Water Scarcity and the Exclusionary City: The Struggle for Water Justice in Lima, Peru

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Abstract. Water management dilemmas represent a unique entry point into the challenging management of metropolitan areas, as in the case of Lima (Peru). A condition of water scarcity goes beyond the mere physical insufficiency of resources, but vividly contains the inadequacy of social relations responsible for the allocation, use and conservation of water. Lima's experience demonstrates the association between investment priorities, political agendas and corruption scandals leading to selective abundances and persistent scarcities that are perpetuated in a hydrosocial territory. The production of water scarcity has been predicated upon discriminatory practices associated with the reinforcement of uneven development and environmental injustices.

Keywords. Scarcity, territory, metropolitan areas, megacity, hydrosocial, Lima, Peru

Introduction

"Political theory lacks a sense of territory; territory lacks a political theory."
Stuart Elden (2010)

Social and economic development in Latin America has been often undermined by unfulfilled promises and contradictions. That is particularly the case in large metropolitan centres where pockets of urban wealth and ostensible affluence stand amidst vast areas of deprivation, overcrowding, pollution and multiple forms of violence (Jones, 2006). Urban water problems clearly demonstrate the difficulty of many prevailing approaches to the management of metropolitan areas in more inclusive and equitable ways (UNDP, 2006). Since 1990, around 22% of the Latin American population gained access to better drinking water sources, but there are still significant inequalities between different sections of the cities (UNICEF and WHO, 2012). The sanitation sector has also observed a similar trajectory, but with less impressive results, and there are comparable contrasts between achievements in urban and rural areas. Although large conurbations are the main geographical sites of social activity and capital accumulation in the

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region, a more dedicated appreciation of their specificities and particular dilemmas remains largely unmet (Hanson, 2003). There is still a demand for analytical methodologies able to reconcile urban processes with wider development pressures that simultaneously shape the territory of large metropolises. In that context, Lima's water services constitute a highly emblematic example of the difficult politico-ecological issues faced by the Latin American society.

The Peruvian capital has increasingly come to rely on water coming from vanishing Andean glaciers, due to climate change, and from receding aquifers and degraded catchments, due to uncontrolled mining, over-abstraction and untreated effluents (ANA, 2015). At the same time, the water sector of Lima has been strongly influenced by the reconfiguration of the national state after the heterodox economic experiments of the 1980s and the liberalising reforms introduced in the 1990s (Ioris, 2012a). Investments in infrastructure and management strategies followed changes in institutional frames, absorbed external liberalising pressures and necessarily conformed to the balance of political power in the country. The modernisation of the water sector – essentially, the adoption of more flexible and normally market-based institutions of water management and for the operation of public utilities – has become a key feature of the expanding business opportunities in Peru. For more than two decades now, water problems have been addressed through an emphasis on rationalisation, privatisation and the promotion of public-private partnerships, which recast water as an asset with economic value without regard to its properties as a public good and a substance that is essential for social and household life. However, rather than a straightforward process, the renovation of the water industry of Lima epitomised a range of intricate transformations that, directly or indirectly, incorporate water into the production of new sociospatial configurations. After nearly two centuries of home rule since independence, there are still no universal, reliable public services, but for large sectors of the population, water problems remain a personal, corporeal and collective ordeal predicated upon shortages in other social, economic and political arenas.

Taking into account the contested basis of water scarcity in the capital of Peru, the aim of this article is to examine the territorialisation of water scarcity resulting from politicised interactions between government, economic sectors and civil society. A related question is to discuss to what extent the territorial reconfiguration of metropolitan Lima – formed by 43 municipalities in the province of Lima and six in the province of Callao – may also have the imprint of creative actions and survival strategies adopted by marginalised groups to cope with the failures of public water services. The analysis is based on qualitative empirical research carried out between

2009 and 2013, involving two fieldtrips and constant follow up contacts. Policy-makers, regulators, politicians, NGO activists and experts were interviewed, together with the analysis of secondary data and the attendance of public meetings and events. In addition, ethnographic research was conducted in three locations – Pachacútec, Huaycán and Villa El Salvador, in the north, east and south sections of the metropolis, respectively – with a focus on personal interests, domestic use of water and behavioural patterns. The next section introduces the main concepts employed for the study of the water problems of Lima – particularly the socionatural basis of territorialisation and the state as the main producer of territorialised water scarcity – which is then followed by an analysis of the territorialised evolution of human-made water scarcity under different political administrations.

