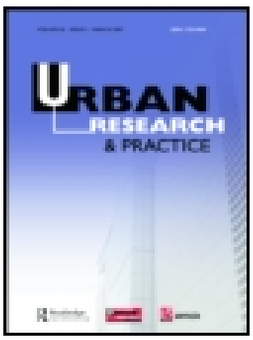

Urban Research & Practice

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/rurp20

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To cite this article: Raúl Acosta García , Marie Aschenbrenner , Eveline Dürr & Gordon Winder (2020): Re-imagining cities as ecosystems: environmental subject formation in Auckland and Mexico City, Urban Research & Practice, DOI: 10.1080/17535069.2020.1811886

To link to this article: https://doi.org/10.1080/17535069.2020.1811886

Published online: 04 Sep 2020.

URBAN RESEARCH & PRACTICE
https://doi.org/10.1080/17535069.2020.1811886

Routledge
Taylor & Francis Group

Re-imagining cities as ecosystems: environmental subject formation in Auckland and Mexico City

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ABSTRACT

The constitution of environmental subjects by governments and civil society organizations around the world has taken place within a framework of neoliberal urbanization. This entails promoting an individual sense of responsibility over urban environments among city dwellers. The approach used is not so much governmentality as environmentality, because of its focus on environmental matters. We claim that the tools used in this process are designed to generate among urban dwellers an imaginary of the cities they inhabit as ecosystems. Using qualitative methods, we examine cases in Auckland and Mexico City regarding water management.

KEYWORDS

Governmentality; environmentality; neoliberal urbanization; urban governance; ecosystems

Introduction

Governments and civil society organizations have over the last decades made increasing efforts to address urban environmental problems. More often than not, this is done through a series of measures in line with neoliberal urbanization. In many cases, this agenda stresses the importance of a 'healthy' environment not only for 'healthy' citizens, but for improving economic competitiveness and the quality of life to attract valuable talent or fight poverty (Brand 2007, 6). Thus, recent discourses in favour of sustainability have become incorporated in neoliberal urbanization strategies to find solutions to ecological challenges in order to improve economic outcomes and competitiveness (Tretter 2013). However, as this paper shows, the incorporation of environmental concerns in neoliberal urbanism has also spurred new forms of governmentalities to discipline urban dwellers' everyday practices. We argue that such efforts signify a production of environmental subjects with a particular understanding of cities as ecosystems. This entails a process of subjectivation in which urban dwellers are disciplined into assuming their personal practices regarding environmental care as their individual obligations (Leffers and Ballamingie 2013). We claim that the tools used to produce environmental subjects generate a social imaginary of cities as ecosystems. In the cases we use to analyse these processes, Auckland and Mexico City, this is done by exhorting urban dwellers to change their behaviour and stop dumping waste on drains or start harvesting rainwater in their own home in order to help improve the city's water management.

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The view of cities as ecosystems fits in with a global trend in which the 'earlier views of cities as destroyers of nature and harmonious rural life' are being displaced by 'a new regard for managed urban nature and cities as ecosystems' (Rademacher and Sivaramakrishnan 2013, 2). In urban areas, for example, current natural scientific approaches have switched from studying ecology *in* cities to ecology *of* cities (Pickett, et. al 2016).

Our main focus, however, is on the technique of government through which authorities promote a process of subjectivation as a way to discipline urban dwellers into a desired mode of 'docile' behaviour (Foucault 1991a, 138) in the form of environmental subjects (Brand 2007). We analyse the techniques to create such environmental subjects as part of neoliberalized processes of urban transformation (Hursh, Henderson, and Greenwood 2015). What takes place, therefore, is a form of neoliberal governmentality regarding urban environments. Governmentality is a useful concept here because it refers to the manner in which states have historically been able to use their political sovereignty by disciplining their populations into a collective form of government (Foucault 1991b, 102). Foucault explained his concept as a technique through which government exercises 'micro-powers' (Foucault 2008, 186) through which subjects are not only 'governable' but actually engage in the government of their own behaviour and that of others (Foucault 2010). Numerous scholars have worked with the concept of environmentality to analyse such process regarding environmentalism (Luke 1999; Agrawal 2005). Agrawal used the concept to analyse the manner in which local populations in Kumaon, in the western Indian Himalaya region, were disciplined into changing their relation to the forests they inhabited or used. In his view, the environmental subjects constituted by a change in policies were 'people who have come to think and act in new ways in relation to the domain being governed – forests' (Agrawal 2005, 4). This approach also has provided frameworks to explore the manner in which urban populations are guided towards better care of ecologies in cities, such as parks (Gabriel 2011). The infrastructures and campaigns we analyse in Auckland and Mexico City can thus be considered within a framework of environmentality in neoliberal cities (Mawdsley 2009).

