Zuluaga, A.M. 2000. *Institutions, Politics, and Contracts: The Attempt to Privatize the Water and Sanitation Utility in Lima, Peru*. Policy Research Working Paper No. 2478. World Bank: Washington D.C.
- Ballón, E. 2004. Algunas Notas para Pensar la Ciudad del Siglo XXI. *Perú Hoy: Las Ciudades en el Perú*, 17–43.

- Baskovic, M.R. 2008. Un Nuevo Paradigma: El Saneamiento como Negocio. *Agua*, 26, 32–38.
- Bertram, G. 1991. Peru, 1930–60. In: Bethell, L. (ed.), *The Cambridge History of Latin America*. Vol. VIII. Cambridge University Press: Cambridge. pp. 385–449.
- Bonilla, H. 1978. The War of the Pacific and the National and Colonial Problem in Peru. *Past and Present*, 81(1), 92–118.
- Brodrecht, A. 2012. Poverty's Numbing Effect on Collective Action: A Case Study of Squatter Settlers in Lima, Peru. *Globalizations*, 9(6), 851–867.
- Bromley, J. 2005. *Las Viejas Calles de Lima*. Edilibros: Lima.
- Burga, M. and Flores-Galindo, A. 1979. *Apogeo y crisis de la República Aristocrática*. IEP: Lima.
- Calderón Cockburn, J. 2005. *La Ciudad Ilegal: Lima en el Siglo XX*. UNMSM: Lima.
- CENCA. 1998. *El Saneamiento Básico en los Barrios Marginales de Lima Metropolitana*. PAS/Banco Mundial: Lima.
- Corton, M.L. 2003. Benchmarking in the Latin American Water Sector: The Case of Peru. *Utilities Policy*, 11(3), 133–142.
- Cotler, J. 1991. Peru since 1960. In: Bethell, L. (ed.), *The Cambridge History of Latin America*. Vol. VIII. Cambridge University Press: Cambridge. pp. 451–507.
- De Soto, H. 1986. *El Otro Sendero*. Instituto Libertad y Democracia: Lima.
- Dietz, H. and Tanaka, M. 2002. Lima: Centralized Authority vs. the Struggle for Autonomy. In: Myers, D. and Dietz, H. (eds), *Capital City Politics in Latin America: Democratization and Empowerment*. Lynne Rienner: Boulder. pp. 193–225.
- Dollfus, O. 1964. Lima en 1962: Quelques Remarques sus le Poids de la Capitale dans l'Économie Péruvienne. *Caravelle*, 3, 289–302.
- Dosh, P. 2006. Surprising Trends in Land Invasions in Metropolitan Lima and Quito. *Latin American Perspectives*, 151(6), 29–54.
- Driant, J-C. 1991. *Las Barriadas de Lima: Historia e Interpretación*. IFEA and DESCO: Lima.
- Durand, M. 2012. Mesurer les Inégalités Environnementales et Écologiques dans les Villes en Développement: Déchets et Eaux Usées à Lima. *Flux*, 89–90, 67–78.
- El Comercio. 2013a. Sin Consenso: Megacomisión no Pedirá que se Levante Secreto Bancario de Alan García. Available at:

- <http://elcomercio.pe/actualidad/1536887/noticia-sin-consenso-megacomision-no-pedira-que-se-levante-secreto-bancario-alan-garcia> (published on 14 February 2013).
- El Comercio. 2013b. Del Castillo: 'Es Posible que en 2.400 Contratos de Agua para Todos Pueda Haber Irregularidades'. Available at: <http://elcomercio.pe/actualidad/1577629/noticia-castillo-posible-que-400-contratos-agua-todos-pueda-irregularidades> (published on 17 May 2013).
- El Comercio. 2013c. Subsidiar a SEDAPAL no Es la Solución para sus Problemas. Available at: <http://elcomercio.pe/actualidad/1530592/noticia-editorial-mil-millonesal-agua> (published on 31 Jan 2013).
- Fernández-Maldonado, A.M. 2008. Expanding Networks for the Urban Poor: Water and Telecommunications Services in Lima, Peru. *Geoforum*, 39(6), 1884–1896.
- Figuroa, A. 1998. Income Distribution and Poverty in Peru. In: Crabtree, J. and Thomas, J. (eds), *Fujimori's Peru: The Political Economy*. Institute of Latin American Studies: London. pp. 127–149.
- FNSBS. 1960. *Barriadas de Lima Metropolitana*. Fondo Nacional de Salud y Bienestar Social: Lima.
- Freud, S. 2004. *Civilization and Its Discontents*. Trans. D. McLintock. Penguin: London.
- Garcilaso de la Vega. 2005 [1609]. *Comentarios Reales de los Incas: Antología*. Orbis Ventures: Lima.
- Ghersi, E. and Ñaupari, H. 2005. Agua Sucia: Cólera en Perú. In: Okonski, K. and Hidalgo, J.C. (eds), *Salud y Medio Ambiente: Mitos y Realidades*. International Policy Network: London. pp. 1–14.
- Grampone, R. 1999. *Las Nuevas Reglas de Juego: Transformaciones Sociales, Culturales y Políticas en Lima*. IEP: Lima.
- Graumann, J. 1966. Redistribución de la Población en el Perú. *Boletín de Análisis Demográfico* 4, 22–74.
- Gwinner, W.B. 2007. Housing. In: Giugale, M.M., Freter-Cibils, V. and Newman, J.L. (eds), *An Opportunity for a Different Peru: Prosperous, Equitable, and Governable*. World Bank: Washington D.C. pp. 349–359.
- Harris Jr, W.D. 1971. *The Growth of Latin American Cities*. Ohio University Press: Athens.
- ICOM. 2001. Investigación Cualitativa sobre la Imagen Externa de SEDAPAL. SEDAPAL: Lima.
- IMP. 1989. *Plan de Desarrollo Metropolitano de Lima-Callao, 1990–2010*. Instituto Metropolitano de Planificación: Lima.

- INEI. 2010. *Informe Técnico: Evolución de la Pobreza al 2009*. INEI: Lima.
- Ioris, A.A.R. 2012. The Neoliberalization of Water in Lima, Peru. *Political Geography*, 31(5), 266–278.
- Ioris, A.A.R. 2013. The Adaptive Nature of the Neoliberal State and the State-led Neoliberalization of Nature: Unpacking the Political Economy of Water in Lima, Peru. *New Political Economy*, 18(6), 912–938.
- Joseph, J.A. 2005. *La Ciudad, la Crisis y las Salidas: Democracia y Desarrollo en Espacios Urbanos Meso*. Alternativa and UNSM: Lima.
- Klarén, P. 2004. *Nación y Sociedad en la Historia del Perú*. IEP: Lima.
- Kruijt, D. and Degregori, C.I. (eds). 2007. *Fractured Cities: Social Exclusion, Urban Violence and Contested Spaces in Latin America*. Zed Books: London and New York.
- León Suematsu, G. 2006. SEDAPAL: Eficiencia y Calidad en la Gestión. *Boletín Corporativo Enlace*, 1, 4–5.
- Leonard, J.B. 2000. Lima. *Cities*, 17(6), 433–445.
- Lin, C. and Berg, S.V. 2008. Incorporating Service Quality into Yardstick Regulation: An Application to the Peru Water Sector. *Review of Industrial Organization*, 32(1), 53–75.
- Lowder, S. 1986. *Inside Third World Cities*. Croom Helm: London and Sidney.
- Ludeña, W. 2002. Lima: Poder, Centro y Centralidad: Del Centro Nativo al Centro Neoliberal. *Eure*, 28(83), 45–65.
- Mangin, W. 1967. Latin American Squatter Settlements: A Problem and a Solution. *Latin American Research Review*, 2(3), 65–98.
- Matos Mar, J. and Matos Lagos, R. 1990. *Aguas Residuales, Agricultura y Alimentación en la Gran Lima*. OPS and OMS: Lima.
- Morse, R.M. 1974. Trends and Patterns of Latin American Urbanization, 1750–1920. *Comparative Studies in Society and History*, 16(4), 416–447.
- Murakami, Y. 2008. Política Peruana Después de Fujimori: Fragmentación Política y Poca Institucionalización. *CIAS Discussion Paper*, 5, 41–63.
- Peruvian Times. 1970. New Expressway Serves Pioneer Towns (published on 16 October 1970).
- Plöger, J. 2006. Practices of Socio-Spatial Control in the Marginal Neighbourhoods of Lima, Peru. *Dialog*, 89(2), 32–36.
- Ramírez Corzo, D. and Riofrío, G. 2006. *Formalización de la Propiedad y Mejoramiento de Barrios: Bien Legal, Bien Marginal*. DESCO: Lima.

- Riofrío, G. 1996. Lima: Mega-City and Mega-Problem. In Gilbert, A. (ed.), *The Mega-City in Latin America*. United Nations University Press: Tokyo. pp. 155–172.
- Riofrío, G. 2010. *Alan García, Alcalde de Lima*. DESCO: Lima.
- Rivas, D.R. 1977. Development Alternatives for the Peruvian Barriada. In: Abu-Lughod, J. and Richard Jr., H. (eds), *Third World Urbanization*. Routledge: London. pp. 321–329.
- Sánchez León, A., Guerrero, R., Calderón, J. and Olivera, L. 1986. *Tugurización en Lima Metropolitana*. DESCO: Lima.
- Saravia, R.M. 2005. *Estadísticas de la Última Década: Precios, Producción y Pobreza en el Perú*. IEP: Lima.
- SASE. 2002. *Estudio sobre la Dinámica de los Asentamientos Humanos*. PDP/COFOPRI: Lima.
- Schönwälder, G. 2004. *Linking Civil Society and the State: Urban Popular Movements, the Left, and Local Government in Peru, 1980–1992*. Pennsylvania State University Press: University Park.
- SEDAPAL. 2003. *Historia del Abastecimiento de Agua Potable de Lima 1535/2003*. 2nd edition. SEDAPAL: Lima.
- SEDAPAL. 2005. *Plan Maestro Optimizado*. SEDAPAL: Lima.
- Slater, D. 1989. *Territory and State Power in Latin America: The Peruvian Case*. St Martin's Press: New York.
- Stokes, S.C. 1991. Politics and Latin America's Urban Poor: Reflections from a Lima Shantytown. *Latin American Research Review*, 26(2), 75–101.
- Verdera, F. 2007. *La Pobreza en el Perú*. IEP: Lima.
- Zolezzi, M. and Calderón, J. 1985. *Vivienda Popular: Autoconstrucción y Lucha por Servicios*. DESCO: Lima.
- Zolezzi, M. and Calderón, J. 1987. *Vivienda Popular: Autoconstrucción y Lucha por el Agua*. DESCO: Lima.