Socionature, hydrosocial territories and the genesis of urban water scarcity

Linton (2010) titles his book with a provocative question, 'What is water?' The unexpected answer comes already in the first page: 'Water is what we make of it'. In other words, it is a relational substance that is constituted by myriad relationships between social groups. According to his argument, it is not possible to think about water in the abstract, as its properties and characteristics bear the traces of sociopolitical "relations, conditions and potentials". Linton, among many others, criticises the conventional thinking that permeates most contemporary hydrology, engineering, economics and planning that is based, and constantly reinforces, the artificial and unhelpful separation between society and the rest of nature (Whitehead, 1920). Instead, the world in general, and water systems in particular, are fundamentally sites in which society and nature presuppose and continuously reconstitute each other over space, scale and time. This "socionatural" characteristic of water systems has important repercussions for the understanding of territorialisation as a negotiated process (see also Boelens et al., this issue). Because water flows through systems that are essentially social, collaboration and disputes between public and private agents have a direct impact on the bio-physical properties of water and, crucially, on the territory produced out of socionatural interactions. Different than the conventional definitions, territorialisation should be interpreted as the production of historico-geographical configurations out of the engagements between humans and the rest of socionature The constant production of territories happens at the macro-scale (as in the case of cities and countries) and is accompanied by a myriad of micro-scale territorial strategies (Storey, 2012).

Rather than being fixed in time or in space, the circulation of water follows a range of evolving social demands, practices and discourses that shape the territory (Ioris, 2008). More importantly for the purpose of the current analysis, clashes and collaboration around water directly affect the socionatural course of territorialisation and result in the affirmation of certain types of territorialities or the condemnation of others. The multiple strategies to produce and control territories replicate the ability of social groups, business sectors and governments to assert, maintain or resist power (Boelens et al., this issue). As defined by Sack (1986), territoriality is a strategy used by groups and public agencies to exercise power over a portion of space in order to maintain control and systematise activities and services. Territory is ultimately a *political technology* that comprises techniques for measuring land, controlling the terrain and promoting socioeconomic agendas (Elden, 2010). Although the predominant rationality of state bureaucracies privileges the administrative boundaries of catchments and river basins, the actual territoriality of water is not given or prearranged in advance. The territories of water are actively produced as hydrosocial networks (Boelens et al., 2014) between groups and sectors with different understanding of water values, asymmetric power and often contrasting cultures and technologies (Ioris, 2011). Water territories, such as catchments and hydrological regions, are spatial networks of socionatural phenomena that receive different interpretations and attract contrasting reactions (Zwarteveen & Boelens, 2014). This dynamic basis of territorialisation means that, to a larger or lesser extent, any given territorial formation is transitory and will be eventually superseded. An apparently stable territory is nothing else than a 'territorial fix' and its existence depends on it being accepted internally and externally.

In addition, despite the neoliberal rhetoric of a globalised world, the national state is still the main advocate, interpreter and custodian of determined territorial fixes that typically favour hegemonic socioeconomic and political interests (see also Hoogesteger, Boelens and Baud, this issue). The national state continues to play a decisive role in the allocation and use of water and, in that process, it creates situations and spaces of abundance or scarcity inscribed in the phenomenon of territorialisation (see Perramond, this issue). The territorialisation of water scarcity actually happens at the intersection between the overall problems of development and state regulation with interpersonal relations at the scale of household and locations (Zug & Graefe, 2014). The apparatus of the state, through its initiatives, associations and alliances, effectively territorialises scarcities in the form of smaller or larger territories of water scarcity. For instance, investments in infrastructure or environmental restoration in certain areas may happen at the

expense of the lack of equivalent investments in other sites (thus producing or maintaining territorialised water scarcity, which will be opposed by those living in these territories according to the their ability to react). By the same token, regulatory toolkits currently adopted by water agencies around the world – such as water licences, user fees, decision-support systems and the payment for ecosystem services – are all rationalised in relation to rising levels of scarcity. Unfortunately, most mainstream public policies normally neglect the social construction of water scarcity by limiting the analysis to the (largely utilitarian) balance between supply and demand (Ioris, 2001).