In both cases, we present, the governments and civil society organizations in charge of the analysed projects do not mention ecosystems but their campaigns point to them, as their aim appears to be promoting awareness of ecological interconnections between individual acts of urban dwellers and the biophysical landscapes they collectively inhabit. Their stated purpose is to improve the balance between life forms, built environments, and objects, that may translate into better quality of life for all urban dwellers. Behind their efforts, however, lies an alignment with neoliberal urban environmental management, especially in transferring responsibility for collective states of affairs to individuals (Brand 2005). Although the city as ecosystem idea is behind both campaigns, the stress seems to be rather on atomizing responsibilities and awareness. By linking individual acts to a broader idea of the city, government and civil society appeal to an environmental imagination of the urban. This approach resonates with recent scholarship in various disciplines, which points to the role of imaginaries in the experience of the urban. As Bridge and Watson point out, 'cities are not simply material or lived spaces – they are also spaces of the imagination and spaces of representation' (Bridge and Watson 2000, 7).

The cases analysed here have contrasting social and geographical situations. Auckland is part of the affluent global north (while being located in the southern hemisphere), while Mexico City is in the global south (while located in the northern hemisphere). The two cities are in countries that have been led over the last few decades by neoliberal governments, albeit through contrasting institutional systems. In both cases, the legacy of colonialism looms large, with strong movements for indigenous causes. Both cities have been used to fresh water abundance but now face scarcity, though to different extents. While Auckland is coastal and surrounded by salt water, Mexico City lies at an altitude of 2240 m in a high valley and on top of what used to be a system of interconnected lakes. Interactions between water flows, buildings, objects, and various life forms can be diverse with a variety of repercussions, which may be key to the wellbeing of the city and its inhabitants. Because Auckland nestles around many bays and volcanoes, its sewage, waste, and climate systems have direct repercussions on water quality and wave patterns. For Mexico City, the soft terrain of the lake beds intensifies tremors from earthquakes and produces sinking in various corners of the city. In both cases, therefore, careful management of water systems is required. Such management, however, not only relies on sewage and canal infrastructures, but also on how people interact with these infrastructures and with the built environment as a whole. In order to ensure that populations contribute to functional systems, local governments and civil society organizations have resorted to campaigns promoting a personal involvement in the use of water resources and infrastructures. This is achieved partly through public messages in streets and through electronic means, but also for example, in the promotion of individual household rainwater harvesting. These measures thus seek to stimulate reflections and motivate 'improved' and 'adequate' behaviour among city dwellers regarding water in the city.

This article stems from a collaborative research project undertaken in the context of a DFG-funded research group investigating urban ethics in 12 cities around the world (Dürr, et al. 20202020). Our two projects draw on longitudinal qualitative research, conducted during multiple periods of fieldwork from 2018 to 2020. Our research includes: interviews with government officials, activists, and other stakeholders; document analyses; participant observations; photographic registry; as well as sensorial explorations of each city. The fieldwork was conducted in part by individual project members, and in part through team-based research in each city. It was during ethnographic walks, or explorations of urban spaces (Kusenbach 2003), that we noticed the signs in Auckland and the project called Ecoducto in Mexico City (see below). In a comparative analysis, we identified the thread that binds both cases together and that provides the backbone of this article's argument. The campaigns to promote paying attention to water quality at the coast in Auckland and to rainwater harvesting in Mexico City, furthermore, emphasise individual responsibility and interest in contributing to the whole water ecosystem in the city.

The paper's arguments are presented in four parts. First, we situate our argument in the context of the literature evidencing subjectivation processes in the context of neoliberal environmental management. We add to this literature by pointing to the ways in which governments and civil society organizations seek to constitute environmental subjects. The second and third parts consist of our case studies: Auckland and Mexico City. We consider these as prime examples of cities where government officials

and civil society activists have sought to change urban dwellers' practices by drawing attention to the repercussions of their actions on the city itself. In both cities, human-nature relations are enriched by combinations of indigenous, (post)colonial governance and expert perspectives. The last part is our conclusion on the efforts analyzed here, especially considering the attempts to make environmental subjects out of urban dwellers in a context of neoliberal urbanization.