5

Water Problems and Conflicting Water Values in the Rio de Janeiro Metropolitan Region

► **Abstract:** *The failures of urbanisation in the city of Rio de Janeiro have serious repercussions on a larger geographical space, including catchments that supply water to the growing megacity. Urban conflicts can be directly associated with conflicting water values and contrasting forms of valuation. The chapter makes use of the concept of positionality to describe clusters of water values forged around cooperation and competition for water allocation, use and conservation. The explanatory function of positionality is demonstrated by the evolution of water use in the Baixada Fluminense, where the prevailing positionality has conventionally depicted water as an economic resource. Such centralised positionality has been challenged 'from within the state apparatus' by concerted calls for better governance. In contrast with those two perspectives, there exists also a vast range of water values articulated by the local communities in their struggle for survival and political recognition.*

Ioris, Antonio A.R. *Water, State and the City*.
Basingstoke: Palgrave Macmillan, 2015.
DOI: 10.1057/9781137468673.0009.

Rio de Janeiro is the third largest Latin American metropolis with serious urban and water management problems to be examined here. Just like Lima and Mexico discussed earlier, all metropolitan questions are not only highly unique, specific and contingent, but also directly and indirectly associated with the contradictions of national development and the impact of the globalisation of markets. Another commonality with the other two cities is that the vast metropolitan region of Rio de Janeiro spreads over an area without enough water resources and has likewise to rely on water transferred from other catchments. Even the wetland areas of the metropolis now suffer from water scarcity (see below the discussion about the Baixada Fluminense), at the same time that the entire region is annually impacted by recurrent floods during the wet season. It means that Rio de Janeiro's urbanisation problems have been the result of its hydrological and physical condition, aggravated by the lack of meaningful and effective measures to promote an inclusive and democratic process of urban growth. The vast majority of the population – by and large the descendants of the African slaves and migrants from other parts of Brazil – live now in so-called sub-normal, or marginalised, areas. One of the most distinctive features of Rio de Janeiro is the existence of an excess of 1,000 *favelas*, which accommodate more than one quarter of the population (according to the 2010 national census). Those living in the *favelas* and other low-income neighbourhoods are certainly not disconnected from the rest of the urban dynamics, but play a critical role in the labour market and cultural diversity of the city. Even so, sub-normal settlements have experienced lifelong shortage of housing, water and other public services (only marginally and circumstantially mitigated by the recent 'pacification' programme promoted, with great publicity, by the local and state authorities in the last decade).

In historical terms, Rio de Janeiro – the former national capital after the transfer from Salvador in 1763 until the relocation to Brasília in 1960 – was the first metropolitan and cosmopolitan nucleus in the Brazilian territory. The large city already experienced some significant increase in the 18th century due to the export of gold and gems from the inland State of Minas Gerais through the port of Rio de Janeiro. A few generations later, it became the unexpected core of the Portuguese Empire in 1808 when the royal family and 15,000 people left Lisbon ahead of the invasion by the Napoleonic army. Urbanisation trends accelerated throughout the 19th century with the consolidation of the newly independent country, the wealth created by coffee exports and

an early industrialisation. As a result, Rio de Janeiro received the first railways, the best ports and communication networks in the country. On the other hand, the pattern of urban growth was highly segregated, with the rich and white relying on the work of, but social and spatially separated from, the black or the mestizo poor. With the abolition of slavery in 1888, low-income groups – including former slaves, migrants from rural regions and those impacted by urban regeneration – could only secure their residence in leftover, unoccupied plots in the middle of the city and in the hilly areas (increasingly denominated as *favelas*).

In the first decade of the 20th century, old houses and shantytowns were gradually removed to give space to new boulevards and modern buildings. Many areas in the centre and wealthy zones were modernised and embellished to support the emerging industrial and urban society of the newly established republic (after the 1889 military coup). Rio de Janeiro became one of the main icons of modern urbanism, although it was largely a copy of the European models (Robinson, 2006). Similar to what happened in Peru and Mexico, the main period of urban expansion was between 1930 and 1960, which coincided with the final decades of Rio de Janeiro as the national capital and with industrialisation led by the nationalistic state (as it is well known, industrial production was gradually transferred and concentrated in São Paulo). Since the 1970s, new areas were incorporated as residential or industrial centres, but the process has been badly planned and poorly managed, with inadequate public transport and high levels of pollution, violence and persistent sociospatial inequalities. Despite a new municipal housing policy during the 1990s and more recent attempts to contain violence and drug trafficking, the magnitude and complexity of the issues faced are so enormous that slum issues continue to increase (UN-Habitat, 2003).

Rio de Janeiro is now Brazil's second largest megacity in a country that has one of the highest levels of urbanisation in the developing world (the rate of urbanisation in Brazil was 84% in 2010, according to the official census bureau IBGE). The population of Rio de Janeiro have grown as the result of natural increase and rural migration (around 65% of urban growth was a result of migration), although many remain employed or self-employed in non-standard, irregular jobs. Millions of people have been forced to construct their own homes from scrap materials such as wood, corrugated iron and metals. Often families have to share the same tap, there is no sewerage provision and water-related diseases are common. There are systematic problems of flooding and water

deficit throughout the metropolitan region, whilst a large extension of the watercourses is seriously affected by organic and industrial pollution (with severe levels of chemical pollution, high levels of faecal coliform bacteria, low levels of dissolved oxygen in the water and contamination of sediments by heavy metals). In 2007, the federal government launched the Growth Acceleration Programme (PAC) that allocated significant funds to water infrastructure in the metropolitan area of Rio de Janeiro (Britto and Cardoso, 2012), but largely failed to deal with a geographical situation of inequalities, inefficiencies and, ultimately, water vulnerability (Ioris and Costa, 2009). At the time of this writing, in the beginning of 2014, several areas in the northern periphery of Rio de Janeiro were again tragically affected by extensive flooding and the inability of the authorities to deal with serious levels of water vulnerability.

The water management problems of the city of Rio de Janeiro have repercussions way beyond the metropolitan region and even beyond the State of Rio de Janeiro. Since the middle of the last century, most freshwater supply to the metropolis has depended on the massive transfer from the Paraíba do Sul River Basin (PSRB) to the Guandu River (Ioris, 2009a). This scheme, called Lajes Hydropower Complex, has the capacity to transfer around 160 m³/s or two-thirds of the Paraíba do Sul water flow (leaving a flow of 90 m³/s in the source river basin). From the Guandu WTW (inaugurated in 1955), water is diverted to serve 83% of the population of the Rio de Janeiro Metropolitan Area (that is, around 9.5 million people).¹ This inter-catchment transference has ultimately transformed the availability of water in the PSRB into water scarcity in both the original and the receiving areas. In 2014, there was fierce public argument in the mass media between the governors of the states of São Paulo and Rio de Janeiro about the availability of water in the Paraíba do Sul River Basin. The Paraíba do Sul has been the main source for the Rio de Janeiro Metropolitan Region for many decades but was then seen as a possible emergency alternative when São Paulo faced a major scarcity due to the very low stocks of water. Curiously, hydrologists associated with the different state administrations had contrasting interpretations of the water balance and the amount of water available in the Paraíba do Sul (e.g. INEA, 2014), which reveals the close and promiscuous connection between academics (many working as consultants) and political leaders.

Because of its strategic location, the Paraíba do Sul catchment has been a key economic region for nearly 400 years. Early activity started

in the early 17th century with the incursions into the mainland territory to explore minerals and enslave Amerindians. The PSRB was then increasingly occupied by farms and settlements along its rivers and primitive roads. The favourable characteristics of the river network were instrumental for the exploitation of water, land and vegetation. In 1717, the statue of Our Lady of Aparecida, the patron saint of Brazil, was found in the waters of the Paraíba do Sul River (its colossal basilica in the upper catchment is nowadays the most important religious centre in the country). In the 18th century, the catchment was the main communication route between the coast (Rio de Janeiro) and the profitable gold mines in the Minas Gerais province. Brazil was then in the sphere of influence of the Portuguese Empire, as its main colony, but was also a source of capital to the northern European industrialisation. With the introduction of coffee production in 1770, the material transformation of the catchment accelerated. Vast areas of land were cleared and the natural vegetation (the so-called Atlantic forest) removed to open space for coffee trees. Similar to sugarcane plantations in the northeast, coffee in the PSRB relied on large sums of capitals and extensive farms (Prado Júnior, 1935, quoted in Holanda, 1995: 173). Politics in the new country, independent since 1822, became increasingly dominated by the coffee oligarchy: in the second half of the 19th century, coffee production had expanded to become responsible for half of the nation's export. Brazil was then oddly governed by a member of the European royal dynasties, Peter II, a bourbon king, and the typical image of the PSRB was then one of powerful coffee growers with strong influence on national politics, whereas the majority of the catchment population were composed of slaves and poor labourers. Even now, it is possible to recognise the lavish manor houses of the then affluent rural families, who included 32 noble titles among barons, viscounts and 2 earls.

At the end of the 19th century, because of the significant rates of soil erosion and land degradation, coffee production started to migrate to other parts of Brazil and the political influence of the local 'coffee barons' over the national state gradually declined. Environmental degradation was not left unnoticed, but the early critics were effectively silenced by the stronger economic interests in the seizure of land, monoculture and slavery (Pádua, 2002). A new economic period started around the 1900s with the introduction of textile and food industries. The proximity to the main consuming centres (Rio de Janeiro and São Paulo) facilitated

the rapid development of industrial activity in the catchment (Müller, 1969). The most significant industrial milestone was the foundation of the National Steel Company (CSN), the first major steel plant of Brazil. CSN was reluctantly accepted, but eventually financed by President Roosevelt's administration in 1942, as compensation for Brazil's military involvement in World War II. The inauguration of CSN effectively positioned the catchment in global geopolitics. The catchment nowadays comprises a diversified industrial sector, which includes more than 6,000 manufacturing units among metallurgical, steel, paper, rubber and chemical companies and airplane production. Dam engineering and heavy hydraulic infrastructure were built in the PSRB as part of the industrialisation effort. Hydroelectricity generation began in 1908 (Fontes Velha power plant) and additional hydropower plants were installed in 1940 (Fontes Nova), 1953 (Nilo Peçanha) and 1962 (Pereira Passos). There are currently more than 120 hydroelectric power stations in operation in the catchment (ranging from micro to large hydropower schemes).

Water there is now intensively used in the Paraíba do Sul Valley by 184 towns and cities, industries, agriculture and electricity generation. The catchment is one of the country's most dynamic economic areas and its production activities are responsible for more than 11% of the national GDP. However, the PSRB is today a heavily modified catchment, with a series of dams and pumping stations, intense water extraction and effluent discharges. Original hydromorphological features were largely altered to satisfy agriculture expansion and industrial and urban demands for freshwater and electricity. The high pace of urbanisation and industrial production have led to significant pollution problems due to organic material (1,000 mega-litres/day of raw sewage) and industrial waste (7 tons/day). Only 17.6% of the catchment sewage receives some form of treatment, which means a high exposure of riparian communities, traditional farmers, fishermen and low-wage residents to water transmitted diseases (Ioris, 2009a). According to the official environmental monitoring, the more polluted stretches of the Paraíba do Sul River have levels of coliform bacteria between 50 and 160 times the legal threshold. Treacherous biological conditions are particularly evident in the middle section of the main river where most of industry is located (Araujo et al., 2003). The extraction of sand from the riverbed for civil engineering is also responsible for significant environmental impacts: sand mining increased 193% (between 1993 and 2003) spreading to 256

sites in the upper catchment and causing evaporation equivalent to the water demand of 326,000 inhabitants (Dos Reis et al., 2006). Likewise, only less than 11% of the original forest remains confined to areas of difficult access and high altitudes.