The territorialisation of water scarcity is particularly evident in urban areas, which incorporate territorial disputes happening in the rest of the country as much as the wider pressures of globalisation. The city "is a *mediation* among mediations" that take place between a near spatial order (relations between individuals and local groups) and a far spatial order (larger and more powerful institutions, such as the state)（Lefebvre 1996, p. 101). 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, management objectives. What typically exists is a *geography of multiple scarcities* (Ioris, 2012b), in the sense that numerous agendas and socioeconomic pressures converge towards the production and the reinforcement of territories of water scarcity in the constrained cartography of the city. Water scarcities are caused by deliberate attitudes and collective practices that contribute to the dynamics of territorialisation. Territorialised urban scarcities do not go unchallenged, but are fully manifested, in material and symbolic terms, in the daily life of the people and in the subtle forms of marginalisation and ecological degradation (Ioris, 2014). The co-evolution of environmental and social change in the territory of the city offers insights into creative pathways towards more democratic urban environmental politics (Heynen, 2014).

The central claim of this article is that the scarcity of water is not a single process caused by the shortage of resources, but it is the outcome of present and past decisions and interventions that produced perverse consequences that affect some groups and locations more than others. Urban water scarcity is more than the mechanical result of unequal urban development, but should be seen as an integral driving-force of an exclusionary pattern of development that is manifested both in large-scale injustices and in systematic political control and interpersonal, social discrimination. The territory of the city is a dynamic mosaic of locales where water is stored, processed, conveyed, used, wasted and recollected. This mosaic responds to, but also creates, new scarcities. Because of

the politicised nature of its access and use, water scarcity is at the same time a collective problem and the medium of renewed forms of capital accumulation that follow urban development. In the next section, the concrete experience of Lima will demonstrate the politicised and perverse origins of urban water scarcity and its perpetuation.

Territorial inscription and territorialised reaffirmation of water scarcity

Lima was established in 1535 by the Spanish invaders to be the capital of the highly lucrative colonial enterprise based on mineral extraction. Contrary to conventional historiography, the territory of Lima was not merely the product of an autocratic decision of the Spanish crown, but the new urban centre that actually emerged was the result of a never ending struggle for territorialisation. The disputes around territorialisation centred around the control and use of scarce water reserves as much as the defeat of the resistance offered by the local indigenous groups living along the Peruvian coast. The need to secure a strategic port for the colonial administration put great pressure in an arid region with only three small rivers and staggeringly low rates of rainfall (with annual mean precipitation of less than 10 mm). Increasing levels of water pollution and environmental degradation as early as the first decades of the colony forced the viceroy to reroute the main pipeline in 1562 to avoid contaminated sources (SEDAPAL, 2003). The shortage of water was mitigated by slow urban growth during colonial and early independence years. In the early years of the 20th Century, Lima was a conurbation with around 100,000 inhabitants (4% of the national population) and the expansion of water pipelines and the opening of irrigated parks were important elements of urban modernisation.

However, human-made water scarcity became patently evident with the expansion of the city due to massive internal migration following industrialisation beginning in the 1930s and intensifying between the 1950s and 1970s, when the rate of demographic growth was sustained above 5% per year (Matos Mar, 1984). However, because of the limited number of domiciles available for the poor migrants and the small pace of investment in affordable housing, an entire illegal ("irregular") city was created within and around the regularised areas (Barreda & Ramírez Corzo, 2004). Irregular communities were initially called *barriadas* (barrio = neighbourhood) and more recently have been referred to as *pueblos jóvenes* (new settlements). The *barriadas* were normally established in areas without water infrastructure and, at least at first, relied on expensive and doubtful water sold by private vendors (Zolezzi & Calderón, 1987). In tandem with the fight for political recognition, people in the newly formed *barriadas* developed multiple strategies and

formed alliances to secure an often precarious access to land and water (Matos Mar, 2012). Lima grew from 645,000 inhabitants in 1940 (10.4% of the national population) to more than 9.0 million in 2010 (approximately 30% of the Peruvian population producing almost half of the national GDP) (INEI 2010).