Re-imagining human-environment relations in neoliberalized cities

It has only been since the 1970s, as environmental concerns have gained ground in political agendas, that cities as ecologies in themselves have been seriously considered in order to improve urban planning (Niemelä 1999). The timing coincides with the rise of neoliberal policies for urban development in cities and city-regions around the world (Harvey 2005), bringing to the urban level 'the belief that open, competitive, and unregulated markets, liberated from all forms of state interference, represent the optimal mechanism for economic development' (Brenner and Theodore 2003, 2). For cities, this has meant a heightened sense of competition between urban centres for transnational flows (Swyngedouw 1992; Brenner and Theodore 2003, 20), as well as the incorporation of such neoliberal principles as deregulation, reregulation, privatization, neoliberalization and enhanced fiscal austerity into their policy regimes. Some argue that 'cities have become strategic targets and proving grounds for an increasingly broad range of neoliberal policy experiments, institutional innovations and political projects' (Peck, Theodore, and Brenner 2009, 65). In this context, new environmental concerns are been addressed within neoliberal agendas, for example, through emphases on insistence on public-private partnerships, and adherence to new market rules and performance criteria (Bakker 2010).

On one hand, 'green space' is – alongside 'walkability' – valued as part of a street-level vitality that may attract affluent individuals in a process of gentrification (Schlichtman, Patch, and Hill 2017, 177). On the other hand, the effects of industrial production, motorized mobility, construction, and other technology-based activities, have generated a series of risks that require interventions by governments and civil society organizations. To reduce atmospheric pollution, for example, local authorities may design and implement new policies and also require urban dwellers to alter their behaviour to contribute in the effort. As they use neoliberal instruments and rework urban planning to address both climate change concerns and the interests of investors, governments are bringing about a new urban dispositif, that is, 'a heterogeneous set of discourses, practices, architectural forms, regulations, laws, and knowledge connected together into an apparatus of government' (Braun 2014, 49). Each such dispositif may be framed around concerns for 'sustainable development', a concept the United Nations has advocated for in order to bring environmental thinking into urban planning. The declaration of Habitat III, the third United Nations Conference on Housing and Sustainable Urban Development (Habitat III 2017), set out a vision for urban development with sustainability and resilience at its core (Meerow et al., 2016). For some critics, however, the efforts to achieve a consensus across widely differing interests, has neutralized them, meaning that the concept of sustainability 'has lost much of its transformative potential' (Rosol, Béal, and Mössner 2017, 1710). Instead, it tends to

be harnessed to specific interests, and especially specific forms of infrastructure investments.

In their governance, local authorities do not limit their incorporation of environmental concerns to an apparatus of government, but also actively seek to constitute environmental subjects. They do so by engaging shared imaginaries of the urban, or the manner in which urban dwellers experience the city through 'affectively laden patterns/images/forms' (Lennon 2015, 1). Life in cities is a constant negotiation with a high density of human interactions, which implies navigating built and biological environments (Sennett 2018). The stimulation of city inhabitants' imaginations, therefore, addresses their creative capacities to experience the world and enrols them as active citizens in making the urban (built) environments (Lennon 2015, 2). There is a change from previous perspectives that considered cities as different from ecosystems to current understandings of cities as ecosystems (Rademacher and Sivaramakrishnan 2013). The significance in promoting such a change of view or re-imagining of the city is directly related to how people experience the city.

This process is defined by a governmentality approach specifically addressed to environmental matters, that is, environmentality (Fletcher 2017). For urban dwellers, this means an addition of new layers of control and discipline they are expected to follow. These in turn entail a series of discursive, material, and regulatory nudges to promote urban dwellers' involvement in courses of action (Foucault 2008). It is these prompts that interest us, as they represent the steps with which governments and civil society organizations carry out the formation of environmental subjects. Brand considers that '[t]he political significance of urban environmentalism has … to be explored not within the confines of the "environment" itself but in its relation to the socio-spatial transformations of neoliberal urbanization' (Brand 2007, 620).

In everyday situations, urban dwellers navigate the cities they inhabit disciplined via 'institutions, discourses, and practices' (Dawney 2013, 631). These 'methods of punishment, supervision and restraint' (Foucault 1991a, 29) shape their bodily responses to situations and objects. In both Auckland and Mexico City, local governments and civil society organizations have installed a series of infrastructures, including signposts, and practices regarding the management of water in the city, that promote individuals to modify their daily life. In doing so, they are effecting alterations in urban dwellers' subjectivities regarding the urban in order to improve hydrosocial relations (Cousins 2017). Water is 'simultaneously political and biopolitical … essential to the health of the population as well as that of the individual' (Bakker 2013, 282). By going beyond regulations and reaching into urban dwellers' quotidian relations with water, local governments and civil society organizations in Auckland and Mexico City effectively seek to shape a specific type of environmentality related to water, what Rattu and Véron have called hydromentality (Rattu and Véron 2015).