Catchment environmental problems in the PSRB are further impacted by the already mentioned water transfer to Rio de Janeiro, especially because the catchment is significantly depleted of water in its medium section. The intensive forms of water use, together with the geomorphological transformation of the catchment, played a fundamental role in economic growth and urban expansion, but the underlying picture is one of discontinuous economic cycles, uneven regional development and permanent environmental degradation (Aquino and Farias, 1998). The myriad of interests and disputes around water incorporate perceptions and rationalities that reflect the prevailing model of economic development, regional planning and urbanisation. The transformation of the catchment features has primarily satisfied centralised economic demands at the expense of ecological stability and the fair distribution of social opportunities. In addition, the water augmentation scheme only reinforces water allocation inequalities in the receiving areas, because water supply is not shared equally among all residents of metropolitan Rio de Janeiro. On the contrary, water is primarily made available to the wealthiest neighbourhoods in the southern part of the metropolitan region, whereas the majority of the population, in the northern zones, suffer from constant disruption or the total lack of service. It is indeed remarkable to note the number of water vendors in the marginalised sectors of the metropolitan region selling water and charging significantly more than the public water company.

The inequalities between social groups have been projected over the relation with the rest of socionature (i.e. more-than-human nature), given that those that are more affected by water impacts are normally those that benefit less, and vice versa. That is an integral element of ruthless socioeconomic logic that has promoted some spaces as opposed to others, in a historical evolution that progressively aggravates socioenvironmental contradictions (Klink, 2013). The most remarkable experience of subordination and the range of silent conflicts around the valuation and management of water resources can be found in the Baixada Fluminense, a wetland area with major scarcity and flooding problems.

The controversial and positioned valuation of water in Rio de Janeiro

The troubles of the Rio de Janeiro Metropolitan Region will be examined now in relation to the contrasting valuation of water. Water is a vital substance whose perennial circulation helps to stabilise the climate, transform the landscape and connect the multiple forms of life. Individuals, communities and societies have developed complex mechanisms for dealing with water systems, which converge or deviate with interpretations of value. Water values are dynamic assessments of worthiness that emerge out of socio-ecological interactions and the continuous interplay between demands and opportunities. The values of nature and water in particular include a range of expressions defined through socially constructed material and discursive practices embedded in socionatural formations. The valuation of a specific water-related activity reveals not only preferences about some hydro-ecological features, but it is also influenced by different forms of reasoning seeking political legitimisation. For example, a riparian community may place a high value on the preservation of river flows and a lower value on the construction of dams or on the exploitation of the same river for hydro-power and agriculture irrigation. Other stakeholder groups probably have another set of priorities, which suggests an alternative valuation of the water system and distinct management reasoning.

Despite its broad significance, most of the contemporary debate tends to ignore the politicised dimension of water value expressions and the importance of the concrete socio-ecological experiences. The ability to care about nature and assess the value of eco-hydrological characteristics directly depends on the extent to which nature figures meaningfully in the cultural and locational experience of the lived environment (King, 2003). Although a significant body of scholarly work has tried to capture such inherent complexity of valuation – from environmental ethics to natural resource economics – in most cases disciplinary boundaries have prevented a more relational understanding of the origins and implications of water value. Superficial calls for pluralism have also fallen short of recognising the situated ontology of water values and the politicised implications of valuation mechanisms for water management. The practical consequence is that policy-making has often failed to integrate competing values and associated demands and led to a prolongation of conflicts and misunderstandings (Ananda and Herath, 2003). Rather than

purely economic, anthropological or moral interpretations, this essay will offer a contribution to the contemporary debate on water values by emphasising the political connection among personal preferences, group trajectories and broader socio-economic processes. Examination of the value of water requires dealing with multiple expressions of worthiness that emerge according to specific historico-geographical circumstances that are constantly reshaped under politicised interactions among individuals, groups and organisations.

Water values are essentially qualified attributes at the intersection between individual and collective preferences, market and non-market demands and local and higher levels of activity. Furthermore, the valuation of water is a political manifestation of achievements and insufficiencies of communities and societies. Water does not have a single value, but attracts an ensemble of meanings, as well as cooperation and antagonism. In that sense, water values are positioned constructions that result from the political mediation between material experience and symbolic representation. The values of water are expressed as *positionalities*, which contain the multiple values derived from economic and non-economic preferences, wishes and demands. As observed by Derman and Ferguson (2003: 285), how the valuation of water is carried out in practice demonstrates the forms 'used by actors to position themselves and their interests'. The different positionalities of water values need to be seen as interconnected categories, without rigid boundaries, but reflecting a perpetual process of reflexivity and experimentation. By defining positionality as the dialectics of subjectivity and materiality inserted in the structures of water management, it should become clear that water values are both relational (i.e. the outcome of relations between individuals and groups; and also between society and nature; and society, state and nature) and contested (i.e. the interface between creative agency and inertial structures happening in a particular space–time condition).

The concept of value positionality is more than just a theoretical abstraction added to the vast debate about forms of nature valuation, but it can assist examination of conflicts and collaboration around the allocation and use of water. In order to appreciate the significance of value positionalities, a study was carried out in the Baixada Fluminense, a wetland area in the southeast of Brazil comprising eight municipalities located in the northwest of the city of Rio de Janeiro with more than 3 million residents (CIDE, 2005). Catchment management in the Baixada Fluminense started with the reclamation of land for farming and the

establishment of river navigation (between the 16th and 19th centuries) and expanded into river engineering, flood defence and urban water supply (in the 20th century). These interventions left a lasting legacy of water management problems, notably flooding, pollution and human-made water scarcity. Official statistics indicate 71% of the households have access to public water supply; only 28% to public sanitation; and due to untreated effluents and inadequate disposal of solid waste, the ecological condition of the main local rivers (Iguaçu River Basin) is very poor, particularly in terms of dissolved oxygen, nitrogen and phosphorous (Rio de Janeiro, 2005). Government responses to these problems have been notoriously partial, selective and even discriminatory, with most public investment serving stronger groups and locations (Ioris and Costa, 2009). It can be claimed that one interpretation to explain the causes of water management problems in the Baixada Fluminense is the tense opposition between different positionalities of water values.

The relevance of the positionality of water values

Before we examine the specific situation of the Baixada Fluminense, as an entry point into the wider urban problems of the Metropolitan Region of Rio de Janeiro, it is necessary to first elaborate on the meaning and implications of the positionality concept. Water is a complex, hybrid substance that pervades and underpins the perpetual metabolism between nature and society, although the phenomenological and psychological characteristics of water can be related even to the contingency and temporality of human life (Bachelard, 1942). Water captures and embodies processes that are simultaneously material, discursive and symbolic, although the mechanisms of exclusion from and access to water manifest multiple power relationships (Swyngedouw, 2004). As a result, water is not only a valuable substance, but it is also valued in different ways according to specific socionatural relations. A genuine axiology of water should start with the recognition that the values of nature can only be understood in relational terms. The long list of water values – religious, aesthetic, economic, ethical, etc. – all are assemblages of meanings derived from exchanges that happen in specific historical and geographical conditions. Values are ultimately the enduring outcomes of past experiences that precipitate, and are stored, in the discourse, morality and imagination of human societies. It means that the valuation of water is neither neutral

nor purely subjective, but encapsulates accumulated knowledge, material sensibilities, socio-economic disputes, as well as fulfilled or unfulfilled aspirations.

Failure to comprehensively address the dynamic genesis of water values has led to the intensification of problems and conflicts around the world. From the last quarter of the 20th century, official policies and management programmes have increasingly described water values using an economic language and the search for better environmental governance (Ioris, 2010a). Measures associated with governance typically require translation of water values into monetary figures through the deployment of environmental economics methodology (Young, 2005). Such methods are used to assess the contingent valuation of nature derived from stated preferences and the willingness to pay for environmental conservation. Contingent valuation is based on the doctrine of consumer sovereignty – firmly grounded on the neoclassical ideology of individualism – and aims to bring water into the realm of cost–benefit assessments and commercial-like transactions (Spash, 2008), such as the payment for ecosystem services (Brown et al., 2007). After determining its money equivalent, water can be managed according to the economic return it yields (Ghosh and Bandyopadhyay, 2009); can help to establish acceptable levels of environmental degradation; and can also assist calls for higher levels of efficient use or for lower transaction costs (Pérard, 2009).

Despite its widespread use nowadays, monetary valuation has been criticised as a gross simplification of the much broader universe of water values (Robertson, 2007). Critical authors insist that, instead of a reductionist interpretation based on money figures, water values must be understood as a resultant of connections between concepts and practices at the confluence between humans and the non-human world (Gibbs, 2006). In effect, the interpretation of water values through the prism of environmental economics reveals serious methodological, operational and ideological shortcomings. First, contingent valuation methods have produced inconsistent results, given the significant influence of the magnitude of changes in water quality, as well as the average income and other characteristics of the respondents (van Houtven et al., 2007). Second, regarding its practical contribution, monetary values wrongly portray water value as static and predetermined (Gibbs, 2010) because the methodologies employed by environmental economists aim primarily to insert water into the sphere of market transactions (Roberts,

2008). Third, monetary valuation disregards the important connections among social inequalities, environmental degradation and the imposition of rules (Scruggs, 1998).

A second, but still partial, reading of water values is provided by social (or cultural) anthropology, especially from material culture studies that examine how things, made or modified by humans, reflect beliefs, ideas, attitudes and assumptions. Correcting some of the deficiencies of environmental economists, anthropologists argue that a thing does not necessarily need to be subjected to a commercial transaction in order to acquire value, but that objects and elements can be highly valued through cultural interaction and transmission (Rowlands, 2005). Social anthropologists describe water valuation as a process related to conceptions of the world around the speaker cast in a moral frame of reference. The valuation of water follows the belief patterns of groups or individuals and, by extension, the larger society of which these individuals are a part. In order to understand the formulation of values, one has to almost inevitably deal with issues of visibility and invisibility and to re-examine notions of power, exchange and the human person (Graeber, 2001). Appadurai (1986) describes the complex and unpredictable confrontations between different regimes of valuation as 'tournaments of value', which are complex events removed from the routines of economic life or situations when the disposition of the cultural tokens of value is at stake. Things acquire a sort of 'biography' by their frequent border crossings between different value regimes, as well as by the changes of values and meanings, ideologies and practices.