The chaotic urban expansion and reactive public policies amplified and perpetuated water scarcity as an integral feature of the urban territory. Ill-planned, hasty urbanisation based on the deposition of people in ever more remote and unauthorised locations was the practical solution to urban problems that spoke the language of scarcity and, essentially, guaranteed the perennial continuation of multiple forms of scarcity. As can be seen in Table 1, differences in income were unmistakeably translated in uneven coverage of water services (see more statistics in Ioris, 2012b). While the established areas of the metropolis had almost universal water provision, low-income municipalities had a much lower rate of service coverage. In the last available assessment (cf. SEDAPAL, 2009), the wealthier areas, attended by the service centres Breña and Surquillo, benefited from a rate of water coverage of 99.59% and 96.56%, respectively, while low income areas, attended by the service centres Villa El Salvador and Callao, had equivalent figures of 86.42% and 84.96%. The situation improved in recent years (see below on the last government programmes) and, according to official data, in 2012 the rate of water service coverage was 94.6% and sanitation services were serving 89.9% of the metropolitan population. However, in practice a significant proportion of the population still has no access to public service provision and has to resort to private water vendors and discharge sewage in the streets.

[Table 1 here]

It should be recognised that the particular territorial features of Lima – a vast metropolis with extensive sandy hills, limited water stocks and unplanned human settlements – only increases the cost of water services and magnifies logistical difficulties in periphery zones. In addition, the metropolis continues to expand at around 1.5% per year and its growing territory encroaches particularly upon remote and more adverse localities (INEI, 2012 quoted in SEDAPAL, 2014). The degradation of the small rivers and the overexploitation of aquifers also reinforces water scarcity, which is aggravated by changes in the hydrological cycle and the melting of glaciers due to climatic change (Cabrera Carranza, 2010). Even so, it can be theorised that the main reason for the persistent imbalances is that public investments and public-private initiatives have been saturated with political spin and party politics directed towards locations and moments with the best electoral

prospects. Water scarcity is manifestly connected with the scarcity of political influence and socioeconomic deprivation, which operate together to form a geography of multiple scarcities. High-income neighbourhoods typically 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 20 litres per capita per day. The significant difference in the impact of domestic water charges on household income across different levels of income can be seen in Table 2 (i.e. from 0.8% to 4.1% of monthly income). As can be observed, there is a positive association between income and water use, although higher income users on average pay a smaller proportion of their income and those who earn less on average pay a lower absolute charge, but a higher percentage of their income.

[Table 2 here]

In addition, Table 3 demonstrates the prominent differences in the volumes of water used by domestic, industrial and commercial sectors, which means that asymmetries in household supply are translated into large-scale imbalances between groups and locations. The higher charges paid by non-domestic users are consistent with tariffs of other large-scale water utilities in South America (e.g. SABESP in São Paulo). The next sections examine the reasons for the persistent failures of public services and political biases in the action of the state that lie behind the statistics. It is argued that the scarcity of water has in effect become a central driving-force behind interventions and public policies introduced by successive governments primarily to serve selective, non-democratic political and economic interests.

[Table 3 here]

Politics and policy changes that perpetuate territorialised scarcity

In 1990, the neoliberal economic shock promoted by the recently elected President Fujimori reinforced the uneven urban development and hierarchical water services experienced in previous decades. In the first moment, the incoming administration had to adopt an emergency plan to cope with the alarming situation of water supply in Lima. Some ongoing projects involving boreholes and storage tanks were concluded to allow localised supply, but soon the new government started to pay attention to the recommendations laid down by multilateral agencies, which comprised institutional reforms that include the separation between policy-making and service provision,

operation benchmarking within and between water utilities, and novel forms of management incentives, such as charges and water pricing mechanisms (e.g. Klein & Roger, 1995). The failing performance of water supply and sanitation, which led to an outbreak of cholera in 1991 (aggravated by stopping chlorination on the groups of the health effects of chlorine), provided the needed justification for the Fujimori government to include the water utility of Lima (SEDAPAL) in the list of public utilities to be privatised. SEDAPAL was described as a company with inadequate system maintenance, a high level of unaccounted-for water, excess staff, low metering rates and poor water quality (Corton, 2003). The acquiescence of the grim condition of the metropolitan water services transformed scarcity from a problem into an opportunity for market-based solutions.