While the cases we analyse below can be read as further evidence of the need to better understand the way in which urban built environments function as ecosystems in order to promote improvements for life forms in them (Alberti 2008; Ahern 2016), our interest is in the way such framings of human-environment relations in the city (Gandy 2006) operate as governmentality. We focus on the efforts to establish particular governmentalities (Elden 2007) in the context of constructing/understanding/framing cities as ecosystems, and not on an evaluation of the resulting practices.

Auckland's blue backyard

Auckland, located on the North Island of Aotearoa New Zealand (ANZ), once was fittingly dubbed the 'Water City of the South Pacific' (Toy 1977). The port city has over 3,700 km of coastline and a large part of its administrative area is oceanic. Built on a quite narrow isthmus, the urban centre of Auckland is closely embraced by – or intertwined with – three large harbours, the Kaipara Harbour in the North-West, the Manukau Harbour in the South-West, and the Waitematā Harbour and Hauraki Gulf/Tīkapa Moana/Te Moana-nui-a-Toi in the East. The 1.6 million inhabitants of Auckland have a long and rich relation to the sea (Winder 2006). While Auckland's city government stressed the value of the marine environments to Auckland's people and identity in its last strategic plan (Auckland Council 2018), awareness of ongoing pollution and degradation of the marine areas coupled with efforts to improve their environmental state are of long-standing. During the late 1980s and early 1990s calls were raised for the establishment of a marine park in the Hauraki Gulf/Tīkapa Moana, which was passed into law with the Hauraki Gulf Marine Park Act in 2000. The park embraces public conservation land, island and coastal reserves, the foreshore, seabed and sea, and is mapped out as one large area (including parts of Auckland) with a seaward boundary and shaded catchment areas in the act of 2000. While the legislation does not put into place any explicit restrictions (Peart 2017), and a boundary between land and sea remains in place, it encourages a geographical imagination of a single management entity defined by its hydrological connectivities, in which people and communities are framed as 'constituent parts' (NZ government 2000, 6) of the environment and ecosystems. Curiously, this new imaginary splits the Auckland region, since that part of the city draining towards the Tasman Sea in the West is not part of the park. With the park, the Hauraki Gulf Forum was founded, an integrated body bringing together the different authorities in the area and tangata whenua (people of the land, local Māori communities). In regular reports, the Forum identifies and raises awareness for the state of the environment in the Hauraki Gulf/Tīkapa Moana. Some of the main issues identified are land-based pollutions coming from 'stormwater, wastewater, litter, sediment and heavy metals all eventually end[ing] up in the harbours, and impact[ing] on their ecology' (Auckland Council 2018, 169). In large part, they derive from urban development, and (historic) land use and infrastructure decisions (such as combined wastewater and stormwater networks which overflow into the harbours), and are likely to worsen as Auckland's population is expected to reach 2.1 million by 2033 (Auckland Council 2018, Hauraki Gulf Forum 2011).

The problem of land-based pollution on water quality and marine ecosystems is not a new realization in ANZ, but was already recognized in ANZ's Resource Management Act, enacted in 1991. The Resource Management Act puts integrated natural resource management in the hands of regional councils, whose 'territorial jurisdiction […] was purposely defined on the basis of groups of large water catchments (including groundwater aquifers) to facilitate […] integrated management of water allocation, water quality and related land management' (Memon, Painter, and Weber 2010, 36). But as Memon, Painter, and Weber (2010) notice, integration of water planning has been rather poor so far. The establishment of the Hauraki Gulf Marine Park and Forum were attempts to

better integrate (water) management, and can be said to 'remap' (Affolderbach, Clapp, and Hayter 2012) the area from the sea up to its catchments.