Anthropologists offer an important contribution to understanding the dynamics of values at the intersection between humans and things. However, it is not enough to consider only the cultural basis of water values, which can result in the reification and artificial differentiation among the preferences of social groups (Jackson, 2006). The common claim among anthropologists that nature is essentially a social construction – that is, the natural world as the construction of our concept of nature – may present the serious risk of moving away from the materiality of nature and towards a relativistic, uncertain ontology of constructed nature (Milton, 1997). Furthermore, anthropological studies normally neglect the scalar interconnections among different levels of water management (from home practices to the national and international policy-making), which reduces their capacity to explain exogenous influences on the local processes of valuation. The water

values of a particular social group are typically seen as unique, specific and without much possibility of generalisation or association with the values of other groups. In this case, the compartmentalisation of values within the boundaries of each culture has a tendency to overlook political disputes and social discrimination (that are informed by and reinforce water values).

In addition to environmental economics and social anthropology, political economy is another discipline with a primary interest in the origin and composition of values. The starting point – particularly for the Marxist strand of political economy – is the dialectical tension between use and exchange value, which is related to the production and circulation of commodities. According to the labour theory of value, the transformation of natural resources into commodities, through human effort, is the fundamental source of wealth. Crucially, the commodity status is never permanent, but changes according to the specific socio-economic and political circumstances, that is, values are not mechanically restricted to the amount of labour time socially necessary to produce the commodity, but are created as part of a process that encapsulates broad historical and moral elements (Marx, 1976). Lefebvre (1972: 98) further argues that ‘commodities do not assert themselves *qua* things but rather *qua* a kind of logic’, which means that production and circulation of the commodity reflect the relations of exploitation and alienation that characterise capitalist production. Harvey (2006) adds that value theory – in the context of commodity production and exchange – corresponds to an expression of class relations determined by the double exploitation of humans and nature. In that sense, the application of political economy concepts to environmental issues since the 1970s (under the new sub-discipline of political ecology) has represented an important critique of the increasing commodification of water as the exacerbation of exchange values at the expense of more important use values (Ioris, 2009b). The focus on exchange values pervades the language of contemporary water management – in the form of user charges, privatisation of utilities and payment for ecosystem services – and indicates its commitment to the imperative of technological innovation and capital accumulation (rather than social and ecological demands, as nominally stated).

In spite of its relevant critique, the contribution of critical political economy is sometimes curtailed by reduction of the broad universe of values to the realm of commodity transactions. Because of that narrow categorisation, it is hard to explain values beyond the market arena or

the interchangeability between different valuation approaches (Harribey, 2005). Marx and Engels, for instance, accepted that labour was not the only source of value and material wealth, but failed to properly consider the fact that nature is also a means of consumption and not only production (O'Connor, 1998). Such realisation 'would have taken them [Marx and Engels] into the realm of environmental ethics and values and the emotional (as contrasted with the exchange) values of nature' (O'Connor, 1998: 125). In addition, the legacy of classical political economy is likely to reproduce the separation between subject and object that has historically saturated Western thought, particularly since the Enlightenment period (Brennan, 1997). Wilson (1999) observes that the dichotomy between use and exchange values is reflected in the dominance of nature by society, as much as the ascendancy of temporal over spatial concerns or paid over unpaid labour. Therefore, it is necessary to go beyond the conventional polarisation between use and exchange values in favour of more integrative approaches that capture the interpretations of water values manifested by groups in their multilevel interaction with other groups and the non-human world. Integrative assessments, especially among political ecologists, should recognise values as resulting from multiple engagements between society and water systems, which are experienced and interpreted within specific cultural and hydro-ecological contexts. Water has multiple meanings in the contemporary world, which require sophisticated explanations that embrace, among other dimensions, the distinctive subjectivities and the politics and praxis of everyday life (Ekers and Loftus, 2008).

In that direction, Norton and Steinemann (2001) argue that a more holistic valuation can be achieved with the application of adaptive management principles, based on community iteration with the mechanisms of decision-making. Moreover, the last authors overlook the unevenness of power within communities and between different social groups, which only replicates the political naivety of public engagement schemes that characterise contemporary governance. For her part, Gibbs (2006) suggests that a focus on hydrological variability may foster a different thinking about water and value that goes beyond a Westernised separation between nature and society. Yet, hydrological variability seems insufficient to express the full range of water values, given that it suggests that water would be effectively valued only in acute situations of resource scarcity. Rather than confining to arbitrarily selected features of the hydrological cycle (e.g. variability), an integrative axiology should

acknowledge that water values are complex formulations held by groups of individuals living in unique geographical settings and with manifold interactions with other groups and societies. Water values result from the long-term co-evolution of nature and society and are typically forged as part of the affirmation of social rights and identity, survival strategies and socio-economic aspirations. Valuation is an essential component of the mixture of language, gods, bodies and thoughts with water 'to produce the worlds and the selves we inhabit' (Linton, 2010: 3).

We submit that water values exist as *positionalities*, that is, the synthesis of the various expressions of worthiness – such as the production, conservation, aesthetic, artistic and religious meanings of water – cherished by sectors of the society in specific historical and geographical circumstances. The positionality of water values condenses the importance and purpose of water for a community, an interest group, or even a state agency (that ultimately represents the hegemonic water management agendas of a given society). Values are positioned at the interplay between the individual and the collective and are forged from the activities of cooperation and competition inserted in the institutionalisation of water management. In relation to the three considerations of value presented above – environmental economics, anthropology and political economy – the notion of positionality has the explanatory advantage of recognising the economic relevance of water as only one among other value interpretations. It also encapsulates legacies from the past, current relationships and future expectations, which all inform the rationale of values and value conflicts. Finally, positionality is an open concept that has the flexibility to define values in relation to concrete experiences and the actual reality of water use, and not the other way around (as it has been abstractly theorised).

Recognising the importance of positionalities makes clear that water values are both relational (i.e. the outcome of relations between society and nature, and society, state and nature) and disputed (i.e. the interface between structure and agency in a particular space and time). Positionality is the end result of multiple, imbricated processes of production, reproduction and political legitimacy. Values serve as references, identifiers and tools of socio-political affirmation. Whilst some positionalities are considered by the hegemonic sectors as traditional and obsolete (e.g. the values of water articulated by rural communities), the positionalities of these stronger groups are advanced as expressions of modernity and efficiency (e.g. the interpretation behind policy-making

informed by multilateral agencies today). Furthermore, the positionality of values is not static and confined, but there is a continuum of values across groups and cultures, that is, some of the values that form a specific positionality can be shared with other groups that express different positionalities. Within this continuum of value positionalities, some values are perceived as belonging more strongly to the interests of communities and locations (this can be described as 'endogenous' positionalities), others are considered to reflect alien interests imposed from elsewhere (something like 'exogenous' positionalities).

An important analogy must be noted here between the current definition of positionality and a similar use of the word by feminist geographers (e.g. Rose, 1997). Positionality, according to Butler (1997), is the collapse of specificities, multiple points of view, interactive technologies and human differentials. That is also related to the concept of 'standpoint epistemologies' used by feminist authors as a means of exploring the impacts of social constructions of gender on the production of knowledge (Darling-Wolf, 2004). For the feminist, positionality describes situated positions from which subjects, such as teachers and researchers, come to know the world (Chacko, 2004). However, our definition of positionality attempts to bring together the relational topology of water values from the micro to macro scales of interaction. Feminist writers offer an analysis focused on the inter-subjectivity of knowledge production (Deutsch, 2004), but there is a tendency to remain too personal and concentrated on self-reflexivity (e.g. Moser, 2008), whilst, in our case, the notion of the positionality of water values is not restricted to the study of the how the human body relates to its environment, but positionality becomes an entry point into political, ideological and ethical phenomena. Water value positionalities are connected through lived interactions across time, locations and scales, which include not only economic priorities but also notions of well-being, justice and development.

There are important practical consequences to recognising the multiplicity of water values as positionalities, especially because they can help to understand the limits and the prospects of water management approaches. Different positionalities of value may coexist in the same location but follow the hierarchy of power between social groups. At the same time, oppositions between positionalities are gradual disputes in which individual conflicts play an important role in tensioning the prevailing spatial hegemony. In the end, the multiple expressions of value that form a given positionality reflect the processes of reflexivity

and experimentation that characterise socionatural interactions. For instance, contradictions between value positionalities today are usually connected with broader politico-institutional spheres of interaction as part of the resistance against the insertion of water into the circuits of commodification. The contemporary pressure for the commodification of water is an indication of a hegemonic, exogenous positionality that is imposed on communities and locations that are less integrated in capitalist relations of production, consumption and regulation. Claims for the recognition of the economic value of water, the cornerstone of contemporary policy-making, are a particular positionality formulated in the sphere of the reform of the nation state and the globalisation of markets. Against these pressures, traditional water users have articulated their own positionalities of value by putting together old and new experiences. In essence, water conflicts correspond to the lived experiences of individuals and groups struggling to legitimise their positionality of values, as demonstrated by the case study of Baixada Fluminense.

The conflicting positionalities of water value in the Baixada Fluminense

Water valued as a requirement of urban and metropolitan development

Going back in history, we find that the abundant water in the Baixada was perceived by early European colonisers as the main asset for the establishment of farming and commercial activities in the region. The first farms, churches and settlements in the Baixada were established in the mid-16th century along the main rivers and tributaries to secure navigation and access to the city of Rio de Janeiro. River navigation was particularly important after the discovery of gold and other precious stones in the central provinces of the colony in the 18th century. Since that period, the management of water by the different members of society has primarily reflected the hegemonic priorities of economic growth and territorial consolidation. That is, water values were primarily positioned from the perspective of state demands and strong economic interests. Consequently, the multiple dimensions of water use (e.g. by community life and farming activities, navigation and military defence, removal of waste and effluents, etc.) were largely influenced by the pressures of

regional development. This prevailing positionality followed, and helped to reinforce, the insertion of the Baixada as a peripheral, subordinate area that was supposed to supply the capital (Rio de Janeiro) with resources and labour power. Economic activities carried out in Baixada area were essentially based on subsistence agriculture and the production of sugarcane. Moreover, at the time of the Brazilian independence in 1822, deforestation, and the resulting soil erosion, had already produced significant environmental impact and were key reasons for coffee production failing to prosper in the Baixada (Amador, 1992).

The need to improve transport connections with the city of Rio led to the inauguration, in 1854, of the first Brazilian railway along the lowlands of the Baixada, followed by additional railway tracks in the next decades. The construction of bridges and river passages through swamps and watercourses reduced the prospects of in-stream navigation, which then started to decline (Gramacho, 2006). At the same time, the provincial government began to drain parts of the wetland to reduce the incidence of waterborne diseases, malaria in particular (Rego, 1911, mentioned in Fadel, 2009). In 1910, a technical commission was established to plan the recovery of the river system and propose ways to stimulate agricultural production and commercialisation, again using the river network as means of transportation. Between 1910 and 1916, a German company was specifically contracted to dredge, clean and interconnect the local rivers (but its operations were interrupted due to Brazilian alliances during World War I). Whereas the lower sections of the rivers were the object of channelisation, the headwaters were mobilised to provide freshwater to the city of Rio, initially by train and, from the 1880s, through pipelines. For the great majority of local residents, though, unreliable boreholes and private fountains continued to effectively represent the only source of freshwater.