Paradoxically, the scarcity of water services in Lima prompted also a sudden abundance of money required to prepare SEDAPAL to be privatised. After a turbulent preparation period, three international consortiums prequalified to bid for the concession of water service in November 1994, but the process was unexpectedly postponed many times and was eventually cancelled in 1997 (Ioris, 2012a). The main reason for the indefinite postponement of the bidding was that the political price of privatisation was not affordable to the president, particularly when his popularity was declining nationwide and Lima was one of the main political strongholds. In addition, there was declining interest from the private sector itself in the privatisation of SEDAPAL after other turbulent experiences in South America (e.g. Tucumán and Buenos Aires in Argentina, Limeira and Niteroi in Brazil). Because of the failure of privatisation, after the 1995 re-election of Fujimori SEDAPAL embarked upon a larger programme of operational recovery. In 1998, SEDAPAL was transformed into a ‘public limited company’ (PLC) and then incorporated in the sphere of the 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. The water utility of Lima became the recipient of considerable sums of public funds (it is estimated that reached US$ 2.44 billion or 14% of the public investment in the period or in average 0.5% of GDP) that were spent mainly on pipeline replacement and leakage control. Yet, at that point, water provision was still concentrated in the higher income areas with 40% of the population consuming 88% and the poorer 60% only using 12% of the total water (CENCA, 1998).

With the turbulent end of the Fujimori administration and the timid, gradual return to democracy, SEDAPAL faced a deteriorating financial situation and a disjointed management

direction. Tariffs again started to grow significantly and became a main issue for the constant confrontation between SEDAPAL and the regulator SUNASS. For example, in 2005 SEDAPAL formally presented a management plan which included an annual increase of 136.9% in the tariffs, which was publicly rejected by SUNASS and followed by an open and fierce debate in the mass media and, eventually, a difficult compromise between the two agencies that resulted in the sacking of the president of the regulatory agency. The tendency of the reforms was maintained by President Toledo without removing the government from the centre of economic activity and social interaction (Roberts & Portes, 2006). With circumstantial economic problems and a tightening budget, the national level of 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. The National Plan of Sanitation (Law DS-007-2006) observed that SEDAPAL would still require works equivalent to US$ 1.211 billion between 2006-2015, 41.6% of national investment budget. Toledo's policies were mainly focussed on poverty alleviation in rural areas, particularly in the south of the country, where terrorist attacks were worst. Investments started to rise again at the end of Toledo's administration especially with the announcement of the Program MIAGUA that included projects of around US$ 1.3 billion throughout the country (US$ 657 million for Lima, funded by foreign loans). They never recovered to the level of the mid-1990s, when the Fujimori government used public money to advance populist, clientelist schemes.

Graham and Marvin (2001) connect the collapse of the modern urban ideal with the ensuing neoliberalisation of public services. This was certainly the case in Lima in recent years. The goal of a coherent and inclusive city was maintained only in the discourse of the politicians while neoliberal infrastructure 'splintering' resulted in fragmentation, premium services and city enclaves. Despite public investments and the involvement of private operators, the material and symbolic affirmation of scarcity continued to define Lima's water policies. The material and symbolic production of scarcity was predicated upon practices of sociospatial discrimination associated with the production of uneven urban development. The interplay between scarcity and abundance was used as a political device to handle expectations in the impoverished areas of the capital city. A practical example is the constantly moving line of water scarcity, the maximum altitude in the hills where the water service is provided, which has allowed the manipulation of investments and engineering plans as conspicuous electoral devices by generations of politicians. That attests the close connection between the spatialisation of power and the manipulation of water scarcity in the peripheries of the city. The last two governments tried to mobilise resources and

policies to tackle water scarcity, but with only partial results that in the end reinforce patterns of privilege and exclusion, as analysed below.

Water for all?