In 2013, the Hauraki Gulf Forum's 2011 *State of Our Gulf* report led to the initiation of a semi-official marine spatial planning exercise, called *Sea Change Tai Timu Tai Pari*. The plan focused on terrestrial freshwater as well as marine ecosystems and their components, and aimed at countering the effects coming from city, land and people. In its imagination it takes up earlier Pākehā (New Zealander of European descendant) efforts to contain urban sprawl, establish a mosaic of marine reserves, preserve landscape features, and establish watershed-based planning units. While the term 'ecosystem(s)' used in the resulting plan refers to natural ecosystems, a further imaginary of the park as interrelated community of people, tangata whenua, natural ecosystems, their living and non-living components, as well as other polluting entities is drawn (Hauraki Gulf Forum et al. 2016). Thus, the plan promotes a more integrated and holistic conception of human-environment relationships in the park and does so by employing an ecosystem-based management framework.

An integrated and holistic approach is also represented by taking up *Ki Uta Ki Tai* as one of the 'four overarching concepts that underpin the plan' along with other Māori concepts (Hauraki Gulf Forum et al. 2017, 5). Harmsworth and Awatere (2013) describe Ki Uta Ki Tai as a key Māori environmental concept. Translated in the plan as *Ridge to Reef or Mountains to Sea*, the concept implies a 'whole-of-landscape approach [or] the Māori concept of integrated catchment management' (Harmsworth and Awatere 2013). According to a whakapapa relationship (having a genealogical relationship of humans and ecosystems, and all flora and fauna, see Harmsworth and Awatere 2013), the plan also refers to the position of people as not just being part of but being related with the natural world, which obliges them to maintain 'the lands and waters to which they whakapapa' (Hauraki Gulf Forum 2019a, 30). Inherent to the concept of whakapapa, is kaitiakitanga – 'the ethic and practice of protection and conservation of the natural environment and the resources within it on which people depend' (Hauraki Gulf Forum 2019a, 30). Interestingly, in this sense the two lines of thinking, an ecosystem-based management view and whakapapa framing and imaginary, seem complimentary and bring together regional planning, watershed-based infrastructure planning, ecoregion concepts, and bioregionalism, with Māori indigenous concepts. The framing also connects in the plan with the emphasis on shared but individual responsibilities and an ethics of environmental care, especially as the plan emphasises kaitiakitanga and guardianship as another overarching principle. This goes hand in hand with techniques of government in the plan, such as the (visual) display of groups doing rubbish clean-ups or promoting rock fishing safety and promoted as both 'kaitiaki and guardianship in action' (Hauraki Gulf Forum 2019a, 57), and desired forms of human-environment interrelations.

We contend that in Auckland imagining the urban as 'ecosystem' appears in different forms. It connects to the communication and stimulation of a certain, improved behaviour – such as environmental care or risk awareness – among its urban dwellers, through reflection and a sense of individual responsibility and ownership. Such connections are already known from studies of environmental mobilizations in Auckland (Fischer 2020) but this is also emphasised in the Water Strategy's aim of 'empowering Aucklanders to take care of our waters, and ensuring we all take

responsibility for our impact' (Auckland Council 2019a). As Penny Hulse, Chair of Auckland's Environment and Community Committee says:

> "It's no good looking out at the glistening waters of the Waitematā. You need to ask, 'What's going on? What am I doing to that water? What's my position in this as an individual? What am I doing to keep that for future generations […] Everyone needs to contribute to a collective response" (Donnell 2019, 23).

As a second aspect of this neoliberal tendency in urban planning, the imaginary of the city as integrated and interconnected (eco)system (with humans as ecosystem components) links to creating consensus and achieving collaboration, and the legitimization of a new water strategy involving both large infrastructure investments and transformations of natural ecosystems, whether in the sea or catchments.

References to the interconnectedness of human activity and marine (and freshwater) ecosystems can today also be detected in the urban landscape of Auckland, often connected to land-based pollution. Drains are provided with the indication 'dump no waste – flows to sea' (see image 4), evoking even in areas further from the sea an ecosystem imaginary connected to a call for responsible conduct. By the sea, signs warn of 'potential health risks' when swimming, and with a reference to heightened risk after heavy rain events. Under Auckland Council's 'Safeswim' programme, the signs were supplemented by digital displays at many city beaches showing water quality forecasts, and automatically updating every 15 minutes in response to observed rainfall (see image 5) (Auckland Council 2019b). An App was launched, informing on marine water quality and, while making health risks from pollution a matter of personal responsibility, it brought the relation between marine water quality, rain events, urban infrastructure, overflows and run-offs further into public attention. In March 2019, a banner appeared on the app asking its user: 'Is clean water important to you? Give us your thoughts on Auckland's water future' (see image 6). Thus, Auckland Council promoted its public consultation process on 'Our Water Future', the development of a new water strategy for Auckland. The accompanying posters, simultaneously displayed around the city, showed different parts of an 'urban water cycle', from rainfall, to mountain rivers, household water use, outdoor pools, sewage treatment plants, beaches and the open sea (see image 7 & 8) (Donnell 2019).