Gradually, the role of water in regional development changed from a focus on navigation and agriculture to urban and industrial activities (Góes, 1934). That conversion operated within the same positionality of water values associated with unlimited exploitation of resources to boost economic growth. The Baixada became one of the main areas of expansion in the metropolitan region and urbanisation soon engulfed agricultural areas protected by polders and dykes (Abreu, 1988). In the 1950s and 1960s, the local population increased at annual rates as high as 10% due to the flux of migrants coming from northern parts of the country in search of jobs in the industries and services available in Rio

de Janeiro. That resulted in a steep escalation in real estate prices, even in an area with precarious water supply, virtually no sanitation and, by and large, informal land tenure. The patchy, selective water infrastructure persisted for the whole of the 20th century and became more evident after the inauguration of a large oil refinery in 1961, which required the construction of two exclusive adduction pipelines to secure water for its own operation and to associated industries.

The expansion of agriculture, urbanisation and industrialisation, according to the requirements of an unequal model of development, reduced water to a factor of production and a facilitator for the circulation of commodities and people. The water reserves and the river systems of the Baixada were used and degraded according to a valuation that underpinned metropolitan development, whilst the negative consequences of such valuation were mainly suffered by local communities who benefited only marginally from economic growth. The hegemonic valuation of water was not an expression of economic, political or cultural phenomena in isolation, but was a dynamic amalgamation of all those elements. Such positionality contained a striking ambivalence towards the worth of water, which was considered a valuable socio-economic resource but, because of its misuse by the same processes of development, degraded water increasingly represented a barrier to production and urban growth. The internal tensions within the mainstream positionality of water value in the Baixada (i.e. water as both a resource and a hindrance to development) have been particularly evident in the long list of government interventions. Whereas public policies describe water as an important economic asset, insufficient and ill-conceived initiatives have favoured a top-down model of regional development that has led to river degradation and to widespread social distress.

Because water is conventionally valued by decision-makers as a natural resource with an economic function, even the responses to the water problems are also translated in costly measures (mostly funded by international loans from the World Bank and the Inter-American Development Bank). The prevalence of the developmental values of water has led to a sequence of investments in hydraulic infrastructure without much consideration of the effectiveness of those interventions. Despite the fact that between the 1980s and 1990s government projects totalled around US\$ 1.5 billion, in the end they contributed little to resolve the situation of water pollution, scarcity and flooding (Ioris and Costa, 2009). The focus has been on the physical expansion of water

infrastructure, but engineering works are, by and large, planned in isolation from city planning, and suffer from systematic interruptions and evidences of corruption. As a result, a significant proportion of the residents still have to resort to alternative sources of water, such as the purchase from water vendors or drilling boreholes.

More recently, additional sums were announced for the Baixada Fluminense under the already mentioned national Growth Acceleration Programme (PAC), including US\$ 370 million for urban drainage, US\$ 100 million for water supply and sanitation and US\$ 135 million for river restoration.² The rhetoric of PAC is apparently more responsive to community demands than previous initiatives; however, based on attendance at public meetings related to the implementation of PAC, it is possible to argue that, despite changes in the discourse, new government interventions ultimately reproduce negative elements of the prevailing positionality of water values. Interviews with PAC managers and water regulators revealed major project inconsistencies, lack of transparency about the timetable and weak control of contractors. Ultimately, water remains an important catalyst for profitable, large-scale contracts that benefit mainly politicians and economic groups based outside the Baixada Fluminense. The local population are entrapped in a powerful process of water exploitation and populist concession that has maintained, and often aggravated, water problems (Ioris, 2010b). The unfair and unsustainable management of water in the Baixada has been justified primarily by its role in economic development, but of a specific type of development that is predicated upon socio-spatial inequality and environmental degradation. Perhaps unexpectedly, a reaction against such trends also emerged within the structure of government in the last decade, as discussed later.

Water valued in the reform of water regulation

One of the explanatory functions of a notion of positionality is the recognition of continuity, in time and space, among different valuation approaches that can involve higher or lower levels of correspondence among positionalities, as well as variable forms of convergence or contradiction. In the case of the Baixada, the impacts of continued exploitation of local catchments – related to the hegemonic positionality of water values described earlier – became increasingly evident in the second half of the 20th century. As part of the broader process of environmental

regulation introduced in the State of Rio de Janeiro in the 1990s, a new positionality of water values was advanced by sectors of the government bureaucracy, regional development academics and environmental NGOs. Environmental regulation started to emphasise the need to treat water according to its monetary value in contrast to the conventional treatment of water as the basis of economic production and urban expansion. The institutional framework included a range of regulatory tools aimed to foster higher levels of efficiency, such as user licences and bulk water charges, cost-recovery measures, water utility privatisation and payment for ecosystem services, which are all based on monetary quantification of water value. The institutional framework betrays the influence of the international search for better water governance beyond the traditional command-and-control of the early environmental legislation (Ioris, 2007).

The new interpretation of water value ultimately constitutes an ‘internal critique’ (i.e. a critique from within the state apparatus) of the inefficiencies of governmental approaches in the last century. Still, if part of the state apparatus has tried to amend public policies on the assessment and use of water, in practical terms the promotion of a different positionality of water values has faced major operational barriers. Particularly the introduction of bulk water charges (i.e. charges on the use of surface and groundwater) demonstrates the difficulties of replacing an old positionality with a new understanding based on the monetised value of water. The new charges are nothing short of a panacea for regulators, an instrument that lubricates the regulatory system and facilitates the adoption of other regulators. However, the large water users, such as industries and farms, received such charges with serious scepticism and denounced them as a new form of taxation. Tensions in the affirmation and validation of this alternative positionality of water values pervade even within the state apparatus. Until 2009, the main water user in the metropolitan region, the state water utility CEDAE, systematically refused to pay for the charges associated with its various water licences.³ Only when it was officially allowed to transfer the financial burden to its customers CEDAE agreed to comply with the new water legislation. It suggests strong resistance from CEDAE, as well as other main players, against the conversion of water into monetary figures and the associated internalisation of social costs.

In addition, the revenues obtained from bulk water charges (between 2004 and 2009, around US\$ 1.5 million were collected)⁴ could not be

spent without an executive agency (as required by the 1999 legislation). The consequence has been a disjointed implementation of new regulation without any significant improvement in water management. Such barriers to the adoption of governance-related tools are not infrequent, but Lovett (2001) had already pointed out the controversies related to the quantification of monetary values and the complicated use of collected monies. Only a small proportion of the general public contacted during our research had ever heard about bulk water charges. Yet, when informed and asked for their opinion, almost everybody reacted against the idea on the grounds that they identified an element of unfairness between the Baixada and other parts of the metropolitan region. According to local residents, the environmental quality in the wealthier areas of Rio de Janeiro was secured in the past through public works paid out of general taxation, but the new legislation now demanded a specific payment from those that have hardly benefited from the intervention of government agencies. Water users who were aware of the introduction of bulk charges also protested against the attempt to attribute money values to water.

It seems evident that the monetary language of the regulatory framework created a renewed gap between policy aims and the concrete experiences of water use by local residents. In that context, bulk water charges present only an emblematic illustration of the discrepancies between the new orthodoxy of environmental management and the more traditional expressions of water value. Formally, the objectives of the bulk water charges are to rationalise use, contribute to environmental conservation and to indicate the real value of water. However, as acknowledged with local NGO activists, the charges are important, but it cannot be the only mobilisation factor. It is an illusion to think that the problem of water management is just a matter of resources. Water management and water values are much broader than that. Reaction from members of the general public suggest the existence of a third positionality of water values in the Baixada, more closely connected to daily life and the struggle for political recognition, as considered later.

Water valued as survival strategies

As mentioned earlier, there has been a long trend of interventions by the national and provincial governments in the Baixada aimed to control the water regime and, more recently, to restore the environmental condition of the local watercourses. Those initiatives have been based on two

different, but complementary, positionalities of water value, nominally, the importance of water for development and economic growth and, lately, the focus on the monetary interpretation of water value. However, our research also identified a third, vibrant positionality of water value that is both influenced and reacts against the other two top-down valuation approaches. Despite cultural and social complexity, it is possible to recognise a range of preferences and statements about the value of water collectively sponsored by local residents. The plurality of water practices incorporates cultural and social elements brought by the migrants, particularly from the northeast of the country, which merged with the local traditions crafted from African, Portuguese and Indian influences. Although the values cherished by local residents may not be necessarily coherent, the way they value water is a vivid expression of reactions against unfulfilled demands, persistent frustrations and exchanges with public authorities.

Central to understanding the politicised basis of water valuation by the residents of the Baixada is their disappointment with the performance of the water utility company (CEDAE) and the commonly turbulent relation with its customers. Dissatisfaction seems to exist on both sides. In the interviews, utility managers complained that a significant proportion of the water services – something between 50 and 70% – was still unaccounted for in the Baixada due to a combination of unpaid tariffs, illegal connections and low enforcement capacity of the company. Interestingly, refusal to pay the water bill is not simply a problem of limited disposable income, or even dishonesty, but it ultimately constitutes a subliminal political statement about the mismatch between the crucial value of water and the inability to produce lasting solutions to widespread problems of water quality, service reliability and flooding. Because of the frustrating relationship with public authorities, CEDAE in particular, many residents are forced to employ alternative solutions to secure water services. Faulty water supply has been mitigated by cooperation among residents, which ranges from emergency supply (from neighbours that have a borehole, a pump in a watercourse or a water tank in their property) to the joint construction of pipelines, and in some cases sanitation, by residents living in the same street or location. In other areas visited during our fieldwork, pumps are rented for a few hours, or even days, to fill a collective storage tank.

More emblematic was a case in the community of Pilar, located in the municipality of Duque de Caxias, where more than 100 residents

invested their own money to install a system of 3 connected pumps to bring water from the mains pipeline (a distance of around 1,000 metres). This case means that the residents have replaced the state and spontaneously constructed a basic water infrastructure for the community. From these examples of cooperation, it is possible to infer that grassroots valuation of water tends to be ignored in public policies, which maintain a focus on macroeconomic development and political control. Crucially, according to our definition of positionality, the failure to respond to popular demands is an indication of the imposition of a certain valuation of water over the values cherished by the local communities. Effective and appropriate public policies, as pointed out by Daniere and Takahashi (1997), should incorporate cultural values and their linkages to attitudes and behaviour. In that sense, variation in the behaviour of local residents should be noted. For instance, we were able to observe individuals that frequently discharged rubbish in the river margins and in the watercourses (even in the localities that have kerb collection). As heard in some of our interviews, there exists sometimes a problematic identification of sectors of the local population, the youth in particular, with their surrounding environment. This can be explained by personal frustrations and the sentiment of being often treated as second-class citizens. It is part of the long legacy of exclusion and subordination of the Baixada to the social values and media images that emanate from the wealthier areas in the city of Rio de Janeiro. In the end, it demonstrates that within the same social group the values of water are neither simple nor consensual, but connected, in complex ways, with interpersonal relations and broader socio-political processes.