Water scarcity was particularly politicised and highly contested as an urban issue by Alan García in the 2006 presidential campaign and then during his government (2006-2011). As candidate, he promised to bring water to the most distant corners of Lima. In 2007, he launched the programme 'Water for All' (*Agua para Todos* or APT) with a portfolio of more than 1,500 large and small engineering works with a total budget of around US$ 2.0 billion in Lima alone. The enthusiastic tone of the statements made by the government and its business partners with the construction programme concealed the origins of water scarcity and the uncertainties about the future of the public water sector of Lima. In a few years it became clear that the temporary containment of water scarcity and the largely localised construction works promoted through the APT failed to address the long-term water problems of Lima due to the persistent shortage of housing and lack of transparency in the public sector. Water scarcity continued to affect those living in marginal, sandy and hilly areas in the periphery and 48% of the population of metropolitan Lima (this figure is disputed by SEDAPAL and some experts) receive piped water of substandard quality or for only a few hours every day (RPP, 2013). The rate of unaccounted for water remains high at around 29% of water treated and distributed (SEDAPAL, 2014), varying from 17.3% in Villa El Salvador to 44.9% in Callao (Table 4).

[Table 4 here]

In operational terms, SEDAPAL struggled to oversee and to properly manage the number and complexity of projects launched simultaneously by the García administration and that were focused on large-scale schemes (e.g. dams and treatment plants) rather than securing a more equitable distribution of water. At that point, while someone living in a low-income area such as Villa María used on average 78 litres per day, a resident of high-income San Isidro was using on average 460 litres (SEDAPAL, 2009). Although SEDAPAL was not officially privatised, a significant proportion of the infrastructure was going to be built and operated through public-private partnerships. That was the case with the construction of the Huascacocha Dam (with the participation of the Brazilian company OAS), Huachipa water treatment plant (participation of the Brazilian Camargo Corrêa) and Taboada and La Chira sewage treatment plant (participation of the

Spanish ACS España). Large scale investments, feeble control of public funds and covert connections between politicians and construction companies crated very favourable conditions for corruption at a large scale. The abundant evidence of graft and dishonesty during the García government prompted the formation of an investigative commission, known as the megacommission [*megacomisión*] once Garcia's party (APRA) lost the power to block its formation after the 2011 election. Part of its specific remits was to scrutinise the APT programme (El Comercio, 2013). Corruption associated with the wastewater treatment plants Taboada (investment of US$ 342 million) and La Chira (US$ 192 million) are discussed in Ioris (2013).

The ongoing work of the megacommission has abundantly demonstrated that the water supply of the capital city has been a politically attractive source of corruption for office holders. One of the concrete consequences so far was that, in June 2014, National Congress decided to formally accuse García and other members of his administration of corruption and mismanagement, but the battle continues in juridical circuits. The Peruvian judiciary is notoriously, and dangerously, close to Alan García and, probably because of that, at the time of writing (March 2015) the judiciary has not yet started its investigation. García remains a formidable politician, whose political group won the metropolitan election in Lima in 2014 and is probably going to win the next presidential campaign in 2016. Yet the same process of uneven development and biased water services has continued unabated during the presidency of Ollanta Humala, in office since 2011, who introduced another anti-scarcity plan along similar lines and with comparable promises of universal water supply to those made by Fujimori and García.

The Strategic Plan 2013-2017 of SEDAPAL contained five main goals, including service improvement, financial stability and universalisation of public services. Nonetheless, several respondents mentioned in our second round of interviews (conducted in April 2013) that 'service universalisation' applies only to those in areas that are already operationally viable. They also repeatedly mentioned that SEDAPAL has always been a highly centralised and bureaucratic public utility, which systematically rejects a more open dialogue with the metropolitan population. A related problem is that the public utility has repeatedly struggled to deliver its formal commitments, as in the case of the promise to invest 836.6 million and 790.1 million soles in the first two years under the Optimised Master Plan 2010-2015, when in practice it only invested 553.2 million and 433.1 million soles respectively (El Comercio, 2014). Such underperformance fuels perceived shortcomings of the public sector as an incompetent administrator that facilitate the regular re-emergence of privatising tendencies. The market-friendly logic introduced by Fujimori and

maintained by García was again reinforced by the Modernisation of Sanitation Services Act of 2013 (Law 30045), which established a new technical agency in charge of normalising construction works and, importantly, promoting public-private associations.