In the described cases in Auckland, the imagination of an interconnected urban human-environmental system seems to be mainly mediated by experts and park planners. Collaborative planning, public displays in the forms of posters, signs and electronic indicators, as well as mobile applications work to generate an imaginary of Auckland as ecosystem in a process of environmentality. This was certainly the case in Auckland's Water Strategy, which featured council-controlled organisations, city planners and agencies putting up signs, information boards and posters in the urban landscape. While they do not use the wording of *the urban* as 'ecosystem', they create this imagination by framing the Gulf, waterways, people, and other living and non-living entities as an interconnected socio-natural system or from an indigenous perspective. It becomes a means to meet environmental problems particularly marine/water pollution with the help of urban dwellers, while putting principles of 'good' environmental management such as a holistic, ecosystem-based approach and integration of Māori world view into practice.

The Mexico City basin

Large swaths of Mexico City are built on what used to be a lake (Vitz 2018). The metropolis often suffers from both floods and water scarcity (Romero Lankao 2010). The rapid growth of its population has led to an overuse of the aquifers that lie beneath it, which in turn causes a sinking of certain areas of the city (Mendez et al. 2013) and leaves it more vulnerable to earthquakes (Flores-Estrella, Yussim, and Lomnitz 2007). While government projects to address these issues have tended to focus on preventing floods due to excessive rainfall during the rainy season and managing water shortages during the warm months, organised civil society has pushed for more strategic thinking. Two key issues stand out: rainwater harvesting and urban river restoration. 'We need to imagine a city we want for our future, even if it sounds undoable at the moment,' a renowned mobility activist mentioned during a meeting of activists from around the world headed by a Dutch organization in Mexico City in October 2018. She said this as she presented her idea of restored rivers in the Mexican capital as part of a strategic exercise designed to (re)envision their city for 2050.

As the city grew exponentially in the twentieth century, many of its rivers were channelled through sewage pipelines, and the remaining water systems were drained. One such river was the Piedad, which in the 1940s became part of the sewage piping below a twelve lane avenue, called Viaducto Miguel Alemán, one of Mexico City's urban freeways, which was opened in 1950. 'Since then, the stream has been running in tubes inside a massive concrete median, collecting rainwater (80%) and sewage (20%) from the nearby areas' (Sliwa 2014, 8). Rainwater harvesting and urban river restoration would, according to civil society groups, help reduce both floods and water shortages. In both cases, however, a key ingredient is changing mindsets among urban dwellers so that they incorporate the care of water in their daily practices. We argue that the efforts by civil society organisations – with the support from government authorities – promote the view of the city as ecosystem.

In 2009, a group of activists set up a first system of rainwater harvesting in the Cultura Maya barrio, a poor neighbourhood in the south of Mexico City. Their work was part of a local non-governmental organization, the International Institute for Renewable Resources (IRRI 2020) that sought to develop sustainable solutions to environmental challenges. Those involved developed a unique system, named Tlaloque, which separates the dirtiest water from the first rains so that it does not reach the tank. The activists founded a social enterprise, called Isla Urbana (urban island), to commercialise and promote the system (Isla_Urbana 2020). Like other social enterprises dedicated to environmental issues (Vickers 2010), Isla Urbana works with a model that combines three fronts: a business, a charity, and a consultancy. With the first, it sells its system to wealthier clients – either businesses or households – who seek to reduce their reliance or expenditure on the public water supply. The second consists on designing and implementing projects to provide their systems to poor communities or neighbourhoods with the help of donations. The third serves as an advocacy front to provide advice and knowledge to local governments and to liaise with other NGOs or social enterprises. Since its foundation, Isla Urbana has installed numerous systems in remote areas in the country, especially in indigenous areas in the north and west, but also crucially in poor neighbourhoods in Mexico City. In every house with around 60

square meters of roof, the system can collect up to 40 thousand litres of rainwater, or enough water for a family for between five and eight months of the year. In 2019, the Mexico City government installed ten thousand rainwater harvesting systems from Isla Urbana in areas particularly affected by water shortages (Sedema 2019).