There are important consequences from the recognition of the multiple values of water as positionalities, to the extent that it can help to understand the limits and the prospects of water management approaches. Clashes between positionalities of value are converted into antagonistic demands for water use and for the preservation of certain features of the water systems. For example, calls for the recognition of the economic value of water, the cornerstone of contemporary policy-making, are a particular positionality formulated in the sphere of the reform of the national state and the globalisation of the markets. Against these pressures, traditional water users and protest groups have articulated their own positionalities of value by putting together old and new experiences. That is the case with the management of water practised by rural communities in the developing world, which is typically

characterised by common values and the multiple institutional arrangements related to the cultivation of common land and conventions based on interfamily cooperation. Hostile to that long-established regime of water management, governmental initiatives in the form of dams, hydropower schemes and centralised irrigation projects have meant an exogenous set of water values with significant disruptive consequences to the socio-ecological condition of traditional communities. Such competition for the primacy of value positions is part of the expansion or resistance against the insertion of water into the circuits of capitalist production. Whereas some values are perceived as genuinely belonging to the interests of communities and locations (endogenous positionalities), others are considered reflecting alien interests imposed from elsewhere (exogenous positionalities). Certain positionalities reflect the hegemonic influences exerted by the stronger interests and others the reactive creativity of subordinated groups and locations.

Therefore, the contrast between hegemonic and counter-hegemonic positionalities of water value can be seen as a territorialised version of the Gramscian 'war of position'. For Gramsci (1971), the war of position is a subtle and gradual dispute in which various intermediary positions challenge prevailing configurations. It is fought by the public (the 'masses with reserves of moral strength', as mentioned by Gramsci 1971: 88) in accordance with aspirations and feelings. According to Gramsci, the war of position reflects the superstructures of civil society and the concentration of hegemony and the system of production organised in the territory. In the case of the valuation of nature, water values are merged into positionalities expressed by groups with territorial ties and scalar connections. The different positionalities incorporate both the spatial dimension of value formation and the political manifestation of those values through territorialised action. An illustration of the territorialised synthesis of water disputes is the transformations of water management in the River Douro, in the north of Portugal. In this area, the positionality held by traditional users of water – farmers, wine producers and rural communities – increasingly clash with the positionality associated with centralised water supply systems and technified irrigation and hydropower schemes (Ioris, 2008). Particularly in the areas where new dams are being built, local residents and farmers have fought a dramatic war of position with the values featured in national development plans and in the neoliberalising water policies of the European Union.

Likewise, the institutional changes in the public water services in the United Kingdom can also be analysed from the perspective of a territorialised war of position among conflicting positionalities of water value (such as the positionalities held by low-income and high-income urban residents, urban business sectors, environmentalists, rural productive sectors, local and regional bureaucracies and national civil service). A series of administrative reorganisations were put in place since World War II to bring a regionalised operation under centralised policy-making. Eventually, the regional water authorities of England and Wales were privatised in 1989 by the Conservative Government of Margaret Thatcher, which was a vivid indication of a positionality of water values based on market priorities and on capital accumulation through water management. Other positionalities of water value were systematically suppressed and dealt with through the newly created regulatory agencies, which articulated a specific positionality of values based on efficiency and governance claims. In this territorialised war of position, the water values of the poorest social groups, rural communities and non-productive sectors were under severe attack by the centralised, pro-market values of the government and its business supporters. The war of position evolved through the years, with variable levels of reaction from the groups holding marginalised water values and in moments of crisis the pro-market values of the hegemonic positionality were more directly challenged by the opposing sectors.

Conclusions and perspectives for Rio de Janeiro

The notion of positionality, as the example of the Baixada Fluminense vividly shows, is a helpful explanatory tool for understanding the genesis and practical implications of water valuation. The valuation of nature is not a purely subjective activity, but it is situated at the interface between individual and collective attitudes and preferences. Valuation can be related to the dialogue and encounter between people, mediated by the world, that serves to name (and transform) the world, as described by Freire (1996). Because the social groups are never detached from their social, cultural, historical and geographical circumstances, the values of water are a shared construction that reflects perpetual cycles of socio-natural interaction. Those interchanges between society and nature are deeply politicised, in the sense that the access to nature and the impacts

of its degradation are normally disputed. Specific water-related activities reveal the worth of hydro-ecological systems and also the particular reasoning seeking legitimisation. In such multidimensional process of constantly valuing and revaluing nature, there are temporary 'positions of value' that last and change according to concrete spatial and temporal conditions. The positionality of water values can be described as the dynamic accumulation of experiences, legacies and expectations of the social group, which is consolidated in encounters with other groups and with higher scales of interaction.

In the previous pages, three main positionalities of water value were identified in the Baixada Fluminense, namely, the hegemonic treatment of water as a requirement of regional development (sponsored by state agencies on behalf of stronger interest groups, such as industrialists, farmers and construction companies), the valuation of water as a resource with intrinsic monetary expression (endorsed by regulators, NGO activists and environmental consultants) and the values of water for the daily life and survival strategies (the rich and sometimes contradictory expressions of value by the local communities). The overall pattern of values formed by the three positionalities is deeply inserted in intersectoral struggles across geographical locations and scales. The mainstream positionality of water value reflects, primarily, the demands of politico-economic interests located in the provincial capital (Rio de Janeiro), whilst the positionality related to the new regulatory agenda reveals the influence of the global debate on governance and new basis of water management. For their part, the positionality of local communities exhibits the mix of cultures between the communities that initially lived in the Baixada and those that migrated from other parts of the country.

The identification of those distinct positionalities needs to be understood as a schematic simplification of complex processes of socionatural interaction. There are moments when the boundaries between conflicting positionalities of water value come together. In the majority of cases, however, the different groups of social actors maintain discrete and opposing expressions of water value. Most of the time in the Baixada Fluminense, politicians continue to champion a rhetoric of large infrastructure (despite the questionable effectiveness of the investments and the pork-barrel nature of most interventions) and the environmental regulators persistently advocate the need to attribute monetary figures to water resources in search of higher efficiency and raise restoration funds, whereas the local residents (many of them are low-income migrants

from other parts of the country) struggle for every day survival. All that comprises a hierarchy of valuation approaches and a perpetual recombination of old and recently acquired interpretations of water value. The overall conclusion is that the politics of value remains an integral part of the political ecology of water and of the search for a fair basis in the relationship between nature and society. Water conflicts are, first of all, the expression of inconsistent positionalities of water value that underpin the action, reflexivity and experimentation of individuals and social groups.

Notes

- 1 The Paraíba do Sul River provides water to 17.6 million people in the States of Rio de Janeiro, São Paulo and Minas Gerais (INEA, 2014).
- 2 PAC was the main investment programme of the Lula administration (2003–2010) and was coordinated by Ms Dilma Rousseff, who was elected president of the republic in 2010 and re-elected in 2014.
- 3 CEDAE is a public utility historically associated with mismanagement and influenced by the priorities of party politics and by the pressures of private construction companies (Marques, 1999).
- 4 Figures from the water regulator (INEA), available online at www.inea.rj.gov.br.

References

- Abreu, M. 1988. *Evolução Urbana do Rio de Janeiro*. IPLANRIO: Rio de Janeiro.
- Amador, E. 1992. Baía de Guanabara: Um Balanço Histórico. In: Abreu, M. (ed.), *Natureza e Sociedade no Rio de Janeiro*. Secretaria Municipal de Cultura, Turismo e Transporte: Rio de Janeiro. pp. 201–257.
- Ananda, J. and Herath, G. 2003. Incorporating Stakeholder Values into Regional Forest Planning: A Value Function Approach. *Ecological Economics*, 45(1), 75–90.
- Appadurai, A. 1986. Introduction: Commodities and the Politics of Value. In: Appadurai, A. (ed.), *The Social Life of Things: Commodities in Cultural Perspective*. Cambridge University Press: Cambridge. pp. 3–64.
- Aquino, L.C.S. and Farias, C.M.M.C. 1998. Processo de Ocupação e Desenvolvimento Econômico da Bacia. In: Bizerril, C.R.S.F., Araújo,

- L.M.N. and Tosin, P.C. (eds), *Contribuição ao Conhecimento da Bacia do Rio Paraíba do Sul*. ANEEL: Brasília. pp. 49–54.
- Araujo, F.G., Fichberg, I., Pinto, B.C.T. and Peixoto, M.G. 2003. A Preliminary Index of Biotic Integrity for Monitoring the Condition of the Rio Paraíba do Sul, Southeast Brazil. *Environmental Management*, 32(4), 516–526.
- Bachelard, G. 1942. *L'Eau et les Rêves*. Librairie José Corti: Paris.
- Brennan, T. 1997. Economy for the Earth: The Labour Theory of Value without the Subject/Object Distinction. *Ecological Economics*, 20(2), 175–185.
- Britto, A.L. and Cardoso, A. 2012. Les Enjeux Liés à l'Occupation des Berges Fluviales Dans la Région Métropolitaine de Rio de Janeiro: Une Analyse Dans la Perspective de la Justice Environnementale. *Flux*, 89–90, 90–101.
- Brown, T., Bergstrom, J. and Loomis, J. 2007. Defining, Valuing, and Providing Ecosystem Goods and Services. *Natural Resources Journal*, 47(2), 329–376.
- Butler, J. 1997. *Excitable Speech: A Politics of Performative*. Routledge: New York.
- CIDE. 2005. *Baixada em Dados*. CIDE: Rio de Janeiro.
- Chacko, E. 2004. Positionality and Praxis: Fieldwork Experiences in Rural India. *Singapore Journal of Tropical Geography*, 25(1), 51–63.
- Daniere, A. and Takahashi, L. 1997. Environmental Policy in Thailand: Values, Attitudes, and Behavior among the Slum Dwellers of Bangkok. *Environment and Planning C*, 15(3), 305–327.
- Darling-Wolf, F. 2004. On the Possibility of Communicating: Feminism and Social Position. *Journal of Communication Inquiry*, 28(1), 29–46.
- Derman, B. and Ferguson, A. 2003. Value of Water: Political Ecology and Water Reform in Southern Africa. *Human Organization*, 62(3), 277–288.
- Deutsch, N.L. 2004. Positionality and the Pen: Reflections on the Process of Becoming a Feminist Researcher and Writer. *Qualitative Inquiry*, 10(6), 885–902.
- Dos Reis, B.J., Batista, G.T., Dos Santos Targa, M. and De Souza Catelani, C. 2006. Mining Influence of the Extraction of Sand in Water Balance in the Valley of the Paraíba do Sul River. *Revista Escola de Minas*, 59(4), 391–396.
- Ekers, M. and Loftus, A. 2008. The Power of Water: Developing Dialogues between Foucault and Gramsci. *Environment and Planning D*, 26(4), 698–718.