From the above it can be contended that, rather than a physical or incidental phenomenon, the constant reinforcement of scarcity – due to a combination of neglect and discrimination – has been the fundamental feature of the public water services. The hydrosocial inequalities that help to shape the landscape of Lima certainly go beyond the 'dance of statistics' repeatedly employed by politicians and spokespersons. Under conditions of uneven development and sociospatial inequalities, the scarcity of water is not simply the outcome of ill-conceived projects and interventions, but it permeates the decision-making around the allocation of resources and identification of priorities. Supposedly pro-poor initiatives designed by SEDAPAL have inadvertently reinforced the discrimination of water services between social groups. That is aggravated the lack of urban planning despite the number of interventions and projects affecting the territory of the metropolis (the last plan was published in 1989, before the Fujimori administration) and the always difficult coordination between Lima and Callao, which inevitably contribute to the widespread sense of imprudence and informality. The experience in Peru is comparable to what happened in other parts of Latin America, as in La Paz, Bolivia, where the communities have systematically complained about the lack of proper participation and attention from the authorities (Laurie & Crespo, 2007). An important aspect of discrimination, both in Bolivia and Peru, is that the proportion of mestizos and non-whites is significantly higher among those without access to water. As aptly observed by Watts (2000), the politics of redistribution is directly related to the politics of recognition.

Conclusions: The territory of the exclusionary city

The evolution of the public water services of Lima, discussed in the previous pages, offers an emblematic example of the territorialisation of water scarcity through the consolidation of an urban landscape fraught with sociospatial inequalities. The reforms and the new interventions of the national state in the last three decades constituted the main force behind multiple mechanisms of water management, including heavy investments in infrastructure and management control, that in the end systematically failed to remove the existing territories of water scarcity. On the contrary, state action has followed political demands and hegemonic interests in a way that preserves the established patterns of territorialisation. The long-lasting situations of territorialised water scarcity

have been politically appropriated as justification for the introduction of new plans and programmes according to a market-friendly rationality aiming to satisfy, primarily, the requirements of national and international elite groups. For instance, water scarcity has served as a powerful excuse for institutional reforms, foreign loans and cooperation projects, which have produced uneven results and never benefited the totality of the metropolitan population. Those initiatives, rather than overcoming the trend of water management problems, have contributed to preserve lifelong privileges and exclusions.

One main conclusion is that the territory of Lima continues to expand through the territorialisation of multiple, interconnected scarcities. The water industry of Lima has been under intense transformation since the adoption of broad macroeconomic and institutional reforms in the early 1990s. Yet, although Lima is one of the best serviced cities in terms of infrastructure in the country, its allocation and distribution problems remain largely unresolved. Although substantial sums of money have been invested in the augmentation of the water services and regulatory adjustments have attracted more international operators than the company can actually deal with, 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 long-term resilience of the water system. All these factors lead to the impression that water scarcity is in itself a highly kaleidoscopic concept: in the context of urban development, references to scarcity work like kaleidoscope mirrors reflecting unstable, intricate connections across locations and social groups. As in the past, recent responses are again centred on the appropriation of scarcity as a productive force for the implementation of elitist political agendas. At the same time, novel peripheries are constantly being formed in more remote and more inhospitable locations because of the problematic development and unfair urban expansion.

Overall, in order to fully understand the geography of multiple scarcities of the large Latin American cities, such as Lima, it is necessary to start neither from the aggregate nor from the micro and fragmented, but simultaneously tackle the entirety of the lived and experienced territorialised processes that connect the local and personal with the higher scales of interaction. In the present case, the turbulent expansion of water services, both in moments of relative scarcity or abundance of financial resources, is a compelling indication of the specificity of economic development in Lima that still connects the colonial legacy with the globalising pressures over today's Peru. Water problems indicate a synergistic connection between the spiral of scarcity, the intensification of political manipulation and the selective circulation and accumulation of capital. In consequence,

existing hydropolitical arrangements help to maintain or even enhance sociospatial inequalities that produce the exclusionary city. The shortage of water in the Peruvian capital presents itself as a totality of relations: at the same time that the periphery suffers from precarious water services, the insertion into market globalisation encourages the purchase of private cars and household appliances in the wealthier neighbourhoods, which inevitably raise water consumption and inequality even further. On the other hand, in their struggle for survival, the majority of Lima's population living in the periphery are daily required to mobilise resilience skills and organisational capacity. Both government initiatives and grassroots reactions certainly contribute towards territorialisation and become inscribed in the territory of the city. Yet, the range of policies so far adopted by various administrations to deal with water scarcity has never really addressed the most basic demands for a fully inclusive city.

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