Rainwater harvesting is a good example of neoliberalized urbanisation, as it is up to private entrepreneurial efforts to address problems that would be best addressed by government policymaking. At first sight, by promoting individualised measures for a shared problem (water shortages), the widened imaginary of the city as ecosystem does not come to the fore, but they do feature complementary advocacy activities. For example, participating in discussions about environmental policies and water management in Mexico City, Isla Urbana seeks to make people link their own situations with that of the urban environment. In 2014, the Mexico City government announced tax breaks for those who installed rainwater harvesting systems, and that all new buildings in the city were now obliged to install rainwater harvesting systems (Sosa 2014). In 2018, the director of Isla Urbana took part in a public meeting with specialists and other NGOs to discuss the potential of green areas in the city to capture rainwater to replenish depleting groundwater (Juárez 2018). This fits in with what Gordon thought were Foucault's concerns about 'the development of government in Western societies to tend toward a form of political sovereignty which would be a government of all of each and whose concerns would be at once to "totalise" and to "individualise" ' (Gordon 1991, 3). But we should not lose sight of the environmentality at work here. Not only were small-scale water harvesting projects realized in the city but also these initiatives combined with the urban river restoration project called Ecoducto to announce a broader view of the ecology of water in the city.

In 2012, a few activists started jumping over a pedestrian bridge that ran above the avenue, in order to reach a small patch of grass that lay in the middle. This patch is at street level, while the six central lanes of the avenue (three per direction) are a few metres below. Another six lanes (three per direction) are on the sides at street level. The activists held picnics on Sundays in order to demand the restoration of the river. The organizers, from the same milieu as Isla Urbana, advocated a vision that was put forth by a group of local architects, urbanists and landscape architects to recover the lakes and rivers in the city (González de León and Cruz 1998). The idea behind this move was to deal with recurrent socio-environmental challenges like floods, droughts, pollution, and the sinking of the city (Cherem et al. 2011). In 2017, a coalition of 30 organizations organized a massive picnic in which they set out four foci of concern as crucial for Mexico City: water, mobility, public space, and ethical consumerism. In that event, they called for a restoration of 45 rivers in the city. In the views of activists, if the city would regain these spaces, an overall improvement of the quality of life would follow, with cleaner air, more green spaces, less noise, and other benefits. Their vision was of Mexico City as an ecosystem in need of repair and care.

In response to that activism, the government of Mexico City decided in 2018 to implement what is considered a first step towards the restoration of the river. Along 1.6 km, the area that had been used for the picnics has been transformed into a linear park, known as Ecoducto (Ecoducto 2019). On its sides are 4,800 square metres of vegetation that are watered by the water from the pipeline that mixes sewage and rainwater. At one edge of the park is an area equipped with various filters including

natural filters made of plants and rocks, designed to ensure that the water that is used for irrigation arrives as clean as possible. Throughout the park, plantings of trees and scented plants (like lavender) reduce both the noise of the traffic (by 10 decibels) and the pollution. Walking through the park, one could forget that one is in the middle of a large 12 lane avenue. A few rest areas with benches and shade offer respite from the buzzing city around. Crucially, it is also an educational space with placards along the route that provides illustrations, graphs, and information about the various plants and life forms that inhabit the park. While some focus on technical aspects of natural filters or plant characteristics, others explain the importance of healthy ecosystems for wider areas. The last one is entitled 'We are water' and shows an illustration of the basin in the valley where Mexico City lies. It explains that the region's name in náhuatl (the language of the Aztecs or Mexicas), Anáhuac, means 'entre las aguas', or 'close to the water.' It also has a list of environmental benefits from urban lakes and rivers, which include: reduction of heat, carbon capture, oxygen production, improved water quality control, help for biodiversity, climate event regulation (floods and droughts), and absorption of air pollutants. In contrast to Auckland, such reference is the only trace of the indigenous character of the region. To date the city's high proportion of indigenous population with its strongly nature-centred belief systems has not translated into any sort of influence in policymaking or wider political imagination.

What pervades along the Ecoducto park is a modern narrative, expressly natural-scientific and evidence-based. With a series of numbers and graphs, numerous placards stress the situation regarding water usage in Mexico City. One of the central signs shows an aerial view of the Viaducto divided in three. The first includes cars and the picnic which was the start of this movement. The second shows a small stream with plants around and less space for cars on the sides, as well as a cycleway on the edge of the avenue. The third and last shows the whole area dedicated to the river and vegetation, with only the cycleway remaining as a space for mobility. The Ecoducto is therefore itself an exercise of imagination of what the city could be if only its river ecosystems were restored.