- Fadel, S. 2009. *Meio Ambiente, Saneamento e Engenharia no Império e na Primeira República*. Garamond: Rio de Janeiro.
- Freire, P. 1996. *Pedagogy of the Oppressed*. Penguin: London.
- Ghosh, N. and Bandyopadhyay, J. 2009. A Scarcity Value Based Explanation of Trans-Boundary Water Disputes: The Case of the Cauvery River Basin in India. *Water Policy*, 11(2), 141–167.
- Gibbs, L. 2006. Valuing Water: Variability and the Lake Eyre Basin, Central Australia. *Australian Geographer*, 37(1), 73–85.
- Gibbs, L. 2010. A Beautiful Soaking Rain: Environmental Value and Water beyond Eurocentrism. *Environment and Planning D*, 28(2), 363–378.
- Góes, H. 1934. *Relatório Apresentado pelo Engenheiro Chefe da Comissão de Saneamento da Baixada Fluminense*. MVOP: Rio de Janeiro.
- Graeber, D. 2001. *Toward an Anthropological Theory of Value: The False Coins of Our Own Dreams*. Palgrave: New York.
- Gramacho, A. 2006. A Ponte da Discórdia: Uma Disputa entre os Barqueiros do Rio Iguaçu e a Ferrovia no Final do Século XIX. *Revista Eletrônica do Instituto Histórico* [electronic publication]. Available at: <http://www.cmdc.rj.gov.br>.
- Gramsci, A. 1971. *Selections from the Prison Notebooks*. Laurence and Wishart: London.
- Harribey, J.-M. 2005. Richesse et Valeur: Un Couple qui ne Fait pas bon Ménage. *Homme et la Société*, 156–157, (2–3), 27–46.
- Harvey, D. 2006. *The Limits to Capital*. New edition. Verso: London and New York.
- Holanda, S.B. 1995. *Raízes do Brasil*. 26th edition. Companhia das Letras: São Paulo.
- INEA. 2014. *Nota Técnica DIGAT/INEA 01-A* (published on 26 March 2014).
- Ioris, A.A.R. 2007. The Troubled Waters of Brazil: Nature Commodification and Social Exclusion. *Capitalism Nature Socialism*, 18(1), 28–50.
- Ioris, A.A.R. 2008. Regional Development, Nature Production and the Techno-Bureaucratic Shortcut: The Douro River Catchment in Portugal. *European Environment*, 18(5), 345–358.
- Ioris, A.A.R. 2009a. Water Reforms in Brazil: Opportunities and Constraints. *Journal of Environmental Planning and Management*, 52(6), 813–832.
- Ioris, A.A.R. 2009b. Desenvolvimento Nacional e Gestão de Recursos Hídricos no Brasil. *Revista Crítica de Ciências Sociais*, 85, 23–41.

- Ioris, A.A.R. 2010a. The Political Nexus between Water and Economics in Brazil: A Critique of Recent Policy Reforms. *Review of Radical Political Economics*, 42(2), 231–250.
- Ioris, A.A.R. 2010b. Expanding the Hydroinformatics Agenda: Information and Inequality behind Water Problems. In: Gasmelseid, T. (ed.), *Handbook of Research on Hydroinformatics: Technologies, Theories and Applications*. IGI Global: Hershey PA. pp. 1–21.
- Ioris, A.A.R. and Costa, M.A.M. 2009. The Challenge to Revert Unsustainable Trends: Uneven Development and Water Degradation in the Rio de Janeiro Metropolitan Area. *Sustainability*, 1(2), 133–160.
- Jackson, S. 2006. Compartmentalising Culture: The Articulation and Consideration of Indigenous Values in Water Resource Management. *Australian Geographer*, 37(1), 19–31.
- King, R. 2003. Toward an Ethics of the Domesticated Environment. *Philosophy & Geography*, 6(1), 3–14.
- Klink, J. 2013. Development Regimes, Scales and State Spatial Restructuring: Change and Continuity in the Production of Urban Space in Metropolitan Rio de Janeiro, Brazil. *International Journal of Urban and Regional Research*, 37(4), 1168–1187.
- Lefebvre, H. 1972. *The Sociology of Marx*. Penguin Books: Harmondsworth, UK.
- Linton, J. 2010. *What Is Water? The History of a Modern Abstraction*. UBC Press: Vancouver.
- Lovett, J.C. 2001. Ownership of Environmental Values and Opportunity Costs. *Environment and Planning C*, 19(5), 681–693.
- Marques, E. 1999. Social Networks and Institutions in the Construction of the State and Its Permeability. *Revista Brasileira de Ciências Sociais*, 14(41), 45–67.
- Marx, K. 1976. *Capital: A Critique of Political Economy*, Vol. I. Vintage: New York.
- Milton, K. 1997. Ecologies: Anthropology, Culture and the Environment. *International Social Science Journal*, 49(154), 476–495.
- Moser, S. 2008. Personality: A New Positionality? *Area*, 40(3), 383–392.
- Müller, N.L. 1969. *O Fato Urbano na Bacia do Rio Paraíba*. Fundação IBGE: Rio de Janeiro.
- North, B. and Steinmann, A. 2001. Environmental Values and Adaptive Management. *Environmental Values*, 10(4), 473–506.
- O'Connor, J. 1998. *Natural Causes: Essays in Ecological Marxism*. Guilford: New York and London.

- Pádua, J.A. 2002. *Um Sopro de Destruição: Pensamento Político e Crítica Ambiental no Brasil Escravista (1786–1888)*. 2nd edition. Jorge Zahar Editor: Rio de Janeiro.
- Pérard, E. 2009. Water Supply: Public or Private? An Approach Based on Cost of Funds, Transaction Costs, Efficiency and Political Costs. *Policy and Society*, 27(3), 193–219.
- Rio de Janeiro, Government of the State of, 2005. *Plano Diretor de Recursos Hídricos da Região Hidrográfica da Baía de Guanabara*. Consórcio Ecologus-Agrar: Rio de Janeiro.
- Roberts, A. 2008. Privatizing Social Reproduction: The Primitive Accumulation of Water in an Era of Neoliberalism. *Antipode*, 40(4), 535–560.
- Robertson, M. 2007. Discovering Price in all the Wrong Places: The Work of Commodity Definition and Price under Neoliberal Environmental Policy. *Antipode*, 39(3), 500–526.
- Robinson, J. 2006. *Ordinary Cities: Between Modernity and Development*. Routledge: London and New York.
- Rose, G. 1997. Situating Knowledges: Positionality, Reflexivity and Other Tactics. *Progress in Human Geography*, 21(3), 305–320.
- Rowlands, M. 2005. Value and the Cultural Transmission of Things. In: van Binsbergen, W. and Geschiere, P. (eds), *Commodification: Things, Agency, and Identities*. Lit: Münster, pp. 267–281.
- Scruggs, L. 1998. Political and Economic Inequality and the Environment. *Ecological Economics*, 26(3), 259–275.
- Spash, C.L. 2008. Contingent Valuation Design and Data Treatment: If You Can't Shoot the Messenger, Change the Message. *Environment and Planning C*, 26(1), 34–53.
- Swyngedouw, E. 2004. *Social Power and the Urbanization of Water: Flows of Power*. Oxford University Press: Oxford.
- UN-Habitat. 2003. *The Challenge of Slums: Global Report on Human Settlements 2003*. UN-Habitat/Earthscan Publications: London.
- van Houtven, G., Powers, J. and Pattanayak, S.K. 2007. Valuing Water Quality Improvements in the United States Using Meta-Analysis: Is the Glass Half-Full or Half-Empty for National Policy Analysis? *Resource and Energy Economics*, 29(3), 206–228.
- Wilson, H.T. 1999. Time, Space and Value: Recovering the Public Sphere. *Time & Society*, 8(1), 161–181.
- Young, R. 2005. *Determining the Economic Value of Water: Concepts and Methods*. Resources for the Future: Washington D.C.

6

About the City, Water and the State: The Way Forward

Abstract: *The final chapter summarises the main findings, in particular the conclusion that water dilemmas represent the common moment of truth of all Latin American metropolitan areas. The analysis of urban water issues also serves to emphasise the politicised and constantly evolving organisation and functioning of the state apparatus. Recent policies and investment programmes have tried to conceal the ideological and class-based goals of politico-economic reforms. Consequently, meaningful alternatives to urban inequalities require not only a critical understanding of the connections between past and present, but also between personal and interpersonal attitudes with national and international scales of interaction. This requires the recognition of the politicised basis of sociospatial changes, assessing complex cross-scale phenomena in a way that helps to remove pre-established conceptions about the origin of problems and possible solutions.*

Ioris, Antonio A.R. *Water, State and the City*.
Basingstoke: Palgrave Macmillan, 2015.
DOI: 10.1057/9781137468673.0010.

The previous pages in this book dealt with the complexity of mega-urban development in Latin America and provided an overview of numerous critical issues related to the persistence of sociospatial exclusion and various other problems related to the consolidation of vast urban areas. The sequence of chapters helped to discuss, in an interconnected way, the repercussions of recent economic adjustments and associated political trends on the organisation and running of three selected metropolitan areas (Mexico, Lima and Rio de Janeiro). The concrete experience in these large cities was described as a function of national development trends, the production of sociospatial asymmetries and non-linear interpersonal relations. Departing from the existing literature on Latin American urbanisation, the methodological approach constituted an innovative perspective to urban studies that combined different spatial scales (national–metropolitan–local) with a sectoral experience (water) in order to question overarching trends and mounting risks of the expansion of neoliberalising pressures. In practical terms, water management problems represent the political and biophysical limit to the elitist and mainstream intention to convert those sizeable urban centres into metropolitan areas of international importance in an increasingly globalised and neoliberalised world. Perhaps in the international media, the emerging megacities in the region (e.g. Lima, Bogota or Santiago) may have a more positive image than other established megacities (Sao Paulo, Mexico, Buenos Aires or Rio de Janeiro); in any case, the water question is the common moment of truth of all Latin American metropolitan areas.