Both Isla Urbana and Ecoducto are examples of a style of entrepreneurial urbanism through which activists seek to bring about their view of environmental care. While Isla Urbana works with an individualised model that may respond to self-interest (by saving on water bills), the cumulative effect helps improve water management in the city. The Ecoducto park, on the other hand, offers a long-term perspective to understand the city as a broad and complex ecosystem. The activists' agenda is only partially evident from the signs, as it is more clearly stated in the various publications some of the participants have posted in various webpages and online forums (Ecoducto 2019). Their constant references to birds and other life forms, to the surrounding mountains and weather patterns, and to urban dwellers' health and wellbeing reveals the extent to which their agenda is shaped by a view of ecosystem interactions. In seeking to draw urban dwellers to experience anew an area that, for the last few decades, has been taken over by automotive traffic, activists seek to show the potential for ecosystem restoration. The first author walked along the 1.6 km of linear park and was surprised that he could inhale and not notice the pollution that is so evident when crossing a pedestrian bridge. The vegetation in the middle of an avenue made a big difference to how one can experience urban space. The desire to restore ecosystems is thus geared in this case to

helping urban dwellers to sense how the city could be: by smelling, hearing, and seeing the difference.

Conclusion

The cases we have presented offer contrasting campaigns through which city governments and civil society organizations seek to make environmental subjects out of their urban dwellers. They do this through the promotion of specific forms of governmentality regarding water management – or hydromentalities. In Auckland, water is ever present in the horizon and can thus easily be linked to city inhabitants' everyday practices. In Mexico City, on the other hand, water is either only present by its absence in the shortages that take place every dry season, or in its overabundance during the rainy season. In both cases, however, the campaigns we have selected promote that urban dwellers not only adopt appropriate (urban) environmental ethics including an ethics of care but that they engage differently with their city in order to improve its water management. By insisting on changes in private practices, governments and civil society organizations seek to create environmental subjects. A key element of achieving such aims is promoting an egocentric motivation because in certain situations, as Agrawal described, 'self-interest comes to be cognized and realized in terms of the environment' (Agrawal et al. 2005, 162).

The atomization of practices, however, is only part of the picture. Another of the tools city governments and civil society organizations use to promote the creation of environmental subjects, we argue, is to re-imagine the city as an ecosystem. As we have shown, in the case of Auckland, it is not simply a matter of prohibiting rubbish being thrown into the street, but an invitation to think that any waste dumped there would flow out to the sea. In the case of Mexico City, it is not merely a matter of ensuring one's own water supply, but of helping the city improve its water management for the benefit of all urban dwellers and all life in the city. In arguing that small actions have an effect on the whole, the patterns of ecological interactions are laid bare. In a similar vein to Benedict Anderson, who pointed to the role of 'imagined communities' in making the modern nation state (Anderson 2006), in our cases, we point to the 'imagined communities' being produced in the urban, but note that they are not simply political entities that require identity-based rituals and discourses related to nationalism, but rather involve narratives, discourses and rituals that entangle a broader set of entities and identities in complex interrelations between species, materialities, and objects.

Urban environmental governance reveals divides 'of the collective good – within and across generations, and at different scales' (Mawdsley 2009, 249). Governments are often guided by political timescales, which has direct effects in their planning and policymaking. For this reason, the participation of civil society organizations provides at least a claim to a long-term agenda that seeks to generate water commons (Bruns 2015). The purpose appears to be to promote an imaginary of the city as ecosystem with a deeper understanding of the relations among life forms, materials, and topographies in cities and beyond. Thus, governments and civil society organizations educate the population as living *with* nature, *as being part of it*, or, in other words, to consider the city as an ecosystem of which they are one of the constitutive elements.

Our focus has remained on the effort of governments and civil society organizations to promote a type of governmentality of water management. We did not set out to examine the actual practices among the population to evaluate if such efforts indeed succeeded. In our view, a focus on attempts to achieve a re-imagining of cities as ecosystems sheds light on a specific development in a context of neoliberal urbanism. Although it is a change in line with recent adjustments, it nevertheless signifies a break with centuries of distorted perceptions where the urban and nature were considered as separate entities. It is worth noting that a clear contrast now exists. The previous conception of ecosystems *in* cities sought to contain certain areas for vegetation or other life forms, like in parks or private gardens. The current perception of cities *as* ecosystems has helped understand the complex interconnections that exist among the various life forms, objects, and the built environment. It remains to be seen if the promotion of environmental subjects does indeed produce a new urban environmental imagination.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Deutsche Forschungsgemeinschaft [DU 209/19-2,WI 3550/4-1].

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