The discussion on urban water issues served to emphasise the politicised and constantly evolving organisation and functioning of the state apparatus. For instance, in the Mexican capital, in Lima and in Rio de Janeiro the allocation, use and conservation of water encapsulate perverse legacies from the colonial and early independence years, as well as current dilemmas and challenges for the future of these large cities and the wider national society. Instead of a detailed review of quantitative data and statistical trends, the goal here was to scrutinise some of the most emblematic and emerging aspects of mega-urbanisation in the region, namely the impact of national policies on the water services of the Mexican capital city, the reconfiguration of the water problems of Lima during the neoliberalisation of the Peruvian State and the positioned valuation of water in Rio de Janeiro. The three case studies employed the conceptual framework initially presented in Chapter 2, that is, the

dialectics among national development, local controversies and manifold reactions that shape the urban landscape of megacities, and the dynamic and contested process of statehood. With these foundational concepts in place, the format, approach and additional theoretical references of each empirical chapter was distinctive and the text focused on the specific historico-geographical themes under analysis.

Despite the specific circumstances of each large metropolis, it can be argued that a common threat permeates the examination of urban and water questions in these three mega-Latin American cities. The Mexican case study, for example, made evident the urban ramifications of developmentalist agendas and of geopolitical subordination, which had serious impacts on the metropolitan growth and the problematic coordination of a huge number of settlements in the area that now forms the Mexico Valley Metropolitan Zone. The mounting shortcomings and persistent authoritarianism of the ruling party (PRI) provided the conditions for the adoption of a conservative, neoliberal reform that necessarily included water services and urban policies, without ever managing to remove long-lasting sociospatial inequalities. By its turn, Lima is the most acute case in the world of a large city established in a coastal desert with minimum availability of freshwater. The urbanisation process had to accommodate the politico-economic functions of the capital city – founded by the Spaniards to command the vast vice-reign space – with scarce water reserves. Nonetheless, as in the case of Mexico, water shortage in Lima could not be understood as a hydrological or hydraulic question only, but it is ultimately the result of sociopolitical relations that are spatialised and became active forces in landscape change. Empirical results demonstrate that the capital of Peru constitutes a specific chapter of the urban geography of Latin America especially particularly because of a range of sociopolitical relationships that end up perpetuating and magnifying water scarcity and water management problems.

The perennial and unresolved water problems of Lima re-emerged again in the 1990s as an opportunity taken by the newly elected government to justify neoliberal strategies and turn water services into a locus of capital accumulation and political gain. If Lima, as an emerging megacity, has functioned as the catalyst of macroeconomic recovery and the insertion of Peru into globalised markets, it has also been the incubator of mounting tensions and the locus of multiple legitimating efforts of local and national elites. Infrastructure investments and novel approaches to water services have been an integral element of an

increasingly neoliberalised urban landscape where large sums of money circulate between state agencies and private companies, while the population are treated as simply costumers and buyers. The patrimonialist vices of investment programmes were even more clearly evident with the prosecution of corrupt politicians including former ministers and presidents (Fujimori and García). However, corruption is another complex phenomenon that relies on dynamic connections and is manifested in synchronic and diachronic directions.

Finally, the situation in the former capital of Brazil, the city of Rio de Janeiro, is also fraught with past mistakes and difficult challenges. The megacity is now at the centre of globalised processes of integration as in the case of multilateral conferences, the World Cup and the Olympic games, although water problems represent a challenge for the organisation of such initiatives. That is true in relation to polluted water-courses, repeated flooding and lack of proper water supply to parts of the metropolitan region. Rio de Janeiro has depended on the transfer of water from other catchments, especially the Paraíba do Sul River Basin, which is now an object of dispute with the other Brazilian megacity, São Paulo. Several national development projects have been designed to take place in the Rio de Janeiro Metropolitan Region, including a new petrochemical complex and industrial revitalisation, but still without a more coherent programme of urban planning and water services. This complexity is easily demonstrated with the conflicting valuation of water across economic sectors and social groups. Water values are positioned experiences in time and space that encapsulate past experiences, present disputes and future expectations. The example of the Baixada Fluminense, a water scarce wetland with a large low-income population and politico-economic subordinated to the core areas, is certainly very revealing.

The discussion of urban water issues throughout this book demonstrates that recent policies and investment programmes adopted by Latin American governments have tried to conceal the really decisive ideological and class-based goals of ongoing state reforms. The imposition of market-based responses to long-standing water problems – such as uneven coverage, insufficient services and declining stocks of water – has been part of the reorganisation of the economy and of the role of the national state. The water industry of those megacities was seen as a strategic economic sector with the ability to attract commercial partners and help to convey the message that the country is ‘open for business’.

That was achieved with an increasing monetisation of water and the interpretation of multiple values according to money figures attached to the natural resources, investments and services. Water monetisation has been constantly reinforced by governmental advertisements of new engineering projects and services, as well as by the regular increase of domestic water tariffs and persistent black water market. Yet, the aggressive monetisation of water, at the expense of more adapted and localised solutions to water management problems, poses serious questions about the long-term sustainability of the reforms, particularly given the lack of metropolitan planning and the chaotic growth of the large conurbation.

Mainstream water supply policies also reveal that the neoliberalisation of Latin American cities happens not only through the formal delegation of services and utilities to the private sector. On the contrary, one of the main lessons learned from the current research is that success of neoliberalising strategies depends much more on the intensification and manipulation of investments, contracts and revenues in a way that allows the flexible involvement of national and international companies. In that context, claims about the pursuit of higher levels of operational efficiency have helped to hide a business-friendly environment and techno-bureaucratic rationality that systematically denies the underlying political causes of water scarcity. The official discourse ignores the contrasts between the water services and the environmental impacts of different urban zones and that social groups are not a mere deficiency of neoliberal urbanisation, but represent an active mechanism for the functioning of economy and society according to conservative modernisation priorities. In other words, the marked imbalances that shape the landscape of large urban centres are actively reproduced and even exacerbated in order to prolong the shelf life of current urban policies and businesses activities.

From the above, it is clear that national neoliberal agendas have had a significant impact on the organisation and operation of metropolitan water services, especially in terms of the volumes of capital invested in hydraulic infrastructure and the various forms of public-private association. More than that, the adjustments in the water industry in the three studied metropolises have changed not only the interrelations between state, people and nature, but it has also forced alterations in the role of the national state as the ultimate responsible for the success of market-friendly approaches. In order to overcome difficulties and maintain the direction of the reforms, the state had to adjust its own configuration

(e.g. the creation of new regulatory agencies) and its strategies in relation to the public and the business partners (e.g. more aggressive communication campaigns and legislation on public–private partnerships). The contradictory character of the recent institutional reforms is evident in the increasing operational risks and growing tensions, while the state has its authority compromised because of long-term contracts with private partner companies. At the same time, the state has remained responsible for the more expensive procurement of raw water sources and for the recovery of degraded river catchments. Formally, the national government has remained in charge of the metropolitan water utilities, but in practice the mediating role of the state has been weakened by the growing involvement of private companies.

Another important conclusion is that genuine alternatives to that long tendency of urban inequalities require not only a critical understanding of the connections between past and present, but also between personal and interpersonal attitudes with national and international scales of interaction. Controversies in the water sector prove that neoliberalism evolves through negotiation, concessions and compromises, although neoliberal governances toil to hide their instabilities and fractures by posturing as strong, robust, and logical manifestations of ‘the end of history’. The advance of water neoliberalism has actively responded to new political, economic and social trends as a necessary tactic for survival. Neoliberalising reforms in the 1990s and 2000s faced unexpected barriers due also to the biophysical characteristics of water (a resource that is unequally distributed and requires large infrastructure works) and the persistent scepticism of the population (due to the slow pace of the improvements and the deficient performance of the water utility). One main consequence, for sure, is that the weakest and poorest communities, typically in the most remote and irregular settlements, continue to struggle to have access to water, which is still provided through private vendors and at a higher price than the public water supply. As a result, there is a perennial need of conceptual and methodological approaches able to reconcile Latin American urban processes with wider development pressures, sectoral demands and sociospatial relations.

The empirical studies confirm that the megacity is privileged analytical category for understanding the interface between local practices and culture, identities and overarching mechanisms of inclusion and exclusion. The small, microscale manifestations of the politicised urban landscape – as in the case of water management problems – are not

simply the residue of macro, intense political clashes, but the metropolitan and the household are interconnected spheres of activity that interact and potentialise each other. In that regard, this book sought especially to draw attention to the 'less visible' zones or neighbourhoods inhabited by low-income communities with lower quality of life and limited socioeconomic prospects. These are actually sacrifice areas in and around the city producing sacrificed people who, because of their political weaknesses – the 'invisible people' of these 'invisible areas' – are forced to put up with high impact activities, such as landfill waste, industries, dams and roads. Because of their political invisibility, calls for justice cannot be only about redistributive action (i.e. removing the inequitable distribution of goods and bads that especially affect low-income, disadvantaged communities), but are also related to the recognition of the diversity of the participants in community experiences and their meaningful participation in decision-making.

The complex configuration of the Latin American main cities certainly defies established theoretical and methodological approaches. The consideration of those issues in the earlier chapters revealed that the disputes and convergences taking place in the megacity raise fundamental questions about the efficacy and fairness of state-led initiatives and national development trends. There is, therefore, a real demand for new analytical tools able to make sense of the growing number of cross-scale interactions and inter-group relations. This inevitably requires the recognition of the politicised basis of sociospatial changes. Critical scholars have the opportunity and the responsibility to assess those complex, cross-scale phenomena in a way that helps to remove pre-established conceptions about the origin of problems and possible solutions (as in the case of the conventional emphasis on additional water supply while ignoring the long, politicised trajectory of water scarcity). Novel academic interpretations should also deal with the failure of hegemonic urban policies anchored in mechanisms such as increased mass consumption, informal jobs, the influence of large corporations and the evolving nature of grassroots identity. For instance, the daily life in the various studied communities indicates the weakening of popular mobilisation and widespread individualism as adjunct elements of the expansion of neoliberal urban transformations. At the same time, policy-making and investment programmes have been based on commercial-like relationships between public utilities and the general public, which have reinforced mechanisms of alienation and political disorganisation.

Crucially, the political dimension of the megacity not only emerges from the process of everyday struggle, but daily interactions also contain mechanisms of contestation with broader national and international repercussions. To a large extent, the heated moments of protest are the result of the long lag of silence, during which ideas and opinions are gestated and the germ of new protests is formed. In other words, the radicality of the most visible forms of reaction is immanent in the subtle, apparently unimportant feelings of the everyday life. The politics of urban dynamics in Latin America is not always evident or explicitly recognised in mainstream texts, but it is nonetheless present and vividly sensed through the myriad of direct and indirect relations that shape the urban totality. Equally, the everyday pain and anxiety caused by persistent mechanisms of socioecological degradation end up feeding the criticism that can later erupt through marches, protests and campaigns. The day by day and the long-term realms operate together in the politicised space of the urban. Although the everyday dimension needs full consideration, it cannot happen at the expense of the other important mechanisms of political disputes and class-based politics. What actually exists is a widespread 'sense' of the politicisation of urban interactions located in the connections among personal, household and communities in the city at large and also in its articulation with national and international spheres of interaction. The ability to perceive and react to environmental injustices happens through the dialectical convergence of such multiscale manifestations of life in the large urban areas of Latin America.